4th International Conference

The Economies of Balkan and Eastern Europe Countries in the changed World

11 - 13 May 2012
Sofia , Bulgaria

Proceedings of the conference

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EBEEC 2012

Sofia, Bulgaria

May 11-13, 2012

Department of Accountancy

Kavala Institute of Technology

Kavala, Greece

ISBN: 978-960-363-042-5 - ISSN: 1792-4383

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PRECONDITIONS FOR ADOPTING THE BALANCED BUDGET POLICY IN E.U.

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ABSTRACT

The balanced budget pattern and the dismissal of public debt is not at all a new concept about financial stability of a national economy. In the nineteenth century, the classical economists have strongly rejected government loans for regular expenditures. The classics were not so much opposed to the potential use of loans for the capitalization of the economy, but rather opposed to the temptation to give an unproductive use of resources borrowed. In the twentieth century the balanced budgets had been demystified, understanding the need for a safety belt if an economic shock were to take place. Even the economists defending balanced budgets have accepted the strong need to allow the exception for loans, but achieving the circumstances of these exceptions was a very hard mission.

The main rule adopted in the European Council, held in Brussels, on the 9th of November, regards the objective of the signatory States to ensure balanced budgets or in surplus. To achieve this goal the annual structural fiscal deficit must be below 0.5% of the nominal GDP and the accrual deficit below 3% of the nominal GDP. The option for permanent balanced budget is also an option for "tax-smoothing rule" (Barro, 1979) considering the tax revenues will be planned to be a constant share of GDP, the permanent tax rate or share (Buiter, 2003).

For these reasons, this paper aims to show that all countries adopting the balanced budget policy should achieve some fiscal preconditions. First of all, an aggressive fiscal adjustment could compromise the future potential economic growth and the catching up objectives for the New Member States. This may happen as a result of a very rigid structure of public expenditures and the option for a fast fiscal adjustment would reduce the public investment potential or the government capacity to create fiscal stimulus for growth. Secondly, the fiscal consolidation requires a balanced budget over the economic cycle and not for one fiscal year. The fear that the introduction of a deficit ceiling can conduct automatically to a reduction in net investments (Balassone, Franco, 1999) is ousted. Accepting the, deficits of the previous harsh years, which will be compensated by the growing economic surplus in the years to come and allowing loans which are only used to achieve public investments, should disperse the worries that the fiscal consolidation objective will adversely affect the investments and the economic growth perspectives. Furthermore, for removing the negative effects of potential external or internal shocks, we could imagine, together with the balanced budget implementation, a safety belt which takes the form of a budgetary buffer set between 2% and 5% of the GDP of each member state. Last but not least, the balanced budget, and the strong fiscal policy must be first of all an attitude of Governments, because the statement of some fiscal rules, in constitutional acts or the penalty payment does not guarantee the achievement of the financial stability objective.

INTRODUCTION

The main fiscal rules of the European Monetary Union which have established a threshold for budgetary deficit at up to 3% of GDP and for public debt at up to 60% of GDP were built in order to guarantee a relative solvency of Member States and to escape their governments from temptation to promote pro-cyclical policies. Furthermore, the fiscal nominal criteria laid down in Maastricht were aimed to remove any potential tensions between members, due especially to the spread of negative effects of economic imbalances.

Although the fiscal limitations were intended to strengthen the financial stability of the monetary area, these criteria have been strongly criticized from the very beginning, as too rigid and limitative for growth. Many countries have already questioned their optimal character, even the possibility of relaxing them. Among the states who wanted to relax the fiscal criteria were always Italy and Greece.

Another important issue is related to the lack of any type of sanctions against the countries that failed to combat effectively the excessive budget deficit, in the term of grace granted by excessive deficit procedure.

Under these circumstances, members like Greece, Italy, Belgium or Portugal have overlooked the fiscal recommendations laid down in the "Stability and Growth Pact" right from the creation of the European Economic Union. This attitude of disregard for the fiscal rules was extended among the other members, some of whom have had fiscal rules harsher than those required by the Stability and Growth Pact. Regarding this latest issue, the best example is United Kingdom which has abandoned "the Golden rule" a fiscal policy principle set out in 1997, which required keeping the public debt at a prudent level, below at 40% of GDP.

Halfway into the year 2007, the economic slowdown and the consequent reduction of revenues caused a stronger deterioration of public debt, and the frequently expressed growing fear of the sovereign risk chance of emerging. The concerns about the manifestation of such risk occurred not only among developed countries whose public debts exceeded their GDP, but also among the new Member States which still have relatively low debt levels, but faced with a general mistrust of credit markets.

The negative externalities arising from the debt restructuring of Greece, in October 2011, the spillover effect on governmental bond interests and the new wave of skepticism around the feasibility of the European currency in the absence of the common fiscal policy requires a fast action which must treat the causes of debt sustainability and not only the effects.

Several years ago the overestimation of economic growth due to "political distortions" on governmental policies were considered an exclusive feature of emerging economies (Gavin and Perotti, 1997; Talvi and Vegh, 2005, Iron and Bivens, 2010) and the main cause of the large annual deficits, leading to a higher public debt. Today, we can find that a similar fiscal behavior has been learned even by the developed economies.

It must be noted that in the latest European Council, held in Brussels, on the 9th of November, just the United Kingdom was radically opposed to the change of fiscal rules in the E.U. Treaty, in order to increase the fiscal integration of Member States. We have to admit that the U.K. has permanently expressed solid doubts on the advanced integration in monetary and fiscal field of European Union.

Despite the use of the U.K.'s "veto", European members have understood that the European Monetary Union and the countries willing to use the European currency in the next years need a high level of integration of their fiscal and budgetary policies (Balassa, 1962).

Nevertheless, the main commitments stipulated in the Declaration of the Heads of States and Governments is far to be considered a progress towards the establishment of a common fiscal policy.

The main rule adopted in this Council regards the objective of the signatory States to ensure balanced budgets or in surplus; this condition is considered to be met if annual structural fiscal deficit is below 0.5% of nominal GDP and accrual deficit at below 3% of nominal GDP. The option for permanent balanced budget is also an option for "tax-smoothing rule" (Barro, 1979) considering the tax revenues will be planned to be a constant share of GDP, the permanent tax rate or share (Buiter, 2003).

The effectiveness of Council's decision depends on the introduction of this budgetary mechanism into the national constitutions or into the laws with constitutional rank. The rules pursuing fiscal stability should not necessarily be implemented into the constitution of the State in order to achieve them (Catrina, 2011).

The balanced budget and the strong fiscal policy must be first of all an attitude of Governments, because the statement of some fiscal rules into constitutional acts does not guarantee the achievement of the financial stability objective. The best example is the U.S.'s fiscal performance which in the nineteen century and the first half of twentieth embodied a norm of balanced budget, without being stipulated in constitution but it was a part of "an accepted set of attitudes about how government should, and must, carry on its fiscal affairs" (Buchanan, 1997).

PRECONDITION FOR ADOPTING THE BALANCED BUDGET RULE

2.1. Designing the optimum tax policy

At this moment, the European fiscal policy consists in twenty-seven different taxation systems that produce different general government revenue. Furthermore the different systems of taxation operate on different level of GDP per capita. In these circumstances, the EU members with low income face significant budgetary pressures due by the gaps between standards of living of their citizens.

Romania, like most new member states falsely understood that achieving real convergence is an easy task and that is is a short term process. The previous accessions of Greece, Ireland, Spain or Portugal, have shown undoubtedly that catching up takes a very long time and even after accession the hardship is not over. Despite the fact that these four countries have had a higher development degree than the New Members, it is important to note that for Greece, the revenues fell soon after accession, for Ireland the revenues growth came much later than would be expected, and Portugal has needed more than 10 years to gain 17% GDP per capita growth. (IMF, 2006)

It also must be said that the different systems of taxation have stimulated the fiscal dumping into EU, especially in Eastern Europe, like a solution to attract the foreign direct investments. For this reason the unification of the taxation system in the European Union, as much as possible, is necessary. If this goal seems to be unreachable right now, unification of taxation systems can be started in several intermediate stages.
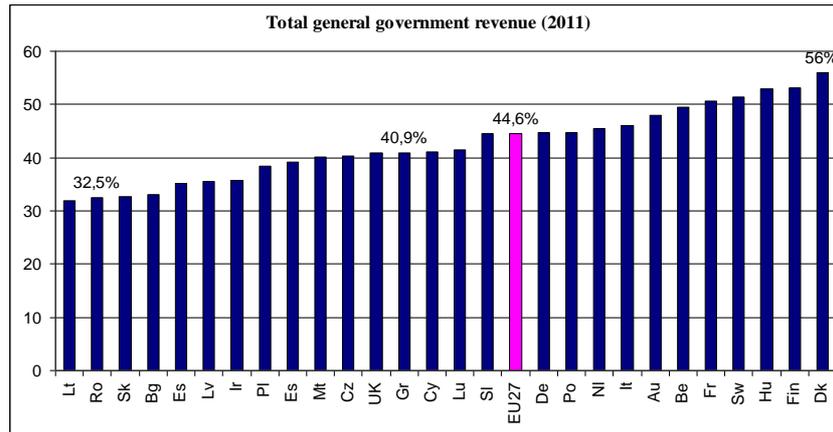
Data source: Eurostat, April 2012

2.2. More flexible government spending

Unfortunately, Romania was not an exception to the rule of emerging markets, tempted to promote procyclical policies. Among the structural causes that led to large budget deficits, especially during the economic boom. We can include a high share of non-fiscal revenues, mainly from privatization (2001-2008), the huge inflow of foreign direct investments which sharply decreased in Q4 of 2008, very large quasi-fiscal deficits, the lowest share of budgetary revenues in GDP in the EU, the use under-potential of valuable resources (agriculture, energy) and so on.

It is easy to see that between years 2004 and 2008, the period of the most powerful economic boom of the last twenty years in Romania, the effective deficits (regardless of method of calculating, cash or accrual) have hidden major imbalances in the fiscal position of our country.
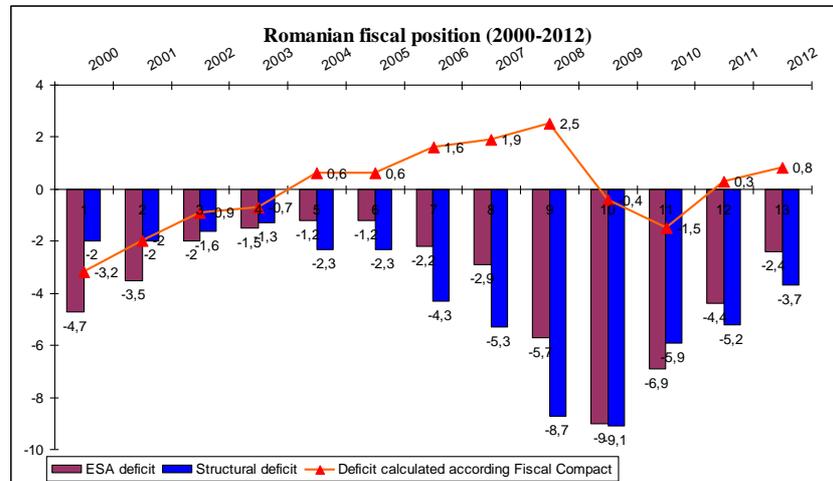
Data source: Eurostat, own calculations (2000-2012^f)

High structural deficits in Romania and in the most of the New Member States of EU were especially due to the unfinished reforms in various fields of economic and social life. Consequently the most part of the government spending still have a strong rigidity caused by inflexible laws that guarantee a level of revenues, spending independently from the fiscal position or as a result of the national courts' decisions. Inflexible public wages system, inflexible public pensions system, the high interest rate for public debt and the huge compensations for restoration of property right or for government policies errors have powerfully worsened the structural deficit.

Another major cause of the deterioration of structural deficit in Romania and in the most countries that joined the EU in 2004 was the massive inflows of the foreign direct investments that have led to a huge excess of demand and which have abruptly dropped once the economic crisis began. Unfortunately, the New Member States did not have enough experience nor enough co-financing resources to compensate the loss of capital inflow with financial resources granted by the EU through the structural founds.

Romanian public debt and the fiscal space
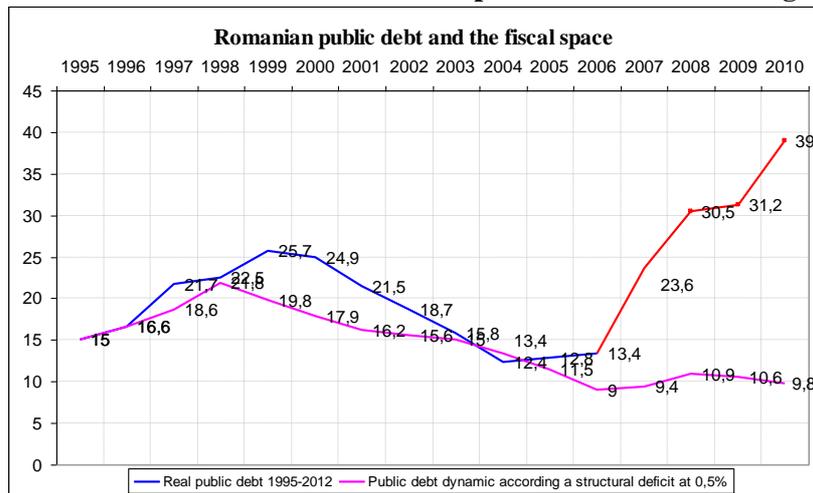
Data source: Eurostat, own calculations (1995-2010)

Moreover, the rapidly rising of public debt as a result of very deep deficits have practically eliminated the fiscal space available between 2009-2011, essential for creating the stimulus for growth. It is also clear that if Romania would have followed the principles of the new Fiscal Pact, in the period 2003-2008 would have recorded significant budgetary surpluses, which could allow a reasonable fiscal space in the worst moments of the crisis. Thus, it is obvious that the creation of automatic mechanisms for deficit correction crucially depends on the flexibility of the whole structure of public spending.

2.3. Public investments ratio to GDP

Unfortunately, the Fiscal Compact follows the fiscal consolidation only through the limitation of structural budget deficit and it does not pay any attention to optimal structure of public expenditure or to their appropriateness and efficiency. In this context, the proposal of Olivier Blanchard can be analyzed, which sustains the establishment of supervisory bodies for monitoring the efficiency and opportunities of public investments. It must be said that in Romania the excessive deficits were not due to construction of any fiscal stimulus package, nor to the growth of public investments.

2.4. What rhythm of adjustments should be taking?

The transition to balanced budgets can produce negative effects on economic growth depending on what type of government spending will be adjusted and what rhythm will be set. Especially for these reasons, Romania should negotiate with the Council and Commission a structural budget deficit to a maximum level of Fiscal Compact of 1% of the GDP, even after the critical year 2030, when a strong deterioration is expected of demographic perspectives.
One of the major advantages of Romania is the low stock of public debt, due primarily to a very low initial level. However, this low stock of public debt may be a dangerous illusion of public finance sustainability. This was clearly reflected by the negative reactions of credit markets, which has responded to fast growth of debt by modest demand on Romanian bonds as well as by increasing interest rates. Consequently, the creditors have shown us that the Romanian public debt sustainability is between 35% of GDP (Catrina, 2011) and 40% of GDP (Cottarelli, 2010), level assessed using long-term economic outlook for the Romanian economy and not the 60% of the GDP sets in the Maastricht Treaty.
The structural budget deficit is still high, and the need for faster economic growth in order to accomplish the catching-up objective, requires long-time budgetary corrections.

Public debt evolution in Romania following Fiscal Compact
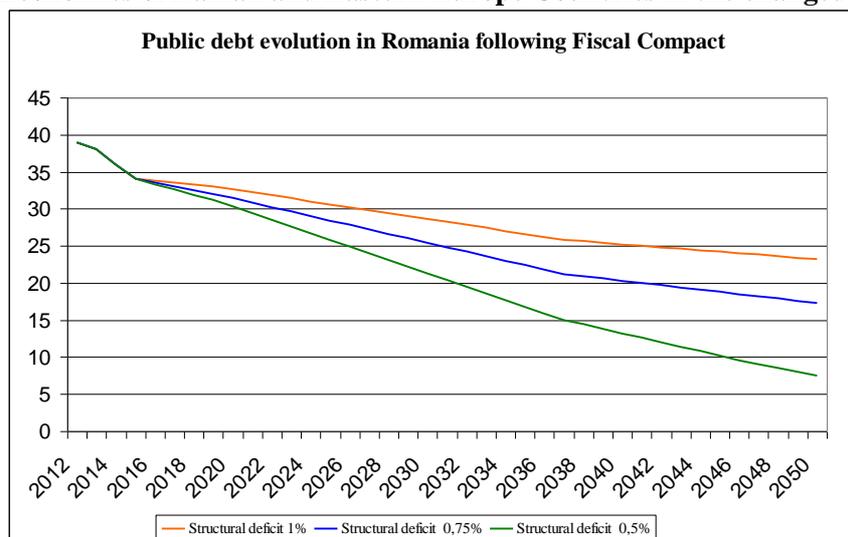
Data source: IMF, own calculations

Moreover, Romania's target should not be to achieve public debt tending towards zero, but in the first instance, its stabilization and then the gradual reduction to a moderate level which would not have any adverse effects on growth. In this aspect, Fiscal Compact should be improved with specific provisions containing differentiated terms of adjustments, depending on each MemberState's fiscal position, because the relative corrections need a long time and the fast adjustments effects may be important.

2.5. Balanced budget or "golden rule"?

A different dilemma relates to the long-term implications of public debt on economic growth. If the governments spends, for projects that produce a yield in the future, the gross debt burden could be offset by the expenses, so that the gross yield net result would be quite positive (Modigliani, 1961).

Through a rigorous analysis, Fabrizio Balassone has reviewed the most relevant theories expressed about the distinction between ordinary and extraordinary expenditures or a budgetary distinction between ordinary and capital expenditures (Balassone, Franco, 2001, Balassone, Franco, Zotteri, 2004). This distinction leads the Italian economists to the double budget theory in order to explain which expenditures can be financed by recurrent revenues and which may be financed by deficit. In respect of this view, the public budget may be divided into a current and capital account. "While the former must be balanced or in surplus, the later can run a deficit" (Balassone, Franco, 2001).

This latest budget conception has already been put into practice by the United Kingdom in the so called "Golden rule". This budgetary rule stipulated in annex B, "public finances", of the British Pre-budget Report 1999, states that, over the economic cycle, the Government will borrow only to invest. The golden rule will be met if the average annual surplus on the current budget expressed as a ratio to GDP, measured from the year in which the economic cycle begins up to and including the year in which the economic cycle ends is in balance or surplus.

The second Government's fiscal rule regards the sustainable investment rule which requires that the public sector net debt as a proportion of GDP must be held over the economic cycle at a stable and prudent level to below 40 percent of GDP over the economic cycle.

Also, the automatic stabilizers have a significant impact on the public finances. The British Treasury estimates suggest that, after two years, a 1% increase in output relative to trend will lead to: an increase in the ratio of the surplus on the current budget to GDP of just under 3/4 percentage point; and a decrease in the ratio of public sector net borrowings to GDP of just under 3/4 percentage point (HM Treasury, 1999).

It must be said that the British model of fiscal consolidation requires a balanced budget over the economic cycle and not for one fiscal year. So, the fear of Balassone and Franco that the introduction of a deficit ceiling can conduct automatically to a reduction in net investments (Balassone, Franco, 1999) is ousted. Accepting the, deficits of the previous harsh years, which will be compensated by the growing economic surplus in the years to come and allowing loans which are only used to achieve public investments, should disperse the worries that the objective of fiscal consolidation will adversely affect the investment and the economic growth perspectives.

The permission for deficits in the bad times may calm Krugman's fury on frequent adopted policy in the latest years, which meant the reduction of the government expenditures and investments, in order to try the construction of a balanced budget in times of hard recession (Krugman, 2008).

Even the latest British Pre-Budget Statements was widely seen as an abandonment of Gordon Brown's "Golden Rule", more European members have already seen this rule feasible and have made engagements to include in their constitutional law the rules very similar to the English fiscal model.

CONCLUSION

We can say that the next way to reach the new financial stability is related to the constraint of political actors to adopt projects only within the potential resources of the national economy.

Despite the negative effects of the economic crisis, which in Europe were reflected in the strong increase of government costs for financing excessive deficits and for refinancing the large public debts, neither the EU nor the EMU will disintegrate. The interdependencies that have developed between the European economies and the effects that could lead to disintegration are difficult to be estimated.

In the last sixty years, the European integration has been faced many times with difficulties on the road to integration. The transfer of sovereignty to a supranational authority was always one of those difficulties, to overcome by establishing the intermediate stages of transfer and integration of national policies.

The current European debt crisis forces us to return to the optimum currency area theory which recommends a mix of the monetary and fiscal policy in order to ensure internal and external equilibrium.

Sooner or later, the fiscal union will be reached in the European Union. It's also hard to say that the fiscal policy will be instantaneously shared and without intermediate stages of fiscal adjustments. The new budgetary amendments and the creation of the fiscal mechanism for automatic stabilization is not a short time process, as expected in Brussels. Conversely, the change of the constitutional laws will take at least two years, taking into account the different way of ratification in each MemberState. Furthermore, the fiscal adjustments and the creation of the automated fiscal mechanism should be progressive, without the risk of compromising economic grown and the irreversible escape from recession.The EU founders and the new members have to work together as a two-speed Europe, in terms of economic growth, faster for the new members in order to catch up to the EU15, but without exceeding the potential growth of New Member States.

The limitation of the deficits by constitutional laws will certainly affect the economic growth in the New Member States, through the impracticality to create fiscal stimuli or public investments.

So, the only chance for stronger growth in these economies, and for reducing the gaps, remains the increase of transfers for new members from 4% of GDP to up to 6% of GDP. Although at first glance this decision would disadvantage the developed economies, the increase of the real convergence would reflect in a stronger European Union, more convergent, more competitive and less vulnerable.

The "Golden Rule" is feasibly for all the members of EU. Furthermore, for removing the negative effects of potential external or internal shocks, we could imagine together with the "Golden Rule" implementation, a new safety belt which takes the form of a budgetary buffer set between 2% and 5% of GDP.

The public debt threshold for New Member States should be revised and set below 40% of GDP and should be complemented with additional early warning mechanism to lower thresholds, 30% and 35% of GDP, limits which should lead to fast adjustment of public expenditures.

Whatever model chosen, it must be said that financial stability should be a tool and not the main goal of the fiscal policy. Financial stability should lead to a sustainable growth for all the 27 economies of the EU and should increase the living standards for all European citizens.

ACKNOWLEDGEMENT

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THE SYSTEMIC CAUSES OF THE EUROZONE CRISIS

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Abstract

The global financial crisis stressed, in the most emphatic way, the need for organization of international financial relations on the basis of strict regulatory regimes. Furthermore, it confirmed the predominance of the supporters of regulation over the supporters of deregulation in the political and academic quarrel. Even incomplete, a regulatory framework is preferred to a regulatory vacuum. The explosive message of the global financial shock certainly goes beyond this incomplete regulatory framework. It contains a "mandate" for the reestablishment of transparent, democratically legitimated and effective regulatory regimes.

Five years after it began, the speed at which states are recovering from the international financial crisis varies. While the less affected, rapidly developing, countries of the world economy (also known as emerging economies) have returned to their familiar track of rapid development, most countries of the developed north continue to struggle to boost, or merely to maintain, the modest recovery achieved. Some countries have, however, faced severe structural and fiscal problems. Most of these, including Greece, lie within the circle of euro area countries.

Greece is facing the deepest crisis, Portugal and Ireland are trying, with better results, to deal with it, while the future for countries like Spain, Italy and Belgium is uncertain, with the latter two having high public debt. Overall, however, most countries in the euro area have relatively high public debt, and this has led to a gradual return to restrictive fiscal policies following the major fiscal expansion of 2009.

The more acute problems of the public and banking sector in certain peripheral countries of the euro area have highlighted the administrative and political weaknesses of common monetary governance. They have also demonstrated the structural weaknesses of the system, as well as its vulnerability in the face of a series of risks, such as the speculative behaviour of the markets and the weakness of European institutions in taking preventative and suppressant action and in implementing effective policies for a common approach and solidarity.

The questions that are raised and which need analysis in the context of the present article include:

- What are the apparent characteristics of the crisis in the euro area?
- Is it a crisis of the euro, the Eurosystem or of individual countries?
- What are the deeper causes of the crisis within the euro area?
- Is the Eurosystem itself responsible for the policies of the member states?

- Is the crisis inherent in the system or is it a result of circumstances?

Keywords: Euro Area, Global Financial Crisis, Debt Crisis

JEL Classification: F15, F34, F59

1. Introduction

The international financial crisis that originated in the USA and spread internationally could not leave the euro countries untouched. The close links between the Euro-Atlantic financial markets, the mutual dependence of markets for goods and services, the mutual high direct investments, the joint business chains, psychological interactions, etc., were all channels for transmission of the crisis to the euro countries. At first, the crisis hurt national financial systems. Harder hit were the banks in countries with relatively stronger links with the American banking system, such as Ireland and Germany in the euro area, and the UK among the countries outside the euro area.

European countries were primarily concerned with rescuing their national banking systems and avoid a generalized bank run through a package of measures, such as, for example, supporting the banks' capital base with public funds, and guaranteeing deposits (Quaglia et al, 2009). The crisis then hit the real economies due to a reduction in international trade and investments, a containment in active demand and a restrictive credit granting policy among banks. The contraction of international trade was greater than it had been in the previous recession. The rate of growth slowed and there was a curtailment of active demand and a restrictive credit policy on the part of banks. As far as international trade was concerned, the shrinkage of global trade flows largely exceeded the limits of the recession in economic activity. Indeed, the international trade growth rate apparently slowed from 7% in 2007 to 3.9% in 2008. After the record 13.8% increase in export volumes during 2010, the international trade growth rate shrank to a milder rate of 5. 0% during 2011 (WTO, 2012).

The answer to the recession in many euro area countries was fiscal expansion and its support by a reduction in European Central Bank interest rates. The expansionist monetary policy of the ECB was not a corollary of recession but of lowering inflation. The return to Keynesianism helped, up to a point, to stem the strong recessionary pressure, since this prescription was agreed in the context of the so-called 'Group of 20' (G 20) and was implemented simultaneously by practically all the major world economies. The burden of the political answer to the recession was borne by countercyclical policy programmes which were implemented - with some differences - in every member country of the euro area and financed by increases in the fiscal deficits of the member states and by structural interventions.

At EU level, despite the politically decisions within the framework of the European Economic Recovery Plan (December 2008), there have been few interventions through the Union budget, the cohesion policy or the European Investment Bank. Essentially, the burden of adjustment fell on each member country individually. Most euro area countries were already on the path to recovery, albeit to differing extents. Indeed, some showed noteworthy economic growth.

The international financial crisis, in conjunction with the recession in the real economy, gave rise to increased public expenditure which, in turn, shook fiscal stability in certain euro area countries and led to public debt crises (e.g. Greece, Portugal) or to banking crises, the management of which has required significant public funds through borrowing on the markets (e.g. Spain, Ireland).

The acute debt crisis and the risk of bankruptcy for certain EMU countries and/or the collapse of their national banking systems have put its entire edifice to the test and raised doubts regarding its endurance. In the absence of a central institution responsible for crisis management, together with the corresponding statutory mechanisms and procedures, the EMU member states and its underlying institutions (Eurogroup, ECB) have been engaged in an effort to manage the crisis, an effort characterized by initial timidity, indecisiveness, the favouring of national interests and

domestic political circles rather than the mutual interest of the Union, pluralism, open economic diplomacy and, often, by panic. In addition, the strength of the markets has become apparent along with the absence of a 'final solution' (last resort) in the case of major upsets. The fiscal crisis has been accompanied by a twin, a crisis of competitiveness.

The borrowing problems of some south European countries have clearly shown that the competitive environment of the EMU favours, as expected, the developed countries of northernEurope and harms the productive structure of the countries at the periphery. Consequently, the current challenge for the EMU is to deal with the twin deficits: fiscal and competitive, a challenge to which, so far, the institutional and political leadership of the EU has failed to give convincing and definitive solutions, despite interventions in favour of Greece, Portugal and Ireland and the creation of both a temporary and a permanent support mechanism for countries in crisis.

In this article, analysis will focus on the architecture of the EMU and will attempt to answer the question of whether this architecture contains structural elements that have contributed to the crisis in the Eurosystem.

2. Structural failures of the EMU

The emphatic structural failures and notable systemic gaps in the EMU are considered to be:

A) *The primacy of politics at the expense of economic realism*

Resuming after the Werner Report in 1970, the dialogue and final adoption of EMU was assisted by new developments such as the reunification of Europe, the negotiations on the Treaty of Maastricht and the desire of member states to give the necessary boost to the political unification of the EU and to the creation of federal formations.

The core proposal came mainly from France and Italy, two countries wishing to liberate their economic policies from dependence on the policy of the Bundesbank (Starbatty, 2006). Germany's deeper involvement in European structures following its reunification was also being sought.

It is true that the prevalence of economic, against political and socio-political, integration − understood, perhaps, during the political period of the establishment of the three European Communities− is being presented nowadays as an asymmetry of economic and political integration. The principle of parallelism between, on the one hand, the economic and the monetary union and, on the other hand, the political union − the dominant element in the negotiations towards Maastricht − did not receive an equivalent institutional reception in the Treaty on the European Union. Neither was the mismatch dealt with by the midterm revisions of the Treaty from Amsterdam, through Nice, to Lisbon. The Common Foreign and Security Policy − even after the Treaty of Lisbon− although it has been declared as common, in reality contains a divergence between the signifier and the signified.

Bringing the discussion back to the monetary union, one has to take into account the arguments of those who supported the idea that for many reasons the monetary area being planned diverged greatly from the model of an ideal monetary area, mainly because it was to encompass countries with different structures and competitive capabilities as well as with low degrees of mobility of their factors of production, was totally ignored (De Grauwe and Vanherbeke, 1993; De Grauwe, 2000; Mongeli, 2008).

Finally, some thought of EMU as a major step towards the political unification of Europe, since the member states were accepting the supranationality of one of the most important national economic policies (Issing, 1996). Consequently, the view that EMU is not sustainable between heterogeneous countries, which lie poles apart as far as forming an ideal monetary area, was ignored entirely. Also ignored were all those who held the view that monetary union would not be sustainable without common economic governance and without political union. Economic realism counselled in favour of postponing the inclusion of countries with weak structures in the EMU, arteriosclerotic economic and social systems, and political leaderships indebted to the demands of organized interest groups and of low competitiveness.

B) The cohabitation of countries with divergent 'economic, political and monetary cultures'

The attitude of societies and the politicians representing them towards economic phenomena is formed historically, and influences the formation of different behavioural patterns. In other words, in each country there is both a supply of and demand for economic policy based on these patterns and attitudes. For example, Germany and the other countries of central and northern Europe, through their negative experiences of successive hyperinflation, have shaped a culture of monetary stability, i.e. they demand that politics ensure monetary stability. In the USA, due to the traumatic experience of the great depression of 1929, the demand for expansionist policies to strengthen demand and investment predominates. Other European countries, such as those of southern Europe, place greater emphasis on economic growth and consider that monetary policy must serve this end. Their positions on fiscal, income and social policy are widely divergent as are their positions on the interventionist role of the state in the economy.

The monetary integration of states with differing political, economic and monetary cultures created a priori problems in taking decisions, and in economic functional coexistence. This fact explains both the different courses of the economies of the member states within the EMU, as well as the differing perceptions of policies dealing with the crisis. Countries with different cultures and traditions, such as Greece and other countries of southern Europe were certain to have to face a new, tough, economic reality, to which they would either adapt in time, difficult because of their entrenched different culture, or experience as a major upset.

C) The dominance of the monetarist model of the Bundesbank

In order to avoid the creation of an community, Germany agreed to take part in EMU on condition that monetary union would adopt the monetarist model of the Bundesbank. The latter, throughout its functional life, has been independent of political intervention and has concentrated, first and foremost, on ensuring price stability, taking the view that large increases in the money supply do not advance the goal of economic growth and employment. As a consequence, an edifice, primarily political, was created on the basis of the traditional German culture of monetary stability (*Stabilitätskultur*). Other countries, such as the UK considered that monetary policy was too important a matter to be left to independent technocrats and to be limited to achieving a solely macroeconomic goal.

The recent recession and lending crisis has shown, in a revealing way, that the monetary policy of the Eurozone must be flexible and be able to also pursue other goals, such as, for example, the enforcement of active demand and employment, as well as making available adequate liquidity in periods of extraordinary turbulence. Supranationalisation and depoliticisation of monetary policy has to a large extent weakened the national economic and political armouries. This also applies to other economic policies. For example, fiscal and income policies remain formally decentralized, i.e. within the domain reserves of the Member States (Papastamkos, 2005). However, they have institutional and pragmatic limitations. For example, the EU Treaty and the Stability Pact (1997) significantly limit the flexibility of fiscal policy to pursue goals of stabilization, redistribution and growth at a national level. Countries entering the euro with a deficit close to 3% and debt above 60%, with debt-laden public organizations and public undertakings, suffer comparatively greater restriction of their fiscal flexibility. Wages not directly proportional with productivity cause a reduction in competitiveness and increase unemployment.

D) The differentiated competitiveness and starting points in the new competitive area

The creation of a monetary union entails an increase in intra-community commercial competition and the elimination of the opportunity to influence it through change in real exchange rates or through money supply (Thygesen, 1990). Within the framework of EMU, higher national or regional inflation cannot be neutralized through the exchange rate mechanism but must be done

through the mechanism of the market, i.e. through a reduction in demand, the loss of markets, a reduction in production costs or a reduction in production itself.

An increase in intra-community commercial competition occurred within the EMU due to the greater transparency and comparability of prices brought about by the single currency. Finally, the external trade competitiveness of an EMU country may be harmed if it shows comparatively higher inflation and greater real revaluation of the euro with respect to third countries.

Within the framework of the EMU, productivity and those factors influencing it (e.g. technology, organization, human capital, and infrastructure), as well as prices, dictate the defining dimensions of competition (Feldstein, 1998; Siebert; 1998a). Certainly, indices of productivity always have a substantial effect on intra-community transactions. However, the existence of different currencies and, as a result, the possibility of influencing exchange rates also makes it possible to influence relative prices in foreign currency, beyond any relative productivity.

EMU certainly brought about an increase in competition between national systems in areas such as taxation, social security, environmental protection, etc., since these systems have a direct or indirect impact on economic performance, on prices and on the distribution of investments (Siebert, 1998b). These national systems, despite efforts to harmonize them at a Community/Union level or their communitarisation, have continued to diverge conspicuously within the framework of EMU and influence intra-European competition. Finally, a trend towards further concentration of economic activity in the already developed regions of the Union was expected within the EMU and, in all likelihood, the widening of developmental inequalities (Molle et al, 1993).This is because the already developed regions of the EU, which are characterized by large economic concentrations, modern infrastructure, technological bases and technological dynamism, a high level of support services, quality manpower and high productivity of labour, effective public administration, large local or neighbouring markets, high accessibility etc., benefit more from EMU in the new competitive environment compared to other regions of the Union.

E) Creation of a system dependent on private financial markets and exposure to speculative games

As mentioned above, the sole purpose of the European System of Central Banks (ESCB) is price stability. In addition, it is expressly forbidden from funding, directly or indirectly, the member state public sectors or European institutions. Consequently, the member states are able to fund deficits only through the financial markets on the basis of their credit ratings. This means that in the Eurosystem, the so-called 'rating agencies' that determine creditworthiness take on a dominant role (Papastamkos, 2006, 2008). As far as the credit rating agencies are concerned, two paradoxes may be ascertained: firstly "there are internationalised credit rating agencies without internationalised supervision whatsoever"; secondly, "private vehicles and interests outside of Europe appear to be suzerain over the European institutions and states" (Papastamkos, 2010).

An aggressive rating policy by these agencies may create asymmetric terms of borrowing between the EMU member states as well as acute debt crises. On the other hand, flawed practices, such as overestimating creditworthiness, in particular that of the EMU debtor countries, as was done between 2001 and 2008 in the case of Greece and other peripheral countries, may lead to cheaper-than-normal finance and to a dramatic increase in public, as well as private debt in such countries. An arbitrary downgrading of EMU member states increases their cost of borrowing and, naturally, the profits of those lending to them. Consequently, there is an additional benefit for the markets in the event of undue downgrading of Euro area member countries and banks. At the extreme, the impact of a mass downgrading of EMU countries would cause its complete collapse, since most EMU countries have, albeit to differing degrees, a high percentage of public debt. Finally, modern speculation is not limited to euro exchange rates but employs other means too, such as credit default swaps (CDS) and various other forms of securitisation. In contrast to other countries (e.g. USA, UK, Japan) EMU member countries do not have the facility, in periods of major turbulence, to have the Central Bank as their ally, the only organisation that can provide

unlimited liquidity and contend with the aggressive strategies of the private markets. Finally, the sterilization of monetary policy makes member states susceptible to the manner of treatment of their national banks, which, due to the macroeconomic costs that would be caused by the closure of one or more of them, often do not pay for their business mistakes and are favoured by the privatisation of gains and socialisation of losses (Goldstein and Véron, 2011).

F) The absence of an effective, automatic system for the prevention and management of crises and solidarity

The EMU system was built without incorporating an integrated mechanism to prevent and manage turbulence - a mechanism that would continuously monitor developments, assess them, create available channels for timely warnings and would intervene to promptly suppress or completely remove any turbulence. This is because the architects of EMU had excessive faith that, by introducing fiscal discipline and the Stability Pact, there would be no public debt crises and they certainly ignored other types of turbulence, such as recession and crises in the financial systems.

The fiscal discipline of the Eurosystem, however, has covered fundamental weaknesses such as the marked politicisation of decision making (ministers judging ministers) as well as lax sanctions in the event of indiscipline. Furthermore, sanctions are provided only for fiscal deficits following a lengthy procedure, and no sanctions are provided for public debt. A state, with annual fiscal deficits, even within permissible limits (i.e. less than 3% of its GNP), tends to increase, without sanctions, its public debt. As well as overestimating the effectiveness of fiscal discipline, the EMU did not arrange any system of balancing payments between its member states, as is the case with monetary unions in federal states for redistribution of the competitive benefits of the strong countries in favour of the growth of the 'losers' in the more intense competition, i.e. to blunt the developmental imbalances that were logically expected to arise from the operation of the EMU. Neither did it make available any institutionalised system for automatic aid and support in times of crisis, as occurred in the European Monetary System in the period 1979-1999, which provided for unlimited credit facilities between the central banks of the System's member countries. Clearly, this was a result of either a 'naive' view that there could be no turbulence within the EMU or an 'arrogant' view that the benefits and costs of membership were exclusively a national matter.

G) By-passing substantial criteria of the real economy

To begin with, as emphasised above, both the convergence criteria for inclusion in the EMU as well as their application, allowed economically heterogeneous countries to be housed under the common structure of the euro area. Inclusion in the EMU depends on fulfilling certain purely economic criteria, such as expectations for inflation, interest rates, exchange rate stability and fiscal discipline. These are some of the macroeconomic indices which, other than in the arbitrariness of setting their limits, reflect neither the structural productive and competitive capacities of the candidate countries nor qualitative factors for economic growth. However, membership of the EMU, because of competitive risks, should also have depended on the convergence criteria of the real economy (e.g. productivity, innovation, economic environment, administrative performance, competitiveness). In this way, premature inclusion in the competitive environment of the EMU of unprepared, either in the past or in the future, national economic systems could have been avoided. To a degree, the EU Treaty (1992/93) also anticipated the inclusion of real economy criteria. For example, Article 140 para.1 of the consolidated version of the Treaty on the Functioning of the EU states: "*The four criteria mentioned in this paragraph and the relevant periods over which they are to be respected are developed further in a Protocol annexed to the Treaties. The reports of the Commission and the European Central Bank shall also take account of the results of the integration of the markets, the situation and development of the balances of payments on current account and an examination of the development of unit labour costs and other price indices*". In practice, criteria of this type were systematically ignored. Even the nominal criteria were wrongly applied. For example, there has been and still is a certain "fanaticism" regarding strict compliance with the

criteria for inflation, interest rates, exchange rate stability and public deficits. On the other hand, for the most substantial of all the criteria, namely the level of public debt, there has, in practice, been no safe limit, as demonstrated by the current fiscal crisis. The fact that Greece and other countries were included, with a debt of over ,or close to, 100% of their GDP, indicates the laxness with which the EMU was constructed. With such public debt, deprived of a national monetary and exchange rate policy and with a weak competitive structure, a country within the EMU is condemned either to long-term austerity or to a debt crisis.

The following conclusions, among others, can be drawn from the above analysis:

- The euro area, as a system, includes inherent structural elements capable of causing turbulence or even crises in competitiveness, balance of payments, financial markets and public debt.
- Monetary union has been promoted without the same being done for economic union (Delors, 2011), i.e. the communitarisation of other economic policies such as fiscal, income, social and development policy. Free competition has been promoted between undertakings as well national subsystems between unequally developed countries.
- Despite this, no mechanism has been incorporated in the Eurosystem for solidarity or timely prevention,or the effective handling of turbulence or crises. The architects of the system clearly thought that either the occurrence of crises was impossible, or that the rules of fiscal discipline and loose coordination of the economic policies of the EMU Member States would be sufficient to stabilize the system.
- The developments of the past three years have shown that, on one hand, the EMU system can experience violent turbulence and, on the other, that it does not have suitable mechanisms for crisis management.

Beyond the responsibility objectively placed at the door of the stability zone of member states, the economic crisis has also laid bare the structural deficits in the common European edifice itself. Research on the impact of EMU membership on member states has recently tended to struggle for space. On the other hand, more emphasis is given to research into the effect of internal conditions/situations on the result of the supranational (European) institutional correlation of forces and policy formulation. The key question revolves around the apparent or implied collapse of national institutional, structural or organisational dysfunctions or the effect of European "acquis" on them, taken not as subject entities but rather as co-functioning units within the European synthetic process.

3. Conclusions and prospects for the euro area

Undoubtedly, the euro area system is in deep crisis. This has been brought about, first and foremost, by the affected member states with their flawed economic policies and the failure to exploit the opportunities offered to them as member states of the euro area. When a country participates in a monetary union, in a fully competitive environment, it must 'play' decisively according to the rules of the game of that union. If not, it will either be driven out by the magnitude of the accumulated problems or it will undergo shock treatment following major political and social conflicts. There is no alternative. So far, the three countries in crisis have chosen to resolve problems of adjustment within the EMU. This means that, irrespective of the type or level of assistance, they are obliged to make a dramatic readjustment. However, even after a successful policy of adjustment, the restrictions set by monetary union will have to be incorporated into all their policies and actions as well as into their social processes. In other words, adjustment is not a one-off process but ongoing. Only countries with economic, political and social flexibility and adaptability are in a position to benefit from competition within the euro area and, certainly, internationally. Although not directly causing the current debt crisis, the structural and

administrative shortcomings and gaps in the Eurosystem allowed the crisis to come about and, to an extent, aggravated it. Consequently, it is above all a crisis of policy, but secondarily also of the Eurosystem.

This raises the question of the future of the EMU (Dietrich et al, 2010, EEAG, 2011b, Gianviti et al, 2010; Kirkegaard, 2010; Klodt, 2011; Mateus, 2010). Despite the efforts and interventions so far, instability and uncertainty continue. Thereis a view that the exit of Greece or some of the other small countries, such as Portugal and/or Ireland, or a bankruptcy, would bring about the end of EMU (*Der Spiegel*, 2011). This view is exaggerated (De Grauwe, 2010; Stark, 2011; Weidmann, 2011). The future of the euro area depends on the major economies of northern Europe remaining in it, principally, France and Germany. If there is the political will to continue with the EMU, then it is certain that the countries forming its hard core, despite any short-term ups and downs, will be able to rescue the monetary union.

A view that is often taken is that it is a crisis of the euro as well (Boysen-Hogrefe, 2010).This view is also flawed since the euro exchange rate, despite its periodic fluctuations, is rising against the dollar and sterling. Moreover, a fall would benefit the export-oriented European economy. In general, the long-term euro exchange rate depends on the monetary stability of the euro area, on the ECB's monetary policy, on the course of the economy of the major countries of the EMU and on developments in big non-EU countries. Thus, a debt crisis is one thing and a euro crisis is another.

The most prominent problem for the sustainability of the euro area would arise should a debt crisis break out in large economies such as Spain, Italy or Belgium. Spain has shown a comparatively low percentage of public indebtedness (68% of GDP in 2011). However, it faces enormous problems of liquidity and solvency in its banking system. It needs government funds to strengthen that banking system, something that could lead to a large increase in deficits and debt. Italy and Belgium have some of the highest percentages of public debt in the EMU (120% of GDP and 97% in 2011, see European Commission, 2011). An aggressive downgrading of these countries by the 'rating agencies' would cause an increase in their cost of borrowing and, most likely, a rise in deficits and a further deterioration in their public debt. An escalation of this development would also drive these countries into the euro area support mechanism. It is, however, doubtful whether the current or the planned mechanism would be in a position to rescue these countries, which have a total public debt approaching 3000 billion EUR (in Italy around EUR 1900 billion). Any increase in the planned resources in order to rescue major economies would be considered impossible since the public debt of Germany and France is already high (81% and 88% of GDP for 2011, respectively).

Consequently, the future of the euro area will mainly depend on two factors.
Firstly, it will depend on the fiscal adjustment of the EMU countries, especially those with high levels of public debt, on the behaviour of the markets and on the overall sustainability of the debt. In any case, without the support of growth and competitiveness in the real economy, the long-term sustainability of Greece's debt is doubtful, as is that of the other peripheral countries (Marzinotto, 2011).

Secondly, the future of the euro area will depend on improvement in the structures and governance of the euro area (Trichet, 2011). For example, efforts should continue to supervise financial markets, to improve the mechanisms for prevention and early warning of crises, for there to be more effective harmonisation of underlying national policies, to convert the permanent stability mechanism into a European Monetary Fund (Belke, 2010, Papastamkos, 2010) which would have sufficient funds, for there to be a common fiscal policy and for the ECB to take responsibility for substantial intervention at times of major crises. At the same time, in order to strengthen countries with comparatively low competitiveness, a mechanism must be adopted to transfer income from the countries that reap major benefits from the operation of the EMU to investments and improvements in the competitiveness of the weak economies. EMU has operated relatively successfully for ten years without political union but also without making a positive contribution to the EU's path to political union. It has thus shown that there can be monetary union

without simultaneous political union. However, the recent crisis has shown that political cooperation and economic governance within the framework of EMU must be strengthened and that there must be automatic intervention to deal with turbulence and not ad hoc solutions, time-consuming procedures, political friction and conflict. The multicentric system of decision making must be abolished and there must be serious economic diplomacy with more decisions instead of posturing. The euro area must speak with one voice and provide definitive solutions, instead of a 'trial and error' approach.

The experience of ten years of Monetary Union advocates for a greater regulatory Europeanization of the economic policy, as well as for a Europeanization of the economic risk. At the time of emergency, EU citizens instinctively turned to the state. It is, exactly, the institutionally powerful state which was asked to deal with the failure of markets and the policy of the past. Until there is a new institutional and regulatory move forward, the coordination of national action tools, within the EU and through itself externally, is an indication, and also a factor of the development of the economic state as a member of the EU. Since there are no tested remedies for this situation of unprecedented emergency into which the European economy has entered, the main actors of the European integration process −meaning national systems and European institutions− have a duty to continue pursuing a coordinated European strategy in order to find a way out of the crisis. Differentiations and groupings, for example in more or less resistant national economic systems or in "old and new Europe", do not constitute a creative way out of the crisis. The more the global regulatory system becomes stable and complete (with supervisory mechanisms, mechanism of prevention and crisis management, sanctions) the more a global convergence, transparency and stability will be established, and the more the European model of external action will come across with the multilateral system. The EU was an importer of the crisis; it is high time it became an exporter of stability and economic security. A reliable projection of the European economic governance model onto the global large-scale pre-supposes the clear and coherent determination of itself within the EU. It pre-supposes achange in the asymmetry between the two EMU pillars.

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Greek Banks'financial performance and efficiency during the financial crisis, as it is derived by the Analysis of their Financial Statements .

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Abstract
The Greek flourishing economy during the 1990s allowed the establishment of new Bank Groups and the expansion of the existing ones into new activities. Furthermore, the stock market sharp rise at the end of the same decade provided banks with the necessary funds to exploit new and exciting opportunities in the Balkan area and abroad in general, following their clientele. The first years of the new decade proved to be equally profitable, as the per capita borrowing in Greece still remained significantly lower than in other mature European economies. The Olympic Games of 2004, held in Greece, created the need for the financing of a variety of projects, offering banks even more opportunities.

When the U.S.A. financial crisis led to the collapse of many prestigious financial and banking firms and started quickly spreading internationally, in 2008, it was discovered that Greek Banks had a very low, practically non-significant, exposure to the "toxic" financial products and that they were relatively safe as far as that specific aspect was concerned. However, the deterioration of the financial conditions around the globe, and more particularly in Europe, could not leave Greek banks unaffected. Then, in 2009, there was a dramatic worsening of the state economic conditions which caused a near total market collapse in every sector of the already weakened economy.

In the current paper we examine the course of Greek Banks financial efficiency and profitability, by analyzing the data of their official financial statements and their financial ratios. Our main conclusion is that the three year period (2008-2010) damaged the core of entire business in every sector, reversing their achievements of 15 years and leading them to an uncertain future that will end up with their ownership partly belonging to the economically fragile GreekState.
Key words: Banks, financial statements, financial analysis, ratios, profitability, efficiency.

1. Introduction

The aggressive internalization period (after 1986) of the Greek banking groups brought them into the Balkan area (Giannitsis, 1999), altering their profit sources, increasing their overall profitability and allowing them to expand their client numbers in an unprecedented rate. This was a clear sign of the Greek banks' dynamism at time. Greek banks penetrated the new markets through direct investment, thus allowing the immediate transfer of technology and the export of innovative financial products and aiming at the creation and the expansion of their market share in those

markets they had entered (Kouniakis, 1997). TheBalkansareconsideredasingleeconomic and the expansion of the Greek banks in it intended to improve their profitability, taking into account the maturity of the Greek market, especially in retail banking (Lidorikis A., 2005). The result of this internalization strategy was the profound change of the Greek banking sector which obtained new characteristics and started being influenced by the worldwide attitudes and trends (Giannitsis, 1982).

The internalization of Greek banks was the result of the move of a substantial number of Greek businesses to the Balkan area. This move included the creation of logistics centers, production facilities, subsidiaries etc. These businesses had important reasons to expand into foreign markets, like, for instance, the saturation of the domestic market, the intensification of competition, the lower production costs, the abundance of cheap raw materials, the market size etc. Therefore it was only natural that Greek Banks followed their clientele (Chatzidimitriou G., 1997), aware of the credit risk they were faced with in Greece (Mantzounis D., 2005.) The results of extroversion of the Greek banking system was very similar to that of large international banks, since 40% of the profits of banks in developed countries come from abroad (Commercial Bank, 2006). For instance, over 50% of ABN-AMRO's total revenues come from its international operations (Pattakos G., 1996).

The strong internalization trend influenced the strategy of all major Greek banking groups, but it was not the only factor that determined it. The structural changes of the banking sector in Greece, implemented in the 1980s, that led to extensive deregulation was rather important. Changes included, among others, the liberalization of interest rate determination, the free movement of short and long – term capital and the abolition of various rules regarding the operation of credit institutions (Noulas, 1999). Furthermore competition was intensified because of the Single European Act and the First and Second Banking Directives, which allowed banks from other European Union Member States to do business in Greece.

In fact, the Second Banking Directive has set out the principles of banking in the single European financial market, thus providing equal competition conditions for all European banking institutions. Greek banks had been forced to become more competitive and to implement bank rating systems to evaluate their financial risks, to identify and analyze their strengths and weaknesses in order to achieve the increase of their customer base, to ameliorate their financial ratios and to maximize their profits (Kosmidou V.K., 2008).

In addition, a cycle of Mergers and Acquisitions took place in the 1990s that changed the domestic banking sector. M&As were the result of the governmental effort to privatize a series of state owned banks and the need for banks to achieve the necessary critical mass to have economies of scale and to share the high information technology costs (Provopoulos G. and Kapopoulos P., 2001). This allowed foreign and international banking groups to obtain controlling shares in Greek banks. The major consolidation activity took place in the late 1990s and early 2000s, leading to the creation of large banks by Greek standards (Athanasoglou P.P. and Brissimis S.N., 2004)

The introduction of the Euro as the official Greek currency was also a key factor in leading banks into a new era. In studies done before the substitution of the drachma it was suggested that the costs banks would have to sustain due to the Euro introduction would impose a heavy burden on their profitability (Spathis T.Ch. and Kosmidou V.K., 2000). However, there was the counter-argument that these costs would be offset by the change of the banking market, as profitability is affected not only by a bank's specific characteristics but also by the financial market structure and macroeconomic conditions, that, in this case, were expected to greatly improve (Pasiouras F. 2007). In addition to the increased competition lower inflation and interest rates helped banking institutions to increase their business volumes, motivated financial innovation and the development of their Off-Balance Sheet (OBS) business (Chortareas, 2009). In fact, Chortareas ea. found that cost efficiency has risen by 4,3% while profit efficiency showed an increase of a staggering 93% over the 1998-2003 period. Also, productivity was up by 15% for the same period (Chortareas, 2009).

The augmentation of volume of the domestic retail banking, home and business loans as well as the regional expansion of Greek Banks (mainly in the Balkan area as mentioned) resulted in the sharp increase of profitability.

It should be noted that for the period examined (2008-2010) Greek banks faced severe. In mid 2007 the situation of the wholesale credit markets appeared to have deteriorated sharply, causing liquidity problems in the banking sector, making Greek banks unwilling to give out new loans and to be extremely selective about the businesses they financed. The intensification of the upset in the international financial markets also proved a serious factor that influenced the Greek banking system, being far from helpful to remedy the situation. In fact the economy was quickly slipping into a recession.

To stabilize the banking system, the Greek government decided in October 2008 to subsidize banks with public funds, offering them both new capital as well as giving out state guaranteed loans to businesses that met some specific criteria. However, it was obvious that a considerable part of the banks' assets was devaluating fast while, at the same time, the slowdown in the credit expansion was affecting negatively their profitability.

It was decided that the Greek banks would be subsidized with 28 billion Euros, in order for the market liquidity to be restored. However, only a small portion of these funds was actually used finding its way to the banks.

All of the above resulted in a sharp decrease in the lending by banks. According to the Bank of Greece, by June 2009 business loans were down by 62,7%, home loans by 52,5% and consumer loans by 68%. To make things worse, the government decided that it was prohibited for the banks that had received any kind of subsidy to pay out dividends in cash, meaning that the greatly decreased profits could only be turned into new shares that would be distributed to the existing equity holders. They, in turn, would have to sell their shares through the stock-market in order to obtain liquidity (Chouliaras V. and Bogas Ch,G, 2011).

Of course, the rapidly deteriorating financial environment of the country was of no help to the banking institutions. In November 2010 Eurostat revised the Greek deficit as a percentage of Gross Domestic Product (G.D.P.) and concluded that it was 5,7% for 2006 (12,1 billion Euros), 6,4% for 2007 (14,4 billion Euros), 9,4% for 2008 (22,3 billion Euros) and 15,4% for 2009 (36,1 billion Euros). Accordingly, Eurostat revised the Greek debt as a percentage of G.D.P. and concluded that it was 126,8% or 298 billion Euros for 2009. In 18 October 2009 the rating agency Fitch downgraded Greece from A to A-. Also, the change of government delayed the measures that should be taken to rectify the situation. In December 8 Greece's rating went down to BBB+ by Fitch, and this was followed by the downgrading of the country's rating by Standard and Poor and Moody's in December 16 and December 23 respectively. The first determined action by the Greek government to pacify international investors and markets was to implement a series of austerity measures, in February 9 2010, only to be followed by more spending cuts in March 3.

As borrowing interest rates for Greece continued to rise rapidly the government asked the International Monetary Fund (IMF), the European Central Bank (E.C.B.) and the European Union for urgent assistance. This led to a Memorandum of Economic and Financial Policies that outlined the economic and financial policies that the Greek government and the Bank of Greece would have to implement during the remainder of 2010 and in the period 2011-2013, in order to strengthen market confidence and the country's fiscal and financial position, aiming to resettle the debt-G.D.P. ratio below 3% in 2014. In exchange the I.M.F. and the E.U. would lend Greece 110 billion Euros.

In the euro-area summit of October 26 2011, was decided that the European Financial Stability Facility (EFSF) would lend 130 billion Euros to Greece in installments, subject to quarterly reviews that would evaluate the fiscal progress achieved. There was a Second Memorandum of Economic and Financial Policies decided upon, which was voted by the majority of the deputies in the Greek Parliament. Also, it was decided that there would be a reduction of the Greek debt by 50%. Bank losses occurring because of the debt reduction would be covered by the E.F.S.F. and viable banks would be recapitalized. The refinancing of banks caused reaction, since there would be no similar

refinancing of the pension funds or loss coverage of other institutions (public or private). Eventually, the debt reduction came to 53,5% of the debt held by investors.

At the same period deposits in Banks decreased considerably, because the financial uncertainty made depositors to seek safer countries for their capital. According to the Bank of Greece deposits in the Greek banking system were reduced by 12% in 2010. Depositors withdrew 29,1 billion Euros in one year and total deposits decreased to 208,8 billion Euros from 237,9 billion Euros in 2009. Overall, it is estimated that during the crisis period more than 70 billion Euros were withdrawn from Greek banks, creating major liquidity problems.

2. Sample and Methodology

We have included eleven (11) Greek banks in our sample, judging that this is a relative and adequate group that would allow us to reach realistic conclusions about the domestic banking system's profitability and efficiency. The banks we included were: the National Bank of Greece, EFG Eurobank − Ergasias, Alphabank, the Commercial Bank of Greece, the Piraeus Bank, the Agricultural Bank of Greece, Postbank, the Attica Bank, the Millenium Bank, Marfin − Egnatia Bank and the General Bank. Our sample included smaller and larger banks by Greek standards (with the larger banks having more than 30 billion Euros in Total Assets), as well as state controlled and private banks, in order to have a more complete view of the financial crisis effects on the domestic banking system.

The analysis of our sample consists of the calculation of a series of ratios that are believed to be important for banks. More specifically, we have calculated the Return on Assets (R.O.A.), the Return on Equity (R.O.E.), the "Loan to Deposits" ratio, the "Net Interest Income to Total Assets" ratio and the "Interest Income to Total Assets" ratio. These ratios were calculated for our sample only for the 2008 − 2010 period, because Greek Banks' results for 2011 were publicized too late (April 21, 2011) to be included. Also, the non weighted averages of these ratios were calculated on a year by year basis for the entire sample, to be used as a reliable benchmark of comparison.

Moreover, we proceeded to another two comparisons. We divided our sample into "larger" and "smaller" banks and compared them, through their non weighted ratios' averages, in order to examine if there are findings suggesting that a bank's size affects its efficiency and profitability in times of financial crisis. In the "larger banks" group we have included six (6) banks, namely: The National Bank of Greece, EFG Eurobank − Ergasias, Alphabank, Commercial Bank of Greece, the Piraeus Bank and the Agricultural Bank of Greece. The remaining five (5) banks of the sample were classified as "Smaller Banks". Of course, the classification is arbitrary and affected by the size of Greek and not multinational banking groups.

Finally, we separated our sample in another two categories of banks (state and privately controlled ones) and calculated the non weighted ratios' averages for each category, to determine if the ownership state has a significant effect on banks' performance. In the category of the "State controlled" banks we have included four of the banks in our sample, because of the controlling interest the GreekState has on them. More specifically, in the "State controlled" banks we included: The National Bank of Greece, the Agricultural Bank of Greece, Postbank and Attica Bank. The remaining seven (7) banks of the sample are classified are privately owned ones.

Regarding the determining factors of banks' efficiency, there are several approaches that are sometimes contradictory.

According to the theory of "structure conduct performance hypothesis" there is a positive relation between profitability and concentration. R. Weiss (1974) claimed that market concentration can create collusion with competitors and thus monopoly profits Smilrock, (1985), however, in a study which included the data of 2.700 banks of the State of Kansas, has shown that it is not concentration that increases profitability, but the market share obtained.

Kapopoulos and Siokis (2002), using data for the period 1996-1999 for all Eurozone countries and making an econometric approach, concluded that the improvement of operational efficiency

and capital adequacy has a positive impact on bank profitability, while the real interest rate has a negative effect.

Regarding interest rates Staikouras and Steliaros (1999), concluded that there is a positive relation between interest rates and bank profitability. When interest rates fall profits increase and vice versa, due to the fact that deposit rates can be increased but funding rates are often fixed, thus decreasing the gap between them. The difference between short and long term interest rates increases at the end of a recession period and diminishes at the end of a development one. In countries with low inflation long term interest rates are constant (Hardouvelis, 1994).

Flannery, in two of his studies in 1981 and 1983 respectively, processed data for fifteen (15) large U.S. banks and found that long-term bank profits are not affected by changes in interest rates, since this rise affects equally the financial income and the expenses of banks, ultimately balancing profits. In contrast, in the short run the rising of interest rates reduces profits.

Perry (1992) correlating profitability and inflation argues that if inflation is rising and banks change interest rates in time, it is likely for them to increase their profitability, while, if they delay, expenses will rise faster than revenues with a negative effect on profitability. Also, most researchers associate the low profitability of the banking system with regulation, mainly because of the mandatory deposits it requires, as well as the compulsory structure of the banks' portfolios.

In a study on the Greek banking system and the deregulation of the decade 1993-2002 (Chouliaras, 2009), it was found that there is a strong correlation between bank profitability and stock market boom and the spread and the loan–deposit ratio. Athanasoglou, Brissimis and Delis (2008), in a study of Greek banks for the period 1985-2001 concluded that bank specific determinants, excluding size, affect bank profitability significantly in the anticipated way and that the business cycle has a positive, yet asymmetric effect on bank profitability, being significant only on the upper phase of the cycle. Demirguc - Kunt and Huizinga (2000), suggest that the extent to which various financial, legal and other factors (like corruption) affect bank profitability is closely linked to firm size. Also, Bikker and Hu (2002), link bank size to capital and in turn to profitability. However, other researchers suggest that cost saving is very little as a result of increasing the size of a bank (Berger at al., 1987). In contrast, Berger and Hannan (1994), according to the efficient market hypothesis, argue that companies with more efficient scales of economy, along with good management and technology, have lower cost per unit and thus higher unit profit.

Poor asset quality and low levels of liquidity are two factors that play a key role in bank failures. In period of uncertainty, like the present, banks may decide to increase their liquidity in an effort to reduce their risk. However, Molyneux and Thornton (1992), discovered a significant negative relation between liquidity and profitability. In contrast they found that there is a positive relation between better quality management and profitability. Finally, they concluded that profitability is irrelevant to whether a bank is privately –owned or not.

It is evident that bad economic conditions have a negative effect on bans' profitability because the quality of loans deteriorates, thus generating higher provisions and credit losses. Reversing the argument it is suggested by empirical findings that bank profitability is an important predictor of coming financial crises (Demirguc – Kunt and Detragiache, 1999). In this aspect it is interesting to see if those warning signs were present in the case of Greek banks.

3. Findings

The data used to analyze all of the banks in our sample can be found in Table 1 - Data. Accordingly, the calculated ratios per bank can be found in Table 2 – Ratios and the non weighted averages for the entire sample, the Larger and the Smaller Banks, as well as the State controlled and Private Banks are in Table 3 – Averages.

On a separate bank basis the findings are as following:

The NATIONAL BANK OF GREECE, the largest bank in the country which is state, has steadily outperformed the sample's average in the Return on Asset (R.O.A.), although a gradual

deterioration is observed in the bank's ratios, for the examined period. The National Bank's R.O.A. is 0,008 for 2008, 0,004 for 2009 (declining by an impressive 50% from the previous year), and 0,003 for 2010 (decreased by 25% compared to the previous year), while average R.O.A. for the sample is 0,001 for 2008, -0,003 for 2009 and -0,012 for 2010 (another impressive change, negative this time). In the case of the Return on Equity (R.O.E.) the National Bank of Greece presents a significantly better performance to the sample's average for every year, since the latter is negative for the entire examined period. More specifically, National Bank's R.O.E. is 0,0984 for 2008, 0,0491 for 2009 (a 48% drop from the previous year)and 0,0380 for 2010 compared to the sample's -0,01367, -0,0825 and -0,3097 respectively. The Loans to Deposits Ratio for the bank also allows for more growth than the sample's one. In fact, despite the flight of deposits abroad, the bank maintains a reasonable ratio of 0,949 for 2008, 1,001 for 2009 and 1,110 for 2010. Although these ratios indicate that might be a need for increased liquidity in the future, because of increased provisions, the bank's position was sound until 2010. The sample's average for the same period was 1,160 for 2008, 1,174 for 2009 and 1,279 for 2010 (a 9% increase from the previous year). Examining the Net Interest Income to Total Assets ratio, we see that there was a smaller differentiation than in other instances between the bank and the sample average for 2008 (2,44% for National Bank and 2,05% for the sample), yet even in this case the bank is better by 19%. This outperformance trend becomes much more significant in the following years. In 2009 the bank's ratio was 2,45% compared to the sample's 1,86% and in 2010 the bank's ratio was 2,52% compared to the sample's 1,89%. We observe that there were relatively small changes in the banks' ratios whereas there was a near 10% decrease in the sample's ratio in 2009. Finally, in the Interest Income to Total Assets ratio, there was a reversal of our findings so far. The sample outperforms the National Bank in this case, with 5,56% for 2008, 4,10% (decreased by 26,26% from the previous year) for 2009 and 3,99% for 2010 compared to 4,85%, 4,03% and 3,64% respectively of the bank.

E.F.G. EUROBANK-ERGASIAS is the second largest Greek bank and it is privately owned. As in the case of the previous bank, Eurobank's results are better than the sample's ones in the field of R.O.A. The bank's ratios are 0,003 for 2008, 0 for 2009 (compared to the -0,003 of the sample) and -0,001 (compared to the -0,012 of the sample). Similarly, Eurobank outperforms the sample in R.O.E. in the entire period examined with 0,0824 for 2008, 0 for 2009 (compared to the sample's -0,0825) and -0,031 for 2010 (compared to the sample's -0,3097. Also, in the Loans to Deposits ratio the bank presents a more balanced picture than the sample with 0,980 for 2008, 0,917 for 2009 and 1,074 for 2010 compared to the sample's 1,160, 1,174 and 1,279 respectively. The 2010 change for the bank is due to the 11,5% decrease in deposits while there was a 3,6% increase in Loans. In the Net Interest Income to Total Assets the sample outperforms the bank for all the three years examined with 2,05% for 2008 (compared to Eurobank's 1,65%), 1,86% for 2009 (compared to the bank's 1,33%) and 1,89% for 2010 (compared to Eurobank's 1,49%). However, this is impressively reversed in the case of Interest Income to Total Assets where the bank fares much better than the sample with 7,34% for 2008 (compared to the sample's 5,56%), 5,32% for 2009 (versus 4,03% of the sample) and 5,25% for 2010 (compared to the 4,11% of the sample).

ALPHABANK is the third largest Greek bank and the second private bank in size. Alphabank also outperforms the sample's average in R.O.A., with 0,006 for 2008, 0,008 for 2009 (a surprising increase of 25%) and 0,001 for 2010. Similarly, it outperforms the sample's average in R.O.E. with 0,1666 for 2008, 0,1187 for 2009 and 0,0104 for 2010 (a sharp drop of 91%)compared to sample's negative averages for the entire examined period. In the Loans to Deposits ratio Alphabank seems to "overextend" its liquidity and it could be considered certain that it would require more liquidity in the near future again because of the increase of bad loans and provisions. More specifically, the ratio of the bank is 1,248 for 2008, 1,186 for 2009 and 1,279 for 2010 compared to the sample's averages 1,160, 1,174 and 1,279 respectively. We also notice a convergence of the bank's ratio to the sample's average over time, which signifies a slowing down in the lending rate of Alphabank. In the Net Interest Income to Total Assets ratio the bank is almost at the sample's average for 2008 (2,02% for Alphabank and 2,05% for the sample), but it

outperforms the sample in both of the following years, with 1,98% in 2009 and 2,12% in 2010 compared to the sample's average of 1,86% and 1,89% respectively. Finally, Alphabank outperforms the sample in all three years examined in the Interest Income to Total Assets ratio, with 6,17% in 2008, 4,92% in 2009 and 4,64% in 2010 compared to the sample's 5,56% in 2008, 4,10% in 2009 and 3,99% in 2010.

The COMMERCIAL BANK OF GREECE is another one of the private banks that is considered large by Greek standards. Its R.O.A. ratios are steadily below the sample's averages for all of the three years examined. More specifically, the bank's ratio was –0,013 in 2008 (compared to the sample's 0,001), -0,020 in 2009 (versus the sample's -0,003) and -0,032 in 2010 (compared to the sample's average of   -0,012). This was the result of Commercial Bank's losses in 2008, 2009 and 2010 (negative Earnings before Taxes as it can be seen in Table 1 – Data). Similarly the bank underperforms when it comes to R.O.E. Its R.O.E. ratios are -1,970 for 2008, -0,511 for 2009 and -0,886 for 2010. Furthermore, the Commercial Bank of Greece seems to be overextending its liquidity, resulting to a significant increase of the Loans to Deposits ratio from year to year. The bank's ratios are much larger compared to the sample's averages in the entire period examined, with 1,223 in 2008 (compared to the sample's average of 1,160), 1,402 in 2009 (versus the 1,174 sample's average) and 1,724 in 2010 (a 23% increase) compared to the sample's 1,306. It should be noted that the rate of the decrease in Deposits was much larger than the rate of the decrease in Loans. The Net Interest Income to Total Assets ratio presented a better picture for the bank as it is still lower for the 2008 and 2009 period compared to the sample's average (1,96% and 1,79% for the bank versus 2,05% and 1,86% for the sample respectively), however this is reversed in 2010 when the Commercial Bank of Greece had a ratio of 2,25% while the sample's average was 1,89%. Finally, in the ratio of Interest Income to Total Assets the bank underperformed again in comparison to the sample's average. In 2008 the bank's ratio was 5,32% compared to 5,56% of the sample's average, in 2009 it was 3,67% (versus the 4,10% of the sample) and in 2010 it was 3,26% compared to the sample's average of 3,99%.

The PIRAEUS BANK is another privately owned bank that is included in the group of the "larger banks". The bank outperformed the sample's average in R.O.A. and R.O.E. with 0,003 and 0,0522 in 2008, 0,004 and 0,0636 in 2009 and 0 and 0,0017 in 2010. In the Loans to Deposits ratio we observe that the bank extended its liquidity thin, since it had 1,389 in 2008 (compared to the sample's 1,160), 1,465 in 2009 (versus the sample's average of 1,174) and 1,565 in 2010 (compared to the sample's 1,279). However, the Piraeus Bank underperformed compared to the sample's average in Net Interest Income to Total Assets with 1,69% in 2008 (compared to the sample's average of 2,05%), 1,60% in 2009 (versus the sample's 1,86%)and 1,57% in 2010 (1,89% for the sample). In the Interest Income to Total Assets ratio the bank outperformed the sample's average in 2008 (6,43% for Piraeus Bank and 5,56% for the sample) and in 2009 (4,39% for the bank and 4,10 for the sample), but converged with the sample's average in the next year (4% for Piraeus Bank and 3,99% for the sample).

The AGRICULTURAL BANK OF GREECE is the last one included in the category of the "larger banks" in the country and it is controlled by the state. As far as R.O.A. is concerned the bank seems to be following closely the sample's average with the exact same result in 2008 (0,001) and 2010 (-0,012), but a significant difference in 2009 when the bank had a ratio of -0,015 and the sample a -0,003. This was the result of the fact that the bank passed from profits to losses, while its Total Assets kept increasing. In the case of R.O.E. the bank had a better result than the sample in 2008 (0,0157 for the bank and -0,1367 for the sample), it plunged, greatly underperforming the sample, in 2009 (-0,3542 for the bank and -0,0825 for the sample) and it bounced backed, outperforming the sample, again in 2010 (-0,2698 for the bank and -0,3097 for the sample's average). The bank showed restrain in the Loans given out compared to its Deposits, thus having a reasonable ratio of 0,998 for 2008, 0,977 for 2009 and 1,082 for 2010, significantly below the sample's average (1,160, 1,174 and 1,279 respectively). Also, the bank outperformed the sample concerning the Net Interest Income to Total Assets in the entire period examined (2,19% for 2008,

2,28% for 2009 and 2,62% for 2010 for the bank), mainly because the Net Interest Income kept increasing at a faster rate than its Total Assets. However, the picture in the ratio of Interest Income to Total Assets is different. The Agricultural Bank had a ratio of 4,31% for 2008 (lower to the sample's average of 5,56%), 3,57% for 2009 (compared to the sample's 4,10%) and 3,87% for 2010 (versus the sample's 3,99%).

POSTBANK is state owned and is classified as one of the "smaller banks" of our sample. In fact, the bank could be considered (along with MARFIN –EGNATIA BANK) as a medium sized bank on the basis of its figures. Postbank has underperformed the sample's average in R.O.A. for 2008 (0 for Postbank and 0,001 for the sample), however this was reversed in the following two years (0,002 for Postbank in 2009 compared to the sample's -0,003 and 0 for Postbank in 2010 compared to the sample's -0,012 in 2010). The same held true for the entire three year period in the case of R.O.E., where the ratios for the bank were 0,0047 for 2008, 0,0335 for 2009 and -0,0039 for 2010 compared to the sample's average of -0,1367, -0,0825 and -0,3097 respectively. In the Loans to Deposits ratio we observe that Postbank had by far the most conservative and "tight" lending policies, since loans increased at a very slow rate for the examined period. This practically means that the bank had excessive liquidity. The Loans to Deposits ratio of Postbank was 0,624 in 2008, 0,625 in 2009 and 0,659 in 2010 compared to the sample's 1,160, 1,174 and 1,279 respectively. In the Net Interest Income to Total Assets ratio Postbank outperformed the sample in 2008 (2,16% for Postbank and 2,05% for the sample), but underperformed the sample in 2009 (1,45% for Postbank and 1,86% for the sample), only to improve its efficiency and to outperform the sample again in 2010 (2,20% for Postbank and 1,89% for the sample). Finally, Postbank had a lower Interest Income to Total Assets ratio compared to the sample's average in 2008 (5,08% versus 5,56%), in 2009 (3,46% versus 4,10%) and in 2010 (3,72% for the bank versus 3,99% for the sample). We have to note that there was an immense increase of 1.540% in the Earnings before Taxes of Postbank from 2008 to 2009. Alas, those Earnings b.t. turned into losses in 2010.

ATTICA BANK is state owned and is part of the group of the "smaller banks" of our sample. The bank clearly outperformed the sample for the entire period examined in both R.O.A. and R.O.E. ratios. More specifically it had a R.O.A. of 0,003 in 2008, 0,002 in 2009 and 0 for 2010 (due to a devastating decrease of 98,7% in Earnings before Taxes), as well as a R.O.E. of 0,0436 in 2008, 0,0292 in 2009 and 0,0004 in 2010. Furthermore, Attica Bank's Loans to Deposits ratio was below the sample's average, indicating that it had conservative lending policies. The ratio was 1,145 in 2008 (1,160 for the sample), 1,142 in 2009 (1,174 for the sample) and 1,114 in 2010 (1,279 for the sample). In the Net Interest Income to Total Assets we find that while Attica Bank had better results than the sample's average in 2008 (2,28% for the bank and 2,05% for the sample) and in 2009 (2,03% for the bank and 1,86% for the sample), this changes greatly in 2010 (0,65% for the bank and 1,89% for the sample) because of the sharp, 71% decline in Attica Bank's Net Interest Income. The findings were different concerning the Interest Income to Total Assets ratio, where Attica Bank outperformed the sample in the entire examined period. The bank had a ratio of 6% in 2008, of 4,43% in 2009 and of 4,85% in 2010, indicating that Interest Income did not change the same way as the Net Interest Income had.

MILLENIUM BANK is a privately owned bank classified in the "small banks" category of our sample. We observe that Millenium Bank outperformed the sample in the ratios of R.O.A. and R.O.E. in all of the examined period, despite the losses it incurred in 2010. More specifically the bank's R.O.A. ratios were 0,004 in 2008, 0,003 in 2009 and 0 in 2010 while its R.O.E. ratios were 0,0767 in 2008, 0,0465 in 2009 and -0,1395 in 2010. The bank used its liquidity more extensively and as a result had higher Loans to Deposits ratios compared to the sample's averages for all three years (1,491 in 2008, 1,466 in 2009 and 1,602 in 2010 for Millenium and 1,160, 1,174 and 1,279 for the sample respectively). This might cause the bank problems, since there would be pressure on its liquidity in the near future, due to bad loans and increased provisions. The bank's Net Interest Income to Total Assets ratios were steadily smaller than the sample's averages for the entire period (1,98% in 2008, 1,51% in 2009 and 1,17% in 2010 for Millenium and 2,05%, 1,86% and 1,89% for

the sample respectively). Similarly, the Interest Income to Total Assets ratios were below the sample's averages (5,26% in 2008, 3,61% in 2009 and 3,11% in 2010 for Millenium and 5,56, 4,10% and 3,99% for the sample respectively).

The privately owned MARFIN – EGNATIA BANK is the second bank that could be classified as a medium sized bank, however, it was included in the "smaller banks" of the sample. The bank's R.O.A. ratios started by being worse than the sample's average in 2008 (0 for Marfin 0,001 for the sample), however they ameliorate in 2009 and 2010 (0 in 2009, -0,002 in 2010 for the bank compared to -0,003 in 2009 and -0,012 for the sample). As far as R.O.E. is concerned Marfin outperformed the sample in all three years and more specifically had a ratio of 0,0043 in 2008 (-0,2591 for the sample), of -0.0038 in 2009 (-0,0825 for the sample) and -0,0381 in 2010 (-0,3097 for the sample). In the Loans to Deposits ratio we observe that although the bank started with prudence in 2008 (1,078 for Marfin and 1,160 for the sample) the picture changed in the following two years (1,230 in 2009, 1,230 in 2010 for the bank and 1,174, 1,279 for the sample). The increase in the ratio can be explained by the lessening of the Deposits the bank had. In fact, Deposits dropped by 7,40% from 2008 to 2009 and by another 8,35% from 2009 to 2010, while Loans increased. Also, in the period examined the bank underperformed compared to the sample's average concerning the Net Interest Income to Total Assets ratio. Marfin had a ratio of 1,32% in 2008 (2,05% for the sample), of 0,91% in 2009 (1,86% for the sample) and 1,21% in 2010 (1,89% for the sample). The same held true for the bank's Interest Income to Total Assets ratios. Marfin's ratios were 4,73% in 2008, (compared to the sample's 5,56%), 2,81% in 2009 (versus the sample's 4,10%) and 2,98% in 2010 (compared to 3,99% for the sample).

Finally, GENERAL BANK is privately owned and classified in the "smaller banks" group of the sample. Due to losses in all three years of the period examined all of the R.O.A. and the R.O.E. ratios of the bank were negative. The banks ROA ratios were: -0,004 in 2008 (compared to 0,001 of the sample), -0,022 in 2009 (versus the sample's average of -0,003) and -0,0093 in 2010 (compared to -0,012 of the sample). We see that in the whole period the bank's ratios were below the averages of the sample. General Bank's R.O.E. ratios were -0,078 in 2008 (-0,1367 for the sample), -0,379 in 2009 (-0,0825 for the sample) and -2,089 in 2010 (-0,3097 for the sample). Therefore, the bank's ratio was better than the sample's average only in 2008. The extremely large deterioration of the bank's ratio in 2010 was due to the fact that losses went up by 381% from 2009 to 2010, while Total Equity decreased by only 11,80% at the same time. Also, the Loans to Deposits ratios of the bank were much higher than the sample's averages. Particularly, General Bank's ratios were 1,635 in 2008 (versus 1,160 of the sample), 1,503 in 2009(1,174 for the sample) and 1,498 in 2010 (1,279 for the sample). Again we see that the bank overused its liquidity and it was certain that it would face difficulties as bad loans would increase, creating the need for higher provisions. In contrast the bank's Net Interest Income to Total Assets ratio, were higher than the sample's averages in all three years. Specifically, General had a ratio of 2,84% in 2008 when the sample's average was 2,05%, 3,10% in 2009 when the sample's average was 1,86% and 2,95% in 2010 when the sample's average was only 1,89%. Furthermore, General Bank's Interest Income to Total Assets ratios were also higher than the sample's averages. The bank had a ratio of 5,75% in 2008 (the sample had 5,56%), 4,90% in 2009 (compared to the sample's average of 4,10%) and 4,53% in 2010 (versus the sample's 3,99%).

In the hypothesis that there is a substantial difference in efficiency and profitability between smaller and larger banks, the findings of the analysis of the sample are as follows:

In the Return on Assets (R.O.A.) ratio larger banks did better than smaller ones in 2008 and 2010 (0,0013 and -0,0070 for larger banks, 0,0006 and -0,0190 for smaller banks respectively). However, smaller banks marginally outperformed the larger ones in 2009, with   -0,0028 for the first and -0,0031 for the latter. In the case of the Return on Equity (R.O.E.) we observe that smaller banks had better ratios in 2008 and 2009 (0,0103 and -0,0547 for smaller banks,   -0,2591 and -0,1056 for larger banks respectively) but this was reversed in 2010 (-0,1895 for larger banks and -0,4540 for smaller ones). As far as the Loans to Deposits ratios are concerned, larger banks had a

more reserved ratio in 2008 and 2009 (1,1310 and 1,1580 for larger banks, 1,1946 and 1,1932 for smaller banks), indicating that larger banks did not use their liquidity as intensively as the smaller ones. This changed in the following year when larger banks had a ratio of 1,1580 while smaller banks had a ratio of 1,2464. This finding indicates that as liquidity in the market decreased, there was a decline of 6,53% in the smaller banks' Deposits, smaller banks were forced to intensify the use of their remaining funds. In the Net Interest Income to Total Assets ratio smaller banks outperformed larger ones in 2008, with 2,12% for smaller banks and 1,99% for larger ones. This, however changed in the following two years, as the crisis deepened, with larger banks having ratios of 1,91% in 2009 and 2,10% in 2010 when smaller banks had ratios of 1,80% and 1,64% respectively. In contrast, larger banks were dominant for the entire examined period in the case of the Interest Income to Total Assets ratio. Specifically, the ratios for the larger banks were 5,74% in 2008, 4,32% in 2009 and 4,11% in 2010, compared to the smaller banks ratios of 5,36% in 2008, 3,84% in 2009 and 3,84% in 2010.

The comparison of the state owned banks to the private banks was the last analysis performed based on our sample. In the R.O.A. ratio state owned banks had much better results than private ones for the entire examined period. Specifically, state owned banks had ratios of 0,0029 in 2008 (compared to -0,0001 for private banks),   -0,0014 in 2009 (versus -0,0039 for private banks) and -0,0021 in 2010 (-0,0181 for private banks). In the Return of Equity (R.O.E.) ratio, state owned banks had a ratio of 0,0406 compared to a ratio of -0,2380 for private banks in 2008, a ratio of -0,0606 versus a ratio of -0,0950 for privately owned banks in 2009 and a ratio of -,0588 in 2010 when private banks had a ratio of -0,4531 (an immense negative increase of 477%). Again, state owned banks performed better than private ones for all of the three years examined. The ratio of Loans to Deposits highlights the conservatism of the state owned banks concerning their lending policies. Particularly, the ratios for state controlled banks were 0,9291 in 2008 (compared to 1,2920 for the private banks), 0,9362 in 2009 (versus 1,3099 for private banks) and 0,9913 in 2010 (compared to 1,4429 for privately owned banks). It is obvious that private banks used their Deposits intensively in order to generate more Loans. This, in turn, means that privately owned financial institutions were far more vulnerable than state controlled ones because if the increase of bad loans that would stress their liquidity (because of increased provisions) and, ultimately, their profitability.

In the Net Interest Income to Total Assets ratio, again state owned banks were more efficient foe the examined period, with 2,27% in 2008 (versus 1,92% of the private banks), 2,05% in 2009 (1,75% for private banks) and 2% in 2010 (compared to the private bank's 1,82% ratio). In contrast, private have better results than state owned ones (5,86% and 4,23% for private banks versus 5,06% and 3,87% for state owned ones). However, in the last year examined state controlled banks have performed marginally better than private ones (4,02% for the first and 3,97% for the latter).

4. Conclusions

On an individual bank basis we see that for the period examined all of the analyzed banks did not do well in their efficiency and profitability by international standards.

The National Bank of Greece did better than the rest of the banks of the sample, without, however, avoiding a substantial decrease of 47,23% in its Earnings before taxes from 633 to 334 million Euros. Also, its Deposits have declined by 6,73% in the examined period, affecting negatively its ratios.

EFG Eurobank – Ergasias experienced the loss of all of its profits from 2008 to 2009, to pass into losses of 104 million Euros. Deposits decreased by 8,87% in the same time, while Loans did not alter significantly. Compared to the sample's non weighted averages we see that Eurobank did fairly well, outperforming the sample in most instances.

Alphabank, maintained its Earnings before taxes on positive ground, however, they were reduced by a devastating 88,35% from 2008 to 2010, while Deposits were reduced by 7,63% and Loans decreased by 5,38% in the same period. Overall, we notice that the bank outperforms the sample, although there are liquidity issues that could turn into serious problems.

The Commercial Bank of Greece, has had losses for the entire three year period and in fact losses have increased by 111,11% from 2008 to 2010. At the same time Deposits have decreased by 34,97%, Total Assets decreased by 10,96% and Loans by 8,37%. Considering this data, it is easily explainable that the bank's ratios were worse than those of the sample in all cases.

Piraeus Bank has achieved to maintain some profitability although its Earnings before taxes have declined by 96,35%. It is noteworthy that during the period examined the Deposits of the bank have declined by only 0,24%, Total Assets have increased by 3,13% and Loans have increased by 12,41%. The R.O.A. and R.O.E. ratios, although not satisfactory, were better than the sample's averages. We also see an overuse of the banks' liquidity. Finally, the increase in Total Assets and the drop in Interest Income and Net Interest Income led the bank to underperform compared to the sample's averages in the fields of Net Interest Income to Total Assets and Interest Income to Total Assets.

The Agricultural Bank of Greece passed from positive to negative ground as far as the Earnings before taxes were concerned. Deposits dropped by 6,03%, Total Assets increased by 10% and Loans went up by 1,88% for the 2008-2010 period. It is interesting to note that the Net Interest Income of the bank increased by 31,35% while, at the same time Interest Income declined by 1,26%. The bank showed restrain in its lending, keeping its Loans to Deposits ratio below the sample's average, thus not stretching its liquidity requirements. Overall, the Agricultural Bank's performance compared to the sample's average is neutral, signifying its unique character, because of its particular clientele (farmers).

Postbank is another bank with particular characteristics. Its R.O.A. and R.O.E. ratios were on the whole better than the sample's averages. The unique characteristic of the bank was its conservatism in lending, driving its Loans to Deposits ratios far below those of the sample. We should also note that for the period examined Postbank's Total Assets have increased by 11,14%, Interest Income by 18,49% and Net Interest Income increased by 13,04%. The bank underperformed compared to the sample in the Interest Income to Total Assets ratio for all the three years examined, while it had similar results for 2008 and 2010 in the Net Interest Income to Total Assets.

Attica Bank outperformed the sample in both R.O.A. and R.O.E. and showed restrain in its lending for the entire examined period. The Total Assets of the bank have increased by 9,56%, however Interest Income and Net Interest Income have decreased by 14,39% and by 70% respectively. Therefore, it was of some surprise to us that the bank outperformed the sample in 2008 and 2009 in the Net Interest Income to Total Assets and all of the three year period in the Interest Income to Total Assets ratio.

Millenium Bank was another smaller bank that outperformed the sample in the entire 2008-2010 period concerning the R.O.A. and R.O.E. ratios, despite its having passed from earnings to losses. In contrast the bank underperformed the sample in the ratios of Interest Income to Total Assets and Net Interest Income to Total Assets for all three years. This was the result of a 13% increase in Total Assets, while Interest Income and Net Income Interest by 33,03% and 33,33% respectively. Moreover, Millenium Bank has had a considerably higher "Loans to Deposits" ratio compared to the sample's average for the entire period.

Marfin – Egnatia Bank has also underperformed the sample in the entire 2008-2010 period concerning the R.O.A. and R.O.E. ratios, as it went from 3 million Euros in earnings to 35 million Euros in losses. In the "Loans to Deposits" ratio the bank was more conservative than the sample in 2008, but this was reversed in 2009 and 2010. Total Assets increased by 14,43%, however, Interest Income decreased by 27,98% while, Net Interest Income, surprisingly, increased by 4,78%. The

sample outperformed the bank significantly in the entire period examined in both the Interest Income to Total Assets and Net Interest Income to Total Assets ratios.

Finally, the General Bank, underperformed the sample in R.O.A. for all three years and in 2009 and 2010 as far as the R.O.E. is concerned. At the same time, the bank overextended its liquidity and as a result its "Loans to Deposits" ratios were much higher than the sample's ones in 2008, 2009 and 2010. General Bank's Total Assets decreased by 13,3%, while Interest Income declined 31,81% and Net Interest Income decreased by 9,93%. However, the bank outperforms the sample in both the "Interest Income to Total Assets" and the "Net Interest Income to Total Assets" ratios for the entire examined period.

Larger banks did better than smaller ones in 2008 and 2010 while they were marginally behind in 2009, in the Return on Assets (R.O.A.). In the case of the Return on Equity, smaller banks outperformed larger ones in 2008 and in 2009, however this was reversed in 2010. Moreover, smaller banks had a much higher "Loans to Deposits" ratio than larger ones in 2008 and 2009, but this changed in 2010. Smaller banks had a higher "Net Interest Income to Total Assets" in 2008, but this was altered in 2009 and 2010. In contrast, larger banks had had higher "Interest Income to Total Assets" in all of the three years of the period examined. Overall, we find that the results of the comparison between larger and smaller banks are inconclusive concerning the question whether a bank's size is a critical factor in its efficiency and profitability.

Finally, in the comparison of the state controlled banks to the private banks we see an overwhelming supremacy of the first ones in most fields. More specifically, state owned banks had better R.O.A. and R.O.E. ratios for the entire three year period examined. State banks also exhibited more prudency in their lending, since their "Loans to Deposits" ratios were considerably lower than those of the private banks in 2008, 2009 and 2010. One could argue that was also the result of a lack of effort on the state owned banks' part to give out more loans, because their personnel had and still has permanence, whereas private banks' employees had job insecurity and had to meet strict quotas and performance evaluation criteria. In the "Net Interest Income to Total Assets" ratios we see again that state owned banks had better ratios for the entire period. The only ratio where private banks had better results than state owned ones was "Interest Income to Total Assets". Even in this case private banks underperformed the state owned ones in 2010. These findings indicate that state ownership contributes both to the efficiency and to the profitability of banks, especially in times of financial crisis.

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TABLES

TABLE 1 – DATA

NATIONAL BANK OF GREECE

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
53.440	83.820	6.434	56.291	4.066	2.048	633
58.129	91.220	8.224	58.081	3.677	2.231	404
58.243	96.305	8.780	52.471	3.508	2.429	334

EFG EUROBANK - ERGASIAS

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
43.570	93.065	3.190	44.467	6.827	1.536	263
42.015	99.856	3.745	45.807	5.311	1.332	0
43.539	90.372	3.375	40.522	4.745	1.347	-104

ALPHABANK

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
42.189	66.738	2.369	33.816	4.118	1.350	395
41.810	67.848	4.775	35.258	3.339	1.344	567
39.919	63.771	4.430	31.234	2.956	1.351	46

COMMERCIAL BANK OF GREECE

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
22.019	29.655	201	17.999	1.578	581	-396
21.111	28.100	1.113	15.061	1.032	503	-569
20.175	26.403	944	11.704	862	595	-836

PIRAEUS BANK

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
33.483	50.213	2.624	24.110	3.230	850	137
37.688	48.922	3.238	25.730	2.150	783	206
37.638	51.786	2.957	24.052	2.071	813	5

AGRICULTURAL BANK OF GREECE

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
20.955	27.661	889	20.990	1.193	606	14
22.166	31.989	1.327	22.683	1.142	730	-470
21.350	30.431	1.327	19.723	1.178	796	-358

POST BANK

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
7.004	14.904	533	11.231	757	322	2,5
7.911	17.960	1.224	12.658	622	260	41
7.999	16.565	1.277	12.140	617	364	-5

ATTICA BANK

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
3.386	4.519	321	2.957	271	103	14
3.922	5.259	583	3.434	233	107	17
3.710	4.781	521	3.331	232	31	0,221

MILLENIUM BANK

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
4.862	6.222	313	3.260	327	123	24
5.106	6.812	387	3.482	246	103	18
5.007	7.035	344	3.125	219	82	-48

MARFIN - EGNATIA BANK

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
12.206	18.956	696	11.328	897	251	3
12.907	22.739	1.042	10.490	638	206	-4
13.064	21.692	919	9.614	646	263	-35

GENERAL BANK

LOANS	TOTAL ASSETS	TOTAL EQUITY	DEPOSITS	INTEREST INCOME	NET INTEREST INCOME	E.B.T.
4.149	4.973	232	2.538	286	141	-18
4.006	4.841	277	2.666	237	150	-105
3.566	4.309	192	2.380	195	127	-401

TABLE 2 – RATIOS

NATIONAL BANK OF GREECE

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,008	0,098	0,949	0,0244	0,0485
2009	0,004	0,049	1,001	0,0245	0,0403
2010	0,003	0,038	1,110	0,0252	0,0364

EFG EUROBANK - ERGASIAS

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,003	0,082	0,980	0,0165	0,0734
2009	0,000	0,000	0,917	0,0133	0,0532
2010	-0,001	-0,031	1,074	0,0149	0,0525

ALPHABANK

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,006	0,167	1,248	0,0202	0,0617
2009	0,008	0,119	1,186	0,0198	0,0492
2010	0,001	0,010	1,278	0,0212	0,0464

COMMERCIAL BANK OF GREECE

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	-0,013	-1,970	1,223	0,0196	0,0532
2009	-0,020	-0,511	1,402	0,0179	0,0367
2010	-0,032	-0,886	1,724	0,0225	0,0326

PIRAEUS BANK

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,003	0,052	1,389	0,0169	0,0643
2009	0,004	0,064	1,465	0,0160	0,0439
2010	0,000	0,002	1,565	0,0157	0,0400

AGRICULTURAL BANK OF GREECE

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,001	0,016	0,998	0,0219	0,0431
2009	-0,015	-0,354	0,977	0,0228	0,0357
2010	-0,012	-0,270	1,082	0,0262	0,0387

POST BANK

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,000	0,005	0,624	0,0216	0,0508
2009	0,002	0,034	0,625	0,0145	0,0346
2010	0,000	-0,004	0,659	0,0220	0,0372

ATTICA BANK

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,003	0,044	1,145	0,0228	0,0600
2009	0,003	0,029	1,142	0,0203	0,0443
2010	0,000	0,000	1,114	0,0065	0,0485

MILLENIUM BANK

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,004	0,077	1,491	0,0198	0,0526
2009	0,003	0,047	1,466	0,0151	0,0361
2010	0,000	-0,140	1,602	0,0117	0,0311

MARFIN - EGNATIA BANK

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,000	0,004	1,078	0,0132	0,0473
2009	0,000	-0,004	1,230	0,0091	0,0281
2010	-0,002	-0,038	1,359	0,0121	0,0298

GENERAL BANK

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	-0,004	-0,078	1,635	0,0284	0,0575
2009	-0,022	-0,379	1,503	0,0310	0,0490
2010	-0,093	-2,089	1,498	0,0295	0,0453

TABLE 3 – AVERAGES

GENERAL AVERAGES (ALL OF THE BANKS IN THE SAMPLE)

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,001	-0,137	1,160	0,0205	0,0556
2009	-0,003	-0,083	1,174	0,0186	0,0410
2010	-0,012	-0,310	1,279	0,0189	0,0399

LARGER BANKS (TOTAL ASSETS>30.000)

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,0013	-0,259	1,1310	0,0199	0,0574
2009	-0,0031	-0,106	1,1580	0,0191	0,0432
2010	-0,0070	-0,190	1,3060	0,0210	0,0411

SMALLER BANKS (TOTAL ASSETS<30.000)

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,0006	0,010	1,1946	0,0212	0,0536
2009	-0,0028	-0,055	1,1932	0,0180	0,0384
2010	-0,0190	-0,454	1,2464	0,0164	0,0384

STATE OWNED BANKS

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	0,0029	0,041	0,9291	0,0227	0,0506
2009	-0,0014	-0,061	0,9362	0,0205	0,0387
2010	-0,0021	-0,059	0,9913	0,0200	0,0402

PRIVATE BANKS

	R.O.A.	R.O.E.	LOANS / DEPOS.	NET INTER. INC. / TOT. ASSETS	INTER. INC./ TOT. ASSETS
2008	-0,0001	-0,238	1,2920	0,0192	0,0586
2009	-0,0039	-0,095	1,3099	0,0175	0,0423
2010	-0,0181	-0,453	1,4429	0,0182	0,0397

European Austerity Policies' Constraints and Controversies under the Social Market Economy – the Case of Cyprus

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ABSTRACT

The current crisis in public finance across the EU has necessitated austerity policies. While recognizing the traditional economic reasoning behind such policies, the paper questions the effectiveness of such measures in encouraging growth and future development, especially when applied to different institutional structures. We propose a critical assessment of the so called European social model and justify a more consistent approach to the models of market economy, based on differences in the social welfare function. Classifying Cyprus economy as a social market economy, we identify its impact on the specificity of its consolidation policies.

KEYWORDS

Austerity policies, the European social model, the social market economy, Cyprus

JEL **CLASSIFICATION CODES**

P52, P17, B52

> "Austerity itself will almost surely be disastrous. It is leading to a double-dip recession that could be quite serious. It will probably make the Euro crisis worse. The short-term consequences are going to be very bad for Europe. But the broader issue is about the … social model - that allows Germany to weather a very big dip in GDP by offering high levels of social protection."
>
> Joseph Stiglitz (2012)

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1. INTRODUCTION

Thefinancial and economic crisis of 2008 naturally reduced government revenues and raised public spending in the EU (and elsewhere). Along with the enforcement of automatic stabilizers, discretionary fiscal policies and the efforts of governments to stabilize banking institutions led to an enormous increase public borrowing. The acceleration of fiscal deficits and government debt in particular in a number of Euro-zone member countries[1] turned to a central issue of economic debates and brought about the austerity policies, meant to budget consolidations through enforcing institutional and structural reforms across the EU member-countries.

2. AUSTERITY POLICIES

Thereinforced Stability and Growth Pact has launched a new set of rules (the so called "Six Pack" of five regulations and one directive) for economic and fiscal surveillance, institutionalizing the austerity policies as a "new model of economic governance." CEO (2011, p.1) They are structured along the following lines:

- Budget deficits. Member countries in excessive deficit procedure that are not taking adequate actions to bring their budget deficits below 3% of GDP should comply with specific recommendations within a period of three years and can be subjected to financial sanctions.

- Public debt. If the 60% reference for the debt-to-GDP ratio is not respected, the Member State concerned will be placed in excessive deficit procedure (even if its deficit is below 3%!), after taking into account all relevant factors and the impact of the economic cycle, if the gap between its debt level and the 60% reference is not reduced by 1/20th annually (on average over 3 years).A negative assessment of the progress made towards compliance with the debt benchmark during the transition period could lead to the opening of an excessive deficit procedure.

- New expenditure benchmark. A country specific medium-term budgetary objective provide guidance for budgetary planning and execution and places a cap on the annual growth of public expenditures in accordance with equivalent permanent revenues growth. Deviations from this benchmark can lead to a financial sanction.

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[1] the so called PIGS - Portugal, Ireland, Italy, Greece and Spain

- Reducing macroeconomic imbalances. An Excessive Imbalances Procedure isset up to identify and correct macroeconomic imbalances and serious gaps in competitiveness. It relies on the following main elements:

- Preventive and corrective action: The new procedure allows the Commission and the Council to adopt preventive recommendations at an early stage before the imbalances become large. In more serious cases, there is also a corrective arm where an excessive imbalance procedure can be opened for a MemberState. In this case, the MemberState concerned will have to submit a corrective action plan with a clear roadmap and deadlines for implementing corrective action. Surveillance will be stepped up on the basis of regular progress reports submitted by the Member States concerned.

- Rigorous enforcement: A new enforcement regime is established for euro area countries. It consists of a two-step approach whereby an interest-bearing deposit can be imposed after one failure to comply with the recommended corrective action. After a second compliance failure, this interest-bearing deposit can be converted into a fine. Sanctions can also be imposed for failing twice to submit a sufficient corrective action plan.

- An early warning system: an alert system is established based on an economic reading of a scoreboard consisting of a set of ten indicators covering the major sources of macro-economic imbalances.

  - ✓ 3 year backward moving average of the current account balance as a percent of GDP, with the a threshold of +6% of GDP and - 4% of GDP;
  - ✓ net international investment position as a percent of GDP, with a threshold of -35% of GDP;
  - ✓ 5 years percentage change of export market shares measured in values, with a threshold of -6%;
  - ✓ 3 years percentage change in nominal unit labor cost, with thresholds of +9% for euro-area countries and +12% for non-euro-area countries.
  - ✓ 3 years percentage change of the real effective exchange rates based on HICP/CPI deflators, relative to 35 other industrial countries, with thresholds of -/+5% for euro-area countries and -/+11% for non-euro-area countries;
  - ✓ private sector debt in % of GDP with a threshold of 160%;
  - ✓ private sector credit flow in % of GDP with a threshold of 15%;
  - ✓ year-on-year changes in house prices relative to a Eurostat consumption deflator, with a threshold of 6%;
  - ✓ general government sector debt in % of GDP with a threshold of 60%;

✓ 3-year backward moving average of unemployment rate, with the threshold of 10%. (see European Commission (2012a)

3. CONTROVERSIES OF THE AUSTERITY POLICIES

The imposition of the "Six Pack" regulations is based on the hypothesis of expansionary fiscal contraction, assuming that "confidence inspiring" [Alesina A. (2010)] policies will foster economic recovery. The perception of success is based on Ricardian Equivalence Theorem and the empirical evidence behind it is related to the experience of fiscal consolidation and austerity policies in Denmark (1983-86), Ireland (1987-89), Finland (1992-95), Sweden (1993-1998), and Canada (1994-98). However, as R. Perotti (2011), M. Guili (2012), and even the IMF experts (2010) show, these examples are irrelevant to the current public finance crisis in the EU. In Canada case, reduction in government spending led to a growing indebtedness of households, which would not be consistent with the thresholds of the "Six Pack". In Finland and Sweden fiscal consolidation and rise in competitiveness was based on currency depreciation, which is irrelevant to the Eurozone. Irish success coincided with the depreciation of the British Pound and was based on exports expansion, which cannot be the case of the big group of countries in the Eurozone, whose exports are mainly directed to other member countries. Only in Denmark the driving force of growth was the domestic household demand, but in a few years it led to a loss of competitiveness and to a long slump. In all cases of fiscal consolidation interest rates fell fast and significantly, which is unlikely at the moment in the Eurozone.

Thus, the "evidence" from the past is a vulnerable argument for the austerity policies. On the other hand, their philosophical fundament – the Ricardian Equivalence Theorem is heavily criticized by a number of scholars and institutions.

Keynesian tradition argues that austerity policies would bring about deficient demand, which in turn will reduce taxable income and tax revenues. In the depressed economy this enforces deflationary pressure and thus, raises the debt burden. Not only Keynesian tradition suggests a polar view on the current crisis. J. Stiglitz (2012) blames the austerity measures to weakening the economy and freezing the capital markets. P. Krugman (2012) calls the austerity approach "a destructive economic doctrine" and argues that it has produced "Depression-level slumps and Depression level unemployment"

A thorough research on consolidation policies in seven European countries by A, Heise and H, Lierse (2011) led them to the conclusion that "Regardless of the different magnitude of the austerity efforts and the policy fields concerned, there can be no doubt that all austerity programs are

regressive in nature and that the option of raising incomes is being exercised far less frequently than spending cuts –and this applies especially in the social realm"

Socially oriented scholars and organizations raise their concerns on the destruction of the so called European Social Model. As J. Stiglitz (2012) observed: "The countries that are doing very well in Europe are the Scandinavian countries. Denmark is different from Sweden, Sweden is different from Norway - but they all have strong social protection and they are all growing." See Table 1.

From this perspective, it is important to make a difference between the so called European Social Model and the model in the Scandinavian countries, which is known as the Social Market Economy

Table 1. Government spending, budget surplus (deficit), and government debt as a % ofGDP

	Government expenditure				Government revenue				Budget surplus (deficit)				Government debt			
	2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011
Belgium	49.8	53.8	52.8	53.5	48.8	48,1	48.9	49.4	-1.0	-5,6	-3,8	-3,7	89.3	95.8	96.0	98.0
Bulgaria	38.3	40.7	37,4	35.2	40.0	36.3	34.3	33.1	1.7	-4,3	-3,1	-2.1	13.7	14.6	16.3	16.3
Czech Rep.	41.2	44,9	44,1	43.4	38.9	39.1	39.3	40.3	-2.2	-5.8	-4,8	-3.1	28.8	34.4	38.1	41.2
Denmark	51.5	58	57,8	57.9	54,8	55,2	55.1	56.0	3.2	-2.7	-2,5	-1.8	44.4	40.6	42.9	46.5
Germany	44.0	48,1	47,9	45.6	44	44,9	43.6	44.7	-0.1	-3.2	-4,3	-1.0	66.7	74.4	83.0	81.2
Estonia	39.5	45,2	40.6	38.2	35,5	43.2	40.9	39.2	-2.9	-2.0	0,2	1.0	4.5	7.2	6.7	6.0
Ireland	42.8	48,8	66.8	48.7	36,5	34.8	35.6	35.7	-7.3	-14.0	-31,2	-13.1	44.2	65.1	92.5	108.2
Greece	50.6	53,8	50,2	50.1	40.7	38,2	39.7	40.9	-9.8	-15,6	-10,3	-9.1	113.0	129.4	145.0	165.3
Spain	41.5	46,3	45,6	43.6	37	35,1	36,3	35,1	-4.5	-11,2	-9,3	-8,5	40,2	53,9	61,2	68,5
France	53.3	56,8	56,6	55.9	49	49,2	49,5	50,7	-3.3	-7,5	-7,1	-5.2	68,2	79,2	82,3	85,8
Italy	48.6	51,9	50,5	49.9	45,9	46,5	46	46,1	-2.7	-5,4	-4,6	-3,9	105,7	116	119	120
Cyprus	42.1	46,2	46,4	47.3	43,1	40,1	41,1	41,1	0.9	-6,1	-5,3	-6,3	48,9	58,5	61,5	71,6
Latvia	39.1	44,4	43,9	39.1	34,9	34,7	35,7	35,6	-4.2	-9,8	-8,2	-3,5	19,8	36,7	44.7	42,6
Lithuania	37.2	43,8	40,9	37.5	33,9	34,3	33,7	32	-3.3	-9,4	-7,2	-5,5	15,5	29,4	38	38,5

Luxemburg	37.1	43	42,4	42.0	40,1	42,2	41,6	41,4	3.0	-0,8	-0,9	-0,6	13,7	14,8	19,1	18,2
Hungary	49.2	51,4	49,5	48.7	45,5	46,9	45,2	52,9	-3.7	-4,6	-4,2	4,3	73	79,8	81,4	80,6
Malta	44.1	43,5	43,3	43.0	39,5	39,7	39,5	40,2	-4.6	-3,8	-3,7	-2,7	62,3	68,1	69,4	72
Netherlands	46.2	51,5	51,2	50.1	46,7	46	46,2	45,5	0.5	-5,5	-5,1	-4,7	58,5	60,8	62,9	65,2
Austria	49.3	52,9	52,6	50.5	48,3	48,7	48,1	47,9	-0.9	-4,1	-4,5	-2,8	63,8	69,5	71,9	72,2
Poland	43.2	44.5	45,4	43.6	39.5	37,2	37,5	38,5	-3.7	-7,4	-7,8	-5,1	47,1	50,9	54,8	56,3
Portugal	44.8	49,8	51,3	48.9	41,1	39,6	41,4	44,7	-3.6	-10,2	-9,8	-4,2	71,6	83,1	93,3	108
Romania	39.3	41,1	40,2	37.7	33,6	32,1	33,4	32,5	-5.7	-9	-6,8	-5,2	13,4	23,6	30,5	33,3
Slovenia	44.2	49,3	50,3	50,9	42,4	43,2	44,2	44,5	-1.0	-6,1	-6	-6,4	21,9	35,3	38,8	47,6
Slovakia	34.9	41,5	40	37.4	32,8	33,5	32,4	32,6	-2.1	-8	-7,7	-4,8	27,9	35,6	41,1	43,3
Finland	49.3	56,1	55,5	54.0	53,6	53,4	52,7	53,2	4.3	-2,5	-2,5	-0,5	33,9	43,5	48,4	48,6
Sweden	51.7	54,9	52,5	51.3	53,9	54	52,4	51,4	2.2	-0,7	0,3	0,3	38,8	42,6	39,4	38,4
U.K.	47.8	51,5	50,3	49.0	42,9	40,1	40,2	40,8	-5.0	-11,5	-10,2	-8,3	54,8	69,6	79,6	85,7

Built on: Eurostat News Release. Euroindicators 62/2012 - 23 April 2012. Provision of deficit and debt data for 2011 - first notification.pp. 4-9. In 2011, the government deficit of both the euro zone and the EU27decreased in absolute terms compared with 2010, while the government debt rose in both areas. In the eurozonethe government deficit to GDP ratio decreased from 6.2% in 20103 to 4.1% in 2011, and in the EU27from 6.5% to 4.5%. In the eurozone the government debt to GDP ratio increased from 85.3% at the end of 2010 to 87.2% at the end of 2011, and in the EU27from 80.0% to 82.5%. the government expenditure ratio decreased between 2010 and 2011, while the government revenue ratio increased

4. THE EUROPEAN SOCIAL MODEL AND THE SOCIAL MARKET ECONOMY

Any model is a theoretical construction. Its purpose is to identify and structure the salient features of the studied subject in order to explain what is searched to be explained. Economists build and use models in order to examine theoretically and empirically the nature and prospects of social progress and clarify the essentials of economic activity of individuals and social groups.

In her statement on the European social model, A. Diamantopoulou (2003b),[2] remarks that "a 'model' is a notion often developed in order to explain what one is *not*, rather than what one is" and goes further in her analysis along the lines of comparing the European social model to the "Anglo-Saxon" and the Japanese ones. The European Trade Union Confederation (2007), as well, emphasizes on differences as

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[2]She has served as the former European commissioner for employment, social affairs and equal opportunities, between 1999–2004

an argument for identifying the European Social Model: "EU Member States share a common vision of how society should be organized, which is different from other parts of the world. This has come to be known as the European Social Model."

Scholars' publications also outline the importance of defining the European social model (ESM) in contrast to models elsewhere. J. Crahl and P. Teague (1997) define the European social model as a specific combination of comprehensive welfare systems and strongly institutionalized and politicized forms of industrial relations", as opposed to the U.S. welfare system. D. Vaugham-Whitehead (2003) defines the "ESM as a set of European Community and member-state legal regulations, but also as a range of practices aimed at promoting a voluntaristic and comprehensive social policy in the EU… The ESM also represents sharing common views and principles on different social issues and their importance within the European Union construction in contrast with the Anglo-Saxon model."[3]

Therefore, by outlining the features of this model, we can distinguish it from any other social models. These features, however should apply to ALL member states, as claimed in the model's identification. Thus, it is not surprising that both scholars' research and "the official recognition" of this model as pan-European concept are quite vague in featuring its salient characteristics. In addition, A. Diamantopoulou (2003a) argues that the term ESM is not limited to the social model in a narrow sense, but includes the employment policy as a cornerstone, assuming reform of labor markets as a must. Going along these lines, however, one of the most prominent analysts of the ESM, A Sapir (2006), proves that "when thinking about such reforms the notion of a single 'ESM' is largely irrelevant" and instead, distinguishes four different European social models. The basis for this classification is "their performance in terms of efficiency and equity". A. Sapir divided the EU-15 countries into four groups based on their efficiency and equity: the Mediterranean (low equity and low efficiency); the Continental (high equity and low efficiency); the Anglo-Saxon (low equity and high efficiency); and the Nordic (high equity and high efficiency).

Sapir's classification almost reproduces the typology of models, proposed by the influential Austrian economist K. Aiginger, though the latter sets his approach on different criteria. Aiginger (2010) defines the ESM in terms of responsibility, regulation and redistribution and distinguishes the Scandinavian, the Continental (also known as corporatist model, and sometimes as the "Rhineland model"), the Anglo-Saxon (or the "liberal" model), the Mediterranean and the "catching-up" model (of the new member-countries). K. Aiginger himself gives his respects to the seminal work of the Danish sociologist G. Esping-Andersen (1990), "Three Worlds of Welfare Capitalism" and his classification of welfare models into: Liberal (encompassing Anglo-Saxon

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[3] At the moment, we will ignore the unclear basis for distinguishing the above models.

countries), Conservative (or Corporatist-Statist, including continental and Mediterranean countries, the latter classified in a fourth model later) and Social Democratic (encompassing Scandinavian countries), on the basis of the nature of state and state differences, as opposed to the anonymous market forces.

What is noteworthy here is that we are confronted to a number of classifications of social models, based on different criteria, but coming to similar outcomes. It seems that a typology, based on geographical-cultural distinction comes to the same models as the one based on political fundament.[4]

No doubt that any classification is abstract and it makes sense only from the perspective of the purpose of scientific modeling. European social models have been distinguished for the sake of the achievement of decent social standards and sustainable growth. Comparative analysis aims to identify the shortcomings of the different ways to organize welfare states, labor markets, financial systems, corporate governance, firms and industries. This is why Aiginger and Sapir argue that it is theoretically justified to talk of socio-economic, instead of social models. On the one hand, economic institutions shape the social welfare system; on the other hand, social welfare rules and policies affect the performance of economic institutions.

The current sovereign debt crisis in the EU and the Eurozone appeal for tough austerity measures, which will necessarily involve high opportunity cost in terms of social safety nets and job security. However, this cost and respectively the necessity of economic restructuring varies tremendously among nations. Thus, theoretical socio-economic modeling might be a tool for understanding and explaining the roots of economic performance not only during the current period of economic slowdown. It could be helpful in explaining the persistence of institutional and structural changes in different models and in shaping economic policies.

From this perspective, we cannot be satisfied by the "national", "geographical", or "political", or the mix of the above criteria, set as a basis to distinguish socio-economic models. One can bring a number of counterarguments to oppose such an approach. Here we will give just a few examples.

It is broadly known that the vast majority ofCypriots belong to theGreek culture and share Greek national traditions. Moreover, Cyprus belongs geographically to the Mediterranean region and if we accept the above classifications of socio-economic models, we will not be able to explain the economic performance and social standards in the country that significantly differ from those of Greeks, Italians, Spanish and Portuguese. So, in which model shall we classify Cyprus?

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[4] We will put aside here the inconsistency of adding the Mediterranean model to the Liberal, Corporatist-Statist and Social Democratic models in Esping-Andersen's classification and mixing the criteria.

If we adopt the "political" approach, then how can we explain the persistence in the performance of economic and social institutions in Sweden or in France, for instance, no matter which ideological views prevail in their economic policies. Just to remind that theFrench socialist party started and enforced the process of privatization in the 1980s, and that the Swedish conservative cabinet has had the highest social spending as a percentage of GDP during the economic slowdown.

And one more argument: it has been broadly recognized that during the last decade opposing political parties in many postcommunist countries have had almost identical economic and social proposals. Nowadays, it seems that whatever political party gets the vote in Greece, itwill have to follow the path of severe austerity measures.

Therefore, it is necessary to propose a different approach to classifying socio-economic models to explain differences in their performance and in social opportunity cost during the current economic slowdown to set the perspectives of institutional and structural changes.

Our proposal for modeling the versions of social and welfare systems is based ondifferences in the **social welfare function.**

The social welfare function reflects the subordination of economic and social priorities in the society that construct the *coordination* mechanisms of the specific model of the market economy built in the country.

We adopt a fairly traditional approach to the nature and functions of the coordination mechanism of economic activities and classify the core economic problems of the society along the lines of their sources. Namely, these problems arise from scarcity of resources, technological changes and changes in taste and preferences. Thus, any economic and social system needs a specific coordination mechanism to achieve efficiency in resource allocation, in decision-makers motivation and in output distribution. While "the invisible hand" is the coordination mechanism under the modern market economy, its functional and social failures require relevant non-market institutions to contribute to the achievement of efficiency in allocation, motivation and distribution. These institutions are both formal an informal and their establishment is shaped by the social welfare function.

Depending on the priority given to the functions of the coordination mechanism of the economy, we can distinguish three major models of the market economy in the industrialized world, and respectively in the EU:

-        The *guided* market economy, raising resource allocation as a priority and building its institutions upon government intervention into this market function. The model is presented in France,

Greece, Italy, etc. At the same time we identify it in Japan, South Korea, etc. in the Far East, thus, putting aside the "geographical" approach to model classification.

- The *modified* market economy giving a priority to incentives in motivation (the Irish and UK economies, for instance, but the US and Australia, as well.)[5];

- The *social* market economy, prioritizing efficiency in income distribution. The model is built in Germany, Scandinavian countries, Cyprus.

Each of these models has a very well articulated business system[6], financial system, structure of labor market institutions, social welfare regime, etc, fitting the chosen subordination of priorities in the social welfare function.

While case studies reveal specific features in economic and social institutions in individual countries, we can identify common driving forces of motivation in the countries classified under each model.They are not only self-sustaining but also self-proliferating.

5. THE SOCIAL MARKET ECONOMY OF CYPRUS AND THE CONSTRAINTS OF THE AUSTERITY POLICIES

5.1 The philosophical basis of the social market economy

The earliest proponents of the social market economy developed their vision on the basis of the market inability to provide equity and social welfare for all. While these are not functional market failures we can call them "social market failures", meaning all cases when market outcomes confront the value system of the society. In the 19th century English society equity, universal access to education and healthcare were net yet recognized as basic social values, but J.S. Mill envisioned the evolution of social market failures and revealed the mechanisms that could counteract them. Later scholars who articulated the social market economy philosophy in the 20thcentury wereErnst

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[5]the term *modified* market economy has been borrowed from M. Schnitzer (See: Schnitzer M. C., *Comparative Economic Systems*. Sixth Edition. South-Western Publishing Co Schnitzer, 1994) . We preferred it to the" Anglo-American model" in order to avoid the national element in economic and institutional classifications.

[6]Business systems are "distinctive configurations of firms and markets which have become established in particular institutional contexts as the dominant ways of structuring economic activities"Whitley, R. (1992) ; See also: Pedersen T. and S. Thomsen (1999).

Wigforss, Gunnarand Alva Myrdal, and Gustav Moeller (in Sweden) and German economists from the Freiburg school, the most important representatives being Walter Euken and Alfred Muller-Armak.

John Stuart Milldeveloped a theoretical vision of the economic institutions of the social market economy in the early 19thcentury. He believed that while the free market forces provided an efficient functional mechanism to production and exchange, the distribution of personal income was subject to modification. Income distribution was determined not only by competitive forces, but by society's institutional arrangements, as well. Thus the distribution of income could be modified through introducing working rules related to subsidies, maximum work hours per day, and wealth and inheritance taxes – the revenue from which could be reallocated to selected groups in any proportions desired. Mill did not advocate state nationalization of industry (except for natural monopolies) or state provision of education, but supported voluntary associations of citizens, and universal education. He believed trade unions would enhance the bargaining power of workers and the growth of cooperatives would promote greater harmony and cooperation as well as greater profits through economies of scale. As a result, workers' wages would increase. Education was a primary measure for social reform. However, it should be a prerogative of cooperatives and associations rather than of government because monopolizing it by government cannot assure equity.

The ideas of social integration and equity became the foundation of the Swedish institutional reforms in the 1930s. Its proponents stressed the need for state-sponsored social and economic reform for the purpose of promoting the well-being of lowerincome families. They justified the role of the state and associations in the creationof a more egalitarian society. The state would ensure that all citizens had security and opportunity through publicly funded health and welfare programs, including the provision of adequate housing, employment, pensions, and social benefits.

The principal idea of the Freiburg schoolis that the state should play an active role in ensuring the workability of the competitive market system and the market system should serve as the major instrument for allocating resources. The economic goals of the society are the maintenance of price stability and full employment, and the achievement of stable economic growth, while social goals are social security, social equity, and social progress.

5.2. Characteristics of the Social market economy.

- The first principle of the social market economy remains that resource allocation should follow the dictates of the market. The state is responsible for ensuring the workability of competition.

This is the functional mechanism through which society will achieve highest economic growth and prosperity.

- Significant share of medium-size businesses in employment and income creation and distribution

Along with Germany, and Scandinavian countries, Cyprus records for the share of medium-size businesses in employment and income are around 20%, while in Greece and Italy they are around 10%

- Promotion of asset formation among the lower income groups through cooperatives and associations

A total of 140 professional business associations are organized under the Cyprus Chamber of Commerce. TheCyprus employers and industrialists federation comprises more than 55 main professional associations and employs more than 60% of the private sector workforce, a percentage, which is one of the highest in the world. They participate actively in local government educational, social and welfare programs, along with the representatives of the powerful Cyprus cooperative movement (having significant shares in retail trade and finance).

- Direct transfer payments not only to the poor like elsewhere, but to everyone to contribute equal start and to fair competition

Cyprus educational policy assumes direct payments to families of students, paying tuition fees in private universities at home and abroad. All Cypriot families can receive a one time grant for building (or purchasing) a house and until recently civil servants could get a low-interest loan to purchase a car.

- Regulations of the labor market on a consensus basis – between trade unions, employers' associations and the government.

- Strong involvement of local government in managing welfare programs in coordination with local business associations and unions.

- Special emphasis on the security of employment and insurance against risk

In case of job cuts, Cyprus workers are eligible to receive a significant compensation from the redundancy fund, depending on their tenure at the company, cutting the job.

- Support of salaries increase along with the rise in profits and productivity.

- Integration between financial institutions and business enterprises and high debt/equity ratio as a tool to overcome the influence of unions in decision making.

- Conservative monetary policies, in order to prevent high inflation rates provoked by the social pressure.

5.3. The Austerity policy under the social market economy in Cyprus

The "Six Pack" regulations are addressed to all member states no matter what are the sources of deviation of their economic indicators from the benchmark. On the one hand we would support the traditional economic reasoning behind prudent public spending and debt burden on future generations. On the other hand, even temporary austerity measures will most probably hamper the weak recovery in the EU. Long run structural and institutional changes, as arule, generate short run unemployment, and some compliance cost that would raise economic and social burden of the adjustment.

The pressure to coordinate budget planning with The European Commission threats with intervention in determining budget priorities. This approach ignores of specific institutions of the model of the market economy, the degree of the economy's openness and its level of living standards as regard the other member states.

For instance, Cyprus has been generating large current account deficits, though balanced by the strong capital inflow during the years of economic expansion. The recent decrease in imports due to the fall in income would be assessed as the right move towards the supported reduction in current account deficit.[7]

The threshold set on the increase in nominal labor cost, assumed to raise competitiveness, might hamper social policies and induce structural unemployment and emigration of skilled labor to regions with better remunerations. Such a perspective might raise the demand for social expenditures, while regulations mean to reduce the level of public spending.

Under these conditions the member states have to choose an appropriate balance of expenditure reductions and revenue raise in government budget to satisfy Brussels' the requirements. While The EC and the IMF recommend an emphasis on the expenditure side,[8] Perotti (2011) reveals that "spending cuts are less important than is commonly believed" and that

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[7]external imbalances do not necessarily need to be worrisome if deficits/surpluses are efficient market-based responses to changes in underlying fundamentals and the related saving and investment decisions of households or businesses. Similarly, 'downhill' capital flows from rich to less well-off countries are usually seen as a positive development that facilitates economic convergence as they help catching-up countries cover their domestic financing gaps. See: European Commission (2012b).

[8]"experience from successful consolidations suggests that fiscal adjustment should primarily come from the expenditure side" "One major risk inherent in tax-side consolidation is that it can create disincentives to engage in serious expenditure-based consolidation focusing on inefficiency in public spending. of the budget, See European Commission (2012b)

"typically these consolidations relied on tax increases to a much larger extent than previously thought"

Another crucial issue of consolidation policies is their impact on different income groups. Heise and Lierse (2012) summarize that "While most countries are making savings at the expense of those on low incomes, only a few governments are pursuing a strategy which also involves higher earners in debt consolidation"

From the perspective of the social market economy, we might address the above conclusion to the package of austerity measures adopted inCyprus. They are mainly tax based and aim at tackling the fiscal deficit without putting at risk major social achievements and the competitiveness of Cyprus as a financial center. The measures are as follows:

1. Introduction of new tax brackets on the highest personal income and an increase in the marginal tax rate on annual income above €60,000 from 30% to 35%.

2. Tax incentives for highly-paid employees. In order to encourage the relocation of new businesses to Cyprus, 50% of the income of employees relocating to Cyprus with an income exceeding €100,000 will be exempt from tax for the first five years following the relocation.

3. The Special Defense Contribution on dividends is increased from 15% to 20% affecting mostly individuals earning dividends. The Special Defense Contribution on interest is increased from 10% to 15%, affecting individuals earning bank interest. Individuals whose total income does not exceed €12,000 as well as Provident Funds continue to be taxed at 3%.

Companies generally remain unaffected as their profit from interest should in most cases be subject to income tax at 10% and be exempt from Special Defense Contribution.

4. All companies (except for dormant and those not owning any assets) are required to pay an annual fixed duty of €350. For groups of companies the total duty is capped at €20,000.

5. Where a loan or financial facility is granted by a company to its directors, shareholders, their relatives, it is deemed that the individual has a monthly benefit equivalent to 9% annually of the above mentioned financial facility. Such amount is be considered as income and will be taxed according to the Income Tax provisions.

6. Special Contribution for Public Officials, Public Employees and Retired Public Officials and Employees**,** up to 3% based on their annual salary

7. The contribution rates that apply for public officials, employees and retired employees apply for the private sector as well, for two years as from January 1 2012. The contribution is

shared equally by the employer and the employee. The contribution rates also apply to self-employed individuals. .

8. Special contribution is not be levied on the following:

- Retirement gratuity;

- Amounts paid by welfare funds;

- Remuneration of foreign diplomatic and consular representatives who are not citizens of the Republic;

- Remuneration of Cypriot ships' crews; and

- Allowances to cover business expenses for an employer.

10. Increase of the Standard VAT Rate from 15% to 17%. The reduced rated of 5% and 8% have not been affected.

11. Formation and Operation of an Independent Financial Stability Fund which aims at resolving the financial crisis, ensuring financial stability and cleansing of affected credit institutions. All credit institutions incorporated in Cyprus and their branches have an obligation to pay a contribution fee that equals to 0, 03% of the liabilities of the covered institution.

12. The salaries of public sector employees are frozen for a period of two years.

As the package of austerity measure shows, they have been assigned in accordance with the priorities of the social market economy and predominantly affect middle and higher income groups. Since main necessities are a subject of a reduced VAT rate, even the burden of higher taxation on consumption is aimed to be shifted from households with the lowest income. Similarly, the temporary freeze on public sector salaries is not expected to affect lower income groups since as a rule, public sector salaries are relatively high in Cyprus.

In conclusion, apparently even though only a part of the above measures have been implemented in the second half of 2011, the short run target of pulling the deficit down from projected 6.5% of GDP, has been achieved at a much lower social cost than in many other affected countries across the EU.

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THE DEBT CRISIS IN THE EUROZONE AS A FACTOR DEPLOYMENT OF THE ECONOMIC AND POLITICAL SYSTEM GOVERNANCE THROUGH THE THEORY OF "WORLD-SYSTEM": THE CASE OF GREECE

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ABSTRACT

The European Union since its creation caused the scientific community bifurcation about whether is a form of state entity consisting of statehood dependent state structures (Ernst Haas, Stanley Hoffmann, Moravcsik) or is a characteristic international organization (Lindberg, Scheingold, Hix). However, the dominant trend in recent years, in the EU approach is to be regarded as a system of multilevel governance, with integration of European in a larger set of systems of governance.

Symbolic reference point for the start of multilevel perspective studies for the EU was the study of Fritz Scharpf's "the trap of joint decision" where the used analytical categories, forms, rules of decision and institutional configurations is a very large extent on international relations and comparative politics or EU surveys are very general and non specific, with the underlying idea of a political system consisting of two interrelated levels which is the analytical determination of the federal regulatory system without the teleology of the Euro-federalism.

Theory of World-Systems addresses the reality as a single indivisible entity. The World-System, as presented by I.Wallerstein, not simply a system that uses the world. Is the world. The theoretical background of World-systems theory came from I.Wallerstein who was influenced by the theory of addiction R.Prebisch and historic school F.Braudel and emerged mainly as a response to modernization theory and the theory of stages. The Wallerstein and others argue that the now modern system has entered into orbit "crisis" which is expected to gradually replaced by a new World-system over the next 50-100 years. The structural features of this new system is unknown to him and claims that will shape the coming years as a result of struggle.

Beginning in 2009 with the Greek debt crisis occurred in the EU a debt crisis which gradually extended to other core countries of the Union such as Italy, Portugal, Ireland and Spain. This crisis has gradually evolved into not only a systemic crisis of the EU but also as a socio-political crisis. To address it in recent times undertaken several initiatives and policies.

In the present study is an approximation of these policies as expressed through the two

interventions of the EU for the debt crisis in Greece through two loan agreements with the country and through the support mechanism, which was created. The approach is through the perspective of the theory of World-Systems because through this approach at first means the ousting the countries as units of analysis and their replacement by the "European system". This is the methodological difference from other theoretical approaches as well not restricts the analysis on political, economic or cultural boundaries, but is based on links created by the economic processes of the World-System.

KEYWORDS

Dept Crisis, Economic and Political Governance

JEL CLASSIFICATION CODES

P16, F55, F53

1. Introduction

In 2007, 78 yearsafter the 1929Great Depression, anew financial crisisbroke outin the U.S.,whoseultimatecause was subprime mortgages. Soon thiscrisisspreadto othercountriessuch as Iceland, Great Britain,etc.

As a consequence of this financial crisis, the Greek financial crisis broke out in late 2009, but in this case the debt did not belong to financial institutions but to the state-public. The outbreak of the Greek public debt crisis opened the Pandora's Box for many of the European periphery economies to which it gradually spread, bringing to light deeper structural economic weaknesses of the EMU. The debt crisis progressively affected Ireland along with Portugal and to a lower extent Spain and Italy.

Shortly afterthe credit rating downgradeof Greece byinternational credit rating agencies, theEuropean Unionappeared as if it either did not want toact orit could not do so, resulting in the gradualdiffusionof the crisis to othercountrieswith inherentweaknessesin their economies.Gradually, this attitude changed andthrough theassistance of the InternationalMonetaryFundactions were taken to rescue the EU-EMUcountrieswhich faced fiscal debtproblems.

The policiesfollowedthroughout thisperiodhave incurredseverecriticism with regard totheir effectiveness,especially afterOctober 2011,when anewrescue packagefor Greecewas decidedin whicha haircut of the Greekdebt was realized.

The purpose ofthis paperis not to criticize the economicefficiency ofthese economic actionsin lightof the economicdata butto examinethe political consequenceswhich they have brought about into thepolitical scene of the EU under the World Systems theory.

2. The World Systems Theory

The theoreticalbackground ofthe world systemstheory was set by I.Wallerstein, who was influencedby R.Prebisch's Dependency Theory and F.Braudel's School of History,constituting theanswerto the

Modernization theory,positioningagainst the division ofsocialsciences intodistinctscientificfieldssuch aspolitics, economyand facingreality asasingle indivisibleentity.

The modernizationtheoryregards the world as dividedinto autonomoussocietieswhoseboundariescoincidewiththe state borders.Societies are classifieddifferentlyinanimaginaryscale based on their development.Asexpected, then, thedeveloped countriesare at the topof this rank while thethird world countriesat its bottom; thestates whichare inanintermediate stage of development are locatedin the middle. Thus, what the states lacking development should do is followthe modelof developed countries.

This theory has been challenged by dependency theories which argued that the prosperity enjoyed by the developed countries was owed to the privileged relationship they kept with the rest of the world, using historical and analysis data. The World Systems theory was structured upon this view, arguing that the development and prosperity of developed countries is the result of inherent characteristics of the capitalist mode of production, based on three elements:

a)The existence ofasinglegrowing globaleconomy,

b) the creation and expansion of states that act as asuperstructureof the World Economywhose operation is toretain therelationshipbetween thecore andthe periphery, and finally

c) the relationship between capital and workwhichallows for the continuousreproductionof this relationshipthrough endless capital accumulation.

World economyaims at the constantaccumulation ofcapital in conjunction with the creation of statesthat are constantlytryingto expandtheir sovereignty andtheir economicbenefits; countries are classified into core and periphery states due to the operationof the World Economy which is based onaglobaldivision oflabor through therelationship thatexistsbetween capitaland labor. All the above explain the operation of World Systems and theiragents, puttingstates aside as a unit of analysis.

3. The course of the World System throughout history

According toWallerstein, the World Systemwent throughthreestages during its development:

a)Thefirststageof developmentof the World System was that of the Reciprocity Mini Systemsthat refersto primitivesocietieswhich coveredaverysmall geographicarea andinwhich theessentialdivision of labor for the survivalof the society did not go beyond this geographical region; they operated on their own, isolatedfrom othersocieties,havingvery lowtechnological level.Over theyears,some ofthesesocieties gained power for some reason, i.e. due to technologicaladvances.Thus, theyengaged inexpansionistwarswithneighboringsocialpatterns,eventuallyreachingin some casestotheir conquest and, thus, leading to the creation of the nextstageof the WorldSystem.

b)The World Economies. At this stage the conquerors imposed the distribution of a part of the wealth produced by their subjects as a tribute. By doing so, a surplus was created which was able to sustain a new non-productive class of officers and, in general, the wider administrative - military mechanism. What was structured at this point was a kind of political entity which was being structured around the

figure of the Emperor of the ruling class, providing a specific division of labor. This world system form presented many contradictions, which were the causes that would lead it into a crisis, bringing about its inevitable replacement. Seeing through the main factors that led to its replacement, it could be said that these were made up of the concentration of production around warfare and the constant conflict between the military and political elite for possession of power. This fact amplified the expansion of the administrative and military mechanism, whose goal was to protect the existing elite. In this way, the tax burden of direct producers grew bigger.

c)The gradual erosion of the World Economies system led to the birth of a new system in Western Europe, that of the Capitalist World Economy. This system was initiated in the 16th century in Western Europe and has endured to this day, achieving its extension throughout the globe, although Wallerstein and others argue that it has entered a crisis orbit and will gradually be replaced by a new one. Its differentiation with respect to the World Economies is the wealth redistribution mechanism that is not in the hands of a centralized political entity but in the theoretical entity of the marketplace.

4. The CapitalistWorldEconomy

ThemaincharacteristicofthisperiodistheCapitalAccumulationlaw. This law conditions the modern production process and whoever producer does not adopt it s/he is bound to be led to bankruptcy. If a definition for capitalism were to be provided according to Wallerstein, it could be said that Capitalism is the continuous accumulation of capital by individuals and enterprises in a perpetual process, not a system in which people and enterprises produce for profit or people who seek wage labor (Wallerstein 2004). What is absent from this process is a political entity that operates simultaneously with the World Economy. Therefore, there is a site, the production process one, which operates lawlessly, as there is no entity that could set the rules and regulations of production. Instead, there are 'political Chinese Walls' which are provided by the transnational political system resulting in the creation of areas (Core states, Periphery, Semi-periphery), (Afezolis 2011).

The main feature of the transnational political system is Repression–Enforcement onto their interior as well as onto a transnational level, contributing, thus, to capital accumulation (Wallerstein 1991). The internal political enforcement allows the National Ruling Class to exploit the working class through the legalization of the possession of the produced commodity's goodwill for the sake of the continuous accumulation of capital. The transnational political enforcement is the repression of the National Ruling Classes by others and takes the form of an unequal exchange or otherwise interstate commerce (Afezolis 2011).

Within the political process of Imperialism, unequal exchange constitutes the economic expression of the global division into strong states (Core states) and weak states (Periphery states), (Afezolis 2011). This division is the result of the monopolization of capital-intensive processes by some countries (Core states) and labor-intensive ones by others (Periphery) (Afezolis 2011). In this way, the

division of labor within the Capitalist World Economy acquired a peculiar binary form, the Core and Periphery one, which has forever been reproducing this relationship. Furthermore, this relationship is the basis for the existence of both the core and the periphery as one cannot exist without the other (Afezolis 2011).

The relationship between the core and the periphery is in fact the ratio between profitability and production processes worldwide. Thus, the core production processes are based on large capital investments which are primarily controlled by monopolistic or oligopolistic structures in contrast to the periphery processes that operate competitively at a very small percentage of profit. The product exchange of these two different production processes is an unequal exchange during which a transfer of the surplus from the periphery to the core states takes place. This is because what is exchanged is a product which is a labor-intensive and results in a competitive labor-intensive product. The core states are politically powerful and their ultimate goal is to protect the monopolistic structure of their domestic enterprises as opposed to the states in the periphery which are so weak that they have no way to affect the international division of labor and therefore accept the role assigned to them in the labor division context of the World Capitalist Economy.

5. Greece between the core and the periphery of the European Union

In order to be able to see the position of Greece into the European System, the characteristics of each area should be briefly presented as defined within Wallerstein's theoretical approach. The core states, having monopolized the capital-intensive production processes, are also able to transfer part of the global surplus into their national boundaries. Their features are the existence of democratic governments, high wages of employees (mainly because of the operation of union structures), the export of industrial products, the high level of welfare state and high investments (Afezolis 2011). The periphery is characterized by undemocratic governments, export of raw materials, poverty wages and almost nonexistent social welfare (Afezolis 2011).

Between these two areas, there are others into the semi-periphery. The states which can join this area are in an intermediate condition, combining some features of the Periphery and some of the core, whose combination ranks them into areas that are either closer to the core or the periphery. The operation of this area is particularly important for balancing the system since it maintains, on the one hand, the salary increases in core states posing a threat of business relocation, while, on the other hand, it acts as a area which decongests any problems arising from the periphery due to the increasing polarization between the core and the periphery.

Figure 1: Contribution to GDP annual % change
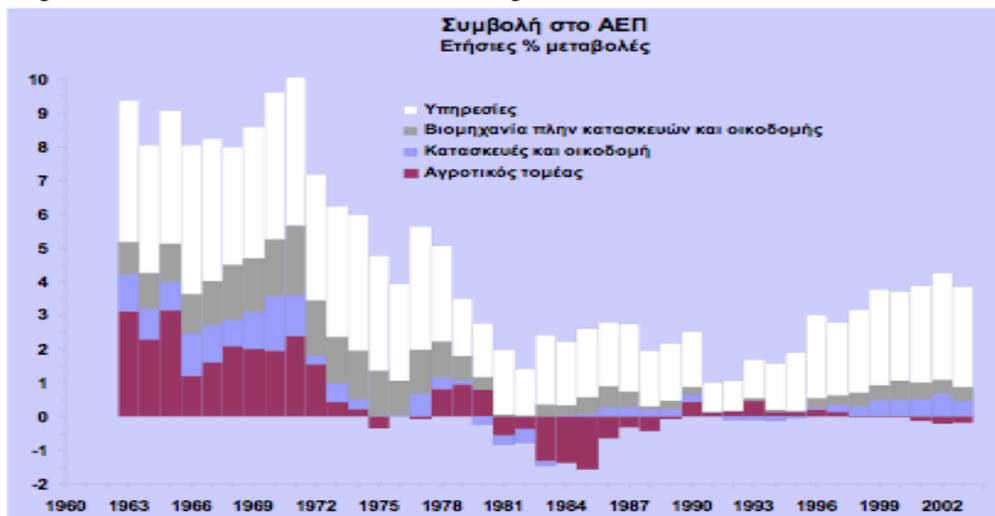
- Services
  Industry excluding building and construction
  Building and construction
  Agricultural sector

Source: Ioakimoglou, I. (2008). "Ηελληνικήοικονομία 1960-2007 Ανάπτυξη, παραγωγικήδομήκαιαγοράεργασίας(The Greek Economy 1960-2007 Development, production structure and labor market)." from http://www.ine.otoe.gr/Upl/pdf/Greece_IneOtoe.pdf. (in Greek)

Inthecountriesofthis area there maycoexistcapital-intensiveactivitiesandlabor-intensive ones. At the same time,the states inthis area differ inpolitical power and may have democraticallyelectedgovernments,repressiveregimesordemocraticregimesinappearance. However,their operation depends oncyclical tendencies and fluctuations of the global system,as suggested by N. Kondratieff.[1]

Greece wasearly to turnto WesternEuropeand it was in 1959 that it filed an association applicationto theEEC,abodyfoundedin the aftermathof the endof WWIIthroughcooperative proceduresto preventanother warin theoldcontinent.In 1962,the association agreementbetween Greece and the EEC came into force. In 1970, the relationsbetween Greece andthe European Community were interrupteddue to theimposeddictatorshipin Greeceuntildemocracy was restoredin the country.In 1975, Greecesubmitted a formal accession application to theEC and became its tenth memberin 1981.In 1990thefirstphaseof economic andmonetaryunion became effective but, at the same time, four members were grantedspecialstatus because of their insufficient progresson economicintegration, namely Greece, Spain, Portugal andIreland.In 1992 theMaastrichtagreement was signed,under whichthe EC wasrenamed into EuropeanUnion. In 2000the entry of Greeceinto the common currency, namely Euro, was approved.

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[1]Kondratieff Dimitrievich Nikolai (1892 -1932 by estimation) is a Russian economist who was the founder of the Long Cycles Theory)

However, theaccession of Greece into the common currencyandhencethe coreof the EuropeanUnion, though presented bythe political andeconomic eliteof the countryas a great success, was facedwith greatskepticism by many cycles.This reactionwas mainly based on thestructure of the Greekeconomy andthe doubt regarding whether itcouldcope with thedemanding fieldof the core of the Eurozoneand not on the question of whether it had managed toachieve thenumericalgoalsof the integration.Unfortunately, through the eventsof the economiccrisis thathas plagued thecountry, this skepticismwas confirmed.

But let us take a closer look at the structure of the Greek economy in the years following World War II. Greece came out of the war with its pre-war economy infrastructures, if any, having been damaged, although these were not particularly important; the reason for this sprang from both World War II and the domestic warfare that followed. The recovery of the Greek economy commenced through the Marshall plan and the country's GDP increase during the 1950-60s was indeed impressive in comparison to the GDP of the country after the Second World War. The country's economic growth, though, was not based on capital-intensive investments, but mainly on labor-intensive investments

Figure 2: GDP per capita 1960 - 2007
At constant prices, 1960 = 100
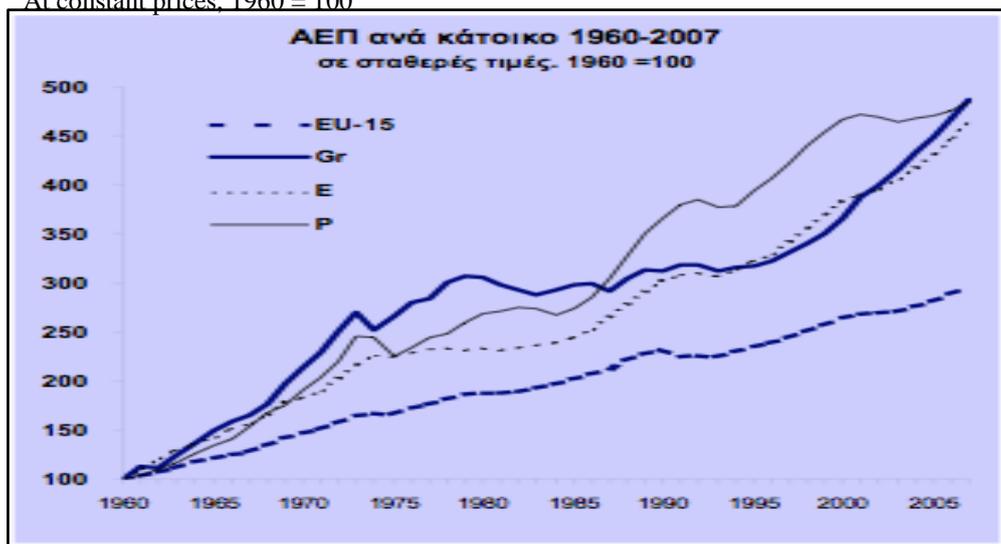
Source: Ioakimoglou, I. (2008). "Ηελληνικήοικονομία 1960-2007 Ανάπτυξη, παραγωγικήδομήκαιαγοράεργασίας(The Greek Economy 1960-2007 Development, production structure and labor market)." from http://www.ine.otoe.gr/Upl/pdf/Greece_IneOtoe.pdf. (in Greek)

having as its major growth body the agricultural production sector during the first decades and the services provision sector afterwards (commerce - tourism - shipping).

The annual growth rate of Greece's GDP during the period 1952-61 was 5.7% and it was one of the highest performances among the member states of the OECD (Milios, 2011). From the early 1960s the per capita GDP of the country soared until 2008 when the financial crisis broke out in the country.

During the years 1960-2007, Greece recorded an average annual growth rate of per capita GDP equal to 3.4%. The rapid growth resulted in large shifts within the production sectors. The importance of agriculture and industry declined and services emerged as the largest sector of the economy. While one third of the workers were employed in agriculture in 1960, its share in total employment had fallen below 15% in 2007 (Ioakeimoglou, 2008). The role of services as the motor for economic growth was important throughout the period from 1960 to 2007. Tourism offered a significant contribution to GDP growth. The industry had been contributing to development until 1980, attracting labor from the agricultural sector by developing high value added activities. The analysis of the contribution of the three sectors to GDP growth (Figure 1) shows large shifts among agriculture, industry and services (Ioakimoglou & Milios 2004). In 1960, the industrial sector in Greece came short in comparison to the respective sectors of Spain, Portugal, and although the industrialization process was rapid in Greece, the gap in relation to the Iberian countries was maintained and even expanded. The share of the industry sector in Greece's GDP has remained at about 15% since 1980, while it fluctuates between 20% and 25% in Italy, Spain and Portugal(Ioakimoglou, 2008).

Greece is a developed market economy, in the sense that its social relations and institutions are comparable with those of the most advanced market economies, although the per capita GDP is low compared to countries of the European Union which constitute the core. This fact is predicted by the economic theory (Busch 1987), that is, in countries with comparatively lower growth rate the capital output ratio is relatively low and therefore exhibits higher profitability. For this reason, in countries with lower per capita GNP there are higher rates of capital accumulation. These predictions have been verified for Greece and other southern European countries.

Figure 3: Annual growth rate of GDP at constant prices 1960 - 2008 and moving average 7 years
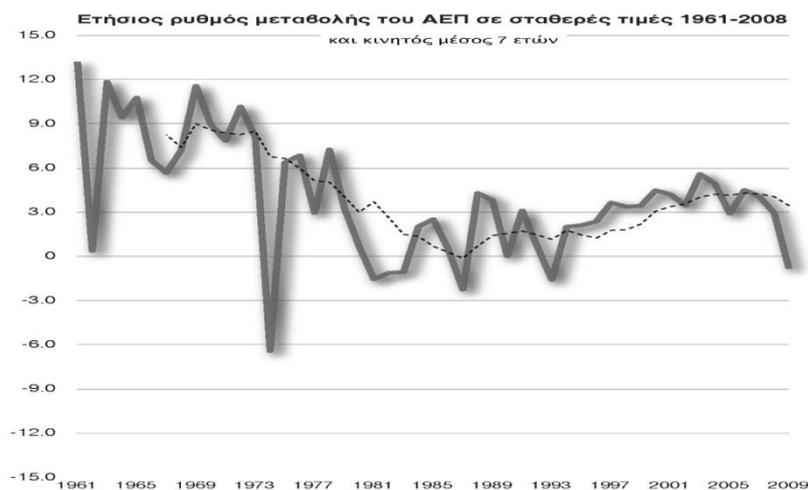
Source:Milios, J. "ΗΕΛΛΗΝΙΚΗΟΙΚΟΝΟΜΙΑΚΑΤΑΤΟΝ 20ΟΑΙΩΝΑ (The Greek Economy in the 20th Century)." from http://users.ntua.gr/jmilios/Oikonomia_Eikostos1ab.pdf. (in Greek)

Higher profitability was a necessary but not sufficient condition for rapid accumulation of capital in Greece, as the increase in demand is another important factor accelerating accumulation (Fitoussi 1995, Liem 1998). The recovery of the Greek economy between the years 1996-2007 largely resulted from increased domestic demand (public works, real wage increases and dramatic increase in bank credit to households) that triggered the investment recovery of the period 1996-2004 and preserved the increase in GDP over the three-year period 2005-2007.

The existence of large labor reserves in Greece also created favorable conditions for capital accumulation; that was so because labor supply is based on a particular type of family (which occurs in similar forms across southern Europe) which takes over the management of insecurity and the reproduction of workforce through the consumption of products and goods produced by a large number of unpaid working hours by its members; at the same time, it realizes transfers of assets and reallocates its resources among its members in order to secure employment and income, thus ensuring the collective management of insecurity faced by its members into the labor market.

This fact, despite the restructuring and modernization of the 1990s, resulted in the reproduction, although modified, of the main features of the Greek economy. Greece is characterized by a dualism in its production system which is formed between big enterprises and a myriad of small, often family businesses. The former compose a modern part of the economy while the latter make up a relatively ineffective section, which seeks to improve competitiveness by making extensive use of the cheap labor provided by the female workforce, the immigrants and young people.

The preservationof traditionalsocial relationsin Greece has often been regardedas a sign ofunderdevelopment.Greece has frequently been considered to beinto the semi-periphery of northernEurope or to be a country of 'Peripheral Fordism' (Selwyn 1979, Lipietz 1985, King 1982) whichsuffers fromtypicalweaknesses:lack of effectivenational controlover resourcesand significantfinancial decisions,dependenceon importedcapital goods, importedtechnologyand organization,migration,informalflexibility,severallargeinformallabor marketsand undeclared employment.

Taking all the above into consideration, it becomes clearthat in Greecethe production process exhibited a mixedmode withapartmovingonthe basis of labor-intensity andanotheronebased oncapital-intensity; as a matter of fact, the country has always been into the semi-periphery ofEuropeand never in itscore.

6. The economiccrisis and therescue processof the Greek Economy

The public debt of Greece had been showing an upward trend from the early1980s and25%of the GDP ofthe countryin mid-1990s was foundto reach116%of the GDP.The period1980-95 wascharacterized by afall of all indices on whose basis onecan study the dynamism of an economy, while a tendency towards improvement could be seen only at the endof the period. A typical fact of the growth phasesofthe Greek economyisthe evolutionof grossinvestment, as a GDP ratio, which had declinedsince the late1970sand remained at low values until the mid-1980s, followed by aperiod of rapid declinebetween

the   Figure 4:Labour Productivity 1960 - 2007   years1985-96.
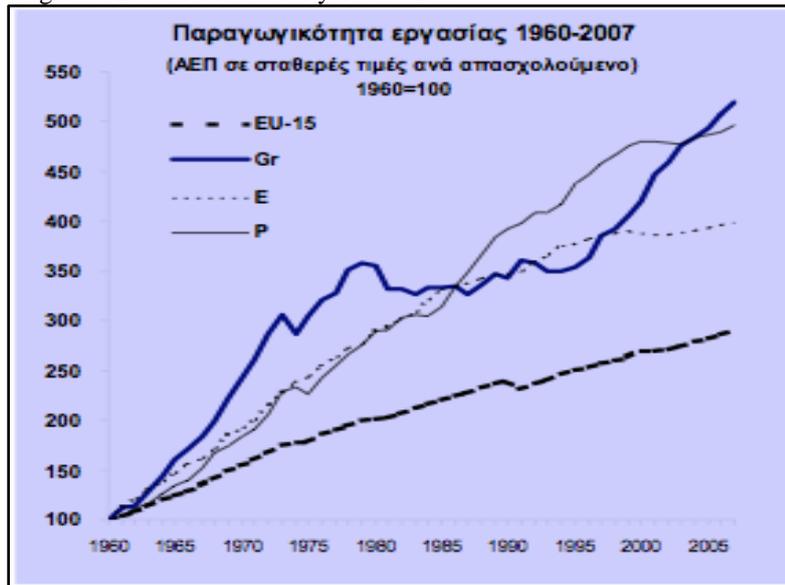
*GDP at constant prices per person employed 1960 = 100

Source: Ioakimoglou, I. (2008). "Ηελληνικήοικονομία 1960-2007
Ανάπτυξη, παραγωγικήδομήκαιαγοράεργασίας(The Greek Economy
1960-2007 Development, production structure and labor market)."
from http://www.ine.otoe.gr/Upl/pdf/Greece_IneOtoe.pdf. (in Greek)

From 1996 and on, however, the growth rates of the Greek economy stabilized at levels which were significantly higher than those of most countries in the developed world and, in particular, the European Union (EU). In the meantime, investments as a GDP percentage changed and were transformed, showing an upward trend. The improvement of investment activity in Greece continued for several years and this should be seen as an indication of more permanent changes within the Greek economy. Thus, the period 1996-2008 was a phase of real convergence of the Greek economy towards the more developed economies of the EU.

The external transactions of Greece are largely determined by high exports of services on the part of the tourism industry and merchant shipping, but the external balance of goods and services in Greece remained deficit throughout the postwar period. After a sharp deterioration during the early 1990s, it had stabilized around -7.5% of GDP by 2003, to rocket to -10.5% in 2007. This deterioration

is associated with the faster economic growth in Greece in comparison to other developed countries of the world, hence the more rapid increase in demand for imported products in Greece, the higher investments in mechanical equipment which was imported, the increase in oil prices and, finally, the gradual loss of competitiveness in many Greek products, mainly due to higher inflation.

The Greek economy went into recession in 2009 and it was during the late 2009 that the crisis manifested itself principally as a fiscal one through an increase in public debt equal to 120% of GDP. The results of the economic crisis had been visible since 2008. During the first period of the crisis, until mid-2009, when the crisis in the banking system was on the rise, the governments of developed countries financed the rescue of the financial system; this resulted in a large swelling of fiscal deficit and public debt. The same went for Greece, which allocated a total of 28 billion euros in direct support of the banking system and in guarantees, in other words, a part of the private debt became public. But, beyond that fact, there are other causes for the Greek fiscal crisis:

 (a) Thepolicies towards the drastic reduction of taxrevenuefollowed by theGreek governmentfor over adecadebefore the crisis.

(b) The strategyof theEuropeanUnion to exclude thesupportof publicfinancesin the Eurozone through direct ECB lending.So, whenthe money marketswithdrew their confidence intheGreekeconomy, the interest rates of government borrowingsoaredtounsustainablevalues.

(c) The very existenceof the euro itself which, before the crisis, facilitated the transfer of resources (autonomous portfoliocapitalinvestmentsas well asotherborrowed capitals) to countries that developed faster. These capitalinflowsoutweighed the balanceof payments of the country, that is, they allowedGreece andother European countries of the periphery toretaina considerable deficitin the current account balance. Upon the outbreakof the crisisthis possibility vanished due to the shrinkingcapital inflows.

InFebruary 2010 it was decided by the EuropeanCommissionto configure an aid packageto supportthe Greekgovernment along with the involvementof the InternationalMonetaryFund (IMF), provided that the countrywould observe a severe program to cut down on public spending.Themeasures that followedaimed atlimitingpublicwage bill and reducing the welfare state,whileincreasing revenuesmainlythrough indirecttaxes.OnApril 23, 2010theGreekgovernment requested theactivation ofthe aid package mechanism by theEUand the IMF,while launching 'shrinking state' policies with respect to theinsurance schemes, pensions, local government.

Figure 5: Greek public debt
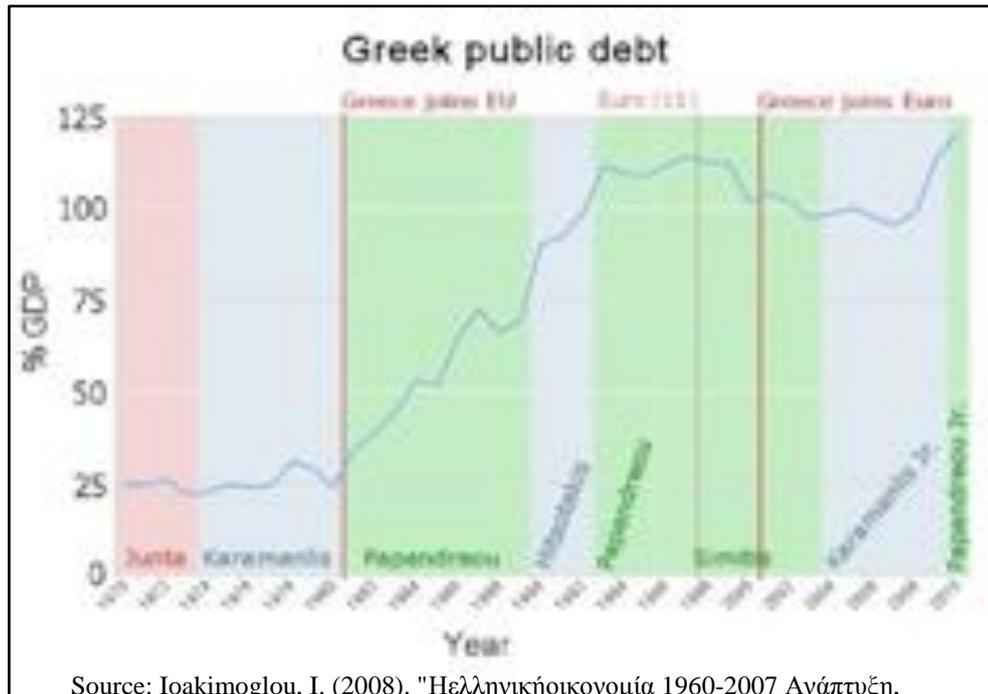
Source: Ioakimoglou, I. (2008). "Ηελληνικήοικονομία 1960-2007 Ανάπτυξη, παραγωγικήδομήκαιαγοράεργασίας(The Greek Economy 1960-2007 Development, production structure and labor market)." from http://www.ine.otoe.gr/Upl/pdf/Greece_IneOtoe.pdf. (in Greek)

It was from the first moment that these measures underwent criticism mainly on the basis of the Keynesian model, arguing that such measures would have the opposite effect, rather than reducing debt, as they would lead to a reduction in taxable base. At the same time, a part of this criticism was turned to a further feature of the Greek economy, namely tax evasion, which was a scourge of the Greek economy. The austerity measures package was implemented for almost two years but its results could only be described as rather meager because, even though it became feasible to reduce the budget deficit, the public deficit showed a rapid increase, by far exceeding 130% of GDP, whereas at the beginning of the fiscal crisis it was approximately 120% of GDP.

This ultimately led to a new aid package for the country as well as the 'haircut' of Greek debt by more than 50%. The new aid package for the country has been accompanied by a new package of measures which would theoretically lead public debt to 120% of GDP. The new measures, in addition to the necessity of cutting government spending by closing down various public institutions and reducing the cost of pensions to the state budget, include measures which aim at reducing wage costs for enterprises by reducing minimum pay, abolishing collective labor agreements and their gradual substitution by enterprise and personal labor agreements, and finally by reducing employers' social contributions.

These measures causedseriousconcerns;as the economic crisisin Greece is a fiscal one, the measures shouldbeconcentrating on reducingthe statedebtand noton interventionsin the operation of the freemarket since, according tothecallsof the Neoliberalmodel, itadjusts itself;thesemeasures also incurred reactions by manyemployers. The answergiven on the part ofthetroikawas thatthese measures wouldlead to development and,thus,raisethetaxable base,whichwould increasethe revenueof the state; that is to say, it would enable the Greek governmentto repay its debts by itself. Buttheseallegationsarerefutedby facts and figures in countriesneighboringGreece,which constitute thebenchmarks forthe amount ofwagesintheGreekprivate sector, where,althoughthe earningsof workersare still toolow,thelong-awaiteddevelopmentis yet to come.

Even after Greece enacted the new measures, assertions have been made by various representatives of organizations which make up the troika with regard to taking further new measures which will aim at further reducing the wage costs of enterprises through the further reduction of minimum pay of workers, making explicit references to the association of monthly salaries in Greece with earnings in other countries which are definitely outside the euro and, hence, the core of the EU.

7. Conclusions

The declineof the U.S.,which was aresult ofthe second phaseof a long cycle, along withthe shrinking of the world economyprofits duringthe 1970sled to the economicrestructuring of the global economy'score states at the time. Likewise, similar policies were followedbycountries throughout the Europeancontinent.The problemin the operation of their economies was traced into the relatively largewelfare state, the rigidityof labor markets and,mainly, in the fragmentationof the operation of European enterprisesdue to thefragmentedEuropean market, which preventedthem from becoming global players(Bornschier, 1995).To this end,Europe was ledto further deepeningresulting in the enactment of theSingle EuropeanAct in 1986 which aimed at the creationof a SingleMarketwhich was achievedby the Maastricht Treaty.

The SingleMarkethas beenaiming at theliberalizationof national economies, leading to freemovementof goods, capital, services and people. All the aboveled toaclimacticintra-Communitycompetition, whichresulted in increased profitsandcapital accumulationingeneral,througheconomiesof scale. What the singleEuropeanmarket actuallymanagedwas to hold, throughthe movementof capital, the fallingprofitsof the Europeanmultinational companies,especiallythose whichwerethe stream engine of the European economy of core states (Afezolis, 2011).

It was in theperiod from 2004 to 2007 that thefifthEU enlargement was made. Mostof the countriesincludedin thiswereformerly socialistcountries of the Centraland EasternEurope.The integrationof these countriesinto theEU in fact aimed at the internationalizationof the production processof multinationalcompanies(Bieler, 2003). At the same time, theintegrationof EasternEurope,

whereas it hadbegunas a political-economic necessity, ended up in the late1990sto depend onmacroeconomicindicators (Agnew, 2001).This fact showstheshiftof the EU's vision from a Europe ofpeoples towards a Europeof peripheries.

This context should encompass the measuresimposedin Greece.This context is defined bythe shiftof the EU towards thelogic of economic liberalism both in the treatment ofEasternEurope and the European economicand political governance as well (Bieler, 2003). In this modelof economic and politicalgovernance,economic criteria play animportantrolein structuringatwo-speed Europe. Forthis reason, the measurestaken to addressthe debt crisis are adopted not only in order to address thecrisis throughthe balanced developmentof the economies ofcountries such asGreece, but alsoto redistributethe mapof the system ofEU countries by means ofrebuildinga semi-periphery area within the EU.In this way, the core states of theEU willbe able to maintain their hegemonicpositionin the systemof the Union(Kostopoulos, 2000).

The first chapter referred to the role of the semi-periphery area and the effects it has on the core states. In addition to being an area of a defined role in the global division of labor, it also bears the capacity to restrain wage demands of workers in the core states through the interaction of the two areas. This is also what allows for the continuous accumulation of capital in the core states since, otherwise, the working class might manage to push for bigger shares of the generated wealth. Data suggest that starting from the restructuring of the economies of Central and Eastern Europe there has been a relatively large shift of labor-intensive production processes. A typical example is the shift of a part of the production of the 'old' European countries to Hungary and Poland, which provided cheap and relatively skilled workforce. At the same time, though, this transfer has assisted in the further division of labor within the new borders of the EU and favored the production of knowledge and technology-intensive products in the old states of Europe (what is mainly meant is the core states of the EU). The core states of Europe invested in the production of high value added products as well as specialized services. The geo/topography of the new enlarged Europe could be interpreted within Wallerstein's theoretical framework.

In order to materialize this harmonious division of labor and also to make a smooth transfer of production activities to the semi-periphery states, a necessary condition has always been the harmonization of their economies with the economies of the core countries. But today's economic redevelopment process of the semi-periphery economies takes place in a period of restructuring in the Western Europe economies in response to the growing international competition amidst a crisis. These countries should serve as a factor not only of wage restraint, but of its reduction as well.

In closing, the economic crisis in Europecreated the preconditions in order for the enterprises ofthecore states of the EUto better handlethe everincreasingpressuresof globalization,whose negative economicimpacts were not simultaneously perceived by thecore states.

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THE IMPACT OF THE GLOBAL FINANCIAL CRISISON SME'S FROM OWNERSHIP POINT OF VIEW: A STUDY OF THE POLLOG REGION

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ABSTRACT

The global financial crisis of the first decade of this century deserves special attention and treatment as one of the most important economic events since the oil crisis of the 70s. The global financial crisis gave a severe blow to the world economy development in general. The negative effects of the global financial crisis began to feel mostly in 2008. Almost all the national economies, including the Macedonian economy, were faced with the challenges of financial instability. Due to the created situation the government introduced a wide range of anti-crisis measures with the aim of insuring financial stability in the country. But, in the case of the Republic of Macedonia, until now there is a gap in research, regarding the consequences of the global financial crisis on business in general and small and medium sized enterprises in particular. Although this paper summarizes the main macroeconomic effects of the global financial crisis on the Macedonia economy, still it is more focused on the effects of the global financial crisis on SME's. In fact this paper is based on a large scale research of SME's in the Pollog region, being one of the biggest and most specific regions in the country, but from the point of view of capital owners.

KEYWORDS

Global financial crisis, Small business, Pollog region.

JEL CLASSIFICATION CODES

G01

1.   INTRODUCTION

The economy of Macedonia, in 2009, highlighted the effects of the global financial crisis. Perhaps the first effects were felt in the last quarter of 2008- but with more evident consequences in 2009. Reduced economic activities, at the beginning of 2009, rightfully showed the first effects to global recession. Gross domestic product, GDP in the first two quarters decreased by 0.9% and 1.4%, which at the end of the year was marked as an annual average rate of decline of 0.7% of GDP. It can as well be concluded that the reduction of domestic and foreign demand has been a cause of reduced economic activity.

The economy of the R.M. did not have the necessary immunity to face the worldwide "virus" created by the Global financial crisis. In order to prevent and alleviate the negative consequences from this virus, the government of the RM in 2008 and 2009 has implemented anti-crisis package of measures. From 2008 to 2009, the government has introduced three packages of anti-crisis measures and a fourth one during 2010.

The first package of anti-crisis measures included tax relief measures: profit tax, tax farmers, reduction of customs and social contributions, etc., which reached the value of 330 million Euros. The purpose of this package was directed towards the real sector, in order to protect the liquidity of the economic subjects that were at risk and the protection of bankruptcy with which many people would lose their jobs.

After the implementation of the first package the Macedonian government, in addition, intervened with a second package, bringing 8-year program of realization of infrastructural projects in the amount of EUR 8 billion. This program should included road and railway projects, projects in the energy sector, residential construction and sports, environmental projects etc. The government in this case planes to conclude the financial design of the railway towards Bulgaria as well as the revitalization a part of the hydroelectric power plants in Bitola and the network of high conductors.

The negative effects of financial crisis continued in 2009, where the first quarter marked the deepest recession in the economy of R. of Macedonia, as well as in many countries of the EU and the U.S. The government of RM, considering this situation created, decided to release the third package of anti-crisis measures in April 2009, the most serious package in direction of alleviating the recession deepened in this country. The measures taken by the government in large part were harmonized with the approaches of the business community and economic experts. This package contains the structure included 70 anti-crisis measures in three segments:

2. LITERATURE REVIEW

The financial crisis shall mean a stated range of threats to stability, security and functionality of the financial system in a national economy. Financial crisis is usually developed, followed or accompanied by a collapse in prices of securities, even though in the absence of financial crisis, an overall drastical decrease of the prices was also marked. The financial crisis usually means a panic in which depositors and lenders tend to withdraw their financial assets from financial institutions and markets, in which case the banks are threatened by insolvency. However, panic may be only one phase of a long period of instability. The financial crisis usually encourages recession, even though many recessions have not been announced by financial crisis. Financial crisis begins with an economic shock and ends with the stabilisation and normalization of the market. (Brunner, Bott, 2009, p. 20)

When it comes to financial crises, we should consider that they have been always caused by a specific occurrence. Such occurrences usually have the following characteristics (Brunner, Bott, 2009, p. 22):

- Wide the occurrence must be so great that can cause a system oscillation
- The rare and unique. In order to cause a change, according to the investors' attitudes, it must necessarily be specific, authentic, and evident that it is not a coincidence.
- Surprising, by definition, in order to be the cause of changes the relevant occurrence must be unpredictable and must appear as a surprise for the market players.

The costs of crises are considerable—and taxpayers foot the bill. Indeed, one of the lessons of experience is that the liabilities of the banking system are in fact contingent public debt: the banking industry privatizes its gains and socializes its losses as soon as those losses become large enough to wipe out its equity, and sometimes even before. According to a superb database put together by researchers at the World Bank in 2003, there had been 117 systemic banking crises (in which much or all of the capital of the system was exhausted) in ninety-three countries since the late 1970s. Twenty-seven of these crises imposed fiscal costs equal to or exceeding 10 percent of GDP. In other words, they involved a jump in public debt equal to 10 percent of GDP. Often the cost was much more. The most expensive crises were those in Indonesia after 1997 and in Argentina in the early 1980s, both of which cost taxpayers 55 percent of GDP. (Wolf, 2008, p. 32).

The global financial crisis of the first decade of this century deserves special attention and treatment as one of the most important economic events since the Great Depression of the interwar period, the oil crisis of the 70s.

The financial crisis that is wreaking havoc in financial markets in theU.S. and across the world has its origins in an asset price bubble thatinteracted with new kinds of financial innovations which masked risk,with companies which failed to follow their own risk management procedures,and with regulators and supervisors who failed to restrainexcessive taking. We start by giving the factors that we judge contributedto the bubble in home prices and its interaction with financialmarkets. We then turn our attention to the issue of increases in capitalrequirements for financial institutions. Lack of capital, or excess leverage,was only one of the culprits in the disaster; however, raisingcapital requirements is an important step towards a more stable financialsector (Baily, Elliott, 2011, p.59).

A study by Berkmen, Gelos, Rennback and Walsh(2009) showed that the financial and commercial channels especially the accelerated growth of credit and high leverage has helped the rapid spread of global financial crisis.

The global financial crisis gave a severe blow to the world economy development in general. Therefore, an International Monetary Fund report published in April 2009 made quite pessimistic projections about global economic developments in 2010 and 2011, as shown in Table 1.

Table 1. Projections for world economic development (IMF, 2009, p.10)

	Year		Projections	
	2007	2008	2009	*2010*
World Output	5,2	3,2	-1,3	*1,9*
Economies	2,7	0,9	-3,8	*0,0*
USA	2,0	1,1	-2,8	*0,0*
Euro Zone	2,7	0,9	-4,2	*-0,4*
Japan	2,4	-0,6	-6,2	*0,5*
Great Britain	3,0	0,7	-4,1	*-0,4*
Canada	2,7	0,5	-2,5	*1,2*
Ldcs And Developing Countries	8,3	6,1	1,6	*4,0*
Africa	6,2	5,2	2,0	*3,9*
Central And Eastern Europe	5,4	2,9	-3,7	*0,8*
Commonwealth	8,6	5,5	-5,1	*1,2*
China	13,0	9,0	6,5	*7,5*
India	9,3	7,3	4,5	*5,6*

ASEAN	6,3	4,9	0,0	*2,3*
Near East	6,3	5,9	2,5	*3,5*
Brazil	5,7	5,1	-1,3	*2,2*
Mexico	3,3	1,3	-3,7	*1,0*

3. SAMPLE DESCRIPTION

The survey sample includes 288 Small and medium sized enterprises from the Pollog region. As can be notices from the data presented in table 2, the sample includes SME's of different characteristics when it comes to the industrial branch they are active in, date and reasons of creations, level of economic activity etc.

Table 2. Sample description

Criteria	N	%
Activity		
Production	44	15.28
Trade	127	44.10
Construction	28	9.72
Agriculture	4	1.39
Service	71	24.65
Period of foundation		
Prior to 1988	13	4.51
1988-1995	38	13.19
1996-2000	75	26.04
2001-2005	98	34.03
2006-2010	64	22.22
Legal form		
Individual trader	132	46
Commercial company	143	50
Joint stock company	6	2
N/a	7	2

As can be seen from table 2 the sample is dominated by companies that deal with trade. Besides this most analysed companies are founded in the period 1996-2005. Half of analysed companies are registered as commercial companies and the other half is largely dominated by companies that are registered as individual traders.

In order to determine the owner's opinions regarding the influence of the global financial crisis on their business activities, they were asked to provide answer for a number of questions such as: performance/activity, the capability to pay the employees on time, number of employee layoffs and level of investments. The results are presented in table 3.

Table 3. The impact of the global financial crisis on SME's in the Pollog Region

Reduction of activity	%
None	12
Up to 10%	36
11%-15%	14
16%-20%	14
21%-26%	9
Above 26%	15
Influence on ability to pay wages	
Able to pay wages	91
Not able to pay wages	9
Employee lay-offs	
Companies that have laid off employees	30
Companies that have not laid off employees	70
Level of investments	
No changes	49.3
Decrease of investments	37.2
Increase of investments	13.5

4. ESTIMATION RESULTS

4.1 Global financial crisis and reduction of activity

As can be noticed from the data presented in table 4, according to the owners opinions the global financial crisis has had some implications on the level of company activity.

Table 4. The influence of the global financial crisis of the level of activity reduction

	None	Up to 10%	11%-15%	16%-20%	21%-26%	Above 26%
Activity						
Trade	9%	37%	15%	16%	9%	15%
Production	16%	32%	18%	11%	11%	11%
Construction	14%	29%	14%	18%	7%	18%
Agriculture	25%	0%	0%	0%	25%	50%
Service	15%	38%	11%	13%	10%	13%
Other	7%	57%	14%	0%	7%	14%
Year of foundation						
Prior to 1988	38%	23%	8%	15%	15%	0%
1988-1995	8%	55%	8%	11%	13%	5%
1996-2000	12%	37%	15%	11%	9%	16%
2001-2005	13%	27%	22%	14%	9%	14%
2006-2010	8%	41%	6%	17%	6%	22%

When it comes to the level of activity reduction agriculture has been the hardest hit industry. In fact ¾ of agricultural companies have had over 20^ decrease in their activities. Besides this the youngest companies, that is the companies that have been founded between 2006-2010 have had the highest levels of decreased activity.

4.2 The influence of the global financial crisis on the ability to pay wages

Wages in the Republic of Macedonia in general, and the Pollog region in particular are well beneath the European Union average, but the overall capacity of companies to pay the wages for their employees has not been largely compromised as result of the global financial crisis. In fact less than a tenth of companies have not been able to pay the wages for their employees during the global financial crisis. Table 5 summarizes data regarding the company's ability to pay wages to their employees.

Table 5. The influence of the global financial crisis on the ability to pay wages (In %)

	Able to pay wages	Not able to pay wages
Activity		
Trade	94	6
Production	93	7
Construction	93	7
Agriculture	75	25
Service	87	13
Other	79	21
Year of foundation		
Prior to 1988	100	0
1988-1995	92	8
1996-2000	91	9
2001-2005	93	7
2006-2010	84	16

Agriculture companies, as shown in table 5, have been faced with more problems during the crisis. In fact 1/4 of agricultural companies that were part of the survey have declared that they were not able to pay salaries to their employees during the global financial crisis. The service industry is ranked second with 13% of companies that were unable to pay salaries due to the global financial crisis. The year of foundation has not proven to be a factor of great importance regarding this issue, although all companies that were founded prior to 1988 declared that they have been able to pay the salaries of their employees and the highest rate of companies that have not been able to pay salaries is amongst the group of companies that have been founded after 2005.

4.3 The global financial crisis and the loss of jobs in the Pollog region

Almost a third SME's that were part of the survey had to lay off employees due to the negative impacts of the global financial crisis. The distribution of results regarding this issue is presented in table 6.

Table 6. The global financial crisis and the loss of jobs (In %)

Table 6 The global financial crisis and employee layoffs (in %)

	Companies that have had to lay off employees	Companies that have not layer off employees
Activity		
Trade	30	70
Production	36	64
Construction	29	71
Agriculture	50	50
Service	49	51
Other	21	79
Year of foundation		
Prior to 1988	15	85
1988-1995	24	76
1996-2000	35	65
2001-2005	33	67
2006-2010	28	72

As presented in table 6, the need to lay off employees during the global financial crisis was more present in the agriculture and service sector. In fact in these two sectors, a half of companies have laid off a certain number of their employees due to the negative consequences of the global financial crisis. Besides this, the fact that older companies have laid off less employees compared to younger companies should also be noted.

4.4 The global financial crisis and investments in the Pollog region

As can be notices from the data presented in table 7 all industries have noticed the negative effects of the global financial crisis when it comes to the level of investments. The highest decrease is among agricultural and trade companies as well as companies that have been founded in the period 2006-2010.

Table 7. The global financial crisis and investments in the Pollog region (In %)

	None	Decreased	Increased
Activity			
Trade	47%	44%	9%
Production	48%	32%	20%
Construction	36%	54%	11%
Agriculture	50%	50%	0%
Service	55%	24%	21%
Other	71%	21%	7%
Period of foundation			
Prior to 1988	54%	31%	15%
1988-1995	55%	29%	16%
1996-2000	41%	41%	17%
2001-2005	54%	36%	10%
2006-2010	47%	41%	13%

5. CONCLUSION

The economy of Macedonia, in 2009, highlighted the effects of the global financial crisis. Perhaps the first effects were felt in the last quarter of 2008- but with more evident consequences in 2009.

In order to prevent and alleviate the negative consequences from the global financial crisis, the government of the RM has implemented four anti-crisis measures.

Less than a tenth of companies have not been able to pay the wages for their employees during the global financial crisis.

Agriculture and the service industry were the two most seriously affected industries by the global financial crisis in the Republic of Macedonia.

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THE POLICIES APPLIED IN THE EUROPEAN UNION TO CONFRONT THE CRISIS: THE CASE OF GREECE

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ABSTRACT

The attempt to confront he crisis in Europe has drastic reduction of public expenditure as a target. This fact affects the reduction of the welfare state and the provision of all sorts of public goods. At the same time, structural features of the European edifice do not allow the undertaking of initiatives in order to create the conditions for economic activity to recover. The proposed solutions recycle the problem, since the continuous deterioration of income levels is in turn defining the goals pursued. Efforts to improve the country's competitiveness during a recession, under these conditions, raise serious issues of economic effectiveness and social cohesion at the national and European level.

1. THE GREEK PROBLEM

1.1. Structural Problems of the Greek Economy

1.1.1. The Structure of GDP by Sector

1.1.1.1. Uneven Development of the Secondary Production Sector and Low Investment Efficiency

The composition of investments, and specifically, the low rate of investment in the processing sectorout of total investments in fixed capital[1]had as their result a low level of growth and organization in this sector.Another characteristic feature is the increase in investment in residential properties.Until 1980, Greece had the highest rate

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[1]   1950: 15%, 1960: 10.2%, 1970: 14.2%, 1980: 15.8%, 1990: 14.8%. Source: Ministry of the National Economy, Greece.

of investment in the residential sector of many countries (approximately 30%), while in contrast, during the same period industry absorbed less than half of the above percentage (around 14%), which was exceptionally low compared to many other countries. This distorted investment structure helped the development of industrial activity focusing on the construction process and created a significant amount of jobs, but the growth of investments and production with this field at the center did not strengthen forms of production immediately and substantially, with serious consequences for the competitive capacity of the Greek economy.

Characteristic features of the secondary production sector, and particularly of processing, include the rudimentary level of technology research, organization in a workshop structure, and concentration on traditional light industry sectors.

The majority of Greek processing concerns the processing of raw materials, assembly of important parts and repair, while activity in the processing sector is carried out by very small units.

In general, a basic characteristic of investment capital is its lack of effectiveness and the inability of the state to control it. Investment capital followed the route of searching for lower taxes, providing lower salaries, and obtaining privileged access to state funds. Most industrialists accumulated wealth by receiving subsidies or borrowing a high amount of capital from state banks and investing only a part of those, while the larger part was deposited in banks abroad. The ratio of loan capital to investment capital was one of the highest in the world.

1.1.1.2. The Chronic Presence of Foreign Debt

From the post-war period, Greece's foreign debt was noteworthy, and in 1967 it was already 15% of GDP. By the mid-1980's, however, it had more than tripled (1985: 50%) and the problem escalated in subsequent decades, since the country continued to borrow in part in order to cover the continuously increasing payments to service previous years' borrowing, thus clearly entering a vicious circle: 1990: 38%, 1995: 101.1%, 2000: 115.3%, 2005: 121.2%, 2010: 147.3%, 2011: 157.1%. It deserves to be noted that a significant element of the debt is its composition and structure, a fact that – independently of the current productive capability of the Greek economy – does not help with its smooth repayment. Specifically, the calculation has been made that for every unit of currency that the Greek state currently borrows, 81% of it ends up in the banking system (18% goes to the European Central Bank, 40% to foreign banks, and 23% to Greek banks) and only 19% ends up being available to the Greek state.

1.1.1.3. The Trade Deficit

The small size of Greece's secondary sector is a significant factor in its extensive dependence on imports, but beyond the quantitative element, the qualitative element is also particularly important. More than 45% of the country's secondary sector production concerns processing of agricultural products and production of textile and clothing items (the respective percentage in the strongest economies of Europe is 20%), while only 18% concerns production of machinery and chemical products (the corresponding percentage in European economies is 35-40%). In addition, the connection between the underground economy and the increase of imports of luxury capital goods deserves to be mentioned.

The competitiveness of Greek products was supported for approximately three decades of the postwar period not by sufficient investments, but by high tariff protection and a relatively low cost of labor. The problem of competitiveness deteriorated with the adoption of the unified market.

1.1.1.4. The Weaknesses of the Primary Sector

At the national level, the lack of strategy and policies pursuing the structuring of agricultural production can be observed. At a second level, the fact that the conditions for connection between the primary and secondary sectors were not created is recognized as a significant weakness, while a significant lag is also observed in the creation of primary sector cooperates for various products in the sector, in contrast with the prevailing tendency in other European economies.

Specifically, a large part of agricultural crops and products has gradually declined, to the extent that through its policies, the Greek state did not succeed in presenting a suitable framework that would allow these crops to be maintained sustainably, since the way that particular markets functioned allowed for the entry and dominance of corresponding imported products at lower prices.

1.1.2. The Public Sector

1.1.2.1. The Structure and the Expansion of Public Expenditure

The public sector deficits originated from both increases in state spending and a decline in state revenue. Expenses in the state budget grew from 1970 to 1990 from 28.6% of GDP to 45%. A large part of this increase, however – approximately one-third – concerns servicing the public debt.   Even if debt service payments are not taken into account, the primary deficit tripled within a period of less than twenty years. A large part of the increase in public expenditure is due to the significant increase in infrastructure concerning the provision of public goods, such as education, health, and welfare. Over the entire postwar period, public investments in manufacturing did not exceed 1.5% of total fixed investments, since the state did not assume a direct role in the development process, but it chose to encourage massive emigration and the expansion of employment in the public sector.Within a fifteen-year period, the number of people employed in the broader public sector doubled, approaching 20% of the workforce.   80% of the growth in public social spending (from 15.5% of GDP in 1980, to 22.6% in 1987) was due to the payment of pensions, while the respective percentage of expenses for education and health in Greece was barely 5% and 10% in the European OECD countries[2].

1.1.2.2.Reasons for the Reduction of Public Revenue

The imbalanced nature of public revenue had already been pointed out since the 1950's. Tax evasion is so high in Greece because non-salaried persons form approximately three times greater a percentage of total employment comparedwith the other economies of the EU-15 states. For this reason, direct taxes as a percentage of income are half of what they are in the EU countries, while income from indirect taxation exceeds the respective percentage in the EU member states by at least 50%. The bloated growth of the tertiary sector, which significantly favors the informal economy and tax evasion, the very large number of small businesses, the high rate of self-employment, and the structure of the direct taxation system itself, which reduces the tax burden among high-income sectors all provide inhibiting factors for the growth of public revenue.

1.2. The Specificity of Greece

The specificity of Greece consists of a distinct condition of the Greek economy, compared to the respective countries of the European Union. Specifically, besides any special cases and factors that arise in each separate country, in Greece a series of parameters and causes have a decisive impact on the overall behavior of the country in economic terms.

1.2.1. The Military Expenditure

Greek governments spend a large part of GDP on orders of weaspons systems, a fact that increases the debt and since spending on weapons is financed by borrowing, it feeds the debt directly, not only by increasing the level of expenditure, but mainly by increasing the accrued interest. Since the restoration of democracy, Greece has regularly held one of the top ten places worldwide in imports of weaponry systems, while coming in the top three in some years.
The level of spending on weaponry, which is justified to a certain extent but particularly high, is greater than 1/3 of the country's total debt. This is only expenditure on importing weaponry and not procurement from the domestic defense industry or other defense expenditure. In particular in the period from 2005 to 2009 Greece was among the top five customers for weaponry in absolute terms. Even in its adverse financial condition, it continues to spend a higher percentage on weapons purchases than every other country in the European Union.
In 2006 Greece spent 2.68% (5.24 billion € at current rates) of its GDP on weaponry purchases, staying in first place among the EU-27 member states. In 2002 the country's defense spending reached 4.91% of GDP, with the average for 1999-2003 being 4.1%. At the worldwide level, the United States spend 4.7% of their GDP on weaponry, while the corresponding average percentage for European countries is 1.78%.

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[2]OECD in figures, 1990, pp. 42-45

1.2.2. Expenses Connected with the 2004 Olympic Games

A particular reference needs to be made to the issue of expenditure for the organization of the Athens Olympic Games, both due to their high cost and due to the lack of clarity regarding the exact final amount. The total cost forecast for facilities was 750 billion drachmas (2.2 billion €). Based on official government data (October 2004), the final amount was 8.954 billion €, four times the originally budgeted amount, while there was no exact source for the recording of income. More recent estimates increased the cost to 11.27 billion €.[3]Foreign exchange earnings from tourism in 2000 were 10 billion € and in 2009 they were 10.3 billion €, while the prediction of 445,000 jobs in tourism did not come true.

1.2.3. The Informal Economy

One element that characterizes and influences the economy and society of Greece is the extent of the informal economy and corruption. Based on studies, estimates of the size of the informal economy in Greece approach 30% of GDP. According to estimates by Panagiotis Pavlopoulos, the high percentage of the informal economy in the secondary sector concerns the manufacturing sector (71.1%), while in the tertiary sector it concerns residential real estate (91%), various services (65%), and health and education (30.1%).
Let it be noted that a part of these differences is due to the breadth of interpretations of this term, although as a rule, the conceptual definition established by the OECD (2002) is used, in which the causes of income not recorded include the production of goods and services for one's own use, but also the inability of statistical services to record it, due to technical shortcomings and weaknesses in methodology.

1.2.4. The Functioning and the Effectiveness of Public Corporations and Organizations

The main goals of public sector corporations and organizations are considered to be to limit their operating deficits and participate to the country's course of development. However, improving their effectiveness, which is limited by certain factors, should be a pursuit of theirs. Such factors are the complexity of the goals pursued by them, their insufficiently detailed goals, and the non-competitive market in which they operate, which weakens the motivation for effectiveness.Additional factors are the absence of a motive for evaluation of activities carried out by their administration, which is free to pursue its own promotion and its own purposes, and their intense control by the state, since, although they are in theory autonomous in management and financial terms, they often turn their administration into a simple recipient of orders, which relaxes its sense of responsibility. The result of this was that an ineffective mechanism operated in the context of the clientelistic state.

1.2.5. The Shipping Capital

The merchant marine is a particularly dynamic sector of the Greek economy, whose size, in terms of the value of total fixed assets or value produced, is more than 50% the size of the manufacturing sector, while its export performance exceeds that of any other sector of the Greek economy.
Shipping capital operates on a globalized scale, with the consequence that the value produced by the economic activity of Greek shipping is not calculated in gross national product and investments in shipping (for example, the purchase of new ships by Greek shippers) are not taken into account in statistics of investments by Greek businesses. The only result of shipping as an economic activity is considered to be the part of expenditure by shipping capital and workers that is converted into local currency and registered by Greek statistics as "shipping foreign currency".A study on this subject estimated that the "undeclared value" of Greek merchant shipping fluctuates between 6% and 10% of official GDP.

1.2.6. The Energy Dependence

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3   Hatzigeorgiou, A., 2010. The Black Hole of 2004, *Eleftherotypia*, March 13.

Greece has one of the highest indexes of energy dependence in the EU-27 (energy imports form 72% of total consumption, a percentage that is 33.7% higher than the average of the EU-27: 53.8%).
Petroleum constitutes 58% of Greece's energy consumption and while over the last 12 years this percentage has not changed, petroleum consumption has increased significantly in absolute numbers, from 14.0 million tons in 1995 to 19.1 million tons in 2008, which corresponds to approximately 5.0% of GDP. Natural gas constitutes 9% of Greece's energy consumption, while renewable energy sources constitute 6%. The percentage of hydrocarbons is equivalent to 67% of the country's total energy consumption and 99.9% of the hydrocarbons consumed in Greece are imported, a statistic that demonstrates the country's intense energy dependence.

1.2.7. The Cost of Immigration

Another element that leads to increases in public spending and places a burden on the public sector deficit is that Greece bears the cost of the entry of immigrants at the European Union's southeastern border. Although this issue has not been the subject of a study supported by an objective method, indicative estimates set the cost of the entry and presence of immigrants at tens of billions of euro; in any case, it is indisputable that it constitutes an additional burden for the country.

2. THE POLICY APPLIED UNDER THE MEMORANDUM AND ITS IMPASSE

2.1. The Goals and Measures of the Program

Greece's integration in the Fiscal Stability Mechanism of the euro zone was accompanied by the conclusion of a loan contract with the basic prerequisite for the disbursement of its installments being the drafting and application of an economic program for the adjustment of the Greek economy according to the perceptions of the country's European partners. This program was shaped following negotiations between the Greek government and the International Monetary Fund, the European Union, and the European Central Bank, took the form of a memorandum, and was ratified by the Greek Parliament as Law 3845/2010.
To date, continuous updates of the original memorandum have been carried out, but in technical terms, its structure has remained unchanged. Specifically, it includes actions that concern fiscal consolidation, fiscal reforms, financial sector regulation and structural reforms.
The actions that concern fiscal consolidation and fiscal reforms include measures such as privatization and the sale of public sector and public company assets. The privatization program covers the Greek state's shares in railways, road networks, airports, ports, public utility companies, the gaming market, and real estate properties. It deserves to be noted that it is expressly mentioned that proceeds from privatization are to be used to redeem debt and do not substitute fiscal consolidation efforts.
Other measures included in these actions are the reducing public sector employment, reforming the health and insurance systems, expanding the Value Added Tax base, expanding the property tax base, instituting criteria for the taxation of professionals, reducing pensions, as well as issuing gambling licenses and providing incentives to regularize violations of land use rules.
The same actions include measures that concentrate on inspecting tax revenue, dealing with tax evasion, auditing the accounts of public companies, limiting the operational expenses of public companies, restructuring them (closing non-sustainable public companies), reducing the salaries of state employees, and reforming pensions.
The action concerning financial sector regulation and supervision includes the creation of a special account that will release funds to the Greek Financial Stability Fund, restructuring of weak banks, and reduction of personnel salaries.
The action concerning structural reforms includes, among other things, measures to "strengthen the institutions of the labor market". This term defines the radical modification of basic elements of labor law and collective bargaining in the public sector in favor of company-based contracts and temporary and part-time work contracts. In addition, amending legislation on arbitration, in order for the goals of arbitration to ensure that importance is attached to competitiveness in terms of costs. The same action also includes measures to modernize the public administration, with modifications to the salary system in the public sector and strict inspections of social programs with private-sector effectiveness criteria. It also includes measures to enhance competition on open markets (simplification and acceleration of the business and industrial activity licensing process, completion of the

land register and general adoption of a plan for the country to become business-friendly), measures to promote investments and exports, such as actions that promote large foreign direct investment programs (FDI) and measures to reinforce export promotion policies. In the energy sector, measures concern the complete liberalization of the energy market and adjustment of electricity tariffs to market prices. Measures to modernize the education system are included, as are measures to increase the absorption of the Structural Funds and Cohesion Funds (the adoption of a bill that will simplify the procedures for land expropriation, issuing of permits by the Archeology Council, and the completion of environmental impact studies). Finally, measures for the improvement of the business environment include amending the legislation in order to limit taxes as an obstacle to mergers and acquisitions of businesses.

2.2 Analysis of the Effectiveness of the Measures Adopted

After almost two years have gone by since the application of this economic program to sanitize the Greek economy, the results are generally admitted to be far inferior to those expected, and this was the reason for the successive updates to the original memorandum. The European Commission's report on Greece's Second Financial Consolidation Program mentions that the country's progress in relation to the goals of the first program was uneven. Factors mentioned as having delayed implementation include political instability, social upheavals, and issues of administrative capacity, but mainly the recession, which was much deeper than what had originally been forecast. Basic fiscal goals were not achieved, and this was the reason for taking further measures. Results in terms of modernizing the management of revenue and keeping spending in check were insufficient, as were the measures taken to combat tax evasion. Regarding the fields of structural reforms for development, increasing productivity and restoring competitiveness, the Commission admitted that results were clearly below expectations and that the reforms adopted since the beginning of the program were not sufficient in order to ensure fiscal sustainability and growth, and therefore, until now it was not possible for the country to return to being financed by the markets, while based on current estimates it is not expected to be in position to do so even within the next three years. The goal of improving competitiveness, according to the Commission, will be achieved through the acceleration of structural reforms in the labor market, the liberalization of sectors, and taking measures to improve the business environment, which are expected to lead to the strengthening of competition, increasing productivity and employment, and reduced production costs. At this point, it deserves to be highlighted that based on the report by the European Commission, in the case that these reforms are not implemented as prerequisites for the increase of competitiveness, the effects will be pressure on imports and the reduction of the cost of labor due to unemployment. Let it also be noted that there is an admission of conflicting goals, since the restoring of competitiveness is pursued in a brief time threw an internal devaluation, whose effect on GDP makes fiscal adjustment difficult.

In spite of this, the significant reduction of the general government deficit from 15.7% of GDP in 2009 to 9.25% in 2011, under conditions of 7% contraction of the economy, must be pointed out. However, among the factors that contributed to the reduction of private consumption, the Commission's report mentions problems in applying reforms for development, delays, and the high level of unemployment, as well as political instability, but it does not mention the limiting of income, the decline in salaries, increased taxation, nor the increase of prices by public utilities.

Regarding the basic factors that constitute a risk for the implementation of the financial program and in particular of its structural measures – liberalization of the market for goods and services, reforms in the business environment, combating tax evasion, reduction of public sector employment – those mainly mentioned are bureaucratic delays, resistance by pressure groups and vested interests, and long-standing political taboos, elements that according to the European Commission make stronger political coordination and the consensus of the whole of Greek society necessary. Encouragements of this type, however, constitute more of a wish than a depiction of reality.

The main ingredient of the policy proposed by the IMF is the imposition of austerity measures with a drastic reduction of public spending. The goal of the so-called fiscal adjustment is to ensure a primary surplus by reducing deficits in the public sector (reducing public sector salaries and personnel, increasing income taxes, privatizing public companies, and in general, reducing the welfare state to a minimum.) The goal of strengthening the competitiveness of the Greek economy is being pursued by reducing the minimum wage in the private sector, de-regulating labor relations, lowering salaries and pensions, and abolishing collective bargaining. Regarding the banking sector, the strengthening of the capitalizationand robustness of banks is foreseen in order to face the consequences of recession.

The logic of the support mechanism is based on strict fiscal discipline with the goal of reducing public deficits, without, however, including any elements of a redistributive nature. This inevitably leads to the conclusion that the conditions of recession that are already present in the Greek economy will intensify and last longer.Theinternal devaluation policy that has been chosen, through the successive lowering of wages and prices, shows the tendency to reduce demand, and therefore also production and the need for investment, with the result being the escalation of the recession. JosephStiglitzmentions that there is not a single example anywhere in the world of cuts to salaries, pensions, and social expenditure having led to the consolidation of a weak state.

The arguments of the supporters of the policy applied under the memorandum in regard to the effectiveness of the measures that have been taken to date mainly focus on the element of its not being followed, considering that the need to extend the memorandum is due not to its failure but to its lack of application. They consider the main reason for the failure to apply the memorandum to be the government's effort to reduce the political cost and as a result, instead of reducing state spending through the reduction of the public sector, it has chosen to lower public employees' salaries and pensions, while maintaining the size of the state sector, due to interests and dependency (clientelistic state, corporatism).

Although the policies followed to date by the Greek government do not completely adopt the recommendations of the memorandum, according to the arguments of its partners, they do constitute a mixture of measures mainly based on the logic of collecting revenue (burdensome income taxation, excessive growth of taxes on expenditure, reduction of salaried employees' and pensioners' income, waves of extraordinary contributions, income tax self-assessment, andamnesties), without any results in terms of growth, let alone in social terms.

Let it be noted that studies conducted on behalf of the IMFand the World Bankexamined the results of the "regulation" of the public sector, namely of the reforms promoted, which include reduction of the public sector, pay cuts, privatization, dismissals, and cutting social goods. The studies showed that market-friendly governance and market liberalization have a particularly negative impact on the performance of states in the crisis, since the countries that liberalized their economic and banking system the most were less adaptable and affected more by the global crisis.

According to the European Commission, the recession will continue for at least two years, but it is impossible with these negative growth rates – especially with such a negative difference from those forecast recently – for the Greek economy to recover in the middle of an ongoing austerity policy and lack of liquidity. It is pointed out indicatively that while the recently implemented restructuring contributed to the nominal reduction of the debt, at the same time, the new loan contract is inflating it.

The country is facing an essentially unsustainable debt, and the probability of the Greek problem being considered a dilemma with two choices, the large-scale restructuring of the debt with Greece remaining in the euro zone or not, or the de facto writing off of the entire debt, is appearing strong once again, just as it is a strong possibility that any choice will act as a domino for the other debt-ridden European countries. As a general admission, the extended and deep banking and monetary crisis is placing the sustainability of the euro zone at risk, rendering the issue of Greece equal to that of Europe.In Greece, the austerity policy is continuing and the country has less economic and policy choices than it had before the application of the first memorandum,while regarding the issue of a way out of the crisis, there is an absence of substantial policy proposals.

3. CRITICAL OBSERVATIONS AND CONCLUSIONS

- The proposed policy and its particular elements, as they have been instituted and adopted, as is proven by their implementation to date, cannot be effective because they recycle structural elements of the crisis.
- The recession that is already observed, as is even recognized by the reports of the European Commission, makes the achievement of significant fiscal goals of the program difficult, which to a great extent confirms all the objections that dispute the possibility of the policy applied to provide a way out of the crisis.
- From the composition of the measures and the way that they are implemented, it becomes clear that the dominant priority of the program is to save the banking and financial system, while the strengthening of the economy and its needs is remaining unimplemented. Based on this logic, a recapitalization of the banks with the full support of the public sector is being attempted, without private shareholders in banks losing either the possibility of control over their portfolios or the right to the future repayment of the public sector's shares and a buyout of the institutions.
- The adoption and application of strict rules in a period of crisis cannot constitute a favorable condition to surpass it.
- For the successful application of the program as adopted, it is necessary to extend the time for repayment of the loan, by connecting it to the level of growth and progress of the economy.

- Very much importance is attached and very much attention is paid to increasing control over the program's application, a fact that demonstrates the fixation of its planners on the one hand on managing the achievement of the goals and on the other, ensuring the repayment of the loan.
- It is clear that the specificities of Greece were not taken into account in the structuring and detailed definition of the program, and the liability for this predominantly falls on the Greek side, which accepted it as a whole. Let it be noted that this is an issue of capital importance that does not concern only Greece, since the adjustment program imposed on the country constitutes a synthesis of the same measures that the IMF has been applying in almost all its interventions over the last thirty years, with the same results.
- The examples of application of similar policies to countries facing a similar type of problem (Portugal, Spain) do not demonstrate in any case the existence of an exemplary country that is capable of responding successfully to the policies proposed as defined.
- For more than three years, measures are continuously being taken in the same direction, a fact that cannot create the conditions to stabilize the economy at any level.
- It is indisputable that the social impact of the policies applied in reference to the reduction of income, salaries, and social benefits will cause reactions that will very probably function as an inhibitor to the implementation of the measures.
- Taking into consideration even the optimistic estimates of the entities that are shaping the adjustment program, at least ten years of one-dimensional policy will be required, which will involve all the forces and resources of the country in the exclusive goal of reducing the debt to a marginally manageable extent. Regardless of the success or failure of targets, the cost of applying the program in economic and social terms will constitute a source of significant economic and social imbalances.
- The national and European policies applied have as their goals financial consolidation, fiscal stability, and the improvement of the economy's competitiveness. Being fixated on these pursuits entails a risk of cyclically undermining even these primary economic goals.

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GREECE SNEEZED AND NOW MOST OF EUROPE HAS A COLD?

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ABSTRACT

"Greece sneezed, and now most of Europe has a cold. The European debt crisis has already spread like a virus from Greece to Ireland and Portugal, and other countries are now at risk…" (The Washington Post, 2011). All of us read in the everyday financial news that story. But is it true? Put it differently, is it still true when we look not only at the trees but at the forest as well?

In most of the cases financial analyses are performed on a daily, weekly or monthly basis and there is nothing wrong with this. But the point is that financial data is in fact very complicated, it incorporates information on the actions of investors facing different investment horizons, from the speculator whose horizon is within the trading day to a pension fund manager whose actions are ruled by a long term strategy. This means that financial data could be much more informative and could provide us with deeper and better understanding of the underlying financial processes, if we are able to decompose it over different time scales. The right tool for such decomposition is the wavelet transform.

The current paper utilizes the continuous wavelet transform in order to investigate the degree of synchronization and co-movement of the Greek bond market and other Eurozone bond markets, including the German market regarded as a benchmark as well as bond markets of weaker economies, exposed at a risk of or suffering a debt crisis. For the pairs of markets where significant co-movements are identified it is also determined who is the market leader in the shorter and in the longer time perspective. Taking into consideration the obtained results it is discussed if actually Greece is that contagious.

KEYWORDS

European debt crisis, market co-movement, market leader, wavelet coherence

JEL CLASSIFICATION CODES

G01, G15

6. INTRODUCTION

It is a common truth that when the USA sneezes, rest of the world has a cold. Nowadays, in view of the current sovereign debt crisis, the financial press redefines this statement as "Greece sneezed, and now most of Europe has a cold…" (TheWashington Post, 2011). But is it right to make such a parallel? As Cochrane (2010) points out "Greece has no millions of complex swap contracts, no obscure derivatives, no intertwined counterparties. Greece is not a brokerage or a market maker". In spite of this it is widely believed that a default of Greece could cause defaults of other Eurozone economies, the major argument behind is the massive corporate globalization present in the last decades, which is likely to end up into a domino effect in times of turmoil. So far everything sounds logically and is indeed quite convincing, but it is informative to look back at the 2007-2009 financial crisis. There is aresearch, carried out by the European Central Bank (Bekaert et al., 2011) which investigates the transmission mechanisms of the past crisis. Two hypotheses are tested the first one is called the "globalization hypothesis" which implies that contagion during crises hits hardest those economiesthat are highly integrated globally. The alternative hypothesis is referred to as the "wake-up call hypothesis", which states that a crisis initially restricted to one country may provide new information prompting investors to reassess the vulnerability of other countries, which spreads the crisis across borders.Under this hypothesis domestic fundamentals are likely to pay a dominant role in the transmission of the crisis. The results clearly reject the "globalization hypothesis" and provide strong evidence of domestic contagion. And here comes the question: Is Greece

infecting other Eurozone economies which are generally healthy or their debt refinancing problem is due to domestic fundamentals?

Unfortunately there are just few researches investigating this important issue. Missio and Watzka (2011) carried out an investigation on the contagious effects of the Greek sovereign debt crises to six other EU countries. Dynamic conditional correlation models are utilized in order to estimate the dynamic correlation structure between Greece and the other economies of interest. The dataset consists of daily 10-year benchmark government bid yields for the period 31-Dec-2008 to 31-Dec-2010. The major conclusion of the paper is that contagion can be identified with Greece infecting Portugal, Spain, Italy and Belgium. Another research performed by Mink and Haan (2012) utilized an event study in order to examine the impact of news about Greece and news about a Greek bailout on bank stock prices in 2010 using data for 48 European banks. A major finding is that only news about the Greek bailout has a significant effect on bank stock prices and the news about the economic situation in Greece has an impact only on the prices of sovereign debt of Portugal, Ireland, and Spain. The latter could be explained with the so called "wake-up call". There are two more papers dealing with the more general topic on spillover effects of the rating agencies news. Arezki, et al. (2011) found out that sovereign rating downgrades have significant spillover effects both across countries and financial markets and Afonso, et al. (2011) found an evidence of contagion especially from lower rated countries to higher rated countries. To the best of the author's knowledge there are no further investigations on the topic.

The current paper is driven by the scarcity of research work on the issue and the necessity to further investigate it. In order to understand better the problem it is crucial to understand better the financial data, it is actually crucial to understand its complexity and to find the right tool for handling it in a manner that makes it more informative. The complexity of the financial data generally stems from the fact that it is a summary of numerous decisions and actions taken by economic agents operating over different investment horizons. For a speculator a day is a long time, while for a pension fund manager the investment horizon is of years actually. In this sense a decomposition of the data over different time horizons would enable better understanding of the information contained in it. Such decomposition can be performed by utilizing the wavelet transform.The interested reader is referred to (Ramsey, 1999), (Ramsey, 2002) for a comprehensive discussion on the benefits of using the wavelet transform for financial and economic applications and to (Gençay et al., 2002), (Percival&Walden, 2000) for a detailed discussion on types of wavelets and wavelet transforms, their properties, etc. Here it suffice to say that one of the most important properties of the wavelet transform is its ability to provide information on the cyclical nature of the investigated series and at the same time it preserves the local information in time. Another important property is its ability to identify local discontinuities, and structural breaks, which makes it suitable for financial time series analysis.

The current paper applies the continuous cross-wavelet transform to monthly 10-year government bond yields of Greece and eight other Eurozone economies, some of them are currently suffering debt refinancing problems and others are considered to be safe haven. The purpose is to estimate the investigated bond markets co-movements and the degree of their synchronization. According to one of the commonly used definitions in the contagion literature (Pericoli&Sbraca, 2003) contagion is present when the co-movements of financial assets between countries increase significantly. Thus the estimated co-movements are analyzed with respect to the beginning of the Greek debt crisis and where significant changes are present further investigations are carried out in order to determine who the market leader actually is. The obtained results provide a better and deeper understanding of the Greek crisis contagious effects which in turn is the major contribution of the paper.

7. THEORETICAL FRAMEWORK, DATA, AND RESULTS

2.1 Theoretical framework

The co-movement of two time series can be determined according to the strength of their wavelet coherency, the stronger the coherency, the greater is the co-movement. If a significant coherency is identified for certain frequency period over some time interval it is reasonable to examine if the series are moving together or if they are not moving together to determine which series is leading the other. This could be done by examining the phase difference of the series.

The calculation of wavelet coherency and phase difference requires the application of the cross-wavelet transform over the investigated series. In view of this in the following sections are briefly mentioned the basic concepts regarding the cross-wavelet transform analysis. The presented overview of the topic (sections 2.1.1.

and 2.1.2.) follows closely the discussion carried out by Aguiar-Conraria and Soares (2011) and the reader is referred to it for an exhaustive presentation of the theoretical framework and its suggested applications.

2.1.1 Continuous wavelet transform and cross-wavelet transform

A function $\psi(t) \in L^2(\mathbb{R})$ is said to be a mother wavelet if it satisfies the so called "admissibility condition" which is a decay condition and ensures that the function is well localized both in time and frequency. For functions with sufficient decay the admissibility condition is equivalent to requiring that

$$\Psi(0) = \int_{-\infty}^{\infty} \psi(t)dt = 0, \tag{1}$$

where $L^2(\mathbb{R})$ denotes the set of square integrable functions and $\Psi(\omega)$ denotes the Fourier transform of $\psi(t)$. In fact eq. (1) suggests that the function ψ has to wiggle up and down the t-axes, i.e. it must behave like a wave which together with the requirement of fast decay justifies the choice of the term wavelet. A family $\psi_{\tau,s}$ of wavelet daughters can be obtained by scaling and translating the mother wavelet ψ:

$$\psi_{\tau,s} = \frac{1}{\sqrt{|s|}} \psi\left(\frac{t-\tau}{s}\right), \quad s, \tau \in \mathbb{R}, s \neq 0, \tag{2}$$

where s is a scaling factor controlling the width of the wavelet and τ is a translation parameter controlling its location.

Given a time series $x(t) \epsilon L^2(\mathbb{R})$ its continuous wavelet transform with respect to the wavelt ψ is defined as follows:

$$W_{x;\psi}(\tau,s) = \int_{-\infty}^{\infty} x(t) \frac{1}{\sqrt{|s|}} \psi^*\left(\frac{t-\tau}{s}\right) dt, \tag{3}$$

where the asterisk denotes complex conjugate. For simplicity of notation the wavelet transform $W_{x;\psi}(\tau,s)$ will be denoted by W_x in the text that follows.

The cross-wavelet transform of two time series, $x(t)$ and $y(t)$, is defined as:

$$W_{xy} = W_x W_y^*. \tag{4}$$

The choice of a mother wavelet is important and it is made according to the specific purpose of the analysis. When the purpose is to investigate the synchronization of two time series it is necessary to select a complex-valued wavelet since its corresponding transform contains information on amplitude as well as on the phase. A commonly used complex-valued wavelet in financial applications is the Morelet wavelet. One of its advantages that make it so popular is the fact that it gives optimal trade-off in the frequency-time resolution. The current paper utilizes this wavelet as well. It only should be mentioned that if the researcher is interested in the investigation of a specific frequency band of the series' transform, than a better choice could be a wavelet from the family of the generalized Morse wavelets.

When a complex-valued wavelet is used than the obtained cross-wavelet transform can be separated into its real part, $\Re\{W_{xy}(\tau,s)\}$, and its imaginary part, $\Im\{W_{xy}(\tau,s)\}$, or into its amplitude $|W_{xy}|$ and its phase (or phase angle) ϕ_{xy}: $W_{xy} = |W_{xy}|e^{i\phi_{xy}}$.

2.1.2. Wavelet coherency and phase-difference

In order to define the wavelet coherency and the phase difference it is necessary first to define the complex wavelet coherency:

$$\varrho_{xy} = \frac{S(W_{xy})}{\left[S(|W_x|^2)S(|W_y|^2)\right]^{1/2}}, \tag{5}$$

S is a smoothing operator in both time and scale. Smoothing is required because otherwise the coherency would be identically one at all scales and times. The complex wavelet coherency can also be written in polar form, as $\varrho_{xy} = |\varrho_{xy}|e^{i\phi_{xy}}$. The absolute value of the complex wavelet coherency is called the wavelet coherency and is denoted by R_{xy}, i.e.

$$R_{xy} = \frac{|S(W_{xy})|}{\left[S(|W_x|^2)S\left(|W_y|^2\right)\right]^{1/2}}, \tag{6}$$

with $0 \le R_{xy} \le 1$. The angle ϕ_{xy} of the complex coherency is called the phase-difference (phase lead of x over y), i.e.

$$\phi_{xy} = Arctan\left(\frac{\Im\left(S(W_{xy})\right)}{\Re\left(S(W_{xy})\right)}\right). \tag{7}$$

A phase difference of zero means that the two time series move together at the specified time-frequency. The time series x leads y when $\phi_{xy} \in \left(0, \frac{\pi}{2}\right)$ or when $\phi_{xy} \in \left(-\pi, -\frac{\pi}{2}\right)$. In the first case the two series are moving in phase which roughly speaking means that an increase or a decrease in one of the series would lead respectively to an increase or a decrease in the other series. In the second case an anti-phase movement is present. The series y is leading the series x when $\phi_{xy} \in \left(-\frac{\pi}{2}, 0\right)$ or when $\phi_{xy} \in \left(\frac{\pi}{2}, \pi\right)$, again in the first case the two series are moving in phase and in the second case there is an anti-phase movement.

2.2 Data

In the current paper is determined the degree of co-movement of the Greek government bond market and the government bond markets of eight other Eurozone countries. Four countries which are considered to have serious refinancing problems are included – these are Ireland, Portugal, Spain and Italy. The other four countries are Germany, France, Austria and Belgium. The data consists of the 10-year sovereign bond yields in per cent on a monthly basis for the period Jan-2007 – Nov-2011 and is obtained from the OECD Economic Outlook, Volume 2011, Issue 2 – No 90, available at http://www.oecd.org/dataoecd/47/23/49113623.pdf.

2.2.1 Descriptive statistics

In table 1 are presented the descriptive statistics of the 10-year sovereign bond yields by countries. The series are differenced as they are not stationary according to the augmented Dickey-Fuller test and the summary statistics of the differenced series are presented in table 2. It should be mentioned that the cross-wavelet analysis does not require stationarity of the data. And indeed similar conclusions are drawn when the analysis

Table 1. Descriptive statistics of the 10-year sovereign bond yield (in per cent)

	Germany	France	Italy	Spain	Belgium	Austria	Greece	Portugal	Ireland
Mean	3.4268	3.7138	4.4442	4.4159	4.0340	3.8011	7.6030	5.4583	5.6683
Median	3.2870	3.6152	4.4039	4.2357	4.1186	3.9847	5.1588	4.4982	4.7789
Standard Deviation	0.6940	0.5462	0.4345	0.5390	0.4197	0.5459	4.5968	2.1654	2.0252
Kurtosis	-0.7931	-0.7349	1.0410	-0.1257	-0.1546	-0.7785	2.6218	2.7293	1.5974
Skewness	-0.1585	-0.1199	0.8563	0.9701	-0.4567	-0.3819	1.7333	1.9515	1.6126
Minimum	1.8701	2.6487	3.7688	3.7669	3.0119	2.6636	4.1559	3.7906	3.9199
Maximum	4.5770	4.6931	5.7752	5.8547	4.8525	4.7413	23.7723	11.9825	12.2254

is applied to the raw as well as to the differenced data. However the meaning of the differenced series is of economic interest as it gives the monthly yield changes. Also the differencing provides additional clarity of the results. For the above reasons the differenced series are further analyzed.

Table 1 summarizes the well-known sovereign debt crisis figures. Record high yields are observed for the 10-year Greek, Portuguese, and Irish sovereign bonds, the monthly yield of the 10-year Greek sovereign bonds reached 23.77%. At the same time the monthly yield of the German Bunds reached a minimum value of 1.87% for the period.

Table 2. Descriptive statistics of the differenced 10-year sovereign bond yield (in per cent)

	Germany	France	Italy	Spain	Belgium	Austria	Greece	Portugal	Ireland
Mean	-0.0348	-0.0184	0.0268	0.0213	0.0030	-0.0197	0.3424	0.1323	0.0699
Median	-0.0294	-0.0130	-0.0152	0.0045	-0.0095	-0.0395	0.1027	0.0634	0.0250
Standard Deviation	0.1965	0.1831	0.1824	0.2234	0.1734	0.1864	0.9675	0.4194	0.5626
Kurtosis	-0.0101	-0.0453	4.2158	1.7488	0.1803	-0.2095	14.5401	2.6097	12.0020
Skewness	-0.3538	-0.0142	1.5846	0.6143	0.3444	0.0227	3.0199	0.6494	-1.7306
Minimum	-0.5348	-0.4404	-0.2382	-0.5706	-0.3699	-0.4988	-1.7576	-1.1545	-2.7570
Maximum	0.3537	0.3640	0.7799	0.7020	0.4942	0.3734	5.5295	1.3628	1.7193

According to the statistics in table 2 Greece and Portugal registered the highest increases in the refinancing costs for the analyzed period while the sovereign bond yield is decreasing on average for Germany, France, and Austria. This reflects the fact that during the last two years of the investigated period there is a significant reduction in the risk appetite among investors, which in turn leads to an increased demand of the safe haven government bonds. It is also observed that the yield changes are most volatile for Greece, followed by Ireland and Portugal which can be seen from the standard deviation estimates.

2.3 Results

In order to carry out the investigation numerically the author utilizes a freely available Matlab toolbox associated with the theoretical framework presented in the paper of Aguiar-Conraria and Soares (2011) and shortly reviewed in section 2.1., available at http://sites.google.com/site/aguiarconraria/joanasoares-wavelets.

The results section is structured as follows. First are presented the major conclusions on the market synchronization, supported by gray-colored maps illustrating the wavelet coherency by pairs. The lighter is the color, the stronger is the coherency. Statistically significant coherencies are determined on the basis of Monte Carlo experiments and the spots with statistically significant coherency are contoured on the wavelet coherency map. Also a cone of influence is graphed with a tick black line. The cone of influence is the region in which the transform suffers from edge effects and the results in this area should be interpreted carefully. For details of the statistical significance determination and the cone of influence the reader is again referred to the paper of Aguiar-Conraria and Soares (2011).

The next section identifies who is the market leader for the pairs of markets where significant co-movements are identified. For clarity purposes it is necessary to say that when eq. (6) and eq. (7) are applied in the analysis the series y is always the 10-year Greek sovereign bond yield change and the series x is any other of the investigated Eurozone sovereign bond yield changes. This means that when the phase difference belongs to the interval $\left(-\frac{\pi}{2}, 0\right)$ or $\left(\frac{\pi}{2}, \pi\right)$ the 10-year Greek sovereign bond yield change series is leading the other series and when the phase difference is within the interval $\left(0, \frac{\pi}{2}\right)$ or $\left(-\pi, -\frac{\pi}{2}\right)$ than the other series is leading. Once again when the phase difference is zeros this means that the two series are moving together and neither is leading.

2.3.1 Market co-movement

As is mentioned in the data section the markets of interest are classified into two groups. The first group includes sovereign bond markets of countries which are considered not to suffer refinancing problems. These are Germany, France, Austria, and Belgium. For the differenced yields series of each of the countries and the differenced yield series of Greece is calculated the wavelet coherency. The results are illustrated on figure 1. From figure 1(a) it is easily seen that there is a presence of significant co-movement of the Greek and the German sovereign bond markets at the lower frequency band (12~24 months) starting from the end of 2008 and continuing until the end of the investigated period. Similar are the results for the other pairs of markets: there is a co-movement between the Greek and the French sovereign bond markets (figure 1(b)) at the longer run

frequency (15~24 months) starting from the mid of 2009, also significant coherency is present at lower frequency for the Austrian and Greek market (figure 1(c)) as well as for the Belgian and Greek market (figure 1(d)).

Figure 1: Wavelet coherency by pairs: for simplicity of notation the differenced 10-year sovereign bond yield series of each country is denoted only by the name of the respective country.

(a) Wavelet Coherency (Germany, Greece)

(b) Wavelet Coherency (France, Greece)

(c) Wavelet Coherency (Austria, Greece)

(d) Wavelet Coherency (Belgium, Greece)
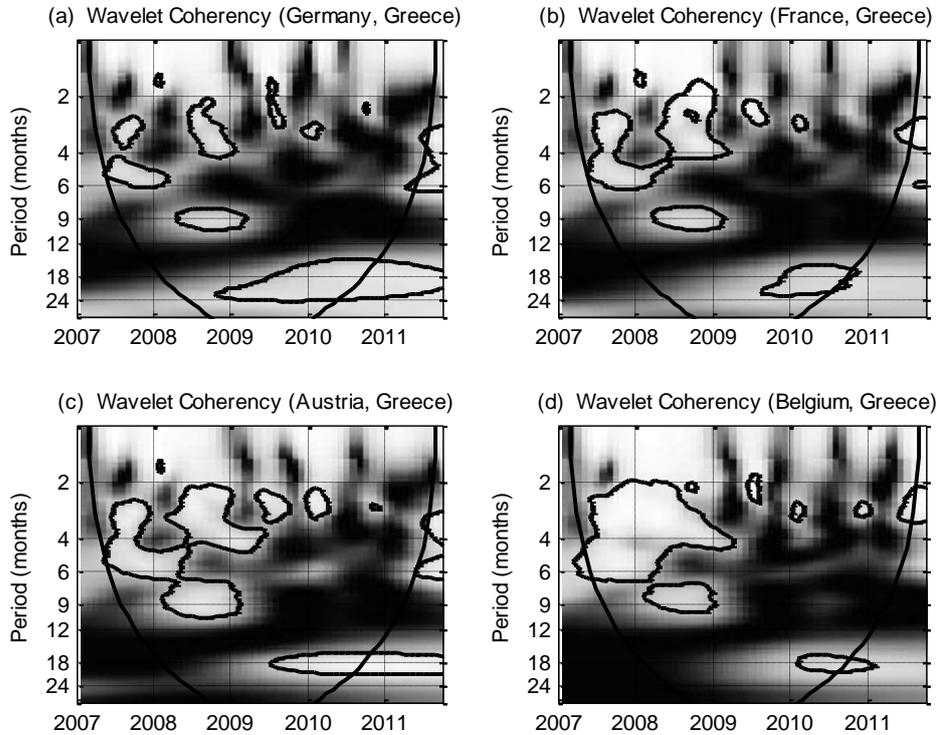
The second group of sovereign bond markets includes the markets of Portugal, Ireland, Spain, and Italy as all of these countries are suffering serious refinancing problems. Similarly to figure 1, figure 2 presents the wavelet coherency of the differenced yield series of Greece and each of the other countries from the second group. According to the figure 2(a) and figure 2(b) after 2010 there are significant co-movements at the higher frequencies (1~3 months) between the Portuguese and the Greek, as well as between the Irish and the Greek government debt markets. After 2010 no significant coherencies are present at the longer run frequencies.

Considering the identified significant wavelet coherencies in the next section is determined who is the market leader in the shorter as well as in the longer run frequencies.

2.3.2 Who is the market leader?

In the last section it was concluded that there is a presence of significant government debt market co-movement between the markets of Greece and Germany as well as the markets of Greece and Franceconsidering the longer run frequencies. Looking at the shorter run-frequencies significant co-movement is identified between the sovereign debt markets of Greece and Portugal as well as Greece and Ireland.

In the current section is identified who the market leader is by examining the phase differences presented in figure 3. Looking the figure 3(a) it can be seen that the phase difference between the differenced sovereignbond yield series of Germany and Greece belongs to the interval $\left(0, \frac{\pi}{2}\right)$ which in fact means that the German

Figure 2: Wavelet coherency by pairs: for simplicity of notation the differenced 10-year sovereign bond yield series of each country is denoted only by the name of the respective country.
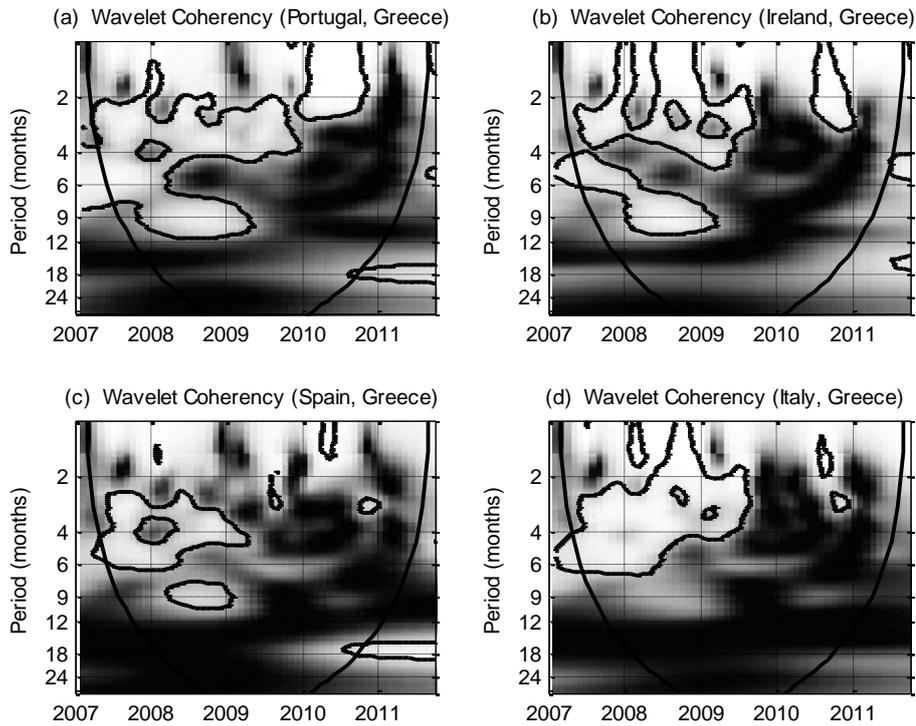
Figure 3: Phase Difference by pairs: for simplicity of notation the differenced 10-year sovereign bond yield series of each country is denoted only by the name of the respective country.
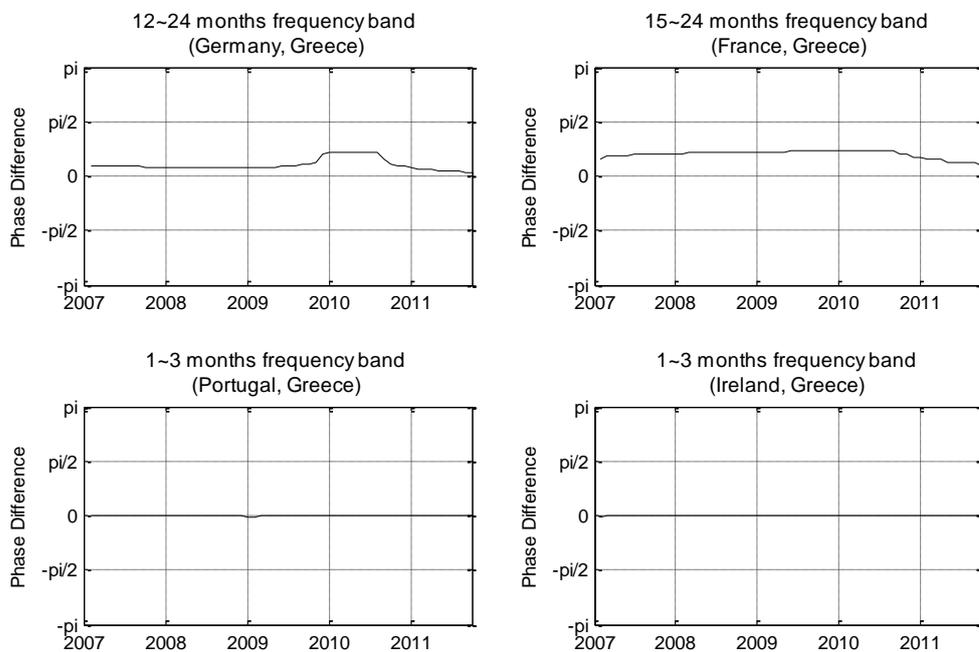
government debt market is leading the Greek market. Absolutely the same is the situation depicted in figure 3(b) which again implies that the French sovereign debt market is leading the Greek market. This conclusion is not unexpected as by its essence it simply means that in the longer run perspective the Greek debt market is following the Eurozone benchmark markets.

More interesting are the results regarding the higher frequency co-movements identified in section 2.3.1. If we look at figure 3(c) it is obvious that the phase difference between the change in the sovereign bond yield series of Portugal and Greece is zero which implies that the two markets are moving together and neither of them is leading the other. The same conclusion is obtained for the markets of Ireland and Greece looking at figure 3(d), the markets are moving together. But if it is true that Greece infected Portugal and Ireland then one would expect that Greece would be in a leading position. The obtained results could be explained by the so called "wake-up call hypothesis" which was briefly presented in the introduction of the current paper.

8. CONCLUSION

In the current paper is investigated the issue of Greek sovereign debt crisis contagious effects on other Eurozone economies through the wavelet lens. The main purpose of the research is to find out if Greece is infecting other economies that are generally healthy or what currently is happening can be explained with the "wake-up call". The obtained results indicate that in a long run horizon of 1~2 years the Greek sovereign debt market is following the Eurozone benchmarks. On the other hand considerable co-movements of the Portuguese and Greek as well as Irish and Greek government debt markets are identified at higher frequency bands. These co-movements indicate presence of contagion effects but at the same time the investigation confirms that none of the markets is leading the other. The last result could be explained with the "wake-up call" according to which domestic fundamentals are likely to pay a dominant role in the transmission of the crisis.

The major contribution of the current paper is the application of wavelet analysis to the Eurozone debt crisis, giving better understating of sovereign debt markets synchronization and the spread of contagious effects from Greece to other Eurozone economies.

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THE ROLE OF MONETARY POLICY AND LESSONS FROM THE FINANCIAL CRISIS

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ABSTRACT

The key objective of the paper is to analyze the role and conduct of monetary policy and the lessons from the global financial crisis. First, the key elements of the pre-crisis monetary policy paradigm are analyzed as well as their importance during the global financial crisis. With this regard, the emphasis is put on the following three central issues: (a) the central bank independence and its importance as a corner stone of credible and effective monetary policy making; (b) the importance of the price stability as a primary objective of the monetary policy; (c) the monetary analysis and its role for the successful monetary policy making. Second, the paper is focused on the monetary policy non-standard measures adopted by the ECB in response to the crisis. The main challenges ahead the monetary policy making are related with the current intensified tensions in sovereign debt markets and the state of public finances in the Euro area. The paper concludes that a new growth model is needed which is different from the one during the years before the global financial crisis.

INTRODUCTION

Since August 2007 the world has been experiencing the worst economic and financial crisis of the post-war period. The recession experienced by the Euro area and several advanced economies in 2008 and 2009 was the most severe for several decades. In the Euro area – this was the deepest recession since at least 1960 (ECB, 2012:69). Since autumn 2011 the Euro area has been again in recession – annualized GDP declined by 0.3 percent in the fourth quarter and is expected to shrink further in 2012 by 0.2 percent (IfW, 2012).

After more than four years of financial and economic turbulence, both bankers and policy-makers continue to contend with the following two important questions: What have been learned from this extraordinary episode? And how can the policy-makers apply those lessons to improve the conduct of monetary policy, to strengthen the banking system and to avoid or mitigate future crises? Getting the answers to these questions right is critical for the Euro area future financial and economic health. The key objective of the paper is to analyze the role and conduct of monetary policy and the lessons learned from the global financial crisis.

Looking back over time, the role and conduct of monetary policy has often changed in response to economic and financial crises. In fact, the international central banking community has always been eager to learn from past developments and experiences, also with respect to different experiences across countries(Stark, 2011).A number of studies have analyzed the ECB's monetary policy strategy and implementation and the lessons from the global financial and economic crisis. Policy-makers, academics, crisis managers discuss the key challenges for monetary policy and financial stability that have arisen since the trigger of crisis in 2007. Recent research provides a vastly enriched framework for monetary policy stance, its objectives, monetary policy transmission mechanism, and its standard and non-standard measures during the crisis. Such examples are the studies of Issing (2001, 2003), Klöckers and Willeke (2001), King (2002), Eijffinger (2005), Masuch, K., et al. (2003), Goodfriend (2007), Mishkin (2007, 2009), Woodford (2009), Papademos and Stark (2010), Friedman and Woodford (2010), Wieland and Beck (2010), Amisano and Fagan (2010), Giannone, Lenza and Reichlin (2010), Stark (2011), Fahr et al. (2011) and many others.

The paper is organized as follows: first, the pre-crisis monetary policy paradigm and its key elements are analyzed, as well as their importance during the crisis; second, the non-standard monetary policy measures adopted by the ECB in response to the crisis, are investigated. The study concludes with summarizing the results.

MONETARY POLICY PRINCIPLES AND THEIR APPLICATION BY THE ECB DURING THE CRISIS

Over the last three decades, monetary economists have developed a set of basic scientific principles, derived from theory and empirical evidence that now guide thinking at almost all central banks and explain much of the success in the conduct of monetary policy. By the end of the 1970s, inflation has reached very high levels with many countries in the OECD experiencing double-digit inflation rates. After that, during the so-called "Great Moderation", low inflation and macroeconomic stability were observed in the US and other industrial countries (Bernanke, 2004). During this period most OECD countrieshad low and stable levels of inflation and lower volatility of inflation. This was accompanied with lower output volatility as well.

The improved performance of monetary policy has been associated with advances in the science of monetary policy, that is, a set of principles that have been developed with rigorous theory and empirical work that have come to guide the thinking of monetary policy practitioners (Mishkin, 2007:1). Stark (2011) argues, that during the last century the monetary policy thinking went through a remarkable evolutionary process which resulted in price stability. At present there is a widespread consensus over some key elements of the pre-crisis monetary policy paradigm.We can summarize the following three key principles of the monetary policy:

1. Central bank independence and its importance as a corner stone of credible and effective monetary policy making;
2. Importance of the price stability as a primary objective of the monetary policy;
3. Monetary analysis and its role for the successful monetary policy making.

As Mishkin (2007:1) argues, the science of monetary policy has made significant progress over recent decades and this progress expanded the degree to which the practice of monetary policy reflects the application of this core set of „scientific" principles.

1. Central bank independence and its importance as a corner stone of credible and effective monetary policy making

The institutional framework for thesingle monetary policy establishes acentral bank that is independent frompolitical influence. A large body oftheoretical analysis, supported bysubstantial empirical evidence,indicatesthat central bank independence isconducive to maintaining price stability.

According to the Statute of the ESCB and the ECB, when exercising the powers and carrying out the tasks and duties conferred upon them, neither the ECB, nor the national central banks (NCBs), nor any member of their decision-making bodies, are allowed to seek or take instructions from EU institutions or bodies, from any government of an EU member state or from any other body.There are also other provisions tosafeguard the independence of theEurosystem and the decision-makingbodies of the ECB. For instance, theECB's financial arrangements are keptseparate from those of the EuropeanCommunity,as well as the ECB has its ownbudget, and its capital is subscribedand paid up by the Euro area NCBs (ECB, 2004:12).The Statute foresees long terms of office for the members of the Governing Council. Members of the Executive Board cannot be reappointed.Governors of NCBs and members of the Executive Board have security of tenure:NCB governors have a minimum term of office of five years;members of the Executive Board of the ECB have a non-renewable term of office of eight years;both can be removed from office only in the event of incapacity or serious misconduct;the Court of Justice of the European Union is competent to settle any disputes.The Eurosystem is also prohibited from granting loans to EU bodies or national public sector entities.

The financial and economic crisis has crucially underlined the importance of central bank independence as a corner stone of credible and effective monetary policy making. In fact, central bank independence is a precondition of effective monetary policy at all times. The effectiveness of monetary policy on the basis of institutional and operational independence was, however, fundamental during the crisis. In case of turbulent market conditions,the ECB has been forced to implement extraordinary measures, both in terms of reducing policy rates to levels that are unprecedented, and in terms of unconventional liquidity measures. In May 2010 when the sovereign debt crisis has began, the EU finance ministers unveiled a €750 billion financial rescue package, and the ECB indicated its intention to start purchasing public and private debt securities as part of the coordinated relief effort for struggling the Euro areamember states. The ECB declared that this decision of itsGoverning Council was not the result of any kind of pressure of any sort. As Willis (2010) argues, the ECB justified its decision to enter into the sovereign debt secondary market as a necessary measure „to ensure depth and liquidity in those market segments which are dysfunctional".

2. Price stability as a primary objective of the monetary policy

Modern consensus exists that the price stability is desirable in itself and thus is an important goal of monetary policy. Stable prices also tend to increase economic growth and stability, thus achieving the central bank's mandated objectives. As Bernanke (2006) argues, price stability preserves the integrity and purchasing power of the nation's money. When prices are stable, people can hold money for transactions and other purposes without having to worry that inflation will eat away at the real value of their money balances. Equally important, stable prices allow people to rely on the currency as a measure of value when making long-term contracts, engaging in

long-term planning, or borrowing or lending for long periods. The interaction of the tax system and inflation also increases distortions that adversely affect economic activity (Feldstein, 1997).

Price stability promotes efficiency and long-term growth by providing a monetary and financial environment in which economic decisions can be made and markets can operate without concern about unpredictable fluctuations in the purchasing power of money. Recentlly, the evidence demonstrates not only that low and stable inflation is beneficial for growth and employment in the long-term but also that it contributes to greater stability of output and employment in the short to medium term (Bernanke, 2006). The argument explaining why price stability promotes stability in both output and employment is the realization that, when inflation itself is well-controlled, then the public's expectations of inflation will also be low and stable. In a virtuous circle, stable inflation expectations help the central bank to keep inflation low even as it retains substantial freedom to respond to disturbances to the broader economy.

In the case of the ECB, the primary objective, as assigned by the Treaty on the Functioning of the European Union, is to maintain price stability, defined as a year-to-year increase in the Harmonized Index of Consumer Prices (HICP) for the Euro area as a whole of below, but close to 2% over the medium term.The Governing Council of the ECB assesses whether the impact that monetary policy is having on the economy and ultimately price stability – i.e. its monetary policy stance – is appropriate in order to achieve its primary objective, taking into account all the factors that affect the medium-term inflation outlook. The announcement of a quantitative definition of price stability enhances the transparency of the overall monetary policy framework and provides a clear and measurable benchmark against which the public can hold the ECB accountable (Issing, 2003:11). Furthermore, it gives guidance to expectations of future price developments, thereby helping to stabilise the economy. According to Issing (2003:14), a number of considerations have been taken for choosing a moderate positive rate of inflation such as the following: (a) measurement bias in the price index; (b) downward nominal rigidities in wages and prices due to economic agents' aversion to nominal cuts; (c) sustained inflation differentials in a monetary union resulting of both temporary and structural factors (as the Balassa-Samuelson effect); (d) the zero lower bound of nominal interest rates and the risk of protracted deflation or a deflationary spiral in the euro area as a whole.

Monetary policy's response to the global financial and economic crisis has been geared towards the achievement of the ECB's price stability objective. The anchoring of medium-term infl ation expectations is essential in order to support sustainable growth and employment and contribute to financial stability. Throughout the crisis, medium to longer-term inflation expectations in the Euro area have remained firmly anchored in line with the Governing Council's definition of price stability. According to Stark (2011:3), the global financial and economic crisis is an example that well-anchored inflation expectations can act as an automatic stabilizer when uncertainty becomes destabilizing. This is always true, in good times as well. In fact, well-anchored inflation expectations in the Euro area were instrumental in avoiding large interest rate hikes before the crisis, when commodity prices rose sharply. At the height of the crisis, they became a policy instrument in their own right. Thanks to the well-anchored inflation expectations,the ECB could avoid deflationary spirals and real interest rates could be reduced in tandem with nominal rates. If inflation expectations are well anchored, and are not affected by transient shocks to actual inflation, there is no need to manipulate monetary policy frameworks: there is no need to increase the inflation target as a means of resisting deflationary risks in times of macroeconomic distress.

During the last months of 2011 inflation in the Euro area was under pressure of increasing oil prices. The impact on inflation for the year 2012 as a whole is expected to be rather small because of negative base effects from the increases of energy prices in the beginning of the year 2011 (IfW, 2012). In the light of the weak economic performance overall inflation is predicted to decline gradually during the year, but to remain above the 2 percent target of the ECB on average. According to the IfW, the overall inflation is forecasted to be at 2.2 percent in 2012 and at 1.8 percent in the year 2013.

3. Monetary analysis and its role for the successful monetary policy making

Detailed monetary analysis is a key task for all the world's major central banks (Klöckers & Willeke, 2001, King, 2002). The ECB's assessment of its monetary policy stance is essential for the preparation of its monetary policy decisions. That assessment aims to determine whether monetary policy is contributing to economic, financial and monetary developments in a way that maintains price stability over the medium term. It is one of the important inputs that are examined by the Governing Council of the ECB when deciding on its monetary policy. The monetary policy strategy of the ECB ensures a broad-based and medium-term-oriented assessment of the monetary policy stance. In particular, the strategy has a two-pillar structure – comprising both an economic analysis and a monetary analysis – which provides two complementary perspectives on the determination of price developments. This assessment (ECB, 2010:63) reduces the risk of policy error as a result of over-reliance either on a single forecast or model or on summary indicators of the monetary policy stance (such as indicators derived from natural interest rates, Taylor rules, and monetary and financing conditions indices). There is compelling empirical evidence showing that, at low frequencies – that is over medium to longer-term horizons – inflation shows a robust positive association with money growth (Benati, 2009).

The ECB's monetary policy strategy assigns a prominent role to monetary analysis as one element of the two-pillar framework for the assessment of risks to price stability in the Euro area. This decision of theECB's was made in recognition of the fact that inflation is a monetary phenomenon in the medium- to long-term (Issing et al., 2001). Two properties were identified by the Governing Council as relevant for the purpose of making a monetary aggregate a prominent information variable for the ECB which aims at price stability in the medium term (Issing, 2003:21): first, *indicator properties:* the monetary aggregate should contain information that helps to predict future developments in the price level; second, *stability:* the aggregate should exhibit a stable (or, at a minimum, predictable) relationship with its long-run determinants, such as real income, interest rates, and most importantly the price level. As regards the indicator properties of money, recent evidence continues to support the notion that the broad monetary aggregate (M3) provides key information on inflation over medium- and long-term (Jaeger, 2003, Gerlach, 2003, Neumann, 2003, Nicoletti-Altimari, 2001). According to Masuch et al. (2003:189), the role of money could be summarized in the following aspects: (a) monetary aggregates might be useful to proxy for variables that are unobservable or observable only with time lags, therefore money can contribute information for assessing the appropriate *stance of monetary policy,* which is not included in simple interest rate rules; (b) money may play an important structural role in the transmission mechanism of monetary policy to the price level, especially if *imperfections in the financial sector* (i.e. borrowing and liquidity constraints) permit changes in the structure of balance sheets to influence yields and spreads in a manner that is relevant for intertemporal economic behaviour, such as pricing, consumption, saving and investment decisions; (c) money can provide *a nominal anchor for the economy.*

The scope of the monetary analysis conducted at the ECB has been enriched over time. It consists of a comprehensive assessment of the liquidity situation based on information from trends in the components and counterparts of M3, in particular loans to the private sector, as well as narrower definitions of money such as M1, and from various money gap measures and concepts of excess liquidity (Masuch, Pill and Willeke, 2001). In mid-2007 the Governing Council decided to embark upon a research programme to enhance the ECB's monetary analysis. The ECB's monetary analysis ensures that the important information stemming from money and credit is considered in the monetary policy decision-making process. It provides a cross-check from a medium to long-term perspective of the assessment of risks to price stability based on the economic analysis. The role of monetary analysis in the ECB'sstrategy is founded on therobust positiverelationship between longer-termmovements in broad money growth and inflation,whereby money growth leads inflationarydevelopments. This relationship is found to holdtrue across countries and monetary policy regimes (Papademos & Stark, 2010).

The benefits of the ECB's broad-based two-pillar approach to the assessment of the monetary policy stance have been particularly visible during the recent global financial and economic crisis (ECB, 2010:67). This approach has allowed to policy-makers to obtain a more comprehensive and accurate overall picture of underlying developments and the associated risks to price stability in the Euro area. During the crisis, the ECB's monetary analysis has helped to maintain a medium-term perspective, given the crucial link between money and inflation over longer horizons. It has also helped to improve the understanding of developments in monetary aggregates, banks' balance sheets, money markets, asset prices and credit flows. The economic and financial crisis significantly affected the growth of money and credit. In 2010, for example, Euro area broad money (M3) growth and domestic credit growth were the weakest they had been since at least 1960 in both real and nominal terms.In fact, broad money (M3) growth tends to be a good leading indicator of consumer price inflation in the medium to longer term. Both in nominal and in real terms, narrow money (M1) growth declined markedly in 2008, before recovering, thereby confirming its leading indicator properties as regards turning points in real GDP growth (ECB, 2012:70). Similar developments were observed for several other advanced economies.

NON-STANDARD MONETARY POLICY MEASURES ADOPTED BY THE ECB IN RESPONSE TO THE CRISIS

In the exceptional circumstances created by the financial crisis, the ECB's signalling and implementation of its monetary policy stance has involved not only interest rate decisions, but also non-standard measures. In particular, the measures implemented by the Eurosystem have supported credit fl ows to the economy through both supply factors (notably by alleviating funding pressures in the banking sector) and demand factors (owing to the very low level of interest rates).

At the beginning of the financial turmoil, when access to liquidity in money markets became severely hampered in August 2007, the Eurosystem reacted swiftly to ensure that this did not lead to a major systemic financial crisis. It reacted mainly by amending the timing and maturity of its liquidity-providing operations to accommodate the funding needs of banks. In addition, it provided liquidity in foreign currencies. Following the collapse of Lehman Brothers, the turmoil escalated into a financial crisis, which rapidly spread to the global financial system and caused a severe downturn in the Euro area economy, resulting in subdued inflationary

pressures. In response to these developments, the ECB's Governing Council adopted a number of standard and non-standard measures. Thus, given the changes in the assessment of risks to price stability, the Governing Council cut the ECB's key interest rates by 325 basis points to 1%, a level not seen in the countries of the Euro area since at least the Second World War (ECB, 2011:55). Market participants' strong demand for liquidity, which has been fully accommodated by the Eurosystem, has caused overnight money market rates to fall significantly below the main refinancing rate and relatively close to the deposit rate. In this environment, the deposit rate has started to play a more prominent role than in the past with respect to the EONIA and other very short-term money market interest rates.

However, dysfunctional money markets have weakened the ability of monetary policy to influence this outlook by means of interest rate decisions alone. As the functioning of the financial system – and the money market in particular – was severely hampered, the Governing Council adopted a number of non-standard measures to guard further against a systemic liquidity crisis in the Euro area, to support the transmission of its interest rate decisions and to enhance the flow of credit to households and corporations (Cúrdia and Woodford, 2011).The enhanced credit support measures constitute the ECB's approach to non-standard policy-making in the context of the financial crisis.They are not comparable with the US Federal Reserve's "credit easing" and the "quantitative easing" conducted by the Bank of Japan and the Bank of England (ECB, 2010:69). For example, in the United States, the financial markets – and not banks – are the primary source of external financing for firms. The Bank of England, under its Quantitative Easing Programme, intended to purchase £75 billion of assets financed through the creation of central bank reserves (Joyce et al., 2010).

Enhanced credit support

The ECB's so-called "enhanced credit support" comprises non-standard measures that support financing conditions and credit flows above and beyond what could be achieved through reductions in key ECB interest rates alone. This approach has been tailored to the financial structure of the Euro area economy and the specific circumstances of the global financial crisis. It has focused on banks since in the Euro area they are the primary source of financing for the real economy. The measures have focused on ensuring that banks have broad and deep access to central bank liquidity in these exceptional circumstances. Second, with Euro area banks' access to foreign currency interbank markets severely impaired, the ECB has decided to provide liquidity to the Euro area banking sector in US dollars in exchange for euro-denominated collateral. This is backed by the swap facility that the ECB has arranged with the US Federal Reserve. More specifically, the enhanced credit support comprises a set of five measures:

1. **Provision to Euro area banks of unlimited liquidity at a fixed rate in all refinancing operations against adequate collateral**

During the first phase of the crisis since August 2007 to mid-September 2008, the key problem was the malfunctioning of the money market on account of uncertainty about the creditworthiness of counterparties. Banks preferred to "frontload" liquidity at the beginning of the maintenance period so as to reduce uncertainty about their liquidity positions. The ECB accommodated this preference by providing for larger allotment amounts in the main refinancing operations (MROs) at the beginning of the maintenance period, thereby reducing short-term interest rate volatility and maintaining an efficient operational framework in terms of steering the overnight interest rate towards the MRO rate (Mercier & Papadia, 2011).

During the second phase of the crisis since mid-September 2008 to December 2009, the ECB reacted has taken up an intermediation role for the provision of liquidity to individual banks, normally played by the money market. This was reaction to the intensification of the crisis in mid-September 2008 and the exacerbated money market tensions – with large spreads between the unsecured three-month EURIBOR and the secured three-month overnight index swap rate, and a sharp decline in money market trading activity. Therefore, the ECB has switched from variable rate tenders to fixed rate tenders with a full allotment of the liquidity demanded by counterparties.

The full accommodation of the very high demand for liquidity in refinancing operations caused the overnight interest rate (the EONIA) to fall below the MRO rate, reflecting excess liquidity in the money market and the extensive use of the deposit facility. As a result,bank lending rates for households and non-financial corporations also declined with only a short delay, in parallel to the decline in the EONIA.As regards bank lending volumes, the level of lending contracted only moderately during the crisis. In particular,during the financial crisis, lending rates and volumes behaved in a manner consistent with a rather normal functioning of the transmission mechanism, as gauged by historical regularities prior to the crisis. These results suggested that ECB's measures have been successful in achieving their intended goal.

2. **Lengthening of the maximum maturity of refinancing operations from three months prior to the crisis to one year**

This maturity lengthening was aimed at providing certainty to banks as regards funding sources for a longer period, thereby allowing the banking system to restore and better plan its activities and to maintain lending to households and non-financial corporations. The ECB lengthened the maturity of its longer-term refinancing operations (LTROs) to 6 months, later extended to 12 months during the financial crisis. This increased the average remaining maturity of outstanding liquidity further from about 20 days before the crisis to 30 days during

the initial phase of the financial turmoil, and toover 200 days in the second half of 2009 when one-year LTROs were in place, before it declined again. The one-year LTROs contributed effectively to stabilising money market spreads at levels below those observed during the phase of financial turmoil. As the ECB (2011:60) demonstrates, in the phasing-out period, the spread between the three-month EURIBOR and the overnight indexed swap rate stood at around 25 basis points, around half the value reached during the phase of turmoil. At the time of the intensification of the crisis, it had peaked at more than 175 basis points. LTROs reached a volume of €310 billion at the end of January 2011, compared with a volume of €172 billion for MROs at the same time.

However, according to the critics, banks' dependence on the ECB's credit support could decrease the ECB its independence. In March 2012 the €529 billion ($713 billion) total lendingwas even larger than the €489 billion lent by the ECB in December 2011 in a similar operation that restored faith in the Euro area banking system. The European banks have surpassed expectations by borrowing more than half a trillion euros in three-year loans from the ECB as part of its programme to prevent another credit crunch in the Euro area(Turner, 2012). As a result, the yields on Italian and Spanish government bonds was declined since demand for peripheral Euro area sovereign debt is heavily dependent on Euro area banks, which need sufficient funding to continue buying them. However, according to some analysts the lending would be no more than €500 billion.

3. Extension of the list of assets accepted as collateral

During the intensification of the crisis since mid-September 2008 the ECB has extended list of eligible collateral in various stages by adjusting the quality thresholds for particular asset classes,thereby enabling banks to take advantage of the fixed rate full-allotment tenders. As a result, the amount of collateral submitted expanded substantially over the period from 2007 to 2009, thus reflecting the financial market tensions seen during this period. The largest increase was in structured finance products, such as asset-backed securities and covered bonds, which account for nearly 40% of total collateral submitted (ECB, 2011:98). All assets (both marketable and non-marketable) which are eligible for the Eurosystem credit operations are subject to specific risk control measures in order to protect the Eurosystem against financial loss if underlying assets have to be realised (i.e. sold) owing to the default of a counterparty.

These risk control measures aiming to mitigate liquidity market and credit risk are the following (ECB, 2011:97-98): (a) valuation haircuts, meaning that the value of the underlying asset is calculated as the market value of the asset minus a certain percentage (the "haircut"); (b) the Eurosystem also requires the haircut-adjusted market value of the collateral to be maintained over time by applying variation margins (marking-to-market); (c) limits on the use of unsecured debt instruments; (d) additional risk control measures if these are required in ordet to ensure adequate risk protection. In fact, the introduced full allotment at fixed rates of the liquidity demanded by the banking sector against an expanded list of collateral has helped to stabilize the funding situation of monetary-financial istitutions in the countries hit most severely by the sovereign debt crisis.

4. Provision of liquidity in foreign currencies (notably US dollars)

In addition to the above-mentioned measures concentrated on funding in euro, during the financial crisis the ECB also adopted US dollar liquidity-providing operations against ECB-eligible collateral, as currency swaps. These operations were aimed to counter difficulties that some internationally active banks experienced in funding in foreign currencies, notably in US dollars. It used reciprocal currency arrangements with the Federal Reserve System to provide funding in US dollars against Eurosystem eligible collateral at various maturities at fixed interest rates with full allotment. Swap tenders involving the Swiss franc were also carried out. This measure supported banks which otherwise faced a massive shortfall in US dollar funding during the period of financial crisis (ECB, 2011:127).

5. Outright purchases in the covered bond market

In addition to the measures targeted primarily at the money market, the Eurosystem also intervened directly in some securities markets. The Covered Bond Purchase Programme (CBPP) was announced on 7 May 2009. It was aimed at encouraging an easing of credit conditions and at improving liquidity in this important market segment, given that the issuance of covered bonds is a primary source of financing for banks in the Euro area. Over the 12-month period from 6 July 2009 to 30 June 2010, when this programme was completed, the Eurosystem made outright purchases of euro-denominated covered bonds issued in the Euro area up to the pre-announced total nominal value of €60 billion. Over this period, a total of 422 different bonds were purchased, 27% in the primary market and 73% in the secondary market (Beirne et al., 2011:5). There were 148 new CBPP-eligible covered bonds issued and 48 tap issuances of already outstanding CBPP-eligible covered bonds. The total amount of these issues reached around €150 billion.

The Securities Markets Programme (SMP) was launched in response to the sovereign debt crisis on 10 May 2010. This programme was aimed to address the malfunctioning of some securities markets and to improve the transmission mechanism of monetary policy. Under the SMP, public and private debt securities are eligible for purchase. The Eurosystem re-absorbs the liquidity provided through bond purchases by means of weekly liquidity-absorbing operations so as to ensure that the monetary policy stance is not affected.

As a result of the CBPP, a reactivation of jumbo covered bond issuance was triggered on the primary market, whereby volumes returned to levels observed before the crisis. The effect on the secondary market was visible in

the developments in covered bond spreads which decreased substantially (at the start of CBPP spreads fell by up to 7 basis points in the case of German covered bonds, and declined further at an average pace of 2 basis points per day thereafter). In order to restore the activity in the Euro area bond market and to support the issuance of uncovered bank bonds, a range of government guarantee programmes have been also introduced. The provision of support under these programmes has been effective – during the peak of the crisis, nearly all new bank debt issuances required a government guarantee to appease investors' risk concerns (Beirne et al., 2011:14).

All above-mentioned non-standard measures of the ECB have been focused on the banking sector, with the first four dealing with the provision of liquidity in Euro and foreign currencies. The decision to purchase covered bonds outright has been taken in order to support the covered bond market, which is a very important financial market in Europe and a primary source offinancing for banks. This measure has fostered primary issuance and reduced the particularly elevated spreads in this market.

Because of their exceptional nature, the ECB's non-standard measures have to be gradually phased out once the situation in financial markets normalises and the transmission of monetary policy begins to function normally again. Most of the measures unwind naturally in the absence of an explicit decision to prolong them. In addition, the ECB has the ability to act whenever it deems this necessary. In part as a result of the measures adopted by the ECB, financial conditions have first stabilised and then improved. It is expected that the extraordinary conditions that led the ECB to adopt the non-standard measures would hgradually fade away, and the extraordinary liquidity measures would not be needed to the same extent as in the past.However, the fact that non-standard measures have begun to be phased out does not mean the discontinuation of enhanced credit support. The Eurosystem will continue to provide liquidity to the banking system at very favourable conditions.As the ECB declares (2010:71) that the phasing-out of non-standard measures should not necessarily imply a tightening of the monetary policy stance. This gradual phasing-out will allow a gradual return to a more standard implementation of monetary policy.The main refinancing rate should regain its key role in the signalling and implementation of the monetary policy stance and in the assessment of the monetary policy stance itself.This will facilitate the monetary policy conduct, as it enables monetary policy decisions to feed through as quickly and precisely as possible to short-term money market rates as the first stage of the transmission process.

CONCLUSION

Thekey monetary policy principles analyzed in the paper have proven to be very valuable for the stability-oriented conduct of the ECB's monetary policy during the crisis. The effectiveness of monetary policy on the basis of institutional and operational independence wasfundamental during thisperiod.Throughout the crisis, the ECB's monetary policy has reacted to economic and financial shocks with the appropriate medium-term orientation to ensure a solid anchoring of inflation expectations. The flexible design and the broad range of instruments and procedures within the Eurosystem's operational framework have supported the ECB's bold response to the financial crisis, including the introduction of a number of non-standard monetary policy measures. These non-standard measures, together with the support measures for banks introduced by Euro area governments, prevented a disorderly deleveraging process. Non-standard measures thus played an important role during the sovereign debt crisis.However, the crisis has confirmed that a central bank with a price stability objective and insufficient regulatory powers is not enouph to ensure broader financial stability in the economy. That is why a new growth model is needed and this modelshould be different from the one during the years before the financial crisis. The new growth model shouldbe based on an increase in productivity, and not on low interest rates and the accumulation of debt. The ECB should face the trade-off between price stability and financial stability and to strengthen its macro-prudential supervision role.

ACKNOWLEDGEMENT

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CONCLUSIONS FOR THE STABILITY OF FINANCIAL SECTOR FROM CRISIS IN EUROPE

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ABSTRACT

The target of this analysis is to prove the inefficiency of supervision and controlling procedures in financial system, and its failure during the crisis to bring in balance the financial markets. In this framework we will discuss the weaknesses and their impacts to the economy. we focus among the other factors of crisis to examine the role of financial markets in the creation of crisis and the collapses from malfunctions of the financial system. We approach the above mentioned weaknesses from a view analyzing micro-prevention and macro-prevention of supervision and controlling financial market and institutions. The micro dimension refers to subjects like, capital adequacy of banks, crossborder financial cooperation and capital movements, the uniformity of rules and regulations etc., in the micro dimension we examine the role and the impacts of the micro-economic forces place in turbulent conditions if crisis. More specific we will take in account the opinions and theories about the underestimation of systematic risk on crisis phenomena. We analyze the supervision and controlling role of central banks and we make propositions for a new orientation about the procedures of supervision. We 'll try to point out the significance of a more effective frame for "crises" management for banking system an the other money and capital markets of the E.U. We discuss subjects like: a) the «early intervention» of the supervisory authorities, b) the procedures of «bank resolution», c) the «insolvency proceeding» and the clean- up procedures between banks. Issues like the role of moral hazard in the creation of crisis and the bankruptcies and the need for creation of new proper mechanisms to prevent all the above, also we propose the possibility for the establishment of a recapitalization and restoration authority witch will be financed through a special tax or duty in the banking exchanges. We refer to the necessity of establishment a single European financial system. The establishment of new rules and regulations for the strict framework for the resolution of banks and other financial institutions in Europe, in a new direction of uniformity against the national separation or sector separation. This means a more crystal role within the "Action Program on Financial markets", for the "single financial services market", the investors protection and the transparency of the retail markets and the enforcement of preventing supervision of Banking system and other financial Institutions. More over discuss the enforcement of the MiFiD and the federalization of supervision between European states. Finally we propose the rescheduling of the whole frame of the "regulative structure" and relative procedures of the E.U., in issues like: «Rating Agencies, hedge funds, private funds investments companies, the accounting rules ,the capital requirements and adequacy. Finally we see the establishment of the "European council of systematic risk" and "the European system of financial supervision".

Keywords: stability, financial sector, crisis, systematic risk, rules and regulations

JEL codes: G21, G01, F33.

1. THE IMPACT OF BANKING SYSTEM DEREGULATION AND LIBERALIZATION.

We are observers the last years economic and financial crisis over the Europe, where the developments deepening recession and for some countries (like Greece) went depression. This situation tends to be a global problem and issue. Examining the main causes of this crisis, and how can we put an end to it?

Many accuses economists that they did not predicted the fore coming crisis (Calomiris, 2000) and the route of destruction for the economies. But economists are scientists and analysts and not decision makers like politicians and governments. The critical question after this is, what was the role of governments and generally the political system, to prevent the crisis» and what kind of decisions have to take to prevent the crisis?

Many believes (among them many academics, scholars and economics) that governments are responsible for the creation of the crisis phenomena and the recession, because they did not put the new orientation for a strict supervision of the system but they choices to move to liberalization and deregulation of financial and banking system.
This deregulation was the foundation for the creation global crisis, which begins early 2008.

2. THE ROLE OF GOVERNMENTS TO CRISIS GENERATION.

Governments accepted under the affection of political and ideological reasons and aims, to establish and formulate an uncontrolled and unsecured system. `But the right and serious supervision is a very crucial function about fiduciary and credibility functions of the financial markets and banking system.Let's see in brief the serial of fundamental changes made by governments to liberate and to deregulate the financial functions of institutions (Lijphart, 1999).

Beginning from the 1999, liberalization from the former strict rules and regulations, about the classical   principles of Banking and the investment banking.So, before the abandon of the strict rules about banks, which means that the management the people's savings and reserves was under secure conditions.

But after   the deregulation , banks   could invest their capitals and reserves to several risky investment products increasing systematic risk (European Systematic Risk Board - E.S.R.B.). After this the assets and reserves of banks became unsecured , because they put funds in very risky products and conditions nearing the gamble rules. The   second   stage   of   risk development, was , the permission of website (internet) exchanges on several risky products, without any official control on it, from national authorities for the export of great amounts of capitals. So, people electronically illiterate, was free to play investment   games, in perforated platforms, which was uncontrolled, to buy and sell, with very risky new financial tools/products , without any background of knowledge to do this actions (Naftemporiki, 2012).

The impact matter here was, that anyone using his pc or laptop from his home, was possible to make transactions anywhere the globe markets, transactions with no one supervision from national or international authorities. Not having at all any information about macroeconomic and monetary variables, in order to compute the impacts neither for their investments and interests, neither   about the national reserves, and to current account   This events are very negative for the proper systematic functions of commercial banks , because the free and open trade of risky products is a violent think to the fair and credible banking.The promise for high returns, through derivatives to make abnormal gains, was   some where virtual reality, as hidden side of a game.The risky negative side was for the great possibility ,for heavy losses, from derivatives , synthetic products and structured products in financial markets.All these was outside of classical normal banking functions, where the saver and the investor ,entered to a deep and dark "place" with unknown result. Initially , derivatives funds, "property management funds", etc. ,made extraordinary gains as results of the liberalization, when all was very enthusiastic, that the markets was well regulated, enough fair and effecti   ve.But this happened   in the first few years, where many of the investoρs saw to become rich or very rich at a least time, many times for example using «margin accounts» or «short shelling» ,or similar techniques in Stock markets.

And if this events is in some level ethical , for a sole person to play in the markets like in a casino, where a kind of gambling is possible for the investors to gain or lose the invested money. Which then is the ethical and political right of the governments (Lederman et al., 2005) to permit to sell and buy, derivatives or structured products or CDS either private players or even Banks. And under this situation leading them at the crucial limit time playing for example products like derivatives, to go to   bankruptcy.Which is finally   the conclusion: from the above mentioned facts and events.The destabilization and the full lose of control in financial markets and its complex products from the supervision of governments and their weakness to control the negative impacts , in order to protect their citizens.   The   so called "bet" economy , is 10 times greater in volume , from the old classic economy of regulative exchanges, that guaranteed the savings and other assets of citizens from the risks of "casino" markets .

These events destabilizes one big part of the globalised investment markets and financial markets and Banking system, so the   financial system globally.Because   and after the destabilization in financial markets, the crisis transported   gradually in the real economy.So, these negative impacts implies that banks and financial system must regain their credibility and accountability, to restore their traditional role, without the expansion in the risky investment banking functions, which creates systematic risks which means collapse.

The vulnerability of the international financial system.

Similar opinions and experiences , from the U.S.A., about the reasons of crisis beginning in   2008 ,are referring   for example from   professor Calomiris (Calomiris,Haber, 2010), is his book about the reasons of crisis of 2008, "U.S. Bank deregulation in Historical Perspective" and in a second book with co-author of Stephen Haber (Stanford University) , with   title , "Fragile by design: Banking Crises, Scarce credit and Political bargains", where the two authors are analyzing the strong relation between Politics, politicians and Banking System, in many countries worldwide.

 In the same direction historical lessons from   U.S.A., is the impacts of the « Dodd-Frank regulation» - July 2010 [Dodd Frank, Regulation (Law of U.S.A. - Congress)], (that signed as a new deal, by president   B. Obama), where the rules putted by the former President /Governor of FED Mr. Paul Volcker, had a material intervention about Banks   new regulations   and   as   legislation frame , for   dissuade of a new financial crisis in the future.Rules as an intervention   for changing the former inefficient frame on banks supervision and the scope of their actions, to limit the risks.

Another example is the application   of the basic articles of «Dodd-Frank regulation», which is referring to the prohibition from banks to make "proprietary trading" (P.T. is the banks activities dealing in every market and product, of financial markets , using the   equity capital of banks). Some economist don't believe that the proprietary trading" , is the reason for Banking crisis, but is the refuse of banks to hire directors from minorities and women, which are most careful and less risky and gread comparing with the men in management , specially in risky investment decisions.

Another   case or factor for the creation and development of financial crisis, was from the fact of the recall of «Glass-Steagall regulation» [Glass - Steagall regulation (Law of U.S.A. - Congress)], issued at 1993.This regulation was about the permission or not of the unification of retail and investment banking.This event was crucial   for many specialists and academics, that   became   the basic reason of the uncontrollable crisis. And this is historically proven , even from the 1929 crash, from the collapse of the "Bank of United States", because the great exposition to Real Estate loans in Manhattan area , after the collapse of real estate prices in this area.The same proved   and in the running crisis, after 2008, from the cases of former brilliant names of Bear Stearns, Lehman Brothers, Merrill Lynch etc. as investment banks and from the fact that retail banks, had a huge portfolio with "toxic" housing loans, or like the state owned Savings and loans institutions of "Freddie Mac", "Fannie Mae" and "Federal Housing Administration", which activated in housing loans and Real Estate in a very risky way , that lead them to collapsed, after the prices collapsed in real estate market.

3. THE TOOLS FOR MINIMIZATION THE SYSTEMATIC RISK INCREASES THE RISK

Is an event clearly declared that the fluent circulation of "cheap" money on a world basis, lead to the creation and explosion of the synthetic financial products, like CDS, CDO, CD, CLO, CPDO, CPPI and LCD, giving at parallel the basis for the future crisis initially in financial markets and soon transporting it to the real economy which pushed to recession.So despite that   high risks from the subprimes in U.S.A. real Estate market, before 2008, was only a small part of the total market of all financial products, the transmission of financial crisis was very sharp, leading to the greatest recession of the last 50 years. The contagion mechanism for this is under investigation   from   economists.As well as the huge increase of derivatives and structured products, which from 5,7 trillion dollars in 1990, they increased to 415,2 trillion in 2008 and to 790 trillion dollars, containing the "dark"or unofficial transactions, which are 700 trillion, between the big companies of financial system worldwide, ,because this field is uncontrolled and unregulated.

The real result from these actions and events in   financial markets,   are met simply the "valuator" of the financial products.Parallely these markets and institutions are in a position to schedule and to determine future values (prices) of these products for example the CDS (Credit Default Swaps) products to hedge credit risk,   which called «mass destruction weapons», that are in use in very active in markets.Their «net value of capitalization» of these markets is enormous big , having a range from 260 billion dollars   to he «mixed contracts» that is over the value of 23 trillion dollars, despite that the governments tried to limit their role by institutional intervention and legislative measures.

4. THE GREEK CASE OF CDS

After the above descriptions what exactly happened on the Greek CDS after the PSI (Private Sector Involvement) for the haircut of the Greek State bonds? (Nea Newspaper, 2012, Greece and the Swaps of Goldman Sachs(Nea Newspaper, 2012). After the activation of Greek CDS, the authorities ought to decide a) if they would leave the CDS market to collapse or b) to support the market.This dilemma is showing even the states (governments) will lend with higher interest rates or for the other side to pay the Greek CDS cost as insurance for the Greek default on its state bonds.The net value of these CDS is 3,3 billion Euros, that means that indeed is an improvement of risk management of the buyers the last 3 years, minimizing the systematic risk.The event of materialization of the PSI, the so called «haircut» of the Greek state bonds (GSB), despite the voluntarily participation in the PSI from private sector, a total sum of 92% of the holders of G.S.B accepted the will of the European Commission, European Central Bank and IMF to a haircut of 53% of the bonds value to a sum of 107 billion Euros. The great question that derives after this "accidental" event is… would   financial markets (as a world lenders) would give forgiveness to Greek state when Greece after years come for lending in to financial markets? After this "controlled default" putting   barriers to the Greek lending, thinking the bad past of partial default of Greek State.The other option is, when and if Greece, succeed the revival to a sustainable development and a State growth, the markets will forgot and forgive the bad event and will be able to accept to lend Greece again under normal conditions of interest rates and time.

5. THE INEFFICIENT   SUPERVISION AND CONTROLLING PROCEDURES OF FINANCIAL SYSTEM IN EUROPE.

THE CRISIS AND SYSTEMATIC RISKS

The recent financial crisis (beginning early 2008) showed the weaknesses and inefficiencies of financial system to confront the crisis and the recession .This crisis is the result of the "deregulation" of banking and financial system with negative impacts to its soundness. (Glass - Steagall regulation -Law of U.S.A. - Congress).Also, we can see the gaps and weaknesses in rules and regulations to prevent the disorder   phenomena , which   was created   the turbulence in the markets equilibrium.

The existed "crisis management procedures" and policies , was unable to find   an efficient way   to solve the crisis, because the previous deregulation of the sound and clear rules on Banking system. So, politicians and academics and Bankers, must   understand the negative impacts that   created   for the stability of the system, by   the "deregulation" to a minimum level and the relevant revision of the whole framework of supervision functions, within the Banking system.So, they leave the system unsecured to high risks, with little concern for corrective measures.

6. THE PROBLEM OF CRISIS AND ITS REASONS

The basic factors that contributed to the deepening and the extend of crisis in Europe and later the appearance of recession and the low liquidity in the markets in countries like Greece Island,Ireland e.t.c., was the huge development and expansion of the functions and new products of banks and other financial institutions , over the ordinary level of soundess (Calomiris, 2009). This great number of new products and simultaneously the broadening of complexity , about the new and old disposal financial products, markets and institutions, was the reason for the rapid expansion and the size of crisis and the disability and weakness to control the negative tendencies and evolutions of the system, timely and effectively.These evolutions leads   to the crisis and swiftly to the recession, which transformed later   more deeply in depression, in counties like Greece, with the huge fiscal problems and the inability of public finance because of . the great budget deficits, which covered with huge external funding from   international banks, which was over the 160% of GDP.

After this phenomena of crisis, we must go to a new improved "architecture" of the European and international financial system , by which we must found the right ways and procedures of supervision of financial System. This means to

establish new structures, that must be able to prevent the financial crisis in the future and to make milder and smoother the impacts of crisis to the economic system, in order to slow down or to stop the crisis phenomena in time in the first steps.

7. THE PREVENTING POLICY OF CRISIS

The pillars of this new architecture will be one set of new kind of regulations and rules, about the supervision and control and another set of new tools of analysis (Calomiris, 2009b). Tools for the in time collection of the relevant information and data, about the soundness of banking functions or the malfunctions of the financial markets and institutions. This tools must have a continues target to analyze and evaluate the risks facing the system, in relation with the disequilibrium in the markets and the specific purpose about the validity, sufficiency and capacity of the coherent management of the system and the strong supervision of all kinds of financial institutions dealing nationwide or cross-border.We must set a type new supervision authority, that guarantees their compliances with the new rules and functions of the banking system, which in other case lead us to the crisis phenomena in all parts or the totality of the financial system. On the other side we must look to establish a macro-preventing supervision , that must be focused to observe the total situation about the stability of the totality of the folds of financial system.

This depends also from the collective behavior of the financial institutions and banking system, dealing within the nexus or grid of intermediaries and the relevant markets and also the dimensions and variables of the microeconomic environment. By the above mentioned we have to create a new situation that will be intended to watch and observe the evaluation of the possible risks and the weaknesses that threaten the totality of financial systems, insuring the financial stability. Because the bad experiences from the recent crisis and the inefficiencies observed with the gaps of control and ways of intervene. One basic regulation is the adoption of uniformity of the regulatory framework and among the member states of the E.U in order to treat the running rules in a direction of soundness. It is known that the luck of uniformity rules creates an unequal competition between the several national banks and other institutions encouraging arbitrage actions (De Haan et al., 2009).For example the present regulatory framework permits the different choices from the different governments within the E.U states, to apply the directives of European Commission. So, we have to apply a more orderly situation in financial markets, based on the uniformity of rules and regulations for the relative directives between states, by which we can strengthen the Economic Governance throughout the European states.

8. COMPLEX FINANCIAL PRODUCTS AND THE STABILITY OF FINANCIAL SYSTEM

Facts and events according to the above are many in E.U.For example , we can refer the case of the «off-market swaps» (which are complex financial products),given the hidden and full non transparent role of this products (Bourquinat, 2012). As some economist reveled, these products is a good way to hidden in long term the debts of the government.The European bureaucrats Initially stated that, «there is an absence of regulation, about the use of this complicated products and governments can use them. Later they accepted how serious and risky was the absence of any regulation for the hidden depts. of governments by the swaps. Trough swaps and after 10 years of hesitations and only after an persisted ask from Eurostat, the governments obliged to open this contracts of "off-market swaps" and to create an initial regulation frame. So countries like Belgium from 1989, and later Italy (1996) made off-market swaps contracts, Finland (2008) reveled the existence of this kind swaps. After the Eurostat regulation these counties complied with the new regulation and add these swaps to the national accounts. Also countries like Poland and Germany make use of the same products of swaps.

In 2008 the Greek authorities lying ,wrote a reply to Eurostat and to the Economics Commissioner, that "The Greek stated that had not any involvement with products like option, currency, or off-market swaps. The same and 2010 (Nea Journal, 2012). But there was a Greek swap made by Goldman-Sachs that had signed in June 2001, modified 2002, in payments conditions, without any change in duration a till 2019. But the new government extended the duration until 2037. And without any compliance to any of the given rules , they used different exchange rate from the market, with the intention to reduce the amount of debt.In this route and conditions, the E.U decided to modify the directive on the "capital adequacy, from 31-12-2012, in order to regulate the issue of hybrid Capitals, and make some other limited changes (under the pressure of G-20 summit) for the improvements of regulatory frame of the Credit institutions, considering the «tier 1 capital» which contains only the share capital and the" net profit reserves, because this amount of capital, can absorb the existed losses. So the firm it is possible to work in a "going concern".Also, they introduce the "leverage ratio" ,as a relation between the amount of assets of the credit institution, to the "Tier 1 capital".But it is obvious that this kind of micro- preventing supervision, is not enough and capable of blunt the weaknesses of it , because this approach alone is not taking in to account the effects of the financial system as a system with its complexity. One corrective way is to adopt the additional capital requirement, according the share/portion of institution in the total "systematic Risk" .

IMF in the same period ,also asked to introduce the above mentioned methodology, for the computation of these additional capitals, in relation with the «specific risk» of every institution to the totality of systematic risk. In other words, the amount of negative impacts created by and under his own responsibility of the specific institution , that can impose or bring to the other financial institutions of the system, negative impacts.More analytically the measurement of impacts, according the level of systematic interdependencies and interactions (mutual influences') within the financial sector among institutions. So, it is obvious, that any improvement of micro -preventing frame, is not adequate for the long run financial stability, without the second pillar of macro- preventing supervision. This means the standing orientation to a parallel continuous observation, of the whole of financial system, with macro–regulation of supervision process. So, to analyze in a permanent basis and compute the systematic risk the risk of the macro-relations of the total financial market with the other macroeconomic forces of economy.

More specifically, the issue is, to understand the way by which the several separate components within the modern complex financial system (as a totality) interacts one to each other and how much is the «weight» and the contribution of

every component, for the amount of risk and the level of crisis. For example the amount of systematic risk given by Lehman brother of the the other collapsed institutions, like Bear Sterns or «Fannie Mae» or «Freddie Mac», or the Irish banks, with the high leverage and their toxic investments to the USA subprimes or even in the other «structured financial products» ,or in derivatives , which are unsecured and high risky under some difficult situations.All the above are working in unregulated and chaotic markets, that can not give security and stability to the financial system.After this knowledge we have a more clear aspect about the macro-preventing supervision role of central bank, to prevent and stabilize the totality of the financial system ,with main target to evaluate in an efficient way the broader macroeconomic risks, which threatens the stability of the whole financial system.So, the central bank must have not only the proper authority to control… and analyse the origin of risks, but the power to do early warning signals and the power to take corrective measures and intervene mandatory if needed.So, the possibility of central banks to collect data and information, for supervisory reasons mainly for the most important issue to estimate the substansibility of systematic risk.That means that it must be empowered to combine the micro and macro preventing role of the system in order to be possible to evaluate by more accurate estimations of risks that threatens the national financial system and the contagion to other countries internationally.

Also central bank must be able to solve and intervene in cooperation with other supervisory authorities (like the «securities authority») to bring the proper finance and create liquidity in the case of emergency, to the several units of the banking and financial system. Generally, it is demanding issue, to enforce the concentration of control establishing for a set of many countries of E.U., a «single supervisory of financial markets and institution authority», so that it will to be able to control and supervise the whole financial system as financial mechanisms. The concentration of responsibilities within the Central Bank, includes and the establishment of the «Systematic Risk Board», for the micro preventing supervision of the financial systems institutions. At parallel with the macro-preventing role by which way have to evaluate this strategic level evolutions, and to shape the profile of risk of every systematically important factor.And all these under the strength of institutional independence of C.B. to ensure the defense against political pressures or interests groups in order ensuring the monetary stability, thought out controlling the emerged risks. Historical example for the above is the same the U.S.A., where the lack of supervision in some crucial segments of financial system, like Fannie Mae and Freddie Mac, Bear sterns, Lehman Brothers, Goldman Sachs and AIG or of Northern Rock in U.K., created the crisis and the collapse, because all of them was outside the control and supervision financial services authorities. But unfortunately this institutions, which were related and commented with banking works, were not under the FED's supervision.And this situation brings the system to an uncontrollable position and the level at systematic risks in highs, bringing the well known financial collapse and this was the generator of American and later the world crisis.

The other question is, why this role must not be played either from "transnational cooperated authorities" , or by an European level authority. The reply is that there is not a unified field of regulatory rules and there is a lack of the proper legislation and «political will» of European governments to the harmonization of the national legislation or European level frame, with ex ante rules.

9. THE PROBLEM OF THE MORAL HAZARD AND THE "CLEARANCE" OF THE BANKS UNDER BANKRUPTCY.

An other important issue is, how we must make the "clearance" procedure of the banks under bankruptcy.
The question is, if the government will make the clearance of the banks a) by the money from the state budgets (see money of tax payers), orb) by the stockholders and stakeholders of banks (money from the their owners) which is mainly responsible for the losses.More specially, we have the special issue of cross border banks under bankruptcy, where we have a more high level of moral hazard. The reason is that the higher risk in this case, is derived from the risk of the careless cross-border partner , which believes that the cover of losses will be paid by the other side of borders.

This is the moral hazard which is increasing by similar behaviors.There is the aspect that the other side will take the greatest portion of payment, for the clearance, so it will be paid from the foreign government. Despite that the bad choices about bad loans, was made from the other branch. Located in the other country.

THE CASE OF FORTIS BANK

This is the case of FORTIS BANK, which was settled in 3 countries Belgium, Netherlands and Luxemburg.Here the authorities of the 3 states ,acted independently, despite the common agreement to act together after the crisis and the bankruptcy. After some days Netherlands government violated the tripartite agreement and renationalized totally the part/ section of Bank in their territory (sovereignty) despite the agreement between the 3 states/parts, to nationalize only the 48% of the Banks sshare capital.After the deadlocks of mutual tolerance, the FORTIS sold to the French bank of BNP Paribas.
This is a characteristic case showing the backwardation of European financial unification. Contrary the financial integration in the wide region of the 3 countries. And naturally with a cost paid for all these huge amounts of finance by the taxpayers, instead to be paid, by their creditors, stockholders and stakeholders.But if there was a comprise to solve the problem gradually the cost for the 3 states would be less.

10. THE USE OF SPECIAL "CLEARANCE FUNDS" AND THE MORAL HAZARD

Also the central Bank for the "cleansing" procedure will have an advantage as a cleansing authority because he has unified the whole system of National Central Banks and "European Central Banks System" (Orphanides, 2011). An alternative is to establish special "Clearance Funds", which will be financed by the the impose of special duties, paid in every bank or other financial institutions transactions, according strict harmonized rules of states in order to avoid the payment of

losses by the public sector that minimizes the moral hazard. Moral hazard deriving from of lack of responsibility and low accountability of the bank owners, as Padoa- Schioppa from 1999, and Monticelli and Vinals -1993 mentioned in their articles. The recent crisis after 2008, showed the absence of a regulatory frame and the heavy losses for the taxpayers of the E.U, in order to save private banks, which had bad management or make risky undertakings and loans, because they believed that the public sectors and governments, will save them from bunkrupsies from state budgets that consists the moral hazard. Finally, we can say that in the "unified financial market of E.U", groups of banks and other companies, that overpass the national borders without a sound cross-border supervision.This is a great problem to be unregulated because the financial stability is a general interest for all states and taxpayers.

11. ABSENCE OF "FINANCIAL CRISIS MANAGEMENT" PROCEDURESAND THE WAYS OF RESCUE AND INTERVENE IN MARKETS.

Some economists and financial markets specialists believe that the legislation and procedures to deal with «financial crisis management» must not be targeted to bailout plans of banks which are under bankruptcy, but it must be oriented to leave banks to a normal/gradual bankruptcy which must be paid by the stockholders and other stakeholders and not by taxpayers and states. (Tridemas, 2010). So, they propose the new mode of the unified processes about European crisis management, which must be more effective for citizens interests. in a way to minimize the cost of Moral Hazard, where is the certain, that governments will rescued problematic banks, using public finance (bailout) in national level or in European level using money from their budget. But some other prefer to continue to apply the old methods, regardless that there is not any other applicable choice of policy, except public bailout, showing what happened with «Lehman brothers» collapse, because the government did not give any aid to stop break down of investment banks. Initially when crisis phenomena appeared in investment Banking, American government acting then under a neoclassical approach, which believes that markets are enough wise,having endogenous movements and factors and automations , will make very possible to avoid the destruction of the whole banking industry. Leaving only some institutions to collapse, because markets are capable to solve the problem, bringing back the market equilibrium for the rest of industry.But despite of this aspect , as proved, this was a wrong way to deal with crisis, shown, from the future evolutions in the industry,which collapsed (Lastra, 2006).

The reality is that there are some banks that are very important systematically for the system's equilibrium and stability, and if they are not well supervised and controlled it may be very late to stop the collapse when crisis appear.Finally, when international banks of groups of financial companies or other financial multinationals, create problems of instability for some regional economies, is impossible to be regulated effectively, because they obey to national supervision legislation and regulations and they are acting in paneuropean level.That means that they participate in cross-border exchanges,when the framework is based on national rules and regulations.Then there is a serious weakness to bring an effective coordination.So, is needed a new financial architecture of supervision and control, which will be ensure the financial stability in European markets in the futureby the joint intervention. In order to reduce the cost of bailout and not only paid by taxpayer's money.

12. THE EVOLUTION OF FINANCIAL SUPERVISION TO FEDERALIZATION - THE "ACTION PROGRAM FOR FINANCIAL SERVICES" AND LAMFALUSSY PROCEDURE.

According to many opinions and aspects, the evolution of financial legislation, must tend to federalization, in order to be most integrated and more efficient (Tridemas, 2010). Some other believe that this power and competence, must remain to national level authorities, in the frame of their sovereignty. The first signs to federalization emerged from the 1990, when was putted in the top of the political agenda of European leaders, which established and released initially the "Action program for financial services" in 1999. In the mean time, the orientation in European area, based on the "principle of mutual recognition and control", from the country of origin of institutions, for the regulative framework, which promotes some degree of uniformity in a way to harmonize of rules between member states. An important point to accelerate this way, was the "Lamfalussy procedure", which promoted a new model of regulation that reinforces the E.U intervention according to a federal approach which started applied in 2009.This procedure extended the power of European authorities to intervene and to new sectors and products of financial markets. That's mean that we have new areas of the financial system activities created after the system expansion to more complicated new products. In this direction after the first step that harmonized the company laws, followed by some new parts of legislation, about capital markets, was an important next stage of unification, about securities and stocks, to reinforce, the firms finance beyond the common way of finance by banks.

At parallel the E.U focused on the disclosure of the financial data of firms (financial statements), to make stock exchanges more transparent in their functions, specially on the insight information, and also transparency about corporate bond issues(Prati and Schinasi, 1999).Specially directives focused on the free movement of "investment services" and "collective investment organizations for securities". After this a new group of directives released , which was referred to the principles of mutual recognition, and controlling procedures, from the country of origin of institutions. The "Lamfalussy process", made easier the maximum harmonization of rules and regulations within E.U and simultaneously detected the basic weaknesses and deficiencies of the financial system.

13. THE ABSENCE OF A CLEAR REGULATORY FRAME CREATES SYSTEMATIC RISK

These inefficiencies were created by the absence of a clear regulatory frame, that were blocked the mutual recognition between member states and to help the good and unified application of the European directives and

regulations (Directive, 2003/6, EU 2003 L345/31). This situation blocked the equal and fair conditions of competition between the several countries and created "barriers to entry" and finally was so late in application and inflexibility, making impossible the swift reaction to market needs and demanded changes in the system for better cooperation and coordination of several authorities.So, according to the opinions of many Academics and politicians is needed to reinforce, not simply the regulations, but the materiality of supervision and the extension of the   whole institutional framework, in order to avoid systematic risk, from the weaknesses and discontinuities of systems, targeting to ensure the market stability. So,European leaders must set a more federalized route of direction to the frame of the rules, according to the existed rules of the "Committee of European Securities Regulations-C.E.S.R".Frame of rules, about the creation and stronger application of common regulations, where "European central authority", must be in a higher rank in relation to the national authorities. But even now, the percentage of the incorporation of European rules and the relevant policy measures to national level, is even moderate to high.And could be for example, accelerated applying more effectively the securities legislation and directives which are:

   1) The market Abuses (Directive 2003/6, EU 2003 L345/31)
   2) The directive for the "prospectus" in public offerings of firms.
   3) The directive 2004/101 about transparency and disclosure (2004/109, E.U 2004 L. 390/38).
   4) The directive of MiFiD, about the financial market products (directive 204/39, E.U 2004 L. 145/1.
  The edition of the «WHITE PAPER» , for the financial services, which promoted drastically:
    a) The dynamic of unification in markets between states,
    b) the enforcement of cooperative supervision and convocation.

  Finally in the frame of the "Financial Integration Monitor"-F.I.M", made more clear the supervision challenges and the the need for more easy information exchanges , between the authorities, to ensure the cooperation", in the case of crisis in European   area /territory.According to the "European Financial Integration Report- E.F.I.R", were is clearly recorded, that there is   need for more and better regulations in financial market sectors, which are not affected yet from the existed regulations of E.U.This report was an appeal for a dramatic change in the regulatory structure to make in time evaluations and not for ex post evaluations, why then the negative events had created the damages in systems equilibrium. More analytically, we can see and say , how successfully or not , about all the above mentioned, the E.U was reacted, after the appearance of financial crisis symptoms , when it transmitted from the U.S.A   financial markets to European territory. financial markets.

14. THE WEAKNESS OF CRISIS MANAGEMENT AND STRATEGY OF E.U. AFTER 2008

  After the crisis of 2008, settled in Europe, the E.U intervened with several ways like: a) Conveyance liquidity to fortify the economy, by rewriting and changing the regulation about "public financial aid", because the former status was prohibited the public finance to the states, b) made propositions for rescheduling c) the whole supervisory structure of the E.U and also d) the rescheduling   of regulatory framework, about distinct sectors of financial markets that was   almost unregulated. When the European banks influenced negatively for the first time from the subprimes of the Unites States investment banks (unsecured bonds, securitized loans etc.) , like Lehman brothers, Bear Sterns Merrill Lynch and A.I.G, European authorities backed them by the support by public financial aid (a small bailout).

15. THE ADOPTION OF STRUCTURAL REFORMS

  Targeting to the rescheduling of financial structure of those companies, according to the article 87 par. 3. But when Lehman Brothers finally collapsed, the European Authorities, understood the urgent need for a direct action, with the unilateral guarantee of bank deposits, initially for six Irish banks (G-20, 2010). After the   complains of people and other states ,the commission intervention extended the guarantee to all other European bank brunches in Ireland, giving the permission for bailout from the national states. Breaking for first time the tradition to put obstacles for state   financial aid through bailout/financing the private banks, within the frame to avoid a serious disequilibrium in the Banking and financial systems and economies of member states.Acting according to the basis of "law ",on the article 87 par.3 of the treaty of the E.U, keeping the proportionality. Within this situation member states adopted structural reforms and measures extended to all banks, with three kinds of intervention:
a) programs about banks guarantee for deposits
b) recapitalization schedules for bank capitals,
c) controllable clearing of problematic credit institutions.
  Member states after this   was verifying and ``resit the lending adequacy and situation and the subsidies, for every six months and reported the results to the European commission, which controls the transparent use of the transferred funds. Expecting the proper time to withdrawal from this   mandatory capital support , if situation in the markets and institutions comes to a normal level. (Orphanides, 2008; Orphanides, 2009). So the interventions of the authorities must have a restricted range ,according the proportionality, to apply a proven contribution to losses from the private companies in order to reduce and absorb the market risk. All this measures are followed under clear behavioral rules that must not be unfair practice of an aggressive action, that break the undesirable distortion of competition. In any case the programs must promote the structural adaptation and only as an exemption or the subsidies must be given only to neutralize the symptoms of crisis.
Such as the three last months of 2008, they avoided to full collapse of financial institutions, where the state guaranteed the bank funds, because they played a crucial role to restore the trust of depositors and consumers. But for reasons for internal market integrity these nation programs must be strictly limited only to sectors or firms under crisis.

After we had the report of the Larosiere group (February 2009) to the commission and after the submission and action program to drive the European recovery, through a full develop set of reformations. The two directions of the measures are:a) the regulations on material sectors of legislation, b) the paneuropean framework about the legislative structure of financial sector. Imported evolution is the regulation about the "credit rating agencies- C.R.A" about the role to the extension of crisis which deepening the destruction of recession for many banks, firms or countries. Because they accused that firstly they underestimate the risk of "synthetic financial products" and secondly there was an open and strict doubt about their objectivity for their evaluations to credit rating positions. Politicians and scientists believe that they act wrong computations with the crooked motives of market about the interests of their clients. So E.U made a rule that the evaluation of credit rating agencies and their ability is accepted if only the C.R.A companies in E.U must located by their headquarters to be residence of the E.U territory so as to secure the interest confrontation deriving from different methodologies and models using by credit rating agencies and the agreement about the basic factors and variables to evaluate the credit rating of firms and countries.

16. THE NEW EUROPEAN FRAMEWORK OF THE FINANCIAL SUPERVISION

The framework of the financial supervision is based upon two pillars (Tridemas, 2010):
a)   the "European Systematic Risk Board- E.S.R.B" and the "European System of Financial Supervision- E.S.F.S" .
b)   The E.S.R.B framework is applied and concerning for the macroeconomic supervision, watching and evaluating the possible risks for the stability of financial system.

The E.S.R.B analyzes the trends detect the disequilibrium within the system and make the proper suggestions to confront those risks. The E.S.F.S is focused in micro-supervision of firms and sectors of financial market brunches, based on a "Network of National Supervisory Authorities", which cooperate within the new established European authority, which replaced the so called C level supervision of European markets, which are as follow

1) European Banking Authority- E.B.A
2) European Insurance and Occupational Pensions Authority- E.I.O.P.A.
3) European Securities and Markets Authority- E.S.M.A.

The three above authorities have a restrictive decision making role and regulating functions to coordinate and ensure the fair flow of information between national and supranational authorities. The role and the duties of these three new authorities is to develop new "technical standards" to ensure that European rules will be strong enough to intervene in emergency situations, the conciliation the differences between national authorities trying to sustain and embed a new single supervisory culture, the collection of market information and the evaluation of the market developments. For example, E.S.M.A has the duty to harmonize the regulation role of national state authorities and the technical standards, which are not mandatory, in order to ensure the firm application of European rules having the proper authority to persuade about it all national authorities by the issuance of single and distinct decisions about market possibilities for physical competences, for which are responsible the national states (Basel Committee on Banking Supervision, 2009).

17. CONCLUSIONS

As conclusions we can say that there is an urgent need to
- Harmonize all the folds of legislation on banking system and capital markets in a federalize option, to avoid the isolate from national supervision and control.
- The setting up a single standards of application of regulative rules.
- The creation of new institutional regulations and legislation for the enforcement of the E.U presence in the several financial developments and the right to intervene and to impose the clear application of the policy measures, without distortion in a federalized direction.

After the crisis,the E.U participated more strongly to the procedures of crisis management and the legal and structural reformations.Its obviously that has visible weakness for the direction and immediate intervention, because of the «fuzzy» responsibilities and the weak executive power or possibility to intervene. The commission projects a type of Keynesian model for intervention about financial regulations, to protect investors from systematic risks and the to ensure the stability. The general opinion is to make selective interventions, in sectors where the regulatory framework actually proved inefficient and incapable to deal well with financial crisis. So the proposition to this is:

a) to establish supervisory units in European level.
b) the harmonization and the establishment an paneuropean   regulatory body for the sustainability of the clear and sound application of these rules.
c) the transportation of supervision provinces for all the market participants, even being   initially limited, because of there are many complicated presuppositions referring to states sovereignty and their ability to act.

Finally, we can observe that the reaction to the financial crisis seems to be activated and to a new frame of mechanisms and techniques, to deal with.But the most impressive is the allocation of power between national and supranational/ European authorities for more effective intervention.

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ASSESSING THE EFECTIVNESS OF MONETARY AND FISCAL POLICY DURING THE FINANCIAL CRISES IN THE COUNTRIES IN TRANSITION

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ABSTRACT

The paper examine the effectiveness of monetary and fiscal policy on output loss during the financial crisis for 79 episodes in 62 developing and emerging countries from 1980 to 2010. We find out that in developing and emerging countries fiscal policy is more effective then monetary policy during the financial crisis. An increase of government expenditure by one percentage points reduces output loss by 2.88 percentage points, while the coefficient of monetary expansion is statistically insignificant. In addition, we find out that monetary and fiscal contraction increase output loss. Therefore, the macroeconomic policy mix with a discretionary fiscal expansion and a neutral monetary policy will reduce output loss during the financial crisis in developing and emerging countries.

KEYWORDS:
financial crisis, monetary policy, fiscal policy, economic growth.

JEL CLASSIFICATION CODES:

E52, E62, G15

9. INTRODUCTION

During the financial crisis the different measure of monetary and fiscal strategies were being applied in advanced economies and emerging and developing countries in order to avoid further progress of the financial crisis and supporting growth recovery. In most of developed economies the government has been more focused both in expansionary monetary policy by Central Bank's interest rate cut and fiscal stimulus packages, supporting financial and real economic sector. As for emerging and developed countries the fiscal and monetary measures have been different from the developed countries for the reason that they believe that they have small room in terms of applying expansionary monetary and fiscal policy stimulus. During the financial crises the policymakers of the monetary policy in developing and emerging countries have been more interested in maintaining higher interest rates and administrative lending controls in order to keep the inflation under control and to prevent capital outflows. However, some of the developing and emerging countries have adopted somehow an expansionary fiscal policy by changes of the budget structure, cutting current expenditure in favor to capital spending, some of them introducing a cut in public administration costs.

In addition, the severity of the global financial crisis in 2007 has brought again discussion among the researchers regarding the impact of financial crisis on real output. There are quite few studies that examine effectiveness of monetary and fiscal policy on real output during the financial crisis. However, the question of the suitable monetary and fiscal measures has become more pronounced especially during the global financial crisis. Furthermore, there is no consensus among the researchers regarding monetary and fiscal policy mix.

In the literature, most of the studies ague that fiscal policy is more effective than monetary policy during the financial crisis and therefore fiscal expansion can reduce output loss (IMF report, 2008a and 2008b). As for monetary policy the report shows that countercyclical monetary policy can support shortening of economic recession. Baldacci at al., (2009) examine effect of fiscal policy on real output during the financial crisis and they find out that government consumption can shorten duration of the financial crisis and such measure is more effective than policy supporting public investment or tax cuts.

Li and Tang (2010) analyze the effectiveness of monetary and fiscal policy response twin crisis for 72 episodes during 1977-2010 in 57 emerging and developing countries. They find out that monetary expansion (contraction) can decrease (increase) output loss, whereas fiscal expansion (contraction) has no effect on both banking and currency crisis. They conclude that policy mix has to be coordinated by discretionary monetary expansion with a neutral fiscal policy during the financial crisis, since fiscal expansion or contraction has no effect on output loss. On the other hand, the study of Hutchison at al. (2010) that examines the effect of monetary and fiscal policy during the sudden-stop balance of payments crisis in emerging and developing countries conclude that fiscal expansion is more effective than monetary expansion. They find out that fiscal expansion is associated with smaller output losses following a sudden stop but monetary expansion has no discernable effect. Therefore, macroeconomic policy mix has to be coordinated by discretionary fiscal expansion with a neutral monetary policy during the financial crisis.

In addition, little empirical evidence has addressed to the question regarding optimal macroeconomic policy mix during the financial crisis. We try to fill this gap in the literature. Therefore the main objective of this paper is to examine the impact of the financial crisis on real output for developing and emerging countries and what kind of macroeconomic measure should be used in the developing and emerging countries during the economic crisis in order to alleviate economic recession. We analyze 79 episodes that have been occurred over 1980-2010 in 62 developing and emerging countries. In order to measure the effect of monetary and fiscal measure during the financial crises, we follow the methodology by Li and Lihua (2010) and Hutchison at al., (2010), who evaluates the effect of monetary and fiscal policy on output loss.

The reminder paper is organized as a follows: Section II methodology and data; Section III empirical result and Section IV conclusions.

10. METHODOLOGY AND DATA

2.1 Econometrics methodology for evaluation of the effectiveness of monetary and fiscal policy on output loss during the financial crisis

To examine the effectiveness of monetary and fiscal policy on output loss during the financial crisis we employ benchmark model that contain a standard set of variables. We follow the methodology by Li and Lihua (2010) and Hutchison at al., (2010), who evaluates the effect of monetary and fiscal policy on output loss.

The benchmark model of output loss or output-cost includes important control variables in the regression in order to measure marginal effect of macroeconomics variables and avoiding omitted-variables bias.

The specification of econometrics model is as follows:

$$output - loss_i = B + B_K X_i + B_1 \Delta_i^{fis} + B_2 D_i^{fisc} + B_3 D_i^{mpn} + u_i$$ (1)

Where output-loss is the cost of f output associated with financial crisis **i** , Δ_i^{fis} changes in fiscal policy stance,

D^{fis} are binary indicators for fiscal expansion and contraction, D^{mon} are binary indicators for monetary expansion and contraction. We measure monetary policy by the changes in international reserves as monetary indicators. Fiscal policy is measured by changes of fiscal stance, whereas fiscal expansion and contraction are estimated separately. The constructions of monetary and fiscal indicators are explained in detail in the following section.

2.2. Data description

a. Output-loss

There is several ways to measure output-losses associated with financial crisis. Following Laeven et al., (2008, 2010) we construct the data for output losses by comparing in real terms the pre-crisis average GDP growth rate trend for given countries t-3 to t-1, t is starting crisis and post-crisis GDP growth rate t+1 to t+3, until GDP growth rate return back to its trend . The difference between real GDP growth rate trend (pre-crisis) and actual real GDP growth is output-losses for each given countries.

b. Fiscal policy

We use three steps to calculate fiscal indicator, budget balance changes, fiscal expansion and contraction. Budget balance increase means fiscal expansion and budget balance decrease means fiscal contraction. Since the balance budget can goes with the same direction with GDP growth movement, we employed method used by Blanchard, (1990), (Li and Lihua (2010) and Hutchison at al., (2010), in order to extract both trend and cyclical from budget balance. This is standard measure for fiscal stance which allows us to find discretionary fiscal measure. The model for estimating fiscal indicator is as follows:

$$BB_t = \alpha_0 + B_1 y_t + B_2 y_{t-1} + \alpha_1 t + \eta_t$$

(2)

where BB_t is budget balance in percent of GDP of each countries **i**, y_t is real GDP growth rate for given countries, **t** is the time trend and η_t is the error term in the regression.

Then we estimate the discretionary measure of fiscal policy such as:

$$\Delta_i^f = \hat{\eta}_t - \hat{\eta}_{t+1}$$

(3)

where $\hat{\eta}_t$ is the calculated error term from equation. By this estimation we eliminate simultaneity bias of fiscal stance with output movement in our empirical result.

In addition, we construct dummy variable for of the changes fiscal surplus. We obtain 57 observations and rank them from small to larger. Fiscal expansion and contraction are estimated separately. The first 25 observation are considered as a fiscal expansion that takes value of 1 and 0 otherwise and fiscal contraction as the last 25 observations that take value 1 and 0 otherwise.

c. Monetary policy

There are several way to measure monetary policy, we follow Li and Lihua (2010) and Hutchison at al., (2010), Baig and Goldfajn (2001), Goldfajn and Gupta (2003) and they consider changes of international reserves. Accumulating international reserves is associated with an expansion of the monetary base which is the instrument of monetary loosing. De-accumulating international reserve is associated with a contraction of the monetary base which is the instruments of monetary tightens. The reserve accumulate is calculate as country/years in which the change in the monthly reserves exceeds two country-specific standard deviation above the country specific mean. Thus we construct dummy variable with 1 reserve accumulation and 0 otherwise for monetary expansion. In the same manner, we construct monetary contraction, in which reserve de-accumulate is calculate as country/years in which the change in the monthly reserves exceeds two country-specific standard deviation below the country specific mean. Thus we construct dummy variable with 1 reserve de-accumulation and 0 otherwise for monetary contraction.

d. Control variables

We use domestic and international the control macroeconomic variables in multiple regression in order to take into the account omitted-variables bias. The list of control variables are based on the previous literature, particularly, Li and Tang (2010) and Clavo et al., (2004). The list is important since we are interested to control for factors (unless monetary and fiscal variables) which may affect output during the financial crisis. The list of variables that we used in our empirical research are trade openness, inflate rate and degree of openness of the capital account.

11. EMPIRICAL RESULT

The result from table 1 shows investigations of eq. 1 without control variables, applying standard model for output losses for 62 developing and emerging countries. The control variables are included in the table 2, which provides more detail examination of the effectiveness of monetary and fiscal variables on output losses.

Table 1. Monetary and fiscal policy indicator

Variable	Coefficient	t-statistics
Constant	9.421754	(-1.408211)
Fisalcontrac.	-5.370651	(-3.834106)
Ficalexpan.	4.393689	(-3.959345)
Fiscalsurpl	-4.233509	(-4.480258)
Monetaryexpan	-8.455982	(-0.5044)
Monetarycontar.	-16.77428	(-1.536569)
Obs. 47		
R-squared=0.65		
F-statistics 9.40		

Note: the table report the output loss financial crises, depending variable output loss response to one percent policy variables (associated t-statistics in parenthesis)

We include three control variables tarde openness (tradeopen), inflation   (inf) and capital account open (caopen). A positive value of the coefficient of explanatory variables mean a decrease of output losses or cost of crises and negative value of the coefficient of explanatory variables mean an increase of the output losses or cost of crisis.

As seen from table 1, we find out that contractionary of fiscal and monetary variables will shapely increase cost of crisis and coefficients are statically significant. Furthermore, the evidence shows that the impact of monetary expansion on output losses is not statically significant, while fiscal expansion shows positive impact on output losses and the coefficient is statistically significant. A one percentage increase in the fiscal expenditure will decrease output losses or cost of the crisis by 4.39 percentages. The 65 percentage the variation output losses is explained by explanatory variables. Perhaps, when we include the control variables the variation of output losses will be improved in term of investigation responses of monetary and fiscal variables on cost of crisis.

The table 2, include monetary and fiscal variables with control variables. As seen from table 2, the number of observation is reduce due to the missing of variables for some countries, and the coefficient of determination is slightly increase by 0.05. Almost we find the same result with and without control variables, but the magnitude of the coefficients are considerably changed. The fiscal and monetary contraction has significant negative impact on output losses associated with crises and the coefficients are significant. Monetary expansion is statistically insignificant, whereas fiscal expansion has positive impact on output losses or cost during the crisis and the coefficient is statistically significant. A one percentage increase fiscal expenditure reduces output losses by 2.61 percentages and the coefficient is significant. This is strongest results. Therefore, we find out that fiscal policy is more effective tools than monetary policy during the financial crisis in the developing and emerging countries. Our result is consistent with the result of Hutchison et al., (2010), where they find that fiscal policy is more effective than monetary policy. However, our result is different than the result of Li and Lihua (2010) where they find that monetary policy

is more effective than fiscal policy.

Table 2. Monetary and fiscal policy with control variables

Variable	Coefficient	t-statistics
Constant	-1.009	(0.08)
fiscalsup.	-2.601203	(2.55)
fiscalexp.	2.88094	(2.73)
fiscalcontr.	-3.87354	(2.94)
Monetaryexp	2.61718	(0.17)
monearycontr.	-15.0395	(2.1)
tradeopen.	0.079933	(0.56)
Inf	0.017023	(3.52)
Cacopen	0.737413	(0.21)

Obs.42, R-squared=0.70, F- statistics=9.78

Note: the table report the output loss financial crises, depending variable output loss response to one percent policy variables with control variables (associated t-statistics in parenthesis)

12. CONCLUSION

The paper investigates the effectiveness monetary and fiscal policy on output growth during the financial crisis for 79 episodes in 62 developing and emerging countries from 1980 to 2010. We find out that in developing and emerging countries fiscal policy is more effective then monetary policy during the financial crisis. An increase of government expenditure by one percentage will reduces output loss by 2.88 percentages during the financial crisis, while the coefficient of monetary expansion is statistically insignificant. Moreover, we find out that monetary and fiscal contraction increase significantly output loss. Therefore, the macroeconomic policy mix with a discretionary fiscal expansion and a neutral monetary policy will reduce output loss during the financial crisis in developing and emerging countries.

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WILL NEW FINANCIAL PRODUCTS BE THE SOURCE OF A NEW CRISIS - ANALYSIS BASED ON REDUCTION OF GREENHOUSE GASES EMISSIONS

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ABSTRACT

The observed changes in climate mean that there are more and more mechanisms to reduce emissions of greenhouse gases - especially CO_2 – carboxilade. These mechanisms often take the form of requirements for companies that emit too much pollution: boiler room, steel mill, a brickyard, but also dairy. The enterprises that are affected with the total emissions of greenhouse gases, they are influenced by many regulations. The European Emissions Trading Scheme (EU ETS) allows them to manage the risks associated with excessive emissions. In many cases, these companies are obliged to use market based instruments, stock exchanges on which turn the rights to greenhouse gas emissions. The market trading in CO_2 emissions develops very rapidly. It is expected that it may even become one of the largest commodity market in the world.

The development of this market is accompanied by a wide spectrum of financial instruments. There are often complex instruments created by financial engineering, such as options or swaps quanto options. We must remember that many of the participants in this market are non-financial sector managers (industry, energy, chemical, food, etc.) for whom it is so complicated that they couldn't recognize their application or analyze the risk associated with these instruments. This part of the market is not subject of any regulation or supervision.

Moreover, other institutions: banks, capital funds, or ordinary speculators manifest an interest in this market. If you do not define the risks associated with trade in emission rights, we can cause another financial crisis in Europe, and it can also touch the other countries in the world.

KEYWORDS

Risk management
Emissions trading system
Securitisation
New financial products
Insurance

JEL CLASSIFICATION CODES

G22, G01

INTRODUCTION

One of the most often discussed problems which have affected our planet in the second half of the 20th century and at the beginning of the present one is the issue of climatic changes resulting from pollutants' emissions into the atmosphere. Scientific and experts' circles have been talking about the so called greenhouse effect, which means rising global temperatures leading to global warming. One of the main reasons for this process is the excessive greenhouse gasses emissions into the atmosphere.

One of the mechanisms used for limiting the scale of pollution is using so called emission allowances. Limiting these allowances may expose companies to a variety of perils which may in turn cause certain financial losses.

It is the authors' aim to point at certain perils for financial markets, based on the research at hand, legal regulations in force, available literature as well as suitable product offers. It is important to realize the connection

between these perils and unrestricted development of financial products regarding CO2 emission units trade as well as lack of particular regulations in this matter. Additionally, small and medium-sized companies have to operate on this market.

THE SOURCE OF FINANCIAL INSTABILITY

Financial stability, commonly believed to be public wealth, provides effective functioning of national financial systems and the whole of the global economy. It is one of the essential conditions for sustainable economic growth securing a high level of engagement of production factors. Financial system stability requires that the principal components of the system – including financial institutions, markets and infrastructures – are jointly capable of absorbing adverse disturbances. It also requires that the financial system facilitates a smooth and efficient reallocation of financial resources from savers to investors, that financial risk is assessed and priced reasonably accurately, and that risks are efficiently managed. By laying foundations for future vulnerabilities, inefficiencies in the allocation of capital or shortcomings in the pricing of risk can compromise future financial system stability. Financial stability means conditions in which the financial system can cope with disturbances and market instabilities, thereby limiting the likelihood of interrupting the process of financial brokerage , which could seriously interfere with savings allocation in favour of profitable investment opportunities. Financial stability protection requires that the main sources of risk and vulnerabilities are identified, such as inefficiency in allocating financial resources from savers to investors and bad pricing or bad financial risk management. It is indispensable to identify risks and vulnerabilities because supervising financial stability must be anticipating in character: inefficiency in capital allocation or incapable pricing and risk management may undermine the future stability of the financial system. [Financial Stability Review, November 2005, ECB Frankfurt am Main 2005, p.9]. A financial crisis is a disruption of financial stability. The subject literature contains many definitions of a financial crisis. In the context of the present study the definition showing particular insight is the one defining it as involving sharp declines in asset prices, failures of both large financial and nonfinancial firms, deflations or disinflations, disruptions in foreign exchange markets, or some combination of all of these. A financial crisis is also a disruption to financial markets in which adverse selection and moral hazard problems become much worse, so that financial markets are unable to efficiently channel funds to those who have the most productive investment opportunities. [F.S. Mishkin, Anatomy of a financial crisis, "Journal of Evolutionary Economics" 2, 1992, p. 117]

In order to fully understand the perils connected with greenhouse gases emissions one also has to consider the behavioural concept of investment. [Shefrin, Statman, 2000]. When investing, people are driven by two emotions: fear and greed. The fear of consumption falling below the level they are accustomed to forces them to keep part of their savings in safe securities, aiming to maintain the value of their money in time (e.g. government bonds). Greed, in turn, makes investors hope for a dramatic rise in consumption and a fast track to a better standard of living. Greed makes investors unwilling to properly diversify their investments to reduce risk. On the contrary, they are more likely to accept an unnecessarily high level of risk in the hope of gaining high profits, often betting on investment in selected financial instruments as if they were betting on numbers in a lottery. Crises therefore result from lack of knowledge and mistakes in economic and quantitative reasoning.

Crises are frequent phenomena in today's economy. According to IMF between 1970 and 207 there were [Laeven L., Valencia F. : Systemic Banking Crises. A New Database, IMF Working Paper WP/08/224 November 2008]:
- 124 banking crises
- 208 currency crises
- 63 cases of sovereign debtors defaulting on their obligations or re-negotiating debt repayment.

They were merely local in character, however. The last great crisis which could be called a global phenomenon was the Great Depression in the 1930s. This state of affairs might have dulled the financial circles' vigilance in the most developed countries. It was no wonder, then, that in the second half of 2007 the crisis broke out in the country which was believed to be a military, and financial superpower. It embraced a major part of the planet, and first of all, the highly developed countries with advanced financial infrastructure.

EMISSIONS TRADING SYSTEM – FUNADAMENTALS OF OPERATION

3.1 Limiting emissions as a result of international agreements

Greenhouse gasses (e.g. carbon dioxide and methane) are released into the atmosphere from natural sources (volcanic activity, fauna and flora biological activity, e.g. putrefaction), but also because of human activity. For a few decades, energy is produced mainly by burning fossil fuels (coal and gas) which causes pollutants' emission

into the atmosphere to rise. Dynamics of these changes is well presented in the Intergovernmental Panel on Climate Change). Greenhouse gas emissions in the years 1970-2004 rose by about 70% from 28,7 Gt. to 49 Gt., while only since 1990 the change has amounted to 24%. CO2, being the most commonly emitted greenhouse gas, between 1970 and 2004 increased in its emissions by approx. 80%. In 1970 21 Gt. of CO2 were emitted, while in 2004 it was as much as 38 Gt.

The idea of limiting greenhouse gasses emissions was initiated by international organisations, resulting in United Nations Framework Convention on Climate Change (UNFCCC). According to article 2, its objective is to achieve "stabilisation of greenhouse gases concentrations in the atmosphere on the level which would prevent a dangerous anthropogenic interference with the climate system." The effect of implementing the Convention was Kyoto Protocol, which pointed at states obliged to reduce their greenhouse gases emissions by a specific amount. (In Poland's case it was reduction of 6% by 2012 with respect to 1998).

In order to decrease costs related to emissions reduction in particular states Kyoto Protocol included specific market flexibility mechanisms. These are: Joint Implementation (JI), Clean Development Mechanism (CDM), Emissions Trading Mechanism. They are included in emissions limitation within the EU and are a vital element of companies' operations.

Table 1. Kyoto Protocol mechanisms characteristics.

Specification	Description
Joint Implementation (JI)	• meeting the signatory requirements is obtained through purchasing reduction units from another signatory who has completed projects aimed at reduction of greenhouse gases. • The state, as part of its development, wishes to build up certain infrastructure so it finds an investor who needs additional emissions eligibility. • As a result transfer of new technologies is enabled. • Final impact: establishment of Emissions Reduction Units (ERU) which are transferred from the host-state to the investor-state or can be subject to trade.
Clean Development Mechanism (CDM)	• investment by the Protocol signatory state in another state that has not undertaken reductions. • States in which emissions limits have not been enforced benefit from projects which are aimed at reduction, avoidance or absorbance of greenhouse gases. • There is an inflow of capital and modern green technologies from more developed countries. • Final impact: emergence of Certified Emissions Reduction units (CERs) which are transferred from the host-country to the investor-country or can be subject to trade.
Emissions Trading	• Each country listed in Annex B under the Protocol has approved definite, acceptable emissions levels divided into so called Assigned Amount Units (AAUs). • A state which has emitted less than the assigned limit may sell it to another state. • ERU and CER units can also be subject to trade. • Final impact: the countries which reduce emissions can gain revenue from unit sales, whilst those that do not reduce emissions are forced to incur additional expenses on purchasing the units.

Source: own study based on Kyoto Protocol linked to United Nations Framework Convention on Climate Change compiled in Kyoto on 11 Dec 1997 (Polish Journal of Laws of 2003 No. 203, item 1684) and literature on the subject.

3.2 Emissions Trading System in Europe

The European Union acts in terms of reducing greenhouse gases emissions in two ways: it has accepted the United Nations Framework Convention on Climate Change and Kyoto Protocol and on the other hand it has established mechanisms allowing to monitor these emissions and evaluate the progress made in meeting the obligations referring to emissions reduction. The EU has also committed itself to reducing greenhouse gases emissions by 8% between 2008 and 2012 compared to the 1990 levels.

Implementing the agreed legal regulations bore fruit in the form of the first and largest emissions trading system in the world, called European Union Emissions Trading System (EU ETS). It encompasses all the 27 EU member states and some neighbouring countries: Iceland, Norway and Liechtenstein.

As for emission allowances, EU ETS refers to the guidelines set for particular countries, but it is realised on a company level. This means that directives have pointed out company categories which are obliged to control and manage their annual emission levels according to the "cap-and-trade" principle. According to information sources, the system enlists 12 thousand installations in the EU territory responsible for over 50% of CO2 emissions and 40% of all greenhouse gases emissions. [KASHUE, 2009, p.6). The come from various industries, from energy

and fuel production to food industry. As of 2013 the analysed group will also include paperboard manufacturers, companies generating ammonia in production process and some airlines.

The central element of EU ETS is the European Union Allowances (EUA). In the present form of the system, one allowance makes it possible to emit one ton of CO2 into the atmosphere. At present, most allowances are allocated free of charge, but starting from 2013 they will be bought at specially arranged auctions. This solution was introduced by the 2009/29/EC directive.

Each company which has been included into the EU ETS scheme on the grounds of its operations, receives an annual allowance ration according to the state allowance ration plan (the plan is prepared separately by each state and submitted to the European Commission for notification). It is a company's obligation to monitor the volume of emissions and compile the annual report. It is precisely the information gained from the installation monitoring that becomes the basis for further action concerning risk management.

At the end of calendar year each EU ETS participant (company) is obliged to account for the difference between the assigned allowances and the real emissions. If emissions exceed the assigned limit, it is the company's obligation to obtain the missing allowances. Otherwise, the company may sell the remaining EUAs.

It has to be emphasised, however, that in the recent months a change has occurred in the European Commission's approach to examining the level of emissions from particular installations. New regulations by the European Commission based on 2003/87/EC Directive of the European Parliament and the Council impose new duties on installation operators as for monitoring and reporting on emissions (Two documents are being prepared: one concerning monitoring and reporting on greenhouse gases emissions, and the other regarding verification of reports on greenhouse gases emissions volume and reports on tonne-kilometres (tkm) and accreditation of verifiers.)

The essential change refers to the quality of measurements of emissions volume. The way in which it has to be reported to verifiers suggests that only through a measurement continuity method can these expectations be met. This in turn means that measuring devices must be installed which allow regular measurements either directly in the chimney or by collecting samples with a device installed in the vicinity of the chimney.

It also must be emphasised that according to the new guidelines for the prepared regulations in the future CO will also be treated and represented in exactly the same way as CO2, and additionally it will have to be converted into CO2 equivalent.

Imposition of new measurement regulations forces operators to make significant investments, while the consequences of these precise measurements will not be known for several years. All these changes are being introduced at the time of very low prices on EU ETS market, which means that companies find it very easy to accept them, but they cannot fully predict the impact of these changes in the future.

RISK MANAGEMENT IN A COMPANY PARTICIPATING IN THE EUROPEAN EMISSIONS TRADING SYSTEM

When it comes to risk for companies participating in the EU ETS, it can be understood as a range of situations when the increase in financial liabilities or loss of benefits relating to emissions (e.g. exceeding the assigned emissions allowances, non-catastrophic weather risk) emissions allowances trading (perils relating to allowances purchase agreement) or inability to generate emissions reduction units, become unacceptable for company managers or owners.

The base for functioning of the EU ETS is company's obligation to account for CO2 emissions into the atmosphere. The amount of emission allowances owned by the installation manager on 31st Dec (the end of accounting period) must be equivalent to the real emissions from a given installation. Non-compliance with this regulation results in a fine of €100 for every unaccounted ton of CO2 emission. Additionally, a company has to submit the missing allowances to be remitted. As a result, the company has to avoid situations in which it has to obtain the missing allowances and pay the fines. [Rzeszotarski, 2010, p. 22] If a situation like this does occur, immediate adjustment is carried out – possible limit on sales and therefore emissions or modernisation of the existing machinery.

Another way to balance CO2 emissions which will be discussed in more detail in the next point, is to purchase a right for a suitable amount of allowances. The first step to take when a company decides to choose this way of risk management is to select the right strategy. There are three strategies to be possibly implemented in a company [Czarnecki, 2007]:

a) passive – based on the known emission values a decision is made to purchase the missing units or to move the allowances from the following year; it is suitable for companies where EU ETS participation costs and allowances purchase do not significantly affect the bottom line,

b) current analysis – the company makes adjustments during the accounting period, but requires close co-operation between particular departments; suitable for companies which are worried about being excessively engaged in emissions trading market,

c) active – the company does not only analyse its emission units needs on a regular basis, but also sees the opportunity to generate additional revenue due to the difference in unit price in various periods, it requires hiring special experts; undertaken by companies with appropriate experience.

The price of allowance is one of the basic determinants of realisation of risk for a company participating in EU ETS. The price is based on supply, which is in turn closely related to European Commission's decisions and the number of available ERU and CER allowances. It is also based on demand which in turn depends on the production scale of companies participating in the system, degree of economic development or financial market's interest in speculative action [Jankowski, 2009, p.25]. Emissions trading market is quite young and therefore there is no possibility to apply analytical methods used in other commodity exchanges.

When trying to analyse the future of instruments related to CO2 emissions one cannot underestimate the role of the last UN conference (COP 17) which took place in Durban (RSA). One of the EU main objectives for this conference was to agree on the action plan and the deadline for approving a comprehensive and legally obligatory global framework which should be in place no later than in 2020. First of all, however, it was vital to establish one or more new market mechanisms which would stimulate development of international CO2 emission allowances trade.

The conference, being the longest so far, has yielded four decisions which may become a break-through in the battle against climatic change, due to the fact that multi-lateral agreements will have to be signed:

(1) continuity of obligations resulting from the Kyoto Protocol without any interruptions which means that CDM and JI can be further in operation

(2) the framework defined in Cancun (COP 16) referring to market mechanism of emissions trading are to be continued

(3) the content was settled of the agreement on functioning of Green Climate Fund, whose task will be to foster mitigating and adaptation-directed operations concerning requirements on climatic change prevention

(4) a legal framework encompassing all countries should be defined

New solutions should be complete by 2015 at the latest, and should be in place in 2020. The Durban arrangements are a clear signal for governments, entrepreneurs and investors alike, that the world's aspirations concerning future reduction of emissions are rising

ANALYSIS OF EMISSIONS RISK MANAGEMENT INSTRUMENTS THROUGH PURCHASE AND GENERATING ALLOWANCES

5.1 Exceeding the assumed emissions level and reduction of perils connected with emissions trading

Emergence and development of the emissions trading system was accompanied by emergence of exchanges enabling a free, quick and safe allowances trading. At present the interested parties can take part and trade on the following exchanges: BlueNext, NordPool, Climex, NYMEX Green Exchange, European Climate Exchange (ECX), European Energy Exchange (EEX). On each market a range of products is available that can be useful in risk management.

Table 2. The analysis of instruments available to trade emission units

Specification	Description
Instruments offered by the exchange	• Spot contracts – both EUA and CER units trading offered through the exchange; a physical transfer from the seller's account to the buyer's account (the accounts are specially registered with reference to allowances in each country); settling the transaction, allowances are transferred to the purchaser's account within a few days, while the seller receives the pay equally soon, which is useful if the number of units must be quickly supplemented. • Futures contracts – EUA and CER units are basic instruments; transfer of basic instruments occurs by means of suitable record on the seller and buyer' accounts in their respective country registers; a standard requirement is to deposit a collateral usually amounting to 40% of the contract value; useful if the preliminary assessment of the real emissions is above the assigned limit, while the price level is retained • Option contract – the company obtains a right, not an obligation, to realise the transaction; the underlying assets are futures contracts for EUA and CER units; used when there is no certainty about the annual allowance balance; the only cost is the so called option premium.
Instruments offered on the OTC (over-the-counter) market and in bilateral transactions	• Forward contracts – supplying a definite number of EUA and CER units at the price and time defined on the day of transaction; lack of standardisation. • EUA / CER(ERU) swap – the instrument makes it possible to exchange the EUA units for CER and EUA units in the course of settlement; thanks to the difference in price it is possible to generate additional revenue. • Swap option – an agreement between parties to mutually supply a given type of emission units at a defined price and time.
Other instruments	Weather derivatives – the basic instrument is the non-catastrophic weather condition expressed as an index; the most often examined condition is temperature; the instrument allows to simultaneously mitigate risks related to currency exchange rate fluctuations (so called quanto option)

Source: own study

The most popular instrument used in emission unit trading in 2009 was futures. Out of 5.5bn EUAs sold on the six existing exchanges, futures constituted 31.5% of the total, spot transactions – 22.8% (including OTC contracts made through the exchange). [Consus] The price of a futures contract is higher than the spot price and rises along with the length of the period left until the contract is settled (this is why EUA futures contracts expiring on Dec 14th are more expensive than these expiring on Dec 10th).

Participation in the exchange system requires not only involvement of capital but also hiring appropriate specialists. That is why bilateral transactions are more and more used especially by smaller companies. They are based on products similar to the discussed exchange operations, but they enable greater flexibility in form of the contracts. Forward contracts are also used in in these operations (they are similar to futures contracts, but they are adapted to the parties' expectations.) as well as swap contracts (the company replaces EUA units with CER or ERU units and benefits from the difference in price). In the latter case option contracts are already realised.

Weather derivatives-based operations require a much greater commitment on the side of the company in indispensable data collection regarding past weather conditions, their impact on the company performance, description of the production process technicalities as well as construction of the contract. These make it possible to limit occurrence of perils at a low cost. Quanto option (e.g. setting the indexes at the air temperature influences the level of energy sales in the local currency and additionally reflects exchange rates fluctuations because the price of EUA is expressed in euros) enables better covering of potential losses with regard to the portfolio of three separate types of hedging, concerning the emissions level, EUA price and the EUR/PLN exchange rate. [Preś, Jankowski, Janczar, 2010].

5.2 Obtaining insufficient amount of CDM units

Initiating a suitable CRM or JI project brings about various perils related to the changeability od allowance prices as compared with virtually incurred costs of investments. Most of the formerly described instruments can be used for securing the price of CER unit expected by investors and a possibly certain sale. However, as for the investment itself, one can turn to insurance companies for suitable solutions. Each project is different and can be subject to various perils, so insurance protection has to be provided in the form of tailor-made contracts.

Let us take Carbon Offsets Insurance offered by Munich Re as an example. The product is meant for both project hosts and developers as well as investors. It is multi-risk insurance, also available in the multi-year form, which is for several years (up to 2012, though). It covers the costs of project registration, the property engaged in the project (if it is not covered by another policy), non-delivery of carbon credits caused by interruption of the project exploitation. A client can be insured against the following occurrences:

- non-registration of the project by CDM EB (CDM Executive Board is a body formally managing clean development mechanism, appointed by art. 12 of Kyoto Protocol),
- physical damage of the property engaged in the realisation of the project, machinery failure,
- political risks,
- performance-affecting risks (e.g. non-catastrophic weather risks) influencing the amount of allowances received.

In the case of a fortuitous event causing non-delivery of carbon creditsthe value of compensation is derived from the calculation included in the contract based on the price of allowances indicated by the insurance taker.

5.3 Securitisation in the Emissio Trading System as a source of financial instability

The crisis on the American market was caused by immensely liberal policy concerning mortgage loan offers and at the same time lack of supervision over loan brokers and incredibly conducive macroeconomic environment (low interest rates, growing real estate prices). In 2006 over 40% of the mortgage loans offered were directed to individuals with poor credit rating. As a result of rapid increase in interest rates the entities with low credit rating ceased their loan repayments, while bankruptcies of mortgage banks led to a drastic drop in the value of CMOs (collateralised mortgage obligations).

Owing to securitisation mechanism, a crisis localised exclusively on the American market became a global one.

Securitisation is described as a process in which a usually diversified financial asset pool together with cash flows that it generates becomes isolated out of from a bank or company balance, secured through internal or external techniques, made legally standalone in the form of so called Special Purpose Vehicle, an SPV. It then refinances the purchased pool of assets by issuing securities on local or international financial markets [Reksa, 2004] In practice, securitisation means converting income and risks related to non-liquid financial or non-financial assets to marketable securities. The measurable result of this process is that investors are given an opportunity to accept exposure to a strictly defined kind of risk [Buszko, 2010, p.137].

The process of securitisation is based on a simple scheme. A bank, as an originator of the process, singles out a certain amount of receivables and transfers it to an SPV [Cowan, 2003, p. 5]. The SPV, in order to gain funds to refinance the receivables, issues and sells securities collateralised by the future cash inflow from the assets or by the assets themselves (diagram 1). The assets and the income gained from them are separated from risks related to the bank's operations because the property rights have been transferred to the SPV. The transferred assets collateralise the securities issue. The funds gained from the issue are transferred to the originator as a compensation for the assets so the bank receives cash instead of non-liquid assets. In some cases the SPV is not established and the bank on its own issues the securities. The downside here is that it is impossible to separate the assets credit risk from the bank's risk. The originator, the SPV and the investor are the key elements of securitisation. It is obviously a complex process and therefore requires participation of many other entities, such as a counsellor, trustee or a credit rating agency, whose co-operation is regulated by special agreements.

Securitisation as a method of financing operations should not be perceived as the primary source of risk. It is the selection of wrong assets for securitisation that may cause the transaction risk to rise. Securitising contractual receivables does not cause an increase in risk [Szabłowska, 2009]. The essence of securitisation is to spread the risk, so an economic transaction which otherwise would be impossible (creditor would not grant a loan if they could not move part of the loan default risk to other entities), can be financed. In practice, however, securitisation led to removal of financial accountability of the creditor for the quality of the financed project (it made it easier to grant loans recklessly) and increased the degree of moral hazard in financial transactions. Apparently, securitisation removed the risk in particular transactions, but it generated a tremendous systemic risk which was overlooked by analysts because their models did not take systemic risk into account. [Sudej, 2011]

Securitisation is currently used in realisation of projects within the CDM and JI mechanisms. It focuses on future CER allowance rights which will be generated as a result of realisation of these projects. An investor buying CDO (Collateralised Debt Obligation) instruments takes over the risk related to CER/ERU units (including the risk of not receiving them) while the company receives the financial means from the sales of rights to these units in the midst of the investment, which is earlier than when it happens in a standard cycle of conducting CDM/JI projects. In the process of securitisation financial institutions (incl. insurance companies) become guarantors.

Some institutions offer analysis and measurement of risk related to non-delivery of credits. Growing popularity of insurance products protecting investors from the risk of non-delivery of CER/ERU units is also very

likely. (e.g. Zurich's "CER/VER Delivery Securitisation Policy" or Carbon Re's "Carbon Delivery Guarantee Insurance").

CONCLUSION – BASIC PERILS FOR FINANCIAL MARKETS IN RELATION TO EMISSIONS TRADING

The market for CO_2 emissions allowances trading is developing very dynamically. It is predicted to be likely to become the biggest commodity market in the world. [Kanter, 2007] At the same time, it is impossible to overlook the risks related to it. Brief period of the market's functioning makes it difficult to forecast allowance prices. Also, a large degree of uncertainty related to its ultimate shape together with arbitrary decisions of the European Commission concerning allocations and limits on CO_2 emissions rights may affect market prices of these allowances. Too small a number of allowances compared to the actual needs may result in a substantial growth of unit prices. There is a threat of speculative behaviours or even a "speculative bubble" due to the fact that the trading parties do not only include entities directly engaged in emissions (companies), but also entities buying these credits for investment purposes [Tabbi, 2009]. Additionally, business plans of numerous investments realised in order to generate energy included not only revenues from energy sales but also assumed that profits would be gained from sales of CER and ERU credits. Their low price at present may also bring about the threat of speculation. The consequences of the bubble bursting might be critical (Smoczyński, 2008].

The market also comprises so called subprime carbon, or "junk carbon" contracts for CO_2 emissions allowances which assume with large probability that they will not be fulfilled (mostly with reference to projects within CDM and JI mechanisms) [Chan, 2009a].

Development of CO_2 emissions allowances trading is accompanied by a wide range of financial instruments. Often, these are complicated instruments created by financial engineering, like for example swap options or quanto options. One must remember that a major part of this market participants consists of entities of non-financial sector (power, chemical, food etc. industry) for which these instruments are so complicated that they cannot define their purpose or analyse and assess the risk related to their application [Chan, 2009b]. Modern financial products can also become the source of spreading subprime credits, which may appear aside secure and good credits as a base for emissions. Securitisation by itself does not constitute a source of risk, but bad assets securitisation (in our case emission rights) and non-transparent process of highly complex securitisation may become a severe problem [Szawłowska, 2009]. Additionally, this part of emissions market is not subject to any regulations or controls. Everyone could see during the recent financial crunch how dangerous financial engineering could be, as it spread low quality assets over the global market. It is worthwhile then to draw conclusions in the case of CO_2 emissions allowances trading so that it does not become a source of another world crisis. It becomes specially meaningful in the context of passing a new law in the USA (who emit the largest amounts of CO_2 into the atmosphere and at the same time have not signed the Kyoto Protocol) which is actually also introducing emissions trading system in this country.

An interesting fact is that future state budget revenues have been transferred for securitisation by central banks of Greece, Italy, Finland, Austria and Ireland. As a result, one can say that any economic occurrence, as well as a political or natural one can be subject to securitisation and trade, speculation and may consequently lead to a crisis. Everything depends on the appropriate supervision of a given market and early recognition of the peril.

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LABOUR MARKET ATTRIBUTES IN HUNGARY FOCUSING ON 'PEOPLE LIVING WITH DISABILITIES'

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ABSTRACT

In my PhD thesis I analyse the labour market situation of North-Great Plain Region (North-East area) of Hungary. Nowadays employment is a very important topic in Hungary. Many kinds of supplies are provided by the State (on the basis of the 8/1983. EüM-PM Hungarian Law), for example for the group 'people living with disabilities'. It is very difficult to provide job for these people after their rehabilitation. Statistical figures show, that the highest ratio of "people living with disabilities" can be measured in the North-Great Plain Region of Hungary (30 per cent of the total number of "people living with disabilities"). The number of these people was constantly growing in the last 20 years in Hungary and the situation is the same in a lot of European countries too. This special group of pensioner requires a huge amount of charges from the state budget.
Employment of these people means extra costs for enterprises too. At the same time the complete accessibility of workplaces is still not provided in many cases in Hungary yet. Currently only a few enterprises are specialized to employ people living with disabilities in the North-Great Plain Region. Unfortunately most of the enterprises do not want to employ them. New workplaces for these people should be created by the utilisation of European Union and national available sources in order to integrate them into the job's world in long run. Our civilisation „generates" the disability (industrial jobs, unhealthy lifestyle, etc.). The duty of our society is to give the possibility of job for more and more people in a sustainable way. I research the possibilities how disabled people could become employees in this structure.

JEL CLASSIFICATION CODES

E24 - Employment; Unemployment; Wages; Intergenerational Income Distribution; Aggregate Human Capital
J14 - Economics of the Elderly; Economics of the Handicapped; Non-Labor Market Discrimination

INTRODUCTION

The research focuses on special rehabilitation firms (they are specialised to employ disabled employers) and their employees. Two questionnaires for the above mentioned firms and their employees were created in order to gather information on their activities as well as relationship between the firms and its employees. Altogether 1030 employees and 109 employers filled in the questionnaires. The current study shows the results of this survey. It can be stated that this paper shows the relationship between the measure of disability and the percent of the health break-down, the distribution of the four wage categories among the company types, the Importance and occurrence of factors related to working, so the employment and the types of enterprises. After summarizing all claims of participants I can make an impression in this area and demonstrate the problems for the labour market generally.

Nowadays the growing rate of economically inactive population is a very big problem in Hungary. Rural development has become more and more important issue in Hungary since rural areas also contribute to the efficiency of the national economy (Kárpáti et al., 2010). There were radical changes in the economy as well as in the labour market in the 1990's. The rate of employment and activity was the lowest in 1996 – 1997, after that in consequence of the economically boom it had been growing for 2000. Between 2000 and 2007 it showed stagnation, except some short temporary growing periods.
There are two big groups in the sector pensioners. 'People living with disabilities' group can also be found in this sector on the basis of the 8/1983. Eüm/PM Hungarian Law. The aim of the Law is to give the possibility of adequate job based on qualification and state of health after their rehabilitation.

Generally speaking it would be better for the Hungarian economy to employ these people because the number of inactive population could be lower and the state wouldn't have to provide them supplies. According to the Hungarian Law, if there is not possible to give job for these people, they receive supply from the state.

People living with disabilities have a very special situation at the labour market. Their participation in labour market is very limited (Pfahl et al., 2010). In Hungary – according to the international trends – vocational rehabilitation and workmen's compensation are provided by the state (Kálmán et al., 2002). The disability is no more for one person true but for some activities (Münnich, 2007). The holistically, ecological approach become more and more trend (Pordán, 2007) that circumstances and the abilities of people living with disabilities have to be harmonize (Münnich, 2006). The problem is that these people don't have the right to decision in their job too (Bass, 2008) although they are in the practice stable, precise and capable of hard work (Holló, 2007).

2. MATERIALS AND METHODS

The aim of this paper is to give a general overview about the labour market attributes in Hungary, focusing on 'people living with disabilities' in the North – Great Plain Region of the country. Characteristics of the group as well as weaknesses of their employment are introduced. In this stage of the research, results have been reached so far are presented.

The research focuses on special rehabilitation firms and their employees (they are specialised to employ disabled employers). Two questionnaires for the above mentioned firms and their employees were created in order to gather information on their activities as well as relationship between the firms and its employees. Altogether 1030 employees and 109 employers filled in the questionnaires. The second questionnaire focused on special rehabilitation firms. The current study shows the results of the survey of these questionnaires.

3. RESULTS AND DISCUSSION

Data processing was performed by SPSS for Windows 15.0. This research focuses on people, they are individual, and so the anonymity of questionnaires is very important (Falus et al., 2008). The definition: people living with disabilities can be divided into two groups, considering that the incapacity is a congenital malformation – this means an infiltration into the labour market with disability – or an impaired health status caused by a medical emergency or an accident – this means the person had worked in the labour market without disability and later he had to cope with the changed situation according to his impaired health. There were 400 respondents and the sample was obtained by using a simple random sampling (Sajtos et al., 2007) from accredited companies (Somodi, 2006). 109 companies (around 25%) were asked from the registered 390 companies.

I supposed that partial disability for work was considered as „permanently disabled" with a higher ratio in case of those people who had a very serious „health break-down". In Hungary there are two types of classification systems: the old one is the „reduced capability for work" classification for those who had pensioned off permanently before 2008. The recent one is the „total health break-down" classification, which contains the persons whose status had been revised.

I analysed the relationship between the measure of disability and the per cent of 'the health break-down' by Chi-square test. It can be stated that people with a worse health condition were in the 'permanently disabled status' with a higher per cent. The 'reduced capability for work' classification has four categories: below 40%, 40 to 50%, 50 to 67%, above 67% (Somodi, 2006/b). Only 3,6% of the persons in the 'permanently disabled status' belong to the first category, while 4,1% of the permanently disabled persons is in the second category, the majority belongs to the third and fourth category. In case of the 'temporary disabled group' only 20,4 per cent belongs to the third and fourth category.
The Chi-square tests proved the differences in the ratios of the 'reduced capability for work' categories between permanently and temporary disabled persons with p=0,000 significance at 5% significance level.

The 'total health break-down' classification has more categories (6), such as: below 32 %, 32 to 39% , 39 to 49%, 49 to 79% (can be rehabilitated), 49 to 79% (can not be rehabilitated), above 80%. The permanently and temporary disabled statuses can be clearly separated. 69,8% of the permanently disabled persons are in the last three categories (these represent the most serious health break-down status). In case of the temporary disabled status, 52,1% of the respondents belongs to the first three category which represent the less serious health break-down status. Chi-square tests proved the differences in the ratios between permanently and temporary disabled persons with p=0,004 significance at 5% significance level (Figure 1).
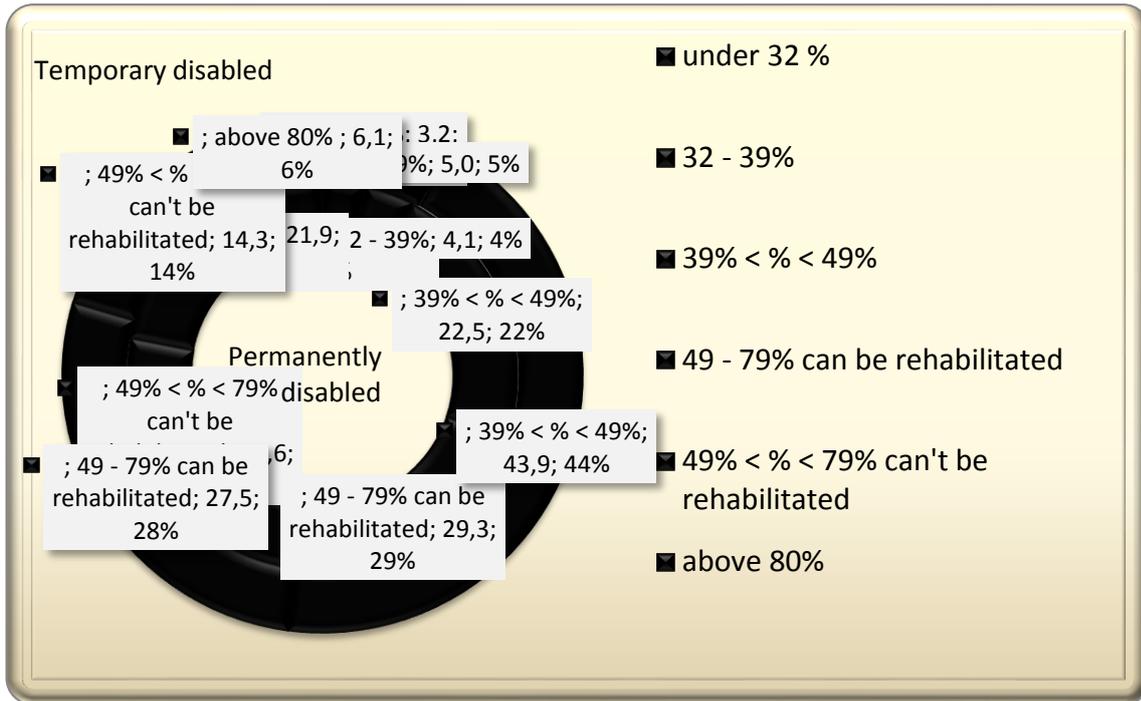
Figure 1: Relationship between the measure of disability and the percent of the health break-down
Source: own research, 2011 - 2012

Relationship between the company types (individual entrepreneur, LLC, etc.) and the amount of wage was evaluated. Reason for that was, that business environment became even more critical after the Hungary's accession to the European Union in 2004 (Kozár et al., 2010). The Kormogorov-Smirnov test denied the normality test with p=0,000 significance, so non-parametric test. As there were more than 2 company types, the Kruskal-Wallis analysis was the most appropriate for analysing the sample. This test proved the differences of the wages among the 5 company types with p=0,000 significance. Results can be seen on Figure 2.
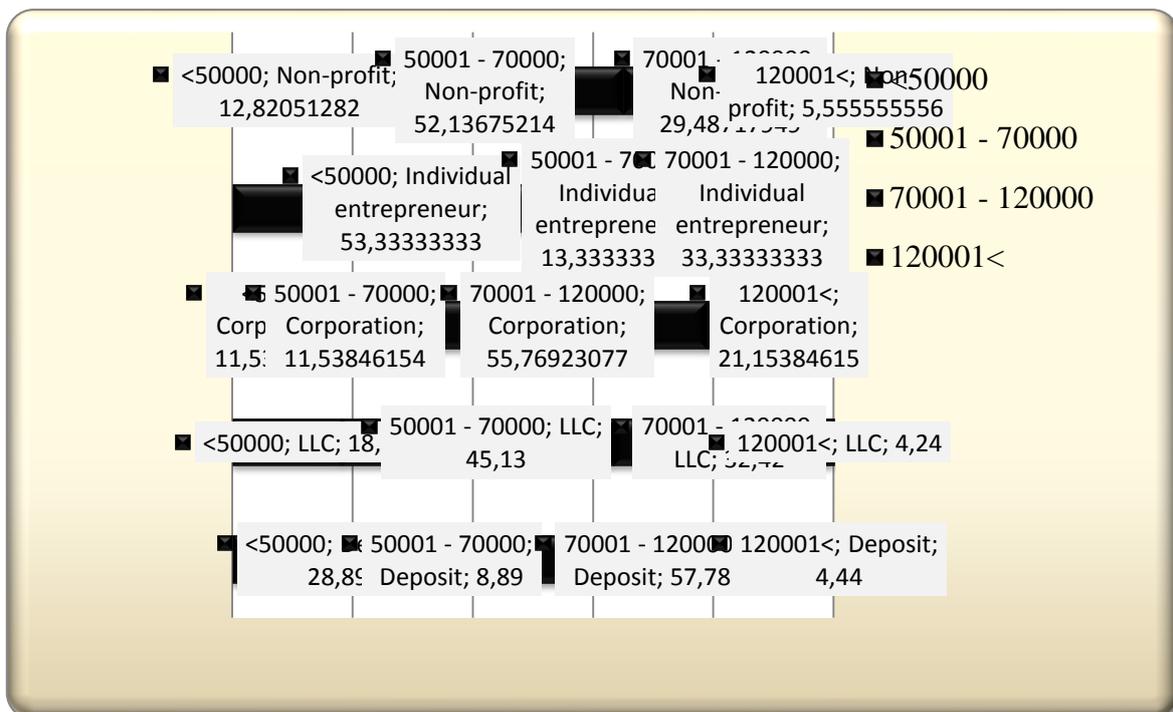
Figure 2: Distribution of the four wage categories (in HUF) among the company types
Source: own research, 2011 - 2012

A relatively high ratio (37,8%) of persons work for deposit companies and earn the lowest amount (in the first two wage categories). The situation is similar with a bit different ratio for people work for non-profit and LLC. (64,9% for non-profit and 63,3% for LLC.). The situation is a bit more favourable in case of the LLC and non-profit companies compared to the deposit companies as the ratio of the second wage category is relatively higher. Some extremities can be observed in case of the individual entrepreneurs, because the ratio of persons in the lowest (53,3%).

The respondents had to rank some factors according to their importance in working. Safe job was the most frequent with 85,7 per cent. 55,9 per cent marked the accessibility to work place and 42,2 per cent of the respondents mentioned the wage. 24,9 per cent named the professional progress. The other factors and the possibility of rehabilitation were mentioned only 6,7 per cent and 17,9 per cent of the cases. Figure 7 shows that the safe job was not only the most frequent, but the most important factor too. The second-leading factor is the wage followed by professional progress (Figure 3).
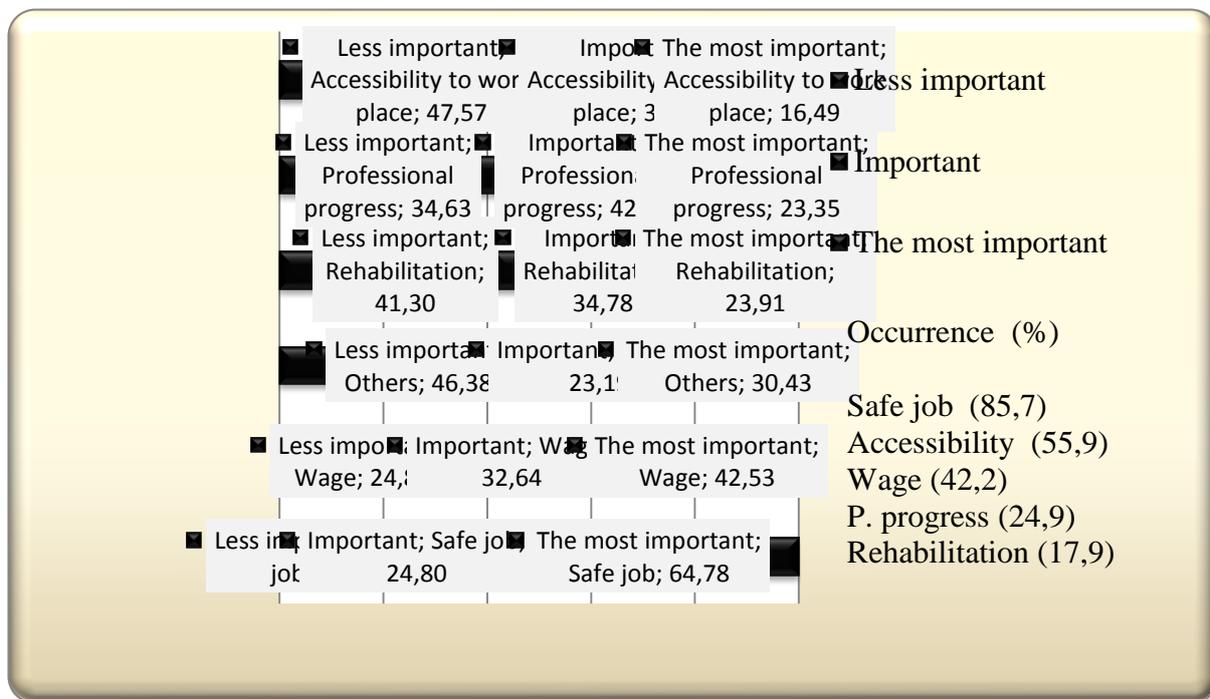
Figure 3: Importance and occurrence of factors related to working
Source: own research, 2012

The job satisfaction was measured on a semantic differential scale, its value ranges from -3 to +3. This factor was proved to be non normal by Kolmogorov-Smirnov normality test (p=0,000), so we used the Mann – Whitney probe for analysing the job satisfaction among the two groups of people living with disability for work. There were no significant differences between the two groups regarding the job satisfaction (p=0,160). Respondents with congenital malformation gave a 2,44 average for job satisfaction, while the average was 2,3 in the impaired health group. This result is unusual comparing it with the newest 'rehabilitation trends' according to the 10/2006 (II. 16) Hungarian law (Garai, 2008).

4. CONCLUSION
Analysing the labour market of Hungary it can be stated that the number of unemployed and inactive persons has been increased continuously between 2000 and 2008. Unfortunately this negative trend didn't stop yet. There are some special groups in the Hungarian population, like 'people living with disabilities' whose labour market position even more complicated. Currently different kind of supplies are available for this group, but their position could be effectively improved trough their integration into the labour market. Better utilisation of available EU

funds to create new jobs and change the thinking of the society could be the way integrating them back into the active employed population.

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LABOUR FORCE EXTERNALIZATION – A STEP TOWARDS FISCAL OPTIMIZATION IN ROMANIA'S COMPANIES

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ABSTRACT

Work contracts-related fiscal costs incurred by Romania's companies have a significant share in their total fiscal expenses. Resorting to alternative employment forms by labour force externalization is in certain circumstances a way for fiscal optimization in Romanian companies. The present paper aims at an analysis of companies' fiscal costs when they make their payrolls by means of individual work contracts, namely the costs companies incur if they use work force externalization by means of a small enterprise.

KEYWORDS

Fiscal cost, fiscal optimization, small enterprise, salary expenses, social contributions

JEL CLASSIFICATION CODES

H32, M21, M41

INTRODUCTION

In the current economic context where companies are facing a critical lack of liquidities, the optimization and betterment of fiscal spending is the concern of any business management. The legal reduction of the amounts paid as taxes and fees is an efficient tool to raise additional liquidities which can be reoriented to new development opportunities.

Using the facilities provided by fiscal legislation in a company's favour is normal. Moise (2005) stated that the fundamental law of a capitalist economy is "Profit Law", the law of profit maximization by all means that comply with the law, that do not infringe any law. Adam Smith (1965) stated that as long as people do not infringe the law, each of them is fully entitled to take care of their own incomes in a way that personally suits them.

Stoian (2003) asserts that the passage from an excessive fiscal cost to an optimized one should take place by optimizing all expenses related to taxes, fees, contributions and special funds.

Tanase (2006) stated that a good administrator is the one working with a good accountant whose strengths are regarded from the perspective of his/her efforts to minimize an enterprize's fiscal cost.

Fiscal cost optimization also means the consequence of an enterprise's financial management decisions. The latter influence a fiscal cost by affecting taxable bases which in turn lead to dimensioning their tax duties. "To effectively manage an enterprise's economic and financial resources means to take account of business fiscal dimension, too. According to financial analyses in synthesis documents, one can find the past, present and future performance, limit the risks, and set the fiscal efficiency" (Morariu et al., 2005, p. 24).

The identification of optimum fiscal options especially aims at obtaining one of the following advantages: deferral in time of tax liabilities and diminution of the tax base for the taxes due by the company (Grigore and Gurau, 2010).

To optimize the fiscal costs generated by salary expenses, a company has the opportunity to use the services of a small entreprise, thus giving up the payment of salaries according to an individual work contract. In terms of the billing services of the small enterprise in the same amount as the costs a company would have if it paid the proper salaries to its employees, the respective company obtains a maximum benefit because the amount of billed services is not subject to salary fiscality.

FISCAL OBSERVATIONS RELATING SOCIAL CONTRIBUTIONS AND SALARY TAXES

Fiscal Code no. 571 (2003) and its methodological implementation norms in force all throughout 2012 define salary incomes as being the totality of incomes in the form of money and/or in kind earned by an individual performing activities according to an individual work contract or to a special status provided by the law, irrespective of the period it refers to, the name of incomes, or the form they are in, including the compensations for temporary work disability.

One's own taxation rules upon salary incomes are also applied to the following income types regarded as salary associated (Application Norms of Romanian Fiscal Code, 2004):

- law-provided benefits in compliance with the law, from activities developed in public dignity positions;
- benefits from activities performed in business-elected positions without a patrimonial purpose;
- rights to monthly pays, compensations, bonuses, prizes, pay rises and other rights for military staff granted in compliance with the law;
- the gross monthly benefit and the amount from the net profit allowed to administrators in national companies, trade companies, where the state or an authority of the local public administration is the main shareholder, or in autonomous agencies;
- remunerations received by managers based on a proxy contract in accordance with trade companies' law provisions;
- the remuneration received by the head of associations including landlords or other people, based on a proxy contract, according to the law of setting up, organizing and operating landlords' associations;
- the amounts received by the founding members of trade companies set up by public subscription;
- the amounts received by representatives in shareholders' general assembly meetings, or board of directors, by directorate members, monitoring council members, as well as members in the censorship commission;
- the amounts received by representatives in tripartite bodies, in compliance with the law;
- the monthly compensation of a single partner at the value level specified in social insurance statements;
- amounts supplied to public institution employees by non-profit organizations and other entities that do not pay any profit taxes, beyond the limit of 2.5 times the legal level set for compensations received during travelling and relocating on business purposes to another town, inside and outside the country;
- administrators' compensations and the amount taken from the net revenues entitled to trade companies' administrators complying with company charters or set by shareholders' general assembly;
- amounts representing salaries or salary remainders set in compliance with law court decisions which are indefeasible and irrevocable, as well as amounts' upgrading according to inflation index;
- monthly remunerations paid in compliance with employers' law during a non-competition period and established according to individual work contracts;
- any other amounts or bonuses related to or associated with salaries in order to be subject to taxation.

Money or in kind bonuses are also associated with salary payments, referring to the personal use of goods or services that belong to a business patrimony.

As to the salaries earned at the work place where a person performs their basic job, the taxable base is made up by deducting the following from gross incomes:

- compulsory contributions pertaining to a month;
- personal deductions allowed, according to situations;
- monthly trade union levies;
- contributions to optional pension plans so that the Lei equivalent of 400 Euros should not be exceeded at the end of the year.

A salary tax is set by applying the 16% quota upon the calculation base.

In conformity with Law no. 294 (2011), employers and employees must contribute in the social security system. An employee is subject to the following obligatory contributions to social security:

- his/her contribution to the social security fund (pensions) is 10.5% of his/her monthly gross incomes;
- his/her contribution to the health insurance fund is 5.5% of his/her monthly gross incomes;
- his/her contribution to the unemployment fund is 0.5% of his/her monthly gross incomes.

Individuals are entitled to the deduction from their monthly net salary incomes of an amount in the form of personal deduction provided for each month during a certain taxable period only related to their salary incomes in the work place where they have their basic jobs.

Taxation occurs by wage-assignment and is final. Salary and salary-associated benefit payers have the duty to calculate and retain the tax related to each month incomes at the date of such incomes' payment and then to

transfer the tax to the state budget until (and including) the 25th day of the month following the one during which these incomes are paid.

As an exception from the provisions above, the tax related to each month's income calculated and retained at the date the income is paid is transfered until (and including) the 25th day of the month following the quarter when they are due, and the transfer is made by the following payers of salary incomes and salary-associated incomes:

- associations, foundations, or other entities with no patrimonial goals, businesses except public institutions which exclusively had an average number of up to three employees during the previous year;
- businesses paying profit taxes which during the previous year had total revenues of up to 100,000 Euros and an average number of up to three employees exclusively;
- businesses paying taxes on their small enterprises' revenues, that had an average number of up to three employees exclusively during the previous year;
- authorized individuals and individual enterprises, as well as individuals who are self-employed and non-juridical associations set up among individuals that lawfully employ their personnel according to individual work contracts.

Employers are subject to the following compulsory contributions to social security in conformity with Law no. 294 (2011):

- 20.8%, 25.8%, 30.8% contribution to the budget of state social security according to labour conditions limited at the level of security holders' number multiplied by five times their average gross salaries;
- 5.2% contribution to the budget of health insurance in compliance with Law no. 293 (2011);
- 0.85% contribution for holidays and compensations limited at the country level of twelve minimum gross wages, payment guaranteed, multiplied by the number of insurance holders of the respective month;
- 0.25% contribution to the guarantee fund for the payment of salary claims;
- 0.5% contribution to the unemployment fund;
- contribution rate to work accidents insurance fund varying from 0.15% to 0.85% according to risk categories. The criteria used to set risk categories have been decided by the Government.

The conclusion drawn from the above statements is that the highest taxes an employer must pay in Romania are social security and health insurance. As to an employee, the highest costs are income taxes and social contributions. In addition, the level of salary fiscality is about 45% with a net salary that means 55% of total salary expenses.

FISCAL VIEWS REGARDING SMALL ENTERPRISES' REVENUE TAXATION

In order to be a small enterprise, a company must meet the following cumulative requirements on the 31st of December the previous tax year in compliance with Law no. 571 (2003):

- it raises incomes except those from banking, insurance and re-insurance activities, or except the field of equity market, gambling, consultancy and management;
- it has one to nine employees inclusively;
- it has raised incomes not exceeding the Lei amount equal to 100,000 Euros;
- its registered capital is held by people, except the State and local authorities.

A newly-set up Romanian business may choose to pay taxes on small enterprise revenues in the very first tax year if on its enlistment date in the Register of Companies its registered capital is held by people except the State and local authorities, and within 60 days from its enlistment it employs at least one person according to an individual work contract.

If one of these requirements is no longer met, small enterprises stop applying this taxation system in the following tax year.

The small enterprises which raise incomes higher than 100,000 Euros during a tax year must calculate and pay profit tax starting in the quarter during which the incomes' limit has been exceeded, taking account of the revenues accomplished and expenses made since the beginning of the tax year, with no possibility to return to such taxation during the next period. The profit tax to be paid is the difference between the profit tax calculated from the tax year beginning until the end of the reporting period and the tax on small enterprises' revenues to be paid during the respective year.

In order to meet the requirement referring to the number of employees, one should take into account the number of people employed according to individual work contracts in compliance with Labour Code provisions irrespective of work duration, enlisted in payrolls and/or employees' general records list. When analyzing whether the requirement referring to the number of employees has been met, postponed contracts are taken into account as well, in compliance with the law.

As to the businesses that have only one employee and the latter resigns in a month, and if a work relationship is over subsequent to retirement or work contract cancellation because of certain deeds which can lawfully be punished as such, the requirement referring to the number of employees is met if another person is hired during the next month.

The newly-set up Romanian businesses which have chosen to pay taxes on small enterprises' incomes in their first tax year and have not employed anyone within 60 days from the issuing date of registration certificate, are profit tax payers from the date of their subscription in the Register of Companies.

In order to meet the request referring to the level of incomes raised during the previous year, account is taken of the same incomes making up the taxable base of the tax on small enterprises' incomes. The exchange rate used to set the Euro equivalent is the one when closing the same financial year.

This taxation system cannot be chosen by the businesses which:

- are set up and operate according to special organization and operation statutes in the bankig field (banking trade companies, foreign currency exchange offices, mortgage loan units, credit agencies etc.);
- are organized and operate according to special organization and operation statutes in the field of insurance (for example, insurance and reinsurance companies), equity market (for example, stock exchanges, commodity exchanges, financial investment service companies, registry companies, storage companies), except the businesses performing brokerage services in these fields (brokers and insurance agents);
- operate in the fields of gambling, consultancy and management. Their inclusion in the category of incomes ensued from consultancy and management is made by analyzing the contracts concluded and other documents that justify the nature of incomes;
- have a social capital whose owner is a single shareholder or associated business having more than 250 employees.

The taxation rate upon small enterprises' revenues is 3% and applies on the taxable base made up of revenues from any source of which the following are deducted: revenues associated with the costs of completed production; revenues associated with the cost of services in progress; capitalized costs of tangible and intangible non-current assets; subsidies for operating activities; write back of provisions and adjustments for operating impairment losses; revenues associated with the reimbursement or cancellation of delay interests and/or penalties which are former expenses undeducted from the calculation of taxable profit; revenues associated with compensations from insurance/reinsurance companies for damages of assets such as inventories or own tangible assets.

The small enterprises which purchase electronic cash registers benefit of the latter's value deduction from the taxable base, according to the purchase proof, during the quarter when they were put into service.

Romanian businesses paying profit taxes announce the territorial fiscal bodies about their option for small enterprises' income tax payment by submitting a fiscal registration statement/specifications statement for businesses, associations and other non-juridical entities (the 010 form) until (and including) the 31st of January in the year for which small entrerprises' revenues taxes are paid.

The businesses set up during a tax year include this option in a listing application at the Register of Companies and that is irrevocable for the respective tax year.

If during a tax year one of the requirements is no longer met, a small enterprise is forced to keep this taxation system for the respective tax year without being able to benefit from such a system during the coming period although in the future it could meet the legal requests to exert such an option.

The calculation and payment of small enterprises' profit taxes take place every quarter until (including) the 25th day of the month following the quarter during which a tax is calculated.

The tax statement referring to small enterprises' revenues must be submitted until the date of tax payment.

If there is a non-juridical association between a small enterprise and a resident or non-resident individual, the former calculates and retains a tax by applying the 3% quota onto its revenues ensued from the association. The tax to be paid is stated and transfered to the state budget until (including) the 25th day of the month following the quarter for which the tax is calculated.

LABOUR FORCE EXTERNALIZATION BY MEANS OF SMALL ENTERPRISES

In order to optimize the fiscal cost generated by salary expenses, a company may resort to the services of a small enterprise which renders services and thus the former gives up the payment of a salary based on an individual work contract.

In the following, there is a case study referring to the cost incurred by a company if it pays a gross salary of 3000 m.u. (monetary units) versus its payment for the services provided by a small enterprise at the same value of

the gross salary. Moreover, the present analysis also aims at an employee in either of the two circumstances, as a company employee and as a small enterprise.

Thus, if a person is employed according to an individual work contract for a gross salary of 3000 m.u., the respective company incurs the following expenses:

Table2.Salary-related expenses for a gross salary of 3000 m.u. (RON)

Explanations	Value (m.u.)
Gross salary	3,000
Employee's retentions of which:	896
- contribution in pension funds (3,000 x 10.5%)	315
- contribution in unemployment funds (3,000 x 0.5%)	15
- contribution in health insurance funds (3,000 x 5.5%)	165
- salary tax ([3,000-(315+15+165)]x16%)	401
Net salary	2,104
Employer's retentions of which:	841
- company's contribution in health insurance budgets (3,000 x 5.2%)	156
- company's contribution in unemployment funds (3,000 x 0.5%)	15
- company's contribution in social security (3,000 x 20.8%)	624
- company's contribution for holidays and bonuses (3,000 x 0.85%)	26
- insurance contribution rate for labour accidents (3,000 x 0.4%)	12
- salary receivables fund (3,000 x 0.25%)	8

Consequently, the company's total cost for an employee is 3,841 m.u. represented by:
- Employee's net salary of 2,104 m.u.
- Retentions of 896 m.u. incurred by the employee
- Retentions of 841 m.u. incurred by the company

Table 2. Expenses incurred by a company in the two circumstances under analysis

Company resorts to employee's services	Value (m.u.)	Company resorts to small enterprise's services	Value (m.u.)
Salary-related expenses	3,841	Expenses for services payment	3,000
Profit tax (3841x16%)	615	Profit tax (3000x16%)	480
Total expenses (3841-615)	3,226	Total expenses (3000 - 480)	2,520

In conclusion, if it uses the services of a small enterprise, a company gets additional liquidity of 706 m.u. (3226 m.u. – 2520 m.u.) ensued from saving the salary contributions owed by the company.

As far as the employee is concerned, his/her net earnings in the two circumstances above are analyzed as follows:
- if he/she gets employed, his/her net salary earnings = gross salary – employee contributions – salary tax
- if a small enterprise provides its services, then net earnings = income – personnel-related expenses – income tax – dividends tax + net salary

Since a small enterprise must have at least one employee, the latter is the one representing a small enterprise and his/her remuneration is the minimum wages at economic level set in Romania as 700 m.u. for the year 2012. The employee as a small enterprise administrator is to get income in the form of dividends.

Net dividend = income – personnel-related expenses – income tax – dividends tax

The taxation quota for dividends incomes is 16% and applies to gross dividends (total incomes – total expenses).

Table 3. Salary-related expenses for a gross salary of 700 m.u. (RON)

Explanations	Value (m.u.)
Gross salary	700
Employee's retentions of which:	170
- contribution in pension funds (700 x 10.5%)	74
- contribution in unemployment funds (700 x 0.5%)	4
- contribution in health insurance funds (700 x 5.5%)	39
- salary tax ([700-(74+4+39+250*]x16%)	53
Net salary	530
Employer's retentions of which:	197
- company's contribution in health insurance budgets (700 x 5.2%)	36
- company's contrubtion in unemployment funds (700 x 0.5%)	4
- company's contribution in social security (700 x 20.8%)	146
- company's contribution for holidays and bonuses (700 x 0.85%)	6
- insurance contribution rate for labour accidents (700 x 0.4%)	3

- salary receivables fund (700 x 0.25%)	2

*Personal deduction is granted to individuals whose monthly gross income is up to 1,000 m.u. and it is 250 m.u. for taxpayers who do not financially support anyone else.

Therefore, the value of the small enterprise's salary expenses is 897 m.u. represented by:

- Employee's net salary of 530 m.u.
- Retentions of 170 m.u. incurred by the employee
- Retentions of 197 m.u. incurred by the small enterprise

Table 4. Employee's net income if he/she chooses a small enterprise

Explanations	Value (m.u.)
Incomes resulted from service rendering	3,000
Salary-related expenses	897
Income tax (3000x3%)	90
Gross income [3000-(897+90)]	2,013
Dividends tax (2,013x16%)	322
Small enterprise's net income (2,013-322)	1,691
Net salary of small enterprise employee	530
Net salary of employee (1,691+530)	2,221

In conclusion, the net income (2,221) received by the employee if he/she acts as a small enterprise is higher than the net salary (2,104) he/she would earn if he/she were employed according to an individual work contract. Yet, there are some negative effects upon the employee such as the decrease of his/her pension calculation fund. The decrease can be compensated depending on the individual's increasing income of which a part can be invested as levies in a private pension system.

CONCLUSIONS

The economic doctrine has theoretically emphasized the connection between fiscality's general rate and taxpayers' fiscal behaviour. Additionally, everyday practice has confirmed that a high level of fiscal duties that burdens taxpayers along with norms' inequality and volatility, and also with inconsistencies in taxes' administration and management shall bring about changes in taxpayers' behavioural psychology. In this respect, a high taxation level shall be perceived by taxpayers as a form of aggression upon the incomes they receive and thus they shall look for "loopholes" to avoid the fiscal duties they are subject to.

Taxpayers' concerns are to move from effective economic management to optimum fiscal management also known as fiscal optimization. It should be stated that managing taxes and fees in order to optimize their level does not mean infringing the law. Correct and justified fiscal management can help avoid the inconveniences caused by tax evasion or fiscal frauds.

In this context, labour force externalization by means of a small enterprise is a fiscal optimization method to the companies in Romania. The advantage a company gets is maximum because the value of services paid is not subject to salary fiscality. Thus, the company receives additional liquidity by saving the fiscal cost related to salary expenses.

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ENTREPRENEURIAL INTENTIONS AMONG STUDENTS IN HIGHER EDUCATION INSTITUTES: IN SEARCH OF ENTREPRENEURIAL ENHANCEMENT

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ABSTRACT

Greece is undergoing the last years a major economic crisis which is manifested among others by recession and unemployment. It is widely accepted by economists that entrepreneurial activities could help the country move from recession to growth since entrepreneurship is an important contributor to innovation, creativity, job creation and a driver of economic and social development. Since entrepreneurial activities are intentional, it is of great importance to examine the entrepreneurial intentions especially of young people in the country. Intentions are considered the best predictors of planned behavior, especially when that behavior is rare, hard to observe, or involves unpredictable time lags. Furthermore there is the need to identify factors that affect intentions so as to have a better understanding of the entrepreneurial process. This paper concentrates on three major antecedents of entrepreneurial intentions: entrepreneurship education, family background and motives.

Using data from the greek sample of the "Global University Entrepreneurial Spirit Students' Survey" our results highlight the importance of an entrepreneurial family background, innovativeness, self-realization, recognition and upholding tradition on the entrepreneurial intentions of Greek University students. Surpisingly entrepreneurship education and financial success were not found significant. These results have important implications for educators, policy makers and entrepreneurship scholars but also open interesting avenues for future research.

KEYWORDS: entrepreneurial intentions, Greek students, antecedents, entrepreneurship education, family background, motives

JEL CLASSIFICATION CODES: A22, I23, L26

INTRODUCTION

The last years Greece is undergoing a major economic crisis which leads among others to recession and the loss of jobs. Greece has been undergoing major changes in order to overcome this difficult situation and a widely accepted opinion inside and outside the Greek borders is that in order to succeed in growth, entrepreneurship in the country should prevail. Entrepreneurial activities have proven to accelerate structural change, to improve the competitive position of a nation in the global business environment and they are associated with job creation (Sarri et al, 2012a; Ripsas, 1998). Start-ups do not resist change, they are flexible and innovative. Entrepreneurs play a central role in the process of creative destruction (understood as "the devaluation of still technically functioning products or services which goes hand-in-hand with the introduction of innovative products and production processes" (Volkmann et al, 2010, p.6) by recognizing new opportunities and turning them into business ideas and by bringing new technologies and concepts into real commercial use, which is especially important in periods of economic crisis (Sarri et al, 2012a; Schaper & Volery, 2007).

Entrepreneurial activities are clearly intentional activities and therefore entrepreneurial intentions have attracted significant attention from academics. Entrepreneurs tend to make cautious decisions and assess the relevant factors involved in decision-making processes which are claimed to be the result of an individual's intentions. Individuals seem to be preconditioned to entrepreneurial decision-making, despite the fact that such behaviour is contingent upon specific variables and is not always likely to become manifest. It has been argued that intentions can be 'the best single predictor' of such premeditated behaviour (Krueger & Carsrud, 1993). In view of the fact that entrepreneurial intentions are likely to anticipate entrepreneurial activities, a great amount of research has attempted to focus on individuals' intentions that determine the manifestation of such behavior. Understanding the consequences of intentions -particularly actions- requires that the antecedents of intention are understood (Krueger et al, 2000). This study, focuses on entrepreneurial motives, entrepreneurship education and family background as antecedents of the founding intention of students.

Data on entrepreneurial intentions and their above mentioned antecedents from the Greek sample of the"Global University Entrepreneurial Spirit Students' Survey" (GUESSS) in 2011 is used. GUESSS is an international project carried out in 26 countries, in 489 Universities, with 93,000 responses, which focuses on the investigation of students' entrepreneurial intentions and activities worldwide. The present research attempts to explore the extent to which family background, motives, educational offerings, gender and age, can affect the entrepreneurial intentions of Greek students. To the best of our knowledge this is one of the first studies that examines the entrepreneurial intentions (and their antecedents) of Greek university students in a period of time which is rather critical in Greece given the current difficult financial conditions. The results of the specific study can be helpful both to policy makers involved in entrepreneurship enhancement and also to academics and education decision makers.

THEORETICAL FRAMEWORK

ENTREPRENEURSHIP

Entrepreneurship is a multifaceted phenomenon which draws from several disciplines such as finance, management, psychology, sociology etc. The complex nature of entrepreneurship renders difficult the finding of a widely accepted definition and therefore it has been defined both narrowly and broadly. Narrowly seen, entrepreneurship is the creation of an organization (Gartner, 1988). Hisrich, et. al (2006) define it more broadly as "the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, physic, and social risks, and receiving the resulting rewards of monetary and personal satisfaction and independence" (p.8). Further, Kets de Vries (1977) define entrepreneurship asuncertainty and risk-bearing activities and proactive or opportunity-seeking behaviour. Looking at the several definitions provided by entrepreneurship scholars in the

literature it can be argued that the creation of something new, taking risks and opportunity recognition, evaluation and exploitation are key elements of entrepreneurship.

The vital role of entrepreneurship and its contribution to economic growth, innovation and creativity is highlighted extensively in the literature (Sarri et al, 2012b; Van Stel et al, 2005, Carree et al, 2002). Especially in times of recession the need to innovate and be entrepreneurial is more urgent since entrepreneurship is a driver for economic growth it promotes job creation and even better jobs (Sarri et al, 2012b; Johansen, 2007). Furthermore the enhancement of competitiveness and creativity coupled by the development of personal characteristics useful for the reduction of risk and uncertainty, have a positive impact on community development and social welfare (Hay & Kapitzke, 2009; Holmgren & From, 2005; Ahl, 2002). Schaper & Volery (2007) point out that: "economic growth occurs not because of improvements in technology, productivity and available resources, but because entrepreneurs (a) improve their technology, organization and processes, (b) become more productive and innovative and (c) force other firms out of business ". This leads to economic welfare and productivity.

Entrepreneurship is an intentional process as entrepreneurs deal with situations and problems that they do not expect in evolving environments, therefore they have a disposition due to individual and situational reasons to take action to change their current circumstances and they develop entrepreneurial intentions (Crant, 1996). There is a widely accepted recognition of the important role of entrepreneurial intentions in entrepreneurship research. Thus in an attempt to shed some light on what motivates potential entrepreneurs their intentions and some of their fundamental antecedents are elaborated in this paper.

ENTREPRENEURIALINTENTIONS

The decision made by an individual to pursue an entrepreneurial career is claimed to be a conscious one (Shane, 2003) and therefore the conditions under which decisions are taken need to be examined (Fayolle & Gailly, 2004).The intention to start a company is a central part of the entrepreneurial process and an immediate antecedent of actual behavior (Ajzen, 1991) and thus one of the best predictors of planned behavior (Krueger & Carsrud, 1993). As entrepreneurship is the kind of behaviour where intention models perfectly fit (Bird, 1988), intention-based models have encouraged a considerable amount of research in terms of their impact and predictive ability in entrepreneurial decision-making processes (Krueger & Carsrud, 1993). Intentions capture the degree to which people are willing to put an effort in order to perform a behavior and show the motivational factors that affect the behavior (Ajzen, 1991). Bird (1988) defines intentionality as "a state of mind directing a person's attention (and therefore experience and action) toward a specific object (goal) or a path in order to achieve something (means)" (p. 442). More specifically entrepreneurial intentions have been defined as "one's judgments about the likelihood of owning one's own business" (Crant, 1996).

Among the most influential intention-based models are Ajzen's (1991) theory of planned behaviour, Shapero and Sokol's (1982) "entrepreneurial event" theory and Bird's model (1988), which was later developed by Boyd and Vozikis (1994). According to Ajzen's theory, an individual's behaviour towards taking action is predictive. Intention is a specific state of mind, which leads to the development of a behavior based on the experience of the individual. In other words, it is "an indication of how hard people are willing to try, of how much of an effort they are planning to exert in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely its performance". (Ajzen, 1991 p.3). According to the theory of planned behaviour an individual's intention is shaped by three attitudinal antecedents: attitudes toward behaviour, subjective norms, and perceived behavioural control (Ajzen, 1991).

Shapero and Sokol (1982) argue that an accidental incident (positive or negative) can affect an individual's entrepreneurial intentions. The career choices of an individual are a result of the external factors that have an effect on the desirability of entrepreneurship (Peterman & Kennedy, 2003). More specifically, an individual's behaviour depends on his/her options, such as perceived desirability, perceived feasibility and propensity to act. These concepts are determined by social factors and culture which affect an individual's values. Bird's (1988) model asserts that individuals have the propensity to act depending on their intentions, which are based on a combination of both personal and contextual

factors. Similarly, Boyd and Vozikis' (1994) model highlights self-efficacy. According to the specific model, the entrepreneurial intentions of self-confident individuals are stronger than of those with low-esteem.

An important issue when researching intentions is to consider their temporal stability (Boyd & Vozikis, 1994) since accurate behavioural prediction depends also on the stability of behavioural intentions (Ajzen, 1991). Some studies show that students express entrepreneurial intentions not directly after their studies but only some years after graduation. For example a study conducted in Britain showed that in a sample of 5,375 students in 10 universities, 9.7% of the respondents founded their own business in a period of 5 years after graduation (Rosa, 2003). As the precise prediction of behaviour has immense practical importance (Sheeran et al, 1999) it is important to examine the temporal stability of the entrepreneurial intentions of young people.

There are several antecedents of entrepreneurial intentions. Inter-generationally they can be transmitted through three mechanisms: genetic inheritance, provision of resources, and education/socialization (Laspita et al, 2012). Intentions are also affected by a person's demographic characteristics such as age and gender, its personality- need for achievement, propensity to take risks, tolerance of ambiguity, and internal locus of control are the most commonly cited personal traits affecting business start-up and entrepreneurial activities (Thomas & Mueller, 2000; Utsch & Rauch, 2000). Education and other external factors such as the economic climate, culture etc are also identified as factors affecting entrepreneurial intentions (Mueller & Thomas, 2001; Reynolds et al, 1994). In many cases many factors interact and entrepreneurial intentions are manifested. As Learned (1992, p.12) puts it "some individuals have a combination of psychological traits in interaction with background factors that make them more likely candidates to attempt to found businesses".

This paper concentrates mainly on three antecedents of entrepreneurial intentions: entrepreneurship education, family background, motives. There several reasons for this choice. Whereas in the USA and Europe entrepreneurship education has exploded the last years as shown by the large number of entrepreneurship chairs (Kuratko, 2005), entrepreneurship education in Greece is still in its infancy. Furthermore to the best of our knowledge there are no studies in Greece that explore the effect of the entrepreneurship courses offered by Greek Universities on the entrepreneurial intentions. This study is one of the first attempts in this direction. As far as the family background is concerned whereas entrepreneurship scholars have recognized the influence of self-employed parents on the entrepreneurial intention of their children, empirical work is inconclusive. This influence has been found to be rather strong or significant (e.g. Athayde, 2009), rather weak or insignificant (e.g. Schmitt-Rodermund, 2004) and in some cases even non-existent (e.g. Brenner et al, 1991). Moreover Greece has quite a large number of family businesses but empirical work on how Greek self-employed parents affect the entrepreneurial intentions of their children is scarce. Finally as far as motives are concerned research up to now has mainly been focused on existing entrepreneurs (e.g. Shane et al, 1991) suffering from the bias of including people that have already succeeded in the entrepreneurial process. By researching potential and not existing entrepreneurs we avoid the "success" bias and can still intervene in order to raise the entrepreneurial intentions of young potential entrepreneurs and their future entrepreneurial activity.

ENTREPRENEURSHIP EDUCATION

Entrepreneurship education has attracted a lot of attention from both academics and policy makers around the world (SBA, 2000; European Commission, 1999). Economic development theories focus, among other factors, on entrepreneurship education as one of the key drivers of promoting entrepreneurship (Liñán & Rodríguez, 2004). Researchers emphasize that entrepreneurship can be taught (Henry et al, 2005) and that entrepreneurship programmes are necessary in all levels of education (Gibb & Hannon., 2006). These programs are aimed at developing entrepreneurial skills, not only by providing knowledge, but also by changing the existing entrepreneurship culture (Souitaris et al, 2007).

Education plays an important role in shaping behaviour, and promoting knowledge and culture. Teaching entrepreneurship involves shaping an entrepreneurial culture and learning through experiences, which will enable students to create their own business. Educational institutions could be

the place where aspiring future entrepreneurs will be equipped with the necessary knowledge, skills and abilities to start up a business of their own. The number of educational institutions which offer courses in entrepreneurship has grown enormously since the last 3 decades (Laspita & Sarri, 2012; Kuratko, 2005). Moreover entrepreneurship programs, besides the conventional teaching methods such as lecturing, case studies and guest speakers, have included more innovative educational approaches, such as experiential learning, interactive learning, role-models and social connections (Peterman & Kennedy, 2003), which are congruent with the new technologies trends (Solomon, 2007). It is also stated that entrepreneurship education should not be limited to teaching courses, but must expand to embrace local networks and social and state organizations, in order to create the appropriate conditions and recruit skillful and well-trained prospective entrepreneurs, that will promote innovation, creativity and development. Jones and Iredale (2010) emphasize that entrepreneurship education is essential if we want to have a trained workforce that can meet the fast changing labour market conditions.

Universities are the institutions which can play an important role in encouraging entrepreneurship (Di Gregorio & Shane, 2003). Entrepreneurship education has three objectives: to develop the necessary skills which will enable the business start-up, to encourage entrepreneurship attitudes and to promote training through organizations (Lewis & Massey, 2003). In Laukkanen's (2000) terms: "a University can be conceptualized as a societal innovation system, and entrepreneurship education, when embedded in such a system, could be regarded, not only as a task of producing entrepreneurially oriented competent individuals, but also as reproducing the social mechanisms that underpin and facilitate the birth and growth of businesses and firms" (p.26). However, the effectiveness of entrepreneurship education and entrepreneurship as a future career are strongly claimed to be contingent on the positive image people have towards entrepreneurship (Alberti et al, 2004) and the entrepreneurial culture with which universities have to equip their students by enhancing their motivation and competence. Gorman et al (1997) state that "entrepreneurial attributes can be positively influenced by educational programs and many entrepreneurship programs and courses are able to build awareness of entrepreneurship as a career option and to encourage favourable attitudes toward entrepreneurship" (p.63).

Despite the positive impact of entrepreneurship education and the development of students' entrepreneurial skills and abilities on business start-up, recent research also supports that entrepreneurship education can have a rather neutral or even a negative impact on students' entrepreneurial intentions. The relevant literature has highlighted that formal education and educational status do not seem to encourage entrepreneurship. In contrast, it promotes dependent rather than independent employment (Timmons, 1994) and discourages creativity, which is fundamental to business start-up (Plaschka & Welsch, 1990). Cox et al., (2002) argue that there is no empirical evidence to support that entrepreneurship education affects the entrepreneurial intention to start up a business. Besides that a recent study by Oosterbeek et al., (2010) used an instrumented variable approach in a difference-in-differences framework and analyzed the impact of an entrepreneurship education program on students' entrepreneurship competencies and attitudes. The entrepreneurship program examined did not however have the intended effects: the effect on students' self-assessed entrepreneurial skills was insignificant and the effect on the intention to become an entrepreneur was even significantly negative.

According to the above, results in the field remain inconclusive and are sometimes controversial. Moreover to the best of our knowledge there are almost no studies conducted in Greece that have dealt with the subject of entrepreneurship education and its effect on the entrepreneurial intentions of Greek students. With this background the following question is posed:

Research question 1: *Does entrepreneurship education affect the entrepreneurial intentions of students in Greece?*

FAMILY BACKGROUND

Parents have often been suggested to influence their children's career choice and their entrepreneurial intentions as family business tradition helps an individual to acquire knowledge and skills which combined with personal characteristics can stimulate entrepreneurial activities (Altinay & Altinay,

2006; Wang & Wong ,2004; Matthews & Moser, 1996; Dyer & Handler, 1994; Scherer et al, 1989; Scott & Twomey, 1988). Parents affect the entrepreneurial intentions of their children through three mechanisms: genetic inheritance, provision of resources, and education/socialization (Laspita et al, 2012).

Firstly studies show an individuals' inherent propensity towards following a career as an entrepreneur (Nicolaou & Shane, 2009). Genes have an effect on chemical mechanisms in the brain that drive people to develop specific characteristics that increase the likelihood that people will engage in entrepreneurial activity. Furthermore genes may predispose people to be exposed to environments that favor entrepreneurship and finally because of genes some people may be more sensitive than others to environmental stimuli that increase their entrepreneurial intentions and the subsequent entrepreneurial activity (Nicolaou & Shane, 2010). Moreover specific personality traits of an entrepreneur are claimed to be heritable (McGue et al, 1993). Secondly parents that are business owners provide their children with financial (e.g. capital, loans) and non financial (e.g. social capital) resources that could enhance their intentions towards entrepreneurship and that ease their path towards entrepreneurship (Laspita et al, 2012). Thirdly parents through socialization and education could trigger their children's entrepreneurial intentions. For example, if parents provide a positive role-model to their children, they are more likely to start their own business in contrast to children without a family background (Pruett et al, 2009; Altinay & Altinay,2006; Liao & Welsch, 2001; Samuelsson, 2001). Moreover children's exposure to a family business background at the earliest stages of their life plays an important role in shaping beliefs, attitudes, personality and intentions towards entrepreneurship (Bronfenbrenner, 1986) but also creates values and behaviors regarding their attitudes towards entrepreneurship (Carr & Sequeira, 2007). Children growing up in a family where one or both parents are self-employed, are nurtured with similar values that influence, consciously or unconsciously, the intention for future entrepreneurship activity.

Despite the fact that entrepreneurship scholars have recognized the influence of self- employed parents on the entrepreneurial intention of their children, empirical work is inconclusive. This influence has been found to be rather strong or significant (e.g. Athayde, 2009), rather weak or insignificant (e.g. Schmitt-Rodermund, 2004) and in some cases even non-existent (e.g. Brenner et al, 1991). Moreover Greece has a high percentage of family businesses and succession of these businesses through the children (among which high unemployment rates exist) but also the founding of new businesses is crucial in the times of recession, unemployment and economic crisis that Greece is undergoing. Therefore we pose the following question:

Research question 2: Does family background in entrepreneurship affect students' entrepreneurial intentions in Greece?

MOTIVES

Motives have been defined by McClelland (1987) as "a recurrent concern for a goal state that drives, orients and selects behavior" (p.183). Motivation seems to be a significant factor affecting entrepreneurial intentions and decision-making for founding a business (Fatoki, 2010). As Zellweger et al., (2011) put it "…(the) theory of planned behavior assumes that if the outcome of a behavior (e.g., founding a firm) is believed to satisfy a specific individual motive (e.g., independence), performing the behavior will be evaluated more positively with increasing levels of the corresponding motive. This results in a more favorable attitude toward that behavior, which, in turn, leads to a stronger intention to actually perform it. Therefore potential entrepreneurs' motives for founding a business should have a significant influence on their entrepreneurial intentions and on whether they actually engage in entrepreneurial activity (Carter et al, 2003).

Much of the entrepreneurship literature and research has been devoted to identifying the drivers for entrepreneurial activity. Motivational factors seem to be crucial in defining who wants to become an entrepreneur. Special attention has been given to motives such as need for achievement, independence, risk-taking propensity, freedom, financial gain, security of employment and control (Turnbull et al, 2001; Brockhaus, 1980; McClleland, 1961). Moreover based on a number of previous studies, which

examined the potential reasons for entrepreneurship and entrepreneurial typologies, four distinct types of entrepreneurial motives can be distinguished: self-realization and independency, enhanced status and income, economic contribution and impact, continuing tradition and securing income (Freiling, 2006; Parker, 2004; Douglas & Shepherd, 2002; Schumpeter, 1952). The first type of motives involves the feeling of creating a new business and the fulfillment of one's own needs, whereas recent studies highlight the great significance of independence as the most important reason for entrepreneurship (Parker, 2004). The second type of motive implies the desire of a better social position and a higher income, whereas economic contribution and impact involve the desire for success and prosperity as well as having influence on society. Finally, the last motive is associated with continuing the tradition of family businesses and securing the money earned from such entrepreneurial activities (Wagner & Ziltener, 2008).

Studies, with few exceptions (e.g. Carter et al, 2003) that focus on motivation towards entrepreneurship, study existing entrepreneurs. However these studies suffer from the bias of over-selecting people that managed to become entrepreneurs and simply ignore the issues of success and survival bias. It is of great importance to go back in the first steps of the entrepreneurial process, because by surveying potential and not existing entrepreneurs a researcher can better understand the process of how and why someone decides to start a business and in this way he/she could help in fostering future entrepreneurial activity (Laspita & Sarri, 2012). Furthermore there are very few studies in Greece that focused on the motives that lead students to become entrepreneurs. Therefore we pose the following question:

Research question 3: Do motives affect students' entrepreneurial intentions in Greece?

RESEARCH METHODOLOGY

GUESSS is an international research project that focuses on the entrepreneurial intentions and activities of university students across many countries. The project was initiated in 2003 and since then it has the following objectives: the systematic and long-term observation of entrepreneurial intentions and activities of students, the identification of antecedents and boundary conditions in the context of new venture creation and entrepreneurial careers in general, the observation and evaluation of Universities' activities and offerings related to the entrepreneurial education of their students (Sieger et al, 2011). Other, secondary goals of the project are to observe the quality of the start-ups created by university students and to enable the participating countries to reflect on the entrepreneurial spirit of their students and universities. (Fueglistaller et al, 2009).

In 2011 the project was coordinated by the Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen and 26 countries participated in the online survey. The core research team appoints a country representative who is responsible for contacting universities and universities of applied sciences in their country and for encouraging them to participate in the survey. A link to the online questionnaire is sent from the country representatives to their contact person at the university, who then contacts the students by email and asks them to participate in the survey.

The Greek sample was comprised of 429 students from 7 Greek institutions. The average age of the participating students was 23.4 years old, 61.3 % were female and 38.7% male. In relation to field of study, 62% were Business and Economic students, 24.2% Natural Sciences students and 13.8 % Social Sciences students. Moreover, 52 % of the students reported that they were raised in a family with business background and 25% of the students answered that they had already had entrepreneurial experience.

Three different dependent variables have been chosen to measure students' entrepreneurial intentions. First, students were asked in which occupation they would like to work directly after their studies, second, in which occupation they would like to work five years after graduation. Students could choose from a variety of possible types of occupations that were grouped as dependent and independent forms of employment. We coded short-term entrepreneurial intentions as 1 if students indicated they preferred dependent employment, such as working in a company or enterprise, working as a researcher

at a university/college, or working in the civil service. When students indicated that they wanted to pursue a career in independent employment, such as continuing the family/parental business, taking over an existing business, starting up a (franchise) business, investing in an existing company, continuing their own already founded business, or working as a self-employed person the code number 2 was used.

We coded long-term entrepreneurial intentions as 1 if students indicated they preferred dependent employment, such as working in a company or enterprise, working as a researcher at a university/college, or working in the civil service and as 2 if students indicated that they wanted to pursue a career in independent employment, such as continuing the family/parental business, taking over an existing business, starting up a (franchise) business, investing in an existing company, continuing their own already founded business, or working as a self-employed person. We used a third dependent variable that reflects students' thoughts about engaging in entrepreneurial activities and their general entrepreneurial intentions. The question asked was if students had ever seriously thought about setting up their own business. The responses were coded in two categories: "No" (=0) and "Yes" (=1), coded as 0, 1. The item "already business owner" was excluded since those students were already business owners.

Age as an independent variable is distinguished in three age groups: up to 24 years, 25-30 years and over 31 years. Gender was coded as 0 for males and 1 for females. Family background consists of two categories: "No family business background" and "raised in a family business". Field of study includes 3 categories, that is, Business and Economics, Natural Sciences and Social Sciences. Overall attended educational offerings that include entrepreneurship courses had two possible answers "Yes" and "No".

As far as the motives are concerned a Principal Component Analysis (with five factors, varimax rotation method) was conducted. The 18 motivational factors were reduced to five, namely, self-realization, innovativeness/social commitment, financial success, recognition, continuing family tradition. The 'self-realization' factor includes the items "Exploit a specific business opportunity that I recognized", "Challenge myself", "Realize my own dream" and "Grow and learn as a person", and explains 16,35% of the variance. The 'innovativeness/ social commitment' factor includes the items "Be innovative at the forefront of technology", "Develop an idea for a product", "Follow a social mission" and "Follow an environmental mission", and explains 14,37% of the variance. 'Financial security' factor include the items "Earn a higher personal income", "Financial security" and "Be my own boss", and explains 13,67% of the variance. The 'recognition' factor includes the items "Achieve something, get recognition", "Gain a higher status for myself", "Get greater flexibility for personal life", and explains 12,84% of the variance. Finally, the 'Upholding tradition' factor consists of the variables "Build a business that my children can inherit", "Continue a family tradition" and "Follow the example of a person I admire", and explains 11,53% of the variance. The five factors totally explain 68.78% of the variance. (for more details see Table 1 in the Appendix)

Given the binary nature of the dependent variable, binary logistic regression has been used to show the effect that the independent variables have on the dependent variable.

RESULTS AND DISCUSSION

As far as the first research question is concerned about the effect of entrepreneurship education on entrepreneurial intentions, our study shows no significant results (significance level 0.05). This holds for all the three different dependent variables (short-term intentions, long-term intentions, and general intentions). This result is in accordance with other studies in the literature (Oosterbeek et al, 2010; Weber et al, 2009) that even found a negative relationship. This may be due to the fact that students may realize that they are not well suited for self-employment because for example they find out that about the long hours that entrepreneurs have to work or the negative feelings related to loosing a business (Oosterbeek et al, 2010). Our results however have to be treated with caution because we did not include very specialized offerings, such as business plans but rather more general offerings such as entrepreneurship courses. The results however challenge educators and policy makers in Greece into designing effective entrepreneurship programs in order to increase the entrepreneurial intentions of

students and to equip them not only with the necessary knowledge and skills about founding their own company but also with business ideas. In this way students will be capable of maturing to potential entrepreneurs and finally make the step towards self-employment. It is of great importance that universities include courses on entrepreneurship early in their curriculum and not later when students have already been heavily exposed to other disciplines. Future research could shed more light on this matter.

Family business background has a positive effect on Greek students' entrepreneurial intentions (significance level 0.05) which is consistent with other studies in the field. The importance of family business background is widely accepted in previous studies which argue that parents entrepreneurs tend to promote the entrepreneurial spirit, values, knowledge and roles to their children (e.g. Laspita et al, 2012; Athayde, 2009; Pruett et al, 2009; Altinay & Altinay, 2006; Zhang et al, 2003; Liao & Welsch, 2001; Samuelsson, 2001; Steier & Greenwood, 2000; McGue et al, 1993). That is especially important for a country like Greece in which there are strong family ties (Alesina & Giuliano, 2007) and in which there is a great amount of family firms (Stavroulakis et al, 2011).

As far as the motives are concerned the upholding tradition and innovativeness affect both the short-term and long-term entrepreneurial intentions of Greek students (significance level 0.05). Succession of family firms by the children is very important especially in the specific economic context of Greece and because little is known about the attitudes and motivations of intentional successors (Zellweger et al, 2011). Our study is in accordance which previous studies that argue that founders or prospective founders will likely display greater levels of the innovation motive than employees (Zellweger et al, 2011) and with previous studies that show that innovativeness is one of the most important traits of entrepreneurs, who are perceived as innovative people that exploit potential opportunities and innovative ideas for entrepreneurial activities (Fatoki, 2010).

Our results speak also in favour of social commitment as a motive towards entrepreneurship. The results can be explained in terms of social entrepreneurship, which implies aiming not at maximizing profits only, but also solving social problems by combining innovation and social vision. According to Light and Wagner (2005), social entrepreneurship aims at promoting social and economic values. Thus, the significance of the specific motive is further enhanced by the fact that, under the particularly difficult economical circumstances in Greece, students who intend to become entrepreneurs have an additional reason to do so. When the goal is not only the maximization of profit, but also the awareness of social values, they seriously consider taking action. Closely affected by the economic crisis, Greek students tend to be more sensitive to the achievements of a social mission through entrepreneurship.

The recognition motive has indeed an explicit impact on entrepreneurial intentions but only five years after graduation. In other words, recognition is a strong motive after students have started their professional career and they have been evaluated in terms of their entrepreneurial competence. A possible explanation for this result could be that students would like to first gain experience working as employees that will enhance their knowledge of how to run a business and that will enable them to broaden their network and access to capital (Kolvereid, 1996b). With this experience they want afterwards to gain recognition by becoming entrepreneurs and by having their own (successful) business which they would not gain if they worked as employees for a company in which their efforts and insights would be suppressed. Future research could shed more light on this subject.

Self-realization is an important motive affecting only the general thoughts of students about founding an own company. This result contradicts studies in the literature (e.g. Carter et al, 2003) that found that both entrepreneurs and non entrepreneurs are driven by self-realization in their career choices but also confirms studies (e.g. Kolvereid, 1996a) that argue that self-realization is a motive towards undertaking entrepreneurial action. Our results though can be explained by the fact that the economic crisis can also create business opportunities for young people and therefore students may see entrepreneurship as a way to challenge themselves in this specific economic context but also as a way to overcome the crisis. Furthermore people who were laid off of their jobs may think of realizing a dream they had about establishing an own business which they didn't have the courage to realize because of the security and comfort that they previously enjoyed working as employees which delayed the expression of their entrepreneurial intentions.

Surprisingly the motive financial security did not have any effect on students' entrepreneurial intentions. This in accordance with previous studies which found that motives that did not have to do with money (e.g. implementation of own ideas, freedom of decision and of handling, self-realization)

were more important for students than money based motives (Heinemann & Welter, 2007). This may be because of young peoples thirst for accomplishment, and freedom of decision making as opposed to the overprotective Greek families' environment that they experience mainly until they graduate from university.

In order to further exploit the GUESSS dataset in Greece and to potentially open up interesting avenues for future studies, we performed additional analyses. We tested the effect of gender on the entrepreneurial intentions of Greek students since the gender issue in entrepreneurship has received a lot of attention from scholars and policy makers recently (Sarri & Trihopoulou, 2012). Gender does not seem to affect entrepreneurial intentions. This contradicts previous studies that found that entrepreneurial intentions are gender dependent (e.g. Wang & Wong, 2004) but it is an observation which is corroborated by recent relevant studies in Greece that demonstrate that the percentage of women who participate at the early stages of entrepreneurship has been increasing, despite obstacles created by the economic environment for entrepreneurs of both sexes and obstacles of the wider social environment especially for women entrepreneurs and prospective women entrepreneurs (Sarri et al, 2012; Sarri & Trihopoulou, 2005). The effect of age and the field of study were also tested but they yield no significant results which contradicts previous research that support the notion that entrepreneurial intentions can change with age (e.g. Matthews & Moser, 1996) and that entrepreneurial intentions differ across educational specializations (e.g. Laspita et al, 2012; Kristiansen & Indarti, 2004). However, the fact that age does not play a decisive role in our study, may be partially explained by fact that there were no significant age variations among the survey participants. Our study only provides a first step into these direction and we hope to trigger further research along these lines in Greece.

In addition, as most studies in the literature, it is not free of limitations. The selection of a single country has the obvious limitation that the results cannot be generalized across populations and geographical settings. Another bias could be based on the fact that the majority of the participants have chosen mainly business administration and economics as a field of study (62%). Therefore, it would be necessary to include more students from different faculties into the survey sample to exclude study-related biases. The survey took place at a specific point in time and therefore provides a screenshot of the situation. Especially as far as the impact of entrepreneurship education on entrepreneurial intentions is concerned longitudinal research is required to show the actual effect.

CONCLUSION

The main goal of this paper was to examine the entrepreneurial intentions of young potential Greek entrepreneurs and antecedents that foster the formation of entrepreneurial intentions. Specifically, focus was laid on three antecedents and namely, entrepreneurship education family background, and motives. Drawing on data from the Greek sample of the international GUESS survey on students, interesting results have been presented that trigger future research. Furthermore the survey has been conducted in a crucial period of time for Greece in which the economic crisis has affected all sectors of economic activities and in which, entrepreneurship should be seen as a way to overcome the growing economic recession in the country.

The fact that in our study the existing courses offered in entrepreneurship do not trigger students' entrepreneurial intentions shows that more effective and specialized programmes are needed. Moreover the family background in entrepreneurship is a factor that fosters entrepreneurial intentions in Greece. The results from previous research are in accordance with our findings (Freiling, 2006; Parker, 2004; Douglas & Shepherd, 2002; Schumpeter, 1952) as self-realization, recognition, innovativeness, self-realization and the upholding tradition are important motives that affect students' interest for an entrepreneurial career. Generally in this specific period students may see their involvement in entrepreneurial activities as a way to overcome the socio-psychological problems that arise from unemployment and uncertainty and as a way to promote their skills and to implement their innovative ideas.

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Appendix

Table 1: Factor Analysis for motives

Rotated Component Matrix[a]

	Component				
	Self-realization	Innovativeness/ Social commitment	Financial success	Recognition	Upholding tradition
Challenge myself	,665				
Realize my own dream	,800				
Grow and learn as a person	,627				
Earn a larger personal income			,792		
Financial security			,812		
Build business children can inherit					,678
Continue a family tradition					,836
Follow example of a person I admire					,761
Be innovative, at the forefront of technology		,745			
Develop an idea for a product		,837			
Achieve something, get recognition				,829	
Gain a higher position for myself				,800	
Get greater flexibility for personal life				,613	
Be my own boss			,515		
Exploit a specific business opportunity that I recognized	,767				
Follow a social mission		,709			
Follow an environmental mission		,444			

Notes: Extraction Method: Principal Component Analysis, Rotation Method: Varimax with Kaiser Normalization

«THE MOST IMPORTANT PART

IN POLICY-MAKING DECISIONS»

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ABSTRACT

Most industries have been favorable to the removal of barriers to free movement of goods, services and capital. European multinationals lobbied governments and the Commission to speed up the market integration, resulting in the Single European Market after the recession at 50s. Depending on the interests, mainly, multinationals promote policies in the EU through pressure groups. The business lobby is promoting policies to develop the industry and therefore their interests. Most EU interest associations are composed of national associations, large companies or both. Sectors dominated by small firms tend to be represented by federations of national associations, whereas highly concentrated sectors tend to be represented by direct company membership organizations.

The key players, lobbying groups, exhibit striking differences in their approaches. They may have particular preferences, resources, forms of management, or lobbying styles. These differences often stem from factors such as geographical origin, type or size of organization and situational (time)

aspects.

They represent businesses, NGOs, public organizations, national ministries and national non-European interests. There is close relation to the aspects of everyday life and the activity of European citizen to the decision taking centers because they are the last recipients of the respective policies, but they, usually, are not aware of this situation. There are many business cases that are dependent on government decisions. In those cases, strong contacts with the decision-making centers and the pressure levels play a significant and crucial role. So, the aim is reached by making financial contributions in election campaigns and lobbying governments on specific legislation. In EU it is estimated that 500 large enterprises are represented through lobbies and are specialized in legal issues. They are pursuing to be found in the appropriate location in order to contribute in the final configuration of a decision be taken in the power center. The basic purpose of all regulation and codes of conduct is to bring lobbying into the open. Although there is still pressure in some quarters in favor of making the codes legally binding, others argue that this is not necessary as long as they are consistently enforced. Lobbyists recognize that it is not in their interest to be suspected of underhand practices and that good relations with EU institutions are essential for them. In the present study we will try to explain and analyze the relation and the role of lobbies as the mediator between the European policy and the forwarding business interests. We will expose how possible is the EU to be affected from lobby's decisions and by which way. Finally, we will investigate the crucial role of the Court of Justice in this issue and the EU's intentions on this subject.

KEYWORDS

European Union, Lobbying, Legislation, Jurisprudence, Company Law, Competition, Enterprises.

JEL CLASSIFICATION CODES

K, K2, K31

1.   **INTRODUCTION**

In the society we live in, anything can be translated as a relation of interests which of course are included operations with a specific purpose. For the promotion, disclosure of this objective and mobilization of politic, public and media opinion, there are consisting and functioning interest groups having the role of pressure groups, known as lobbies.

Many references nowadays concern the concept and the role of lobbying in policy making decisions. Lobby is defined as a group of people providing and ensuring the flow of information to representing organisations on various events. It is a process within the broader system of public relations focusing on members of a company or an organisation seeking to persuade and negotiate with all parties involved in each government on issues concerning their strategic development .

2. PLAYERS AND DECISION MAKERS

They have played and continue to play an important role in the development of political and social systems. Lobbies manages matters concerning policy making, the creation of a favourable environment and the exercise leverage with decision making centres in order to achieve the support and acceptance of political interventions.

Interest groups can be categorised in a variety of ways. Much of the literature builds the categories according to the kind of interests that groups pursue. Generally, public and private interests are distinguished. According to this classification, public interest groups seek benefits serving the society as a whole, for example better consumer protection, improved environmental protection or lower taxes, while private interest groups seek to achieve goals for their immediate members only. The Commission makes a distinction between two categories: non-profit organisations (national, European and international associations and federations) and profit-making organisations (legal advisers, public-relations firms and consultants). Non-profit organisations are largely professional organisations. Profit-making organisations are made up of individuals who often act on the instructions of a third party to defend the interests of that party (http://en.wikipedia.org/wiki/Lobbying).

They have been, also, categorised in relation to the matters they are interested in. Civic interests have been defined as interests other than those of producers that are relevant to both individual items of market regulation and their broad policy impact. Although there are many reasons to expect producer predominance in EU regulation, civic interests often have a significant impact on EU policy-making. Somewhat intriguingly, it is even held by some observers that environmental groups and human and animal rights lobbies are among the most influential lobby groups.

Consumer groups are among the better resourced organisations in Brussels: the European Consumers' Organisation, the European Trade Union Confederation's consumer unit and the European Community

of Consumer Cooperatives. These European institutions have played an important role in creating incentives for and promoting consumer co-operation at the European level.

Producers lobby, which necessarily play an important role in the regulatory policy process, as it is their activities and products that are the object of regulatory measures.

European environmental organisations which have a common interest in implementing better environmental regulations. The nature of environmental issues encourages a transnational perspective; therefore it was no surprise to see environmentalists addressing the European level much faster than many other organised collective interest groups. Therefore, they tend to invest in strengthening their national organisations rather than providing for substantial resources required for collective action at European level which is often made disproportionately expensive.

Also the establishment of independent offices in Brussels by the end of 1990s was motivated for international exchange. The most important regional organisations interacting in policy making process are the Assembly of the European Regions and the Council of European Municipalities and Regions.

Moreover, there are also smaller lobbies supporting women rights, human rights and other societal interests.

After the creation and liberalisation of the Single Market the EU institutions intensified their level lobbying in an attempt to influence EU policy. Business groups account for around two-thirds of all Euro groups.

Within the business lobby are included while having different objectives and interests, labour, professional and trade associations.

The EU's institutional setting as described above gives interest groups both advantages and disadvantages. Its machinery of decision-making full of links between the different bodies, and its variety of external linkages with the Member States, provide an almost infinite number of access points through which to lobby EU authorities (http://europa.eu/scadplus/constitution/council_el.htm#GENERAL). In such a differentiated institutional setting, the problem of interest groups is not a shortage but an over-supply of potential routes to influence.

3. INVESTIGATION OF LOBBY PROCESSES IN EU

According to Coen, successful lobbying requires firms to have established at least four strategic capacities:

- the ability to identify clear and focused policy goals;

- develop relationships and credibility in the policy process;

- understand the nature of the policy process and institutional access;

- look for natural allies and alliances to develop profile and access

But where are all these capacities focus on? Lobbyists are professionals who seek to be found in the appropriate location, the current time, in order to contribute to the formation of the final decision of a power centre. The three main institutions, making straight political and legal decisions in the European Union are the European Commission, the Parliament and the Council of Ministers.

In the Commission which is an administrative than executive institution, lobbing can be held either for the promotion of an legislative proposal influencing their legislative function , because of the fact that the Commission is responsible for its draft, or to prevent a legislative proposal concerning matters such as funding, mergers, allocating resources to regions or access to the markets.

Lobbying is at first conducted in the Commission and continues to the E. Parliament having the competence of modifying and reviewing the Commission s proposals.

Finally, it is the Council of Ministers which sears with the parliament legal and financial responsibilities, policy making and coordination (Arditis, 2011).

This diagram shows how lobbies communicate with these three instruments.

```
┌─────────────────────────┐
│  European Commission    │ ◄──────  Lobbying
│  Proposal               │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│  European Parliament (first │ ◄──────  Lobbying
│  reading)               │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│  Council if Ministers   │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│  European Parliament    │ ◄──────
│  (second reading)       │        Lobbying
└─────────────────────────┘        ◄──────
       │ modifications
       ▼
┌─────────────────────────┐
│  opinions and suggestions of │
│  the European Commission │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│  Council of Ministers   │
└─────────────────────────┘
```
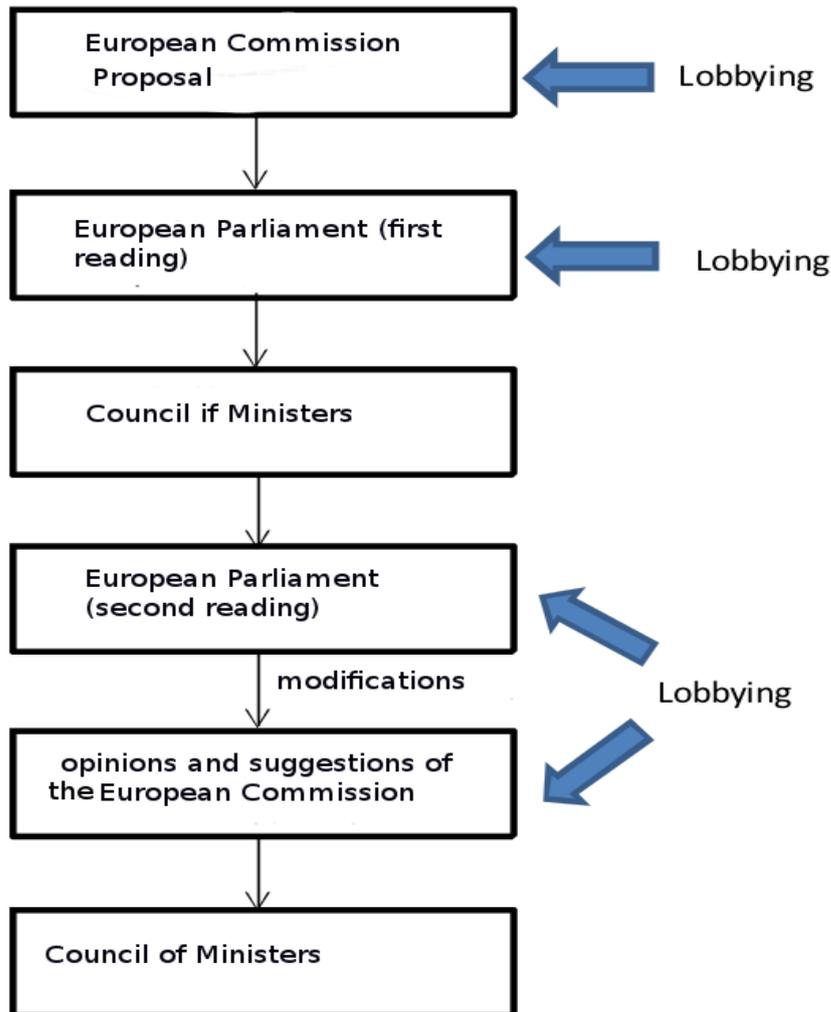
The question raised is why these need lobbies? The problem which is faced especially in the Commission and in the Parliament is that they have lack of expert knowledge. It concerns the exercise and technical know-how required from the private sector to understand the market. This kind of information is indispensable in developing EU legislation in particular policy area. Moreover, lobbyists are the intermediary between the instruments of the EU and the public sector or the private one. The importance of this knowledge in decision-making process is that member States administrations often do not have this kind of technical market expertise at their disposal.

EU institutions are eager to interact because they need close contacts with the private sector to fulfil their institutional role. They interact in order to benefit from these relations, but it does not mean that they are going to benefit equally(Bouwen, 2002).

Business participation is crucial for the internal and external negotiations of the European Commission. The urge is based on the Commissions hopes of increasing its technical

expertise, its legitimacy, its ability to maintain consensus among the member states and its leverage in trade negotiations. However, since Commission officials do not depend on re-election by constituency interests, firms cannot exert direct pressure on European officials to reinforce their demands (Woll, 2006).

Therefore, business access is not automatic; it depends on the degree to which private actors can offer the elements the Commission is interested in. Business lobbying on trade is thus marked by particular exchange logic, where firms provide expertise and support in order to gain access to the policy process .

3.1 **BUSINESS LOBBIES IN EU**

From the perspective of business politics as international influence, business aims to secure favourable political outcomes by lobbying. It refers to influencing the public policy, its passage through the legislature and its implementation, by means of contacting and pressurizing policy-makers such as individual legislators, ministers and civil servants (Bernhagen, 2005).

There are many examples in modern business history were lobbies activities made great achievements. A characteristic successful one is of the American tobacco industries (Gonis, 2004). In 1986 the American government threatened Japan with trade restrictions in case of not releasing the purchase of cigarettes. Three months later and after intensive pressure from US government, Japan forced into opening its market and the financial results of tobacco industries were impressive. Intense pressure from business lobbies to U S government was preceded.

We can distinguish four major categories in business life were lobbies play a leading role. Firstly when the government act as a buyer. In that cases the budget is high and there are few interested. Consequently, contacts between businesses and decision-makers play a key role. Secondly, as we have already mentioned, when the government act as a legislator. Lobbies pressure for occupying their interests. Thirdly, when it acts as a reporter of an action, for example the assignment of a project, and lastly, when it is the decision-maker. In that case, good contacts with the decision-making centres and the leverage play a crucial role.

The bases for the establishment of an elaborate corporate lobbying strategy that allows a firm to develop a multi-channel approach are, the size of the firm were large firms use more resources for

planning and undertaking political action than smaller firms, because they have a bigger budget to invest in any kind of activity but especially a political one such as a political campaign.

A second major factor is the economic strategy. They are informed about developments in EU level via membership of their national associations and provides them with the information that is necessary to cope with the changing legal and political environment. There are cooperation tuned with EU politics and therefore economic ambitions.

And the third and last factor is the domestic institutional environment, and in order to make it important there should be the degree of state administrative autonomy from private actors and the level of state control of the economy (Greenwood and Aspinwall 1998).The traditional understanding is that businesses and NGOs lobby governments; but all actors can be both 'lobbier' and 'lobbied'(Anastasiadis, 2006).

The strategy that one firm or business should follow through lobbying in order to achieve their goals is composed by two elements. How communicative it is concerning the political activities and how they can use the public relations for their benefit. For example, matters concerning environment in order to be effective should have the support of public media and positive public opinion. It is the pressures' groups' responsibility to make people get interested and be aware of a situation in order to have a better result. It is extremely important to conceive that political decisions define throughout the structure and progress of the businesses. It is a game full of conflicts aiming the influence of political and legal decisions.

4. CONCLUSION

Lobbying as a procedure is capable of influencing and regulates political and legal decisions ensuring profits and rewards to the performers. In globalized business environment based on legal provisions and a broader legal context, the potential effect of these regulations can be a competitive advantage.

The majority of the organisations to be benefit from lobbies are large business groups, international and powerful organisations, industry federations or employees, nations etc, when performed correctly it contributes significantly to achieving business goals. Thus, concern is raised, for the limited communication and access to decision-makers of smaller and less powerful groups that lack of organisation and networking who do not have the capital to lobby.

Finally, the complicity and the singularity of the EU gives a great opportunity to lobbyists to repeatedly intervene in legal and political decisions, actually making them regulatory factors of business and social life within the Union.

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Financial Sustainability of a Health Insurance Fund

for Kosovo

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ABSTRACT

In this paper we investigate the current shortcomings of Kosovo's healthcare system, and propose a method for implementing a universal health insurance fund. We establish a ten year funding strategy that complements the current tax-based system in Kosovo. Our study shows increases in overall healthcare contributions and simultaneous relief of some of the pressure from the government through increased funding from the private sector. Our analysis uses the most current economic data, and makes use of preliminary reports from Kosovo's 2011 census. We include a wide set of scenarios based under different economic outlooks and different healthcare package covers. We define a family members' multiplier allowing for an easy and intuitive set up of a family cover package. The structure of contributions is geared towards an equal (percentage) split between employers and employees, and at the same time allowing for a great degree of solidarity. We also propose an organizational chart for the Health Insurance Fund (HIF), and the flow of payments once the HIF is introduced. Finally, we investigate the effects HIF could have on the labor market.

KEYWORDS

Health Insurance, Universal Healthcare, Insurance Fund.

JEL CLASSIFICATION CODES

I13, I15, I18

Introduction

In the past 20 years, Kosovo medical system experienced intensive developments, though unfortunately many of them had a negative impact on country's medical indicators. While more or less all former socialist countries had started the reform of socialist forms of supply and management of health systems, Kosovars were facing problems of a different kind. The challenge was the development of a parallel health system financed from donations of the country's diaspora. Health system in Kosovo received another bang in the years 1998 and 1999, when its resources were destroyed and experienced a great growth in demand for healthcare after severe physical and psychological injuries suffered during the war.

Post war developments, in general, resemble the experiences of other post-conflict countries, but with an increased dose of complexity. This phase was joined with an influx of foreign donations and technical assistance. As a consequence, the number of institutions involved in health reforms, apart from health institutions and interim self-governing institutions included UNMIK, World Bank, WHO, parallel Serb structures in non-controllable zones, and many more institutions, NGOs and other donors. This situation often resulted in fragmented initiatives and incoherent policies, and perhaps in the doubling of activities. Lack of a comprehensive navigation from a decision-making institution has evolved in unclear competencies of involved parties. Hence, during this transitional period, Kosovo's health system was bounced from one model to another, with insufficient time left for new models to adapt. Furthermore, the lack of responsibility and failure of setting up the managerial capacities has allowed for mismanagement of allocated resources for healthcare, whereas a part of medical personnel was given the opportunity of receipt of illegal payments from patients or even the re-directing of patients towards their private clinics.

Post war developments in the health sector paint a very dim picture. Government's involvement in this sector indicates that health is not being considered a priority in governmental activities. The allocation of funds was not accompanied by proper cost-analysis or resulting from any policy objective, but as a competing process with other ministries. On the other hand, miserable working conditions and lack of medicines were the only strategy used by healthcare providers in their attempts to increase allocations by the government. Likewise, there has been no clear strategy in the allocation of resources for different functions within the health sector, such as salaries, medicines, maintenance, and alike. This has resulted in

undesirable media headlines of the health sector; including mismanagement, corruption, strikes, etc.

Basic characteristics of Kosovo health system:

- Deficit of health financing

- Underinvestment in health

- Poor health infrastructure

- Mismanagement of health resources

- Low compensation of health workers

- Decrease in moral of health care workers and increase in incidence of informal payments

- Increased exposure of families to catastrophic expenditures

- Unfavorable health indicators and others

Box 1, Main characteristics of the health system in Kosovo

As a response to the current situation, Kosovo policymakers and foreign donors have started working on reforming health policy; a reform that will also consider financing alternatives of the system. As part of these activities, our study looks at different sources for health financing, with a primary focus on options for the introduction of contributions to a Health Insurance Fund (HIF).

Methodology

The nature of this study requires the extensive use of statistics. Unfortunately, economic and social development with a healthy base of data represents an Achilles heel in Kosovo and other countries with a comparable level of national income. In Kosovo there is a lack of data in general, therefore most of information used are more estimates than actual. Furthermore, there are contradictions about the level of GDP, income per capita, household's spending for health, labor market statistics, and many more. As a consequence, while presenting scenario analysis for the possible implementation of HIF, we were forced to use indirect methods and obtain data that come to reality as close as possible.

Despite the evident lack of statistics, available information allows for evaluation of the level of a number of social indicators and their comparison with neighboring countries or countries with similar economic development. As such, it is estimated that Kosovo has an income of 3,000 Euros per capita. Kosovo also lags behind other countries in a range of other factors, such as health spending in total and as a percentage of GDP; number of doctors per 100,000 inhabitants; mortality statistics for infants and children under the age of 5, etc.

Draft law on health insurances

MoH has developed a draft law on HIF to be submitted to the Assembly in the following months. This draft law:

- Sets some basic provisions for the creating of a HIF
- Defines categories of citizens required to join the system very generally
- Defines all categories of citizens with free access to health care
- Defines health services to be offered through HIF
- Describes the process of managing the revenues collected in HIF

- Sets out a ceiling of 5% for administrative expenses and a financial reserve of 5%
- etc

In our view, this draft law can serve as a good basis towards the final document, but yet it suffers from some shortcomings that need to be recovered. For example,

- The category of citizens to be included in HIF is very generic and does not make provisions for citizens living abroad. Moreover, the possibility of requirement for persons to carry a health insurance card adds to confusions of possible treatments when card is miss-placed in an emergency.
- According to article 13, basic health care services covered by HIF are determined in the list of services developed by a technical committee appointed by the Steering Board of the Fund at the beginning of every fiscal year. If all services covered are listed, it means that other health services are excluded. Therefore, article 16 (which lists some excluded

health services in the basic health care) would be only confusing. Furthermore, it provides no clarification or provisions for discontinued services from one year to another for patients that are part-way through treatment.

- Calculating the annual contribution as a flat rate premium based on the annual average earnings leaves no room for solidarity.

- Administrative expenditures of HIF shall not exceed 5% (article 35) is set too high.

- Article 26 describes HIF as "a public institution of special interest with legal autonomy…", however the governing of HIF (article 30) allows for direct political interference.

- etc.

Health sector financing methods

In general there are four basic methods of financing the health sector. The sector could be financed directly from the government budget (tax financed system – TFS); from health contributions (HIF); patient payments (co-payments and/or out-of-pocket payments); and donations. In most of the cases financing involves a combination of more than one of these methods, with the name depending upon the dominating factor of income. If the greatest part of income is generated from the budget (or local government), then the system is classified as a TFS. Moreover, there are different variations within each method of financing, thus increasing greatly the number of possible combinations. For example, a TFS could gather its income from a range of taxes (direct or indirect taxes), or from earmarked taxes. A HIF could collect its revenue as percentage of wages or as fixed contribution per person. A HIF could have a different cover structure (individual or family), with co-payments calculated as a percentage of the cost of service provided, or as a fixed payment covering many services.

TFS and HIF have many similarities. In majority of cases individuals are only concerned with their net (additional) contributions; therefore all payments deducted from wages are treated as taxes. Also, both TFS and HIF tend to separate the use of health services from direct payments in order achieve pooling of financial resources and sharing of risks.

In case of non-pooling of financial risks, many families would face catastrophic health spending; a case when health spending makes a large portion of monthly income. As a result

many families would sink below the poverty line and would not have the means for further utilization of the health care. In these circumstances families would face the dilemma of using the system, increase their debts, making final decisions without proper medical advice and analysis, etc.

Several factors will determine the method of financing for health care adopted by a particular country. Amongst the most important factors are: level of national income, level of informal sector, tax evasion, country's previous experience with different alternatives, administrative capacities, cultural values, etc. However, the selection of one method does not provide a universal fit. There are countless cases when countries deciding to move from one financing system to another expected thet the new system would avoid shortcomings of the previous system. The success depends heavily on the sustainability of reforming policies. These policies can be successful only if they rely on the economic, political, social and cultural context of the country.

however, we must clarify that, irrespective of the financing method used, majority of developing countries (including Kosovo) are characterized with low health spending. Officials from these countries offer two main arguments in support of their allocative decisions:

- Level of economic development does not allow for higher allocation of funds for healthcare. This allows the assumption that health fund could increase with economic growth,
- There exists a trade-off between social spending and economic growth.

At least the second argument has been brushed aside from the abundant literature on health economics. It is clear that health spending has a positive impact on the health of individuals.

Taxation as a source of health financing

In the majority of countries worldwide, the largest proportion of health spending comes from taxation. MFE collects all taxes and then allocates them to different ministries at agreed proportions. Second phase is the allocation of funds within the health sector itself; for example, staff compensation, medicines, investments, maintenance, treatments abroad, etc. During this

phase, regional allocation (including the appropriate proportionality between urban and rural regions) is implemented. Furthermore, decision over fund allocation towards primary, secondary, and tertiary health also takes place.

If health spending (or most of it) is covered from taxation, then it is clear that resources dedicated for the health sector could increase if the volume of distributed cake is increased.

TFS has a range of advantages when compared to other financing methods:

- TFS is considered to be more efficient due to lower collection costs; lower administrative costs, and also from economies of scale, an apparent problem with HIF. TFS can also use their bargaining power and purchase health services at lower prices.
- Larger tax base
- More fairness in the collection of revenues if
- No problems such as asymmetric information, adverse selection, and risk selection.
- Higher solidarity.
- etc

Despite all advantages highlighted above, TFS has its disadvantages too. The decision on volume of resources allocated is decided at ministerial level, and derived from ministerial hierarchy, it is characterized with a permanent lack of transparency, responsibility; low management efficiency, etc.

Direct payments

Direct or out-of-pocket payments are an important method of financing for health services in Kosova. According to some surveys, Kosovar families spend more than 80 million € (around 2% of GDP) annually for health care. These payments can take mainly two forms:

1. direct, officially sanctioned payments for health services
2. informal payments to health staff

Out-of-pocket payments do not involve any risk pooling thus increasing the exposure of households to catastrophic expenditures. Like other methods of financing for health care, direct financing has some advantageous and disadvantageous.

One positive aspect of direct payments is hat they reduce overall costs of health care. Since individuals cover all costs of health services, their marginal cost remains high. Another advantage of direct financing is the emergence of private providers of health care, which would increase competition in the provision of health care services.

Co-payments

Citizen's co-payments initially were included as a response to problems in generating sufficient revenues for health care (low income and high level of informal sector). Despite this, majority of countries that use co-payments have continued their use, even after budget consolidation or introducing HIF. Accumulated funds from co-payments are used for different purposes. They can be used as an incentive for better performance (using them as s bonus pay for medical personnel) or for buying medical drugs. Copayments can be set as a percentage of costs of health services, as a fixed payment for each service offered, or as a fixed payment for each visit to the doctor. The use of co-payments is intended to reduce moral hazard in using health services.

Apart from these advantages, co-payments also suffer from a range of disadvantages. They are a regressive instrument of financing health spending, with poor families spending a larger proportion of their income. Co-payments are inversely proportional with the level of population coverage with health services. Poorly designed co-payments could distort the process of health service provision, and if calculated as fraction of costs, then doctors have incentives to increase the number of services offered during patient visits.

Co-payments in Kosova are regulated with the administrative direction 6/2006 of the MoH. According to this direction, Kosova applies fixed payments per service. Foreign citizens or Kosovars with health insurance policies purchased abroad are required to pay the fivefold of the regular fee. All generated revenues from co-payments are transferred to the consolidated budget and then used mainly as compensation for overtime to health staff.

Co-payments in Kosova in their actual version are intransparent (with more than 360 different fees); do not prevent against catastrophic expenditures and in some cases are not real co-payments, but they are set even above the production cost of the service.

Contributions for health insurance

Similar to the TFS, HIF means financial risk protection for the people. This is enabled through pooling of contributions and financial risks. Separating the use of health services from direct payments allows for vulnerable groups to also have access to medical treatment. In HIF, specific groups of population (employees, employers, self-employed) contribute to the fund, and the government covers the rest of costs. Specific health packages are then bought with collected funds (from private or public providers), which is offered to all insured persons. People are then offered the option to buy private insurance or to cover individually the rest of health services demanded.

Problems of fiscal nature are usually the main reason for governments to consider the introduction of insurance systems. Low level of GDP and the government's inability to collect sufficient revenues, increase the attractiveness of HIFs. Governments do hope that the implementation of HIFs will increase financial stability of the health sector and at the same time alleviate financial burden when used by vulnerable groups.

Even though moving from other systems to financing from contributions is a very long process, there are some factors that speed up the transitional period. Apart from increasing fund revenue, economic growth also increases the number of contributors, since economic growth is negatively correlated with unemployment level. The same is valid for the success in lowering the informal sector.

Another important factor is the growth of acceptance by people for the new way of financing. Chances for acceptance growth depend on government's ability to persuade its citizens of what will be included in the package, to convince the contributors that they will not have to offer informal payments when demanding health services. At initial stages there is a need for serious dedication and leadership by the government.

HIF has its supporters and its opponents. According to its supporters, HIF has several features than make it more advanced than TFS, such as:

- Financial burden is spread amongst many partners, and not fully faced by the government
- Health insurance means greater transparency than other forms of financing.
- Inclusion of health insurance is in line with WHO requirements from its 58th assembly held in May 2005, where member states were asked to incorporate a method for prepayment of financial contributions and so share the risk among population and avoid catastrophic health-care expenditures.
- HIF increases job security since it lowers employer incentives for laying-off staff with poorer health status.
- HIF increases competition amongst health providers.

According to HIF opponents, HIF has a range of disadvantages that make it unattractive to developing countries:

- HIFs can damage country's attempts for economic development. In such cases national savings level could decrease, thus lowering capital investment.
- HIFs depend on employed persons incomes and those with continual flow of income. However, developing countries are characterized with low income per capita, large level of informal sector, inadequate mechanisms for monitoring reported earnings and ensuring that taxpayers comply with tax authorities.
- Developing countries' governments lack the necessary administrative capacity for successful HIF management.
- Introducing HIF could result in worsening of health indicators, at least initially, due to possible resistance from health providers and existing corruption.
- HIFs are not fair and could be treated as a tax on honesty, since they are paid by registered taxpayers only,
- etc.

Possible scenarios in case of HIF implementation in Kosovo

MoH in cooperation with foreign donors is looking for alternatives that could lead to an increase in revenues allocated to health using long term projections of revenues and expenditures in the sector, under consideration of possible trends in GDP growth. The main focus of this report is to analyze economic implication from the eventual implementation of a HIF. Therefore, a number of important elements are considered; such as

- predicted expenditure level of the fund in the medium to long-term,
- contribution rates required to cover these expenditures,
- additional income realized from the introduction of HIF and government covering uninsured persons,
- adequate organizational and regional structure of HIF functions,
- resource flowchart,
- contributions' effect on the job market, etc.

In most instances estimations require adequate data and forecasts of some macroeconomic indicators. In scenarios provided in the appendix, we start with a number of assumptions and then use them to forecast the trend for given variables under different conditions. In some cases we have relied upon assumptions of reputable institutions like IMF, World Bank, Kosovo Statistics Institute, or MFE. Used assumptions are:

1. Country's population in 2011 was 1.8 million with an annual growth rate of 1.18%. (Registration of population 2011)
2. 2011 GDP was €4.7 billion, whereas rates of growth depend on scenarios considered. (MTEF, 2012 – 2014)
3. Cost of the benefit package is estimated at €245 for contributors and €150 for those that are covered by the government.
4. Public sector employment is assumed to grow at 1% per annum. We also consider a constant level of public employment (as suggest by IMF).
5. Overall employment is assumed to grow at a rate of 3% per annum, as predicted by IMF.
6. Earnings are expected to grow in line with GDP.

7. Health spending is expected to grow in line with GDP.

8. Draft law on HIF that suggests that contributions should be a calculated annually as a flat rate based on the average income has been ignored; as it provides no solidarity.

9. Farmers and those working abroad have not been considered. Also we have not allowed the possibility of joining the scheme voluntarily by unemployed persons.

Using these assumptions, we have prepared a number of scenarios depending on GDP growth and employment trends, for a ten year period (2011-2021). However, we do refer again to our recommendation of introducing HIF only after a careful period of capacity building.

Conclusions from analyzed scenarios

In our simulations, we have ignored alternatives for individual insurance and those covering only employees and their spouses as they are financially not feasible. The only option discussed is a family cover (included are contributor, spouse and children under 18). According to our analysis it has been concluded that in order to get the full volume of expenses, there is a need to multiply the cost of the benefit package by a factor of 4.7, called multiplier (the cost of the family benefits package after adjustment for all family members, family structures, and families with two persons employed). This option has valued the initial benefits package at €245, which was then multiplied by the number of contributors. The development of health expenditures has then been calculated for the number of contributors reported by KPST (increased by 15% estimate for non-contributors).

Considering that health insurance contributions would be collected jointly with pension contributions, then KPST figures should be more relevant. As for economic growth, we have decided to consider three possible scenarios (3%; 4% and 5%). With a low scenario for economic growth of 3% per annum, gathered funds could reach €183.4 million in year 2021 (with €90.9 million or 50% realized from the private sector – see scenario table 5, columns 8-12). With an optimistic scenario of 5% annual growth (table 1, columns 8-12), gathered funds in 2021 could reach €222.3 million (with €110.1 million or 50% coming from the private sector). To raise the necessary funds according to this scenario, contribution rate should be set

at 7% of gross earnings. This contribution rate could be achieved through different methods, but the best approach could be for employers and employees to make equal amount of contributions.

The following two table's present scenarios tables 1 and 5, which are most interesting for our analysis.

Low Economic Growth (3%), Family Insurance, Public Employment with 1% Annual Increase											
					Total Employment: 270000						
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2011	1,800,000	4.7000	3,480	245.00	270,000	1,270,080	66,150,000	71%	7.0%	529,920	79,488,000
2012	1,821,240	4.8410	3,584	252.35	278,100	1,308,182	70,178,535	71%	7.0%	513,058	79,267,399
2013	1,842,731	4.9862	3,692	259.92	286,443	1,347,428	74,452,408	72%	7.0%	495,303	78,820,005
2014	1,864,475	5.1358	3,803	267.72	295,036	1,387,851	78,986,559	73%	7.0%	476,624	78,123,011
2015	1,886,476	5.2899	3,917	275.75	303,887	1,429,486	83,796,841	73%	7.0%	456,989	77,151,844
2016	1,908,736	5.4486	4,034	284.02	313,004	1,472,371	88,900,068	74%	7.0%	436,365	75,880,039
2017	1,931,259	5.6120	4,155	292.54	322,394	1,516,542	94,314,083	74%	7.0%	414,717	74,279,106
2018	1,954,048	5.7804	4,280	301.32	332,066	1,562,038	100,057,810	75%	7.0%	392,010	72,318,394
2019	1,977,106	5.9538	4,408	310.36	342,028	1,608,899	106,151,331	75%	7.0%	368,206	69,964,934
2020	2,000,436	6.1324	4,541	319.67	352,289	1,657,166	112,615,947	76%	7.0%	343,269	67,183,287
2021	2,024,041	6.3164	4,677	329.26	362,857	1,706,881	119,474,258	76%	7.0%	317,159	63,935,368

Legend:			
GROWTH RATE		**INITIAL INPUTS**	
GDP	3.00%	Public Sector Employees	78,695
Population	1.18%	GDP (EURO bn)	4.70
Employed Persons	3.00%	Population	1,800,000
Average Wage (Annual)	3.00%	Employed Persons	270,000
Costs of Health Care Package	3.00%	Average Wage (Annual)	3,480.00
Public Sector Employees	1.00%	Costs of Health Care Package	245.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	4.7

Table 1. Low Economic Growth (3%), Family Insurance, Public Employment with 1% Annual Increase

Optimistic Economic Growth (5%), Family Insurance, Public Employment with 1% Annual Increase

					Total Employment: 270000						
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2011	1,800,000	4.7000	3,480	245.00	270,000	1,270,080	66,150,000	71%	7.0%	529,920	79,488,000
2012	1,821,240	4.9350	3,654	257.25	278,100	1,308,182	71,541,225	71%	7.0%	513,058	80,806,572
2013	1,842,731	5.1818	3,837	270.11	286,443	1,347,428	77,371,835	72%	7.0%	495,303	81,910,694
2014	1,864,475	5.4408	4,029	283.62	295,036	1,387,851	83,677,639	73%	7.0%	476,624	82,762,804
2015	1,886,476	5.7129	4,230	297.80	303,887	1,429,486	90,497,367	73%	7.0%	456,989	83,321,026
2016	1,908,736	5.9985	4,441	312.69	313,004	1,472,371	97,872,902	74%	7.0%	436,365	83,538,739
2017	1,931,259	6.2984	4,664	328.32	322,394	1,516,542	105,849,544	74%	7.0%	414,717	83,364,110
2018	1,954,048	6.6134	4,897	344.74	332,066	1,562,038	114,476,282	75%	7.0%	392,010	82,739,576
2019	1,977,106	6.9440	5,142	361.98	342,028	1,608,899	123,806,099	75%	7.0%	368,206	81,601,290
2020	2,000,436	7.2912	5,399	380.08	352,289	1,657,166	133,896,296	76%	7.0%	343,269	79,878,503
2021	2,024,041	7.6558	5,669	399.08	362,857	1,706,881	144,808,844	76%	7.0%	317,159	77,492,899

Legend:			
GROWTH RATE		**INITIAL INPUTS**	
GDP	5.00%	Public Sector Employees	78,695
Population	1.18%	GDP (EURO bn)	4.70
Employed Persons	3.00%	Population	1,800,000
Average Wage (Annual)	5.00%	Employed Persons	270,000
Costs of Health Care Package	5.00%	Average Wage (Annual)	3,480.00
Public Sector Employees	1.00%	Costs of Health Care Package	245.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	4.7

Table 5: Optimistic Economic Growth (3%), Family Insurance, Public Employment with 1% Annual Increase

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Additional information on inputs and results:

- Data on columns 2, 3, 4, and 6 are statistical information obtained from various sources (SOK, MFE, IMF, KPST.)
- Data on column 4 describe average annual wage,
- Data on column 5 include estimetd annual costs for a family health package for insured individuals and covered dependants.
- Data on column 7 are calculated by multiplying employment with the multiplier.
- Data on column 8 include all direct costs of health package for covered persons. It is simply employment multiplied with costs of the health package.
- Data on column 9 shows the percentage of total costs of health package (column 8) that will come from the private sector. It is calculated as total costs minus part that comes from employment in the public sector. It can be also interpreted as the net revenue generated after introducing HIF. An illustration: Figure "72%" in column 9 for 2012 means that 72% of total costs from column 8 (€70,178,535), or €50.3 million are net revenues generated from the private sector.
- Data on column 10 show the percentage of annual wage (column 4) that is necessary to cover pure costs of health package (administrative costs and eventual commission to the tax administration is not included).
- Data on column 11 show persons that will be covered from the government transfers to HIF. Figures are calculated as population minus covered persons.
- Data on column 12 show the amounts of transfers from the state budget that are necessary to cover pure costs of the health package for those not covered (column 11). Data are found by multiplying the number of not covered persons with the estimated costs of the health package for non-contributors (€150) .

● **Calculation of the multiplier**: we start from the assumption that around 20% of employed persons have another employed person in their family. Hence the number of employed persons, -let's say 270,000- is equivalent with 216,000 families that would be covered from HIF via direct contributions. Then based on 2011 census data we know that average household size is 5.88 persons, thus 5.88 members from each family will be covered from the system. So: 216.000 families x 5.88 = 1,270,080 covered persons. This means that 270,000 employed persons need to pay for costs of health package for 1,270,080 covered persons. By dividing 1,270,080 with number of employed persons, we get the multiplier of "4.7". We would get the same value for the multiplier if we were to simply multiply average household size (5.88) by 0.8 (that is 100% - 20%, the number of employed persons that have another family member employed.)

Box 2. Additional information on inputs and results from different scenarios

Setting up the HIF

Introduction of health insurance means the setting up of a fund that manages gathered resources. Experiences by different countries show that there exist different versions of organizing of HIF. These variations are reflected in a number of directions. So there exist different structures of organizing of the central unit, and also different set ups across regional

or provincial units. Due to differences in the regional set ups, there are different competencies assigned to subordinated units. In Kosovo's case there are a number of factors in favor of a simplified organization chart of HIF. These factors are the relatively low number of inhabitants and its high density, low commuting distances, the existing division of the country in six different health sector regions (MoH administrative direction 2001/6), relatively low income over the first ten years of fund's existence, lack of managerial capacity at local level, etc. Overall rationale allows for a centralized fund with six regional units.

Organizational chart (see figure 1) proposes that all activities are concentrated at the headquarter in Prishtina, whereas regional offices are only there for registration of the insured persons, distribution (or collection of expired Ids) of Ids, informing of insured persons, and be used as first address for eventual complains. Furthermore, they could also be used for citizens' education and training in their efforts to prevent certain illnesses.

The chart foresees the creation of four departments which include similar activities. Economic department is foreseen to oversee and manage funds finances (treasury, accounting and investment), strategic planning of income and expenditure, investment risk management, health services cost modeling and liability modeling, quantity and quality management, and internal audit. Managers of the fund are given the freedom to increase efficiency by activating certain parts of the department during specific periods; that means to make use of external experts when necessary.

The Health safety department's activities resolve around contracting of services, implementing of compensation schemes, health benefits for the insures, setting up and implementing of policies over the list of essential drugs, benefits payments for the insured, decision on organizing and contracting of health services bought abroad, defining and implementing of health services used for prevention and early detection of certain diseases.

Third department is a supporting unit for other departments. Public relations department includes activities around citizen information, their education and training in anticipation of prevention of certain medical conditions, and complaint procedures.

Above explanation provides only an overview of the main four departments. Some of these departments require substantial increase in capacity, which is only possible with extensive

foreign technical assistance. As the increase in capacities may take time, decision makers are advised to be careful about setting time limits for the start of HIF.

It should be remembered that the benefits package does not include all health services. It does not provide free services that are included in the package. Instead HIF draft law calls for the insured to make additional co-payments and therefore cover part of cost.
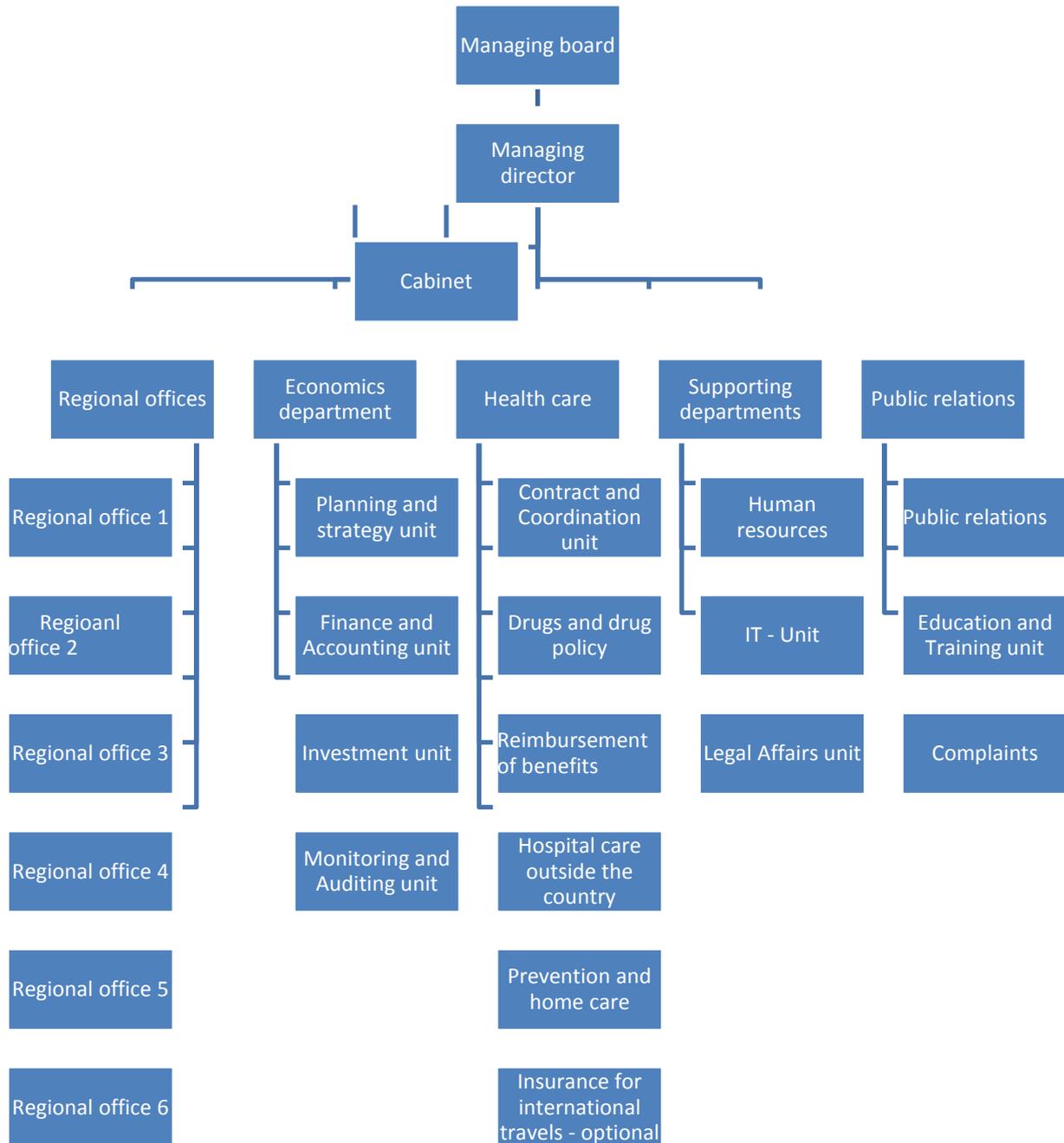
Figure 1: Organizational chart of the HIF
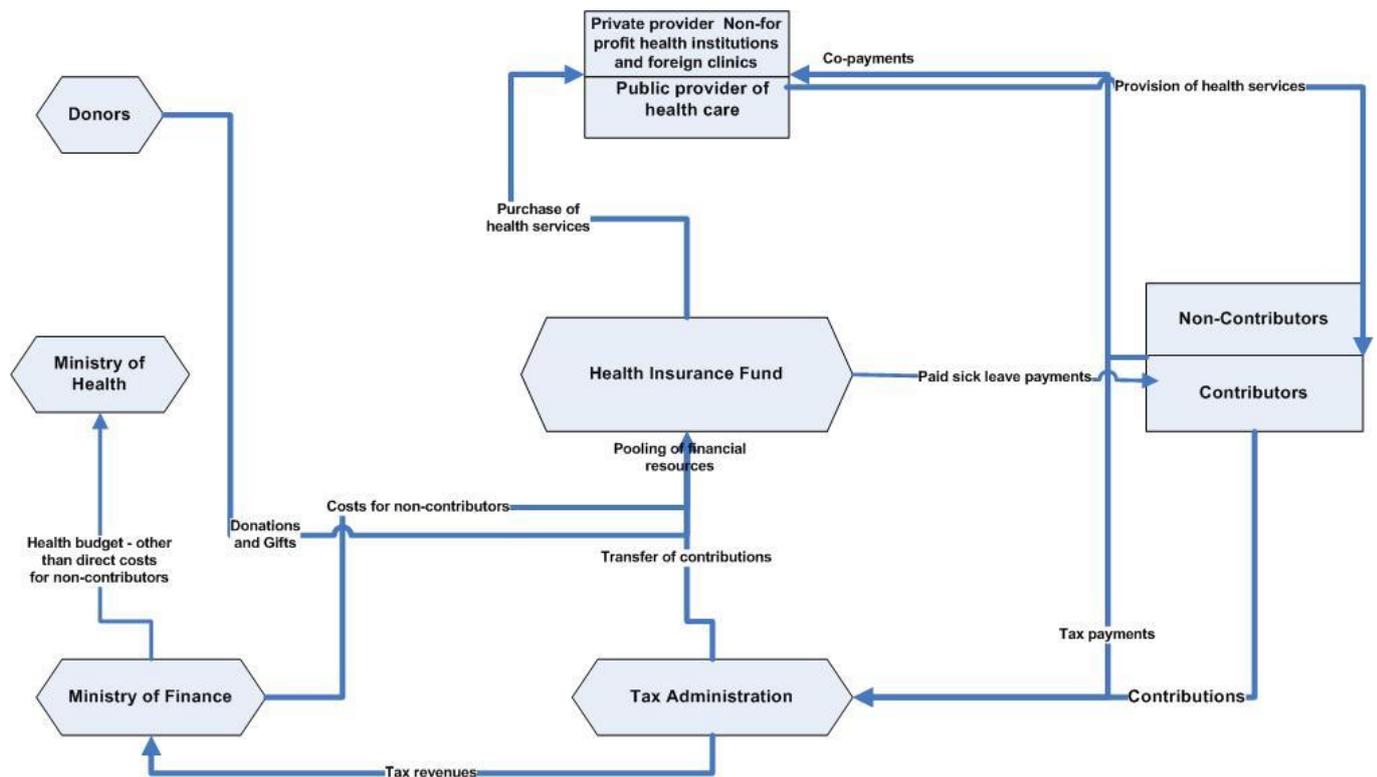
Expected effects of HIF in the labor market

Labor Market economics suggests that increase in labor costs could affect employment demand and supply. On the demand side, cost increases are equivalent to lowering of marginal productivity, ending with a shift to the left in employment demand curve. On the supply side, any form of taxation on income has an impact on work/leisure relation, favoring leisure. In this case employees encounter two opposite effects: income and substitution effects. Whereas lower income due to taxation (or contributions) increases incentives for overtime, in order to compensate for lost earnings, substitution effect makes leisure more attractive, thus reducing work effort. Empirical findings show that in developing countries, income effect could dominate substitution effect.

Obviously both parties attempt to protect themselves from taxation, trying to shift the burden on their partners. As to which side carries the larger burden depends on the elasticity of labor demand and supply. However, possible effects from health insurance contributions on the labor market have started to rekindle economists' interest only after health expenditures have

increased to proportions which affect earnings. In parallel there has been a start in researching other areas, such as effects on private savings, impact on jobseekers' mobility, impact on voluntary retirement, etc.

In the case of Kosovo there must be modifications. Firstly, health spending is still a very small proportion of national income. Secondly, very high unemployment (statistics vary between 38-45%) lowers considerably the level of reservation wage, making jobseekers willing to work even at lower wages. As a consequence, we can generalize by saying that implementation of health contributions of 7% (3.5% + 3.5%) is not expected to have an effect in the labor market. In the private sector, it is possible that employers may compensate for their part of contributions through price increase or through lowering of net pay, but in either case effects are expected to be minimal.

Conclusion

Kosovo health sector is currently in deep crisis. Continuous budget cuts, old and ill maintained infrastructure, high level of private payments, co-payments or informal payments, worsening of many families' financial status due to catastrophic expenditures, and other, are key elements that could be used to diagnose the state of health sector.

In order to improve this situation, MoH and international donors have started their work for system reforms. Included in their work have been introduction of health insurance contributions and the setting up of a HIF that would manage collected funds. This paper is also a contribution in the same direction and focuses on the financial sustainability of a HIF. Sevaral scenarios have been analyzed assuming different GDP growth rates and different growth rates for employment. Out of 6 different scenarios, two of them have been flagged as more attractive and relevant in case of HIF's implementation. Both scenarios would lead to an increase in health spending so our calculations suggest that implementation of HIF would help improving the actual health situation.

According to our scenarios, government should set a contribution rate of 3.5% + 3.5% (employer and employee). This is a very low percentage compared to other countries (together with contributions for pensions it does not exceed 16% of the gross wage). As such, it is not

expected to have implications in the labor market. But this contribution rate would be only enough to finance spending for a rather restrictive health package. If government wants to improve the situation in health care and to reduce the incidence of catastrophic expenditures, a higher pooling of risks would be necessary. Of course, some preliminary surveys would be necessary to guestimate the willingness of citizens to pay that contribution rate.

The setting up of HIF means also the creation of some departments with responsibilities where Kosovo lacks in human capital. This has three implications:

1. HIF organizational structure would have to be kept simple.
2. There is a need for intensive technical assistance from foreign donors in order to improve administrative capacity of the fund.
3. Decision makers should not rush in setting deadlines for implementation of health insurance.

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Appendix

Low Economic Growth (3%), Family Insurance, Public Employment with 1% Annual Increase

					Total Employment: 270000						
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2011	1,800,000	4.7000	3,480	245.00	270,000	1,270,080	66,150,000	71%	7.0%	529,920	79,488,000
2012	1,821,240	4.8410	3,584	252.35	278,100	1,308,182	70,178,535	71%	7.0%	513,058	79,267,399
2013	1,842,731	4.9862	3,692	259.92	286,443	1,347,428	74,452,408	72%	7.0%	495,303	78,820,005
2014	1,864,475	5.1358	3,803	267.72	295,036	1,387,851	78,986,559	73%	7.0%	476,624	78,123,011
2015	1,886,476	5.2899	3,917	275.75	303,887	1,429,486	83,796,841	73%	7.0%	456,989	77,151,844
2016	1,908,736	5.4486	4,034	284.02	313,004	1,472,371	88,900,068	74%	7.0%	436,365	75,880,039
2017	1,931,259	5.6120	4,155	292.54	322,394	1,516,542	94,314,083	74%	7.0%	414,717	74,279,106
2018	1,954,048	5.7804	4,280	301.32	332,066	1,562,038	100,057,810	75%	7.0%	392,010	72,318,394
2019	1,977,106	5.9538	4,408	310.36	342,028	1,608,899	106,151,331	75%	7.0%	368,206	69,964,934
2020	2,000,436	6.1324	4,541	319.67	352,289	1,657,166	112,615,947	76%	7.0%	343,269	67,183,287
2021	2,024,041	6.3164	4,677	329.26	362,857	1,706,881	119,474,258	76%	7.0%	317,159	63,935,368

Legend:			
GROWTH RATE		**INITIAL INPUTS**	
GDP	3.00%	Public Sector Employees	78,695
Population	1.18%	GDP (EURO bn)	4.70
Employed Persons	3.00%	Population	1,800,000
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Public Sector Employees	1.00%	Costs of Health Care Package	245.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	4.7

Table 1. Low Economic Growth (3%), Family Insurance, Public Employment with 1% Annual Increase

Low Economic Growth (3%), Family Insurance, Fixed Public Employment

					Total Employment: 270000						
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2011	1,800,000	4.7000	3,480	245.00	270,000	1,270,080	66,150,000	71%	7.0%	529,920	79,488,000
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2015	1,886,476	5.2899	3,917	275.75	303,887	1,429,486	83,796,841	74%	7.0%	456,989	77,151,844
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2018	1,954,048	5.7804	4,280	301.32	332,066	1,562,038	100,057,810	76%	7.0%	392,010	72,318,394
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Legend:

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Costs of Health Care Package	3.00%	Average Wage (Annual)	3,480.00
Public Sector Employees	0.00%	Costs of Health Care Package	245.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	4.7

Table 2. Low Economic Growth (3%), Family Insurance, Fixed Public Employment

Moderate Economic Growth (4%), Family Insurance, Public Employment with 1% Annual Increase

					Total Employment: 270000						
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2011	1,800,000	4.7000	3,480	245.00	270,000	1,270,080	66,150,000	71%	7.0%	529,920	79,488,000
2012	1,821,240	4.8880	3,619	254.80	278,100	1,308,182	70,859,880	71%	7.0%	513,058	80,036,986
2013	1,842,731	5.0835	3,764	264.99	286,443	1,347,428	75,905,103	72%	7.0%	495,303	80,357,920
2014	1,864,475	5.2869	3,915	275.59	295,036	1,387,851	81,309,547	73%	7.0%	476,624	80,420,601
2015	1,886,476	5.4983	4,071	286.62	303,887	1,429,486	87,098,787	73%	7.0%	456,989	80,191,949
2016	1,908,736	5.7183	4,234	298.08	313,004	1,472,371	93,300,220	74%	7.0%	436,365	79,635,758
2017	1,931,259	5.9470	4,403	310.00	322,394	1,516,542	99,943,196	74%	7.0%	414,717	78,712,437
2018	1,954,048	6.1849	4,579	322.40	332,066	1,562,038	107,059,151	75%	7.0%	392,010	77,378,726
2019	1,977,106	6.4323	4,763	335.30	342,028	1,608,899	114,681,763	75%	7.0%	368,206	75,587,390
2020	2,000,436	6.6896	4,953	348.71	352,289	1,657,166	122,847,104	76%	7.0%	343,269	73,286,888
2021	2,024,041	6.9571	5,151	362.66	362,857	1,706,881	131,593,818	76%	7.0%	317,159	70,421,020

Legend:

GROWTH RATE		INITIAL INPUTS	
GDP	4.00%	Public Sector Employees	78,695
Population	1.18%	GDP (EURO bn)	4.70
Employed Persons	3.00%	Population	1,800,000
Average Wage (Annual)	4.00%	Employed Persons	270,000
Costs of Health Care Package	4.00%	Average Wage (Annual)	3,480.00
Public Sector Employees	1.00%	Costs of Health Care Package	245.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	4.7

Table 3. Moderate Economic Growth (4%), Family Insurance, Public Employment with 1% Annual Increase

Moderate Economic Growth (4%), Family Insurance, Fixed Public Employment

					Total Employment: 270000						
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2011	1,800,000	4.7000	3,480	245.00	270,000	1,270,080	66,150,000	71%	7.0%	529,920	79,488,000
2012	1,821,240	4.8880	3,619	254.80	278,100	1,308,182	70,859,880	72%	7.0%	513,058	80,036,986
2013	1,842,731	5.0835	3,764	264.99	286,443	1,347,428	75,905,103	73%	7.0%	495,303	80,357,920
2014	1,864,475	5.2869	3,915	275.59	295,036	1,387,851	81,309,547	73%	7.0%	476,624	80,420,601
2015	1,886,476	5.4983	4,071	286.62	303,887	1,429,486	87,098,787	74%	7.0%	456,989	80,191,949
2016	1,908,736	5.7183	4,234	298.08	313,004	1,472,371	93,300,220	75%	7.0%	436,365	79,635,758
2017	1,931,259	5.9470	4,403	310.00	322,394	1,516,542	99,943,196	76%	7.0%	414,717	78,712,437
2018	1,954,048	6.1849	4,579	322.40	332,066	1,562,038	107,059,151	76%	7.0%	392,010	77,378,726
2019	1,977,106	6.4323	4,763	335.30	342,028	1,608,899	114,681,763	77%	7.0%	368,206	75,587,390
2020	2,000,436	6.6896	4,953	348.71	352,289	1,657,166	122,847,104	78%	7.0%	343,269	73,286,888
2021	2,024,041	6.9571	5,151	362.66	362,857	1,706,881	131,593,818	78%	7.0%	317,159	70,421,020

Legend:				
GROWTH RATE		**INITIAL INPUTS**		
GDP	4.00%	Public Sector Employees		78,695
Population	1.18%	GDP (EURO bn)		4.70
Employed Persons	3.00%	Population		1,800,000
Average Wage (Annual)	4.00%	Employed Persons		270,000
Costs of Health Care Package	4.00%	Average Wage (Annual)		3,480.00
Public Sector Employees	0.00%	Costs of Health Care Package		245.00
		Costs of Health Care Package for Non-Contributors		150.00
		Covered Persons Multiplier		4.7

Table 4. Moderate Economic Growth (4%), Family Insurance, Fixed Public Employment

Optimistic Economic Growth (5%), Family Insurance, Public Employment with 1% Annual Increase

							Total Employment: 270000				
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2011	1,800,000	4.7000	3,480	245.00	270,000	1,270,080	66,150,000	71%	7.0%	529,920	79,488,000
2012	1,821,240	4.9350	3,654	257.25	278,100	1,308,182	71,541,225	71%	7.0%	513,058	80,806,572
2013	1,842,731	5.1818	3,837	270.11	286,443	1,347,428	77,371,835	72%	7.0%	495,303	81,910,694
2014	1,864,475	5.4408	4,029	283.62	295,036	1,387,851	83,677,639	73%	7.0%	476,624	82,762,804
2015	1,886,476	5.7129	4,230	297.80	303,887	1,429,486	90,497,367	73%	7.0%	456,989	83,321,026
2016	1,908,736	5.9985	4,441	312.69	313,004	1,472,371	97,872,902	74%	7.0%	436,365	83,538,739
2017	1,931,259	6.2984	4,664	328.32	322,394	1,516,542	105,849,544	74%	7.0%	414,717	83,364,110
2018	1,954,048	6.6134	4,897	344.74	332,066	1,562,038	114,476,282	75%	7.0%	392,010	82,739,576
2019	1,977,106	6.9440	5,142	361.98	342,028	1,608,899	123,806,099	75%	7.0%	368,206	81,601,290
2020	2,000,436	7.2912	5,399	380.08	352,289	1,657,166	133,896,296	76%	7.0%	343,269	79,878,503
2021	2,024,041	7.6558	5,669	399.08	362,857	1,706,881	144,808,844	76%	7.0%	317,159	77,492,899

Legend:			
GROWTH RATE		**INITIAL INPUTS**	
GDP	5.00%	Public Sector Employees	78,695
Population	1.18%	GDP (EURO bn)	4.70
Employed Persons	3.00%	Population	1,800,000
Average Wage (Annual)	5.00%	Employed Persons	270,000
Costs of Health Care Package	5.00%	Average Wage (Annual)	3,480.00
Public Sector Employees	1.00%	Costs of Health Care Package	245.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	4.7

Table 5. Optimistic Economic Growth (5%), Family Insurance, Public Employment with 1% Annual Increase

Optimistic Economic Growth (5%), Family Insurance, Fixed Public Employment

							Total Employment: 270000				
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2011	1,800,000	4.7000	3,480	245.00	270,000	1,270,080	66,150,000	71%	7.0%	529,920	79,488,000
2012	1,821,240	4.9350	3,654	257.25	278,100	1,308,182	71,541,225	72%	7.0%	513,058	80,806,572
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Legend:			
GROWTH RATE		**INITIAL INPUTS**	
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Population	1.18%	GDP (EURO bn)	4.70
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Average Wage (Annual)	5.00%	Employed Persons	270,000
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Public Sector Employees	0.00%	Costs of Health Care Package	245.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	4.7

Table 6: Optimistic Economic Growth (5%), Family Insurance, Fixed Public Employment

TEN YEARS AFTER THE START – PROBLEMS AND CHALLENGES FACING THE BULGARIAN PENSION FUNDS.

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ABSTRACT

Bulgarian pension system was quite significantly reformed in 2000. The basic aim of the introduced changes was to respond to the demographic problems and the population aging which affected Bulgarian economy seriously in the 1990's. As a result, a three pillar system was launched and the pay-as-you-go principle embedded for so many years in the Bulgarian social insurance was supplemented by a new fully funded one. In 2002 the pension funds from the second pillar started their business effectively. Ten years after that, Bulgarian pension companies are among the most dynamic financial institutions in the country. Currently they manage investment portfolios of more than 2 billion euro and the process of increasing their assets under management is far from complete. For ten years the legislation concerning the supplementary compulsory pension funds has been changed several times aiming to stay in step with the continuously expanding business of these financial institutions. Since 2002 the normative rules concerning investment policy have been liberalized, allowing pension funds to invest in variety of sophisticated financial instruments whose aim was to raise the yield realized and to support the accumulation of resources into person's individual account. At the same time the world financial and economic crises affected in a severe way the prices of the financial assets used as investment vehicles by the Bulgarian long term investors. As a result the rate of return dropped and became even negative for some of the years. The insured individuals realized that their savings are not guaranteed and they bear a significant investment risk within the defined contribution pension schemes.

The aim of the current paper is to evaluate the implemented reforms in the Bulgarian pension system, to assess the presentation of the pension funds for the past ten years and to make recommendations for their future development. In order to do this, first, the changes concerning normative regulations on pension fund issues have been analyzed; second, the effects of the world economic and financial crises on the yield realized by Bulgarian pension funds have been discussed; third, an efficiency evaluation of the normative rules aiming to protect the interests of the insured has been made and fourth, some conclusions on pension fund perspectives have been drawn. Ten years after their start, Bulgarian pension funds are still in their accumulation phase. There are some eight years before the first larger payments to be made from the universal pension funds which absorb the greatest part of the resources at the moment. The risks they face are not small and should be monitored carefully in order to guarantee not only the success of the reform but also the pension benefits of the future retirees. If coordinated and proper steps in further advancement of pension theory and practice are not made by state authorities, pension managers and academics, Bulgarian pensioners risk staying in the lowest income part of the Bulgarian society for still many years.

Bulgarian pension system was reformed quite significantly in 2000. Following the recommendations of the World Bank, the Bulgarian authorities introduced a second and a third pillar in our pension system. In this way Pay-as-you-go principle in insurance was supplemented with fully funded elements. Today Bulgarian pension system has a modern structure although the first pillar still absorbs the greatest part of the resources collected by social insurance contributions. Population aging and worsening demographic structure put under pressure PAYG systems in all EU countries including Bulgaria. Some future reforms are needed in the coming years in order to respond to these unfavorable changes. The importance of the second and third pillar in Bulgarian system has been increasing and this makes crucial their further development so that the interests of the insured individuals to be guaranteed to a greatest extent. The first universal and occupational pension funds (these are the second pillar funds) started their business effectively in 2002. Ten years after their initial accumulation of resources, we need to assess their performance and to analyze what significant risks face the insured persons and what further normative changes should be undertaken so that to boost the chance for success of the implemented pension reform.

The aim of the current paper is to evaluate the presentation of the pension funds for the past ten years and to make recommendations for their future development. In order to do this, first, the changes concerning normative regulations on pension fund issues have been analyzed; second, the effects of the world economic and financial crises on the yield realized by Bulgarian pension funds have been discussed; third, an efficiency evaluation of the normative rules aiming to protect the interests of the insured has been made and fourth, some conclusions on pension fund perspectives have been drawn.

Bulgarian demographic structure has been worsening for the last 20 years. Due to the economic slump which was a logical result after the collapse of the communist regime and the continuous lack of economic reforms, the country's birth rates dropped and the emigration processes deepened. The negative changes were extremely severe in 1990's and as a consequence the real value of pension benefits fell seriously. The continuous aging of the population has been making pay-as-you-go system unsustainable in long term. Some populist decisions in early 1990's (such as receiving full pension rights earlier for some labor categories or getting invalidity pension without being disabled) made the situation even worse. The hyperinflation from the late 1996 and early 1997 melted the savings of all Bulgarians including pensioners. As a result the average pension amount dropped to the unbelievable $5 per month. In such extreme economic situation Bulgarian authorities took some decisive steps to start a pension reform whose aim was to respond to the worsening demographic structure and to support the existing PAYG system. Second and third pillar were introduced in Bulgarian pension system. Bulgarians were given the opportunity to save and to accumulate resources for their future retirement.   The long-term goal of the implemented reform is to achieve an income replacement rate at around 70% of the final salary of the insured person. The second pillar of the system is so-called supplementary mandatory pension insurance. It takes the form of two types of pension funds: universal and occupational. All persons born after 31.12.1959 must insure themselves in a universal pension fund, while all individuals working under the first and second labor category (i.e. working in hard working conditions) must insure themselves in occupational pension fund. The third pillar of the system is supplementary voluntary pension insurance, wherein all participants choose to make contributions for supplementary benefits. The contribution rates for universal pension funds have been adjusted several times in recent years. They were increased gradually from an initial rate of 2% in 2002 to 3% in 2004, 4% in 2006 and finally 5% in 2007. The contribution rates for occupational

pension funds are 12% for people working under the first labor category and 7% for people working under the second labor category. Each person may choose only one universal and/or one occupational pension fund.

Insurance in a universal pension fund gives an individual the right to:

- A supplementary lifetime retirement pension;

- A lump sum of up to 50% of the amount accrued in the individual account in the case of permanently reduced working capacity by more than 70.99%;

- A lump sum or deferred payment to the heirs of the deceased insured person.

Insurance in an occupational pension fund gives an individual the right to:

   d) A term occupational pension for early retirement;

- A lump sum of up to 50% of the amount accrued in the individual account in the case of permanently reduced working capacity by more than 70.99%;

   e) A lump sum or deferred payment to the heirs of the deceased insured person.

In order to better protect the funds of the insured, legislation in Bulgaria states that pension funds are separate legal entities from the pension insurance companies that manage them.

In theory and practice two types of pension schemes could be implemented when designing the exact pension fund – defined contribution and defined benefit. Defined contribution pension schemes have a simple structure – the insured individual knows the amount of contributions he/she should make but doesn't know the amount of pension benefit he/she would receive. The amount of the future pension would depend on the resources accumulated throughout the professional career of the insured. A positive feature of the scheme is that the insured person can easily transfer the accumulated resources from one fund to the other without losing a significant amount of his accumulated resources. A negative side is that a number of risks face the future retiree.   Some of them are the following –first, risk of inadequate contribution size (the contribution rate could be contracted or fixed in a normative act at a low level, the insured can have prolong periods of unemployment or illness); second, asset price risk – the amount accumulated in one's individual account strongly depends on prices of the financial assets used as investment vehicles by the pension company. The stock market prices are volatile. If for whatever reason they plunge just prior to the retirement of the insured, he/she would realize losses that couldn't be recovered for a short period of time; third, interest rate risk – if interest rates are low at the time of retirement, the retirement annuity would be permanently low as well. The second type of schemes is the defined benefit one. The insured person knows what amount of pension benefit he/she would receive (usually as a proportion of his/her last salary) but doesn't know the amount of contributions that should be made during the years of his/her professional career in order to support the promised amount. Under this type of scheme the role of the employer or the sponsor of the scheme is quite significant. In fact the asset price risk lies on the employer, because in any moment he should be ready to top up the fund of the insured so that to keep it in actuarial balance. The defined benefit pension schemes also offer a specific transfer of risk between young workers, those who can bear investment risk and older workers. This is possible because the company sponsor of the scheme is expected to keep its promise and to cover any shortfall of the fund. In this way young workers are in practice indifferent to the value of their assets in short term. Risk sharing of this kind is impossible with defined contribution pension

schemes.Defined contribution pension schemes have been preferred for Bulgarian pension system. The insured individuals bear a significant amount of investment risk and that's why the legislation concerning the investment policy of Bulgarian pension funds is based on strict rules. This means that pension fund managers in Bulgaria know exactly which types of investments are appropriate and the amount of risk that is acceptable. This type of investment regulation is quite sensible for a country where there is no long tradition of managing such financial institutions and where there has been insufficient liquidity and diversification of financial instruments on the stock market.

There are two distinct stages in the development of the investment regulation concerning our compulsory pension funds:

- From 2002 till 2006 – first stage
- From 2006 till present day – second stage

What was specific for the first stage was the extremely constrained range of financial instruments that were allowed to be used as investment vehicles. The following table shows the instruments and investment limits which should have been kept by pension funds from the second pillar of our system:

Table 1: Investment limits concerning second pillar pension funds in Bulgaria till 2006

	Instrument	Investment limit
1.	Government bonds	Min. 50%
2.	Bank deposits	Max. 25%
3.	Corporate bonds	Max. 20%
4.	Corporate equities	Max. 10%
5.	Mortgage bonds	Max. 30%
6.	Municipal bonds	Max. 10%
7.	Investment property	Max. 5%
8.	Foreign instruments	Max. 20%

Data shown in the table underlines the priority place of government bonds. Bulgarian pension funds were obliged to invest minimum 50% of their assets into this specific instrument.

Some of the reasons for this kind of regulation were:
- Total lack of tradition in pension fund management
- Undeveloped stock exchange and lack of suitable investment instruments
- Priority to short term security rather than to realized yield

It was not a surprise that some of the pension funds invested at around 70% - 80% even 90% of their assets into government bonds. The following table shows the structure of the investment portfolios of all operating universal pension funds toward 31.12.2004.

Table 2 Portfolio allocation of Bulgarian pension funds in 2004

№	Investment instruments	Doverie	Saglasie	DSK – Rodina	Allianz – Bulgaria	ING	CCB – Sila	Lukoil Garant	DZI
1.	Government bonds	52,99	52,09	64,23	56,52	69,88	86,32	53,11	83,51
2.	Equities	7,49	0,00	0,00	0,95	5,83	0,00	2,61	8,41
3.	Corporate bonds	7,73	11,81	8,50	6,05	2,37	0,80	4,46	2,59
4.	Municipal bonds	1,78	0,00	0,63	0,00	0,00	0,31	2,20	0,00
5.	Bank deposits	21,85	24,50	11,75	19,25	4,10	9,27	22,99	2,81
6.	Mortgage bonds	8,16	8,65	13,03	17,23	12,83	0,18	14,63	2,68
7.	Investment property	0,00	2,95	0,00	0,00	0,00	3,12	0,00	0,00
8.	Foreign investments	0,00	0,00	1,86	0,00	4,99	0,00	0,00	0,00
	Total investments	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00

Source: Financial Supervisory Commission, Bulgaria

This portfolio structure was acceptable for the first years of existence of Bulgarian pension funds. The amount of assets under management was not so large and it was important to make insured persons trust these new financial institutions. This portfolio structure, however, would start be a problem if it continues its existence through the years. When pension fund enters into its distribution phase it'll need a buyer for its government bonds. The ultimate buyer of this kind of securities is the government itself. The government could repay its debt in two ways – it can issue another set of bonds and to replace the old ones or it can use the resources collected via taxation to repay its debt. Here we'll not discuss printing money and inflation as possible solutions because this type of repayment has severe detrimental effects on pension savings. Whatever way to choose, the government should absorb the necessary funds from the current working individuals. If it does so, then the difference between PAYG principle and funded principle in social security is blurred. The idea of introducing funded elements in pension insurance was to supplement the insurance carried out within the first pillar of the system (PAYG system) with second and third capital pillars and in this way to respond to the demographic changes in Bulgarian society. Investing with priority in government bonds doesn't help in achieving this aim.

In 2006 mostly due to our envisaged membership in EU and the resulted harmonization of our legislation to that of the EU countries, Bulgarian government adopted some very important changes in legislation concerning the investment policy of our pension funds. Many of the restrictions were relaxed and some new instruments were added so that the choice of investment opportunities was enlarged. The following table shows the basic instruments and investment limits for the pension funds of the second pillar which are valid now.

Table 3: Current investment limits concerning second pillar pension funds in Bulgaria

	Instrument	Investment limit
1.	Government bonds	No limit
2.	Bank deposits	Max. 25%
3.	Corporate bonds	Max. 25%
4.	Corporate equities	Max. 20%
5.	Shares and/or units issued by collective investment schemes	Max. 15%
6	Shares in special purpose investment company	Max. 5%
7.	Mortgage bonds	Max. 30%
8.	Municipal bonds	Max. 15%
9.	Investment property	Max. 5%
10.	Investments in assets denominated in currency different from lev and euro	Max. 20%

Two significant changes have been adopted. First, the minimum requirement for investments in government bonds has been removed. Pension funds may invest 100% of their funds into this type of assets but they are not obliged to. Second, maximum limit for investments in instruments denominated in currency different from lev and euro has been introduced. This means that there is no investment limit for all financial instruments issued by governments, municipalities or corporations which are situated in countries – members of EU and which are denominated in euro.

Some other instrument assets such as options, futures and swaps have been also introduced as possible investment vehicles, but they are still quite unpopular among Bulgarian pension funds. In 2006 the investment limits were quite a lot liberalized. Since then Bulgarian pension managers have had a better choice (much more instruments to choose from) in constructing their portfolio of assets. During 2007 the structure of the managed portfolios had been changing and at the end of the year it was the following:

Table 4 Portfolio allocation of Bulgarian pension funds in 2007

№	Investment instruments	Doverie	Saglasie	DSK - Rodina	Allianz - Bulgaria	ING	CCB - Sila	Lukoil - Garant	Badeshte	Toplina
I.	**Total investments**	**100,00**	**100,00**	**100,00**	**100,00**	**100,00**	**100,00**	**100,00**	**100,00**	**100,00**
1.	Government bonds	16,36	26,09	13,99	11,67	28,94	32,46	18,83	27,87	42,62
2.	Equities and shares	28,31	31,84	31,14	21,60	30,41	27,07	38,53	42,53	28,07
3.	Corporate bonds	17,53	18,28	14,41	5,72	2,94	18,09	16,35	14,35	7,96
4.	Municipal bonds	0,19	0,51	0,00	0,00	0,00	0,00	0,17	0,00	0,00
5.	Bank deposits	17,35	11,49	24,25	20,65	1,76	15,66	14,41	15,25	21,35
6.	Mortgage bonds	1,41	1,94	4,13	4,99	5,85	0,00	3,86	0,00	0,00
7.	Derivatives	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
8.	Investment property	4,23	2,53	0,00	0,82	0,00	1,99	0,00	0,00	0,00
9.	Foreign investments	14,63	7,33	12,08	34,54	30,10	4,73	7,85	0,00	0,00

Source: Financial Supervisory Commission, Bulgaria

From the table above it is easily seen that the share of government bonds was significantly reduced and that of equities and corporate bonds was enlarged. This new portfolio structure actually helped for realizing quite good results for this year. Next table shows the realized yield by all universal pension funds for three successive years 2005, 2006 and 2007:

Table 5. Yield realized by Bulgarian pension funds for 2005, 2006, 2007

Universal pension fund	Yield for 2005	Yield for 2006	Yield for 2007
Doverie	7,15%	6,27%	13,51%
Saglasie	8,18%	15,10%	15,33%
DSK Rodina	6,78%	7,20%	17,67%
Allianz Bulgaria	7,63%	3,73%	15,73%
ING	8,20%	7,20%	16,02%
CCB Sila	6,87%	18,94%	13,25%
Lukoil garant	10,34%	4,42%	24,91%
Badeshte	10,13%	7,40%	21,14%
Weighted average yield:	**7,59%**	**7,35%**	**15,38%**
Average yield:	**8,16%**	**8,78%**	**17,19%**

Source: Financial Supervisory Commission, Bulgaria

The highest yield year was 2007. Pension funds had realized the highest yield since their existence. The time of liberalizing the investment limits of Bulgarian pension funds corresponded to the period the financial balloon was inflated at our stock exchange. The next year 2008 was the year of the big crash. The world financial crisis hit Bulgarian financial market and affected our pension companies in severe way. The next table shows the yield realized for the next years:

Table 6. Yield realized by Bulgarian pension funds for 2008, 2009, 2010, 2011

Universal pension fund	Yield for 2008	Yield for 2009	Yield for 2010	Yield for 2011
Doverie	-18,62%	9,05%	4,61%	1.11%
Saglasie	-24,51%	8,64%	6,01%	0.60%
DSK Rodina	-17,62%	5,47%	7,21%	-3.41%
Allianz Bulgaria	-21,72%	6,72%	4,81%	-2.20%
ING	-17,96%	7,49%	4,17%	-1.69%
CCB Sila	-18,98%	7,02%	4,09%	1.25%
Lukoil garant	-22,18%	6,65%	-	-
Badeshte	-29,31%	13,69%	4,33%	-2.08%
Toplina	-19,34%	7,76%	6,24%	1.81%
Pension insurance institute	-	8,45%	6,19%	2.61%
Weighted average yield	-20,15%	7,91%	4,99%	-0.41%
Average yield	-21,14%	8,11%	5,30%	-0.22%

Source: Financial Supervisory Commission, Bulgaria

The lowest yield year was 2008. The return realized was negative and all of the pension funds haven't reached the value of one pension unit before the crises yet. The poor results raised the issue for protecting in better way the savings and interests of insured individuals. Currently Bulgarian pension funds are not required to achieve a positive yield for each calendar year. There is a normative regulation concerning the minimum rate of return achieved by the funds from the second pillar but the established methodology requires no fund to lag behind the others. This means that minimum rate of return is assessed as a percentage from the achieved weighted average return by all funds. The practice showed that this type of estimation could lead to negative results and losses for the insured persons. It also stimulates herd behavior of the managing companies since the performance of the managers in a way is assessed on the basis of the results achieved by other companies functioning on the market. The negative yield for a given year wouldn't be a problem if the investment horizon of the insured is long enough. This specific issue, however, would affect all persons whose retirement is coming closer and they don't have time to wait for recovery of the markets. Bulgarian pension companies can at present establish only one portfolio of assets for each of their managed funds. This means that if they choose to protect in better way the interests of those insured individuals whose retirement would be within the next 4 or 5 years, they should invest in fixed income instruments. But following such strategy they risk to hurt the real value of the savings of young insured persons whose period of retirement would come after 30 or 35 years. Investing predominantly in bonds or bank deposits whose value is stable in short term, pension managers risk losing the battle with inflation in long term. One of the most important aims of pension funds is to preserve the purchasing power of the accumulated savings. No pensioner would be happy if he has money in his insurance account but he could buy nothing with it. It is obvious that the specific interests of the insured depend on the investment horizon. The financial crises showed that current legislation in Bulgaria doesn't allow pension companies to protect interests of both young and old insured persons. The so called multi-fund system has been discussed in the professional community for several years, but obstacles remain to its implementation. Bulgarian pension funds need this type of system in order to structure portfolios with different risk profile which suits the interests of insured with long and short investment period.

With the onset of the financial crisis in 2008, pension companies have not been able to structure different portfolios in accordance with theirs investors' varying ages and preferences regarding risk. The inability of pension companies to structure portfolios with different risk profiles led to serious difficulties. The only positive news in this case is that the investment horizon for people insured by universal pension funds is quite far off. The first people to start receiving a pension benefit from the second pillar of the system will be women born in 1960. They will to retire in 2020 if the current pension model remains the same for the next eight years. This is a quite long period in which to recoup the losses suffered in 2008. The situation was far more serious for occupational and voluntary pension funds, through which many individuals were insured whose retirement was expected to begin in the next few years. It would be very difficult for the negative yields realized in 2008 to be compensated in such a short period of time. As a result of the severe drop in prices of all equity shares traded on the Bulgarian stock exchange, managing companies reduced the rate of buying new variable income instruments in their portfolios, but at the same time abstained from massive sales. This was likely the only reasonable course of action given the situation, although people whose retirement was approaching lost a considerable part of their savings.

The financial crises of 2008 revealed a second problem concerning the investment assets of Bulgarian pension funds – the very shallow and illiquid stock market. There are a number of

researches that demonstrate the positive relationship between development of pension funds in one country and its capital market. The reason is that pension companies have some comparative advantages among other investors when investing at the stock exchange. As a rule of thumb they accumulate long term savings of insured individuals and can follow a "buy and hold" strategy for a prolonged period of time. That's why they have a significant interest in investing a part of their funds at the capital market. With the liberalization of the investment regulations, Bulgarian pension companies were allowed to direct a significant part of the resources to the stock exchange. The expectations were that this will give rise to the trade, will boost the total turnover and will increase the liquidity of the market. The latter is quite important for the correct evaluation of the possessed assets. Bulgarian pension managers followed suit and invested a large part of the savings of the insured in equity shares in 2007. This was the year of the big rise of stock markets. Sofix index reached 1900 points and a total return for the year of 44%. Unfortunately in 2008 the financial crises burst and hit the Bulgarian capital market as well. Some huge foreign portfolio investors withdrew their money from the stock exchange and that was enough to ruin the trade and to plunge the Sofix index some 80% below its highest level. The funds of the Bulgarian pension companies were not enough to stabilize the trade. Almost four years have elapsed since then and the Bulgarian capital market continues to be very illiquid. There is no positive relationship between the volume of assets under management within pension funds in Bulgaria and the volume of trade at the stock exchange. The former is increasing since all persons starting their first job are obliged to make contributions for supplementary mandatory pension insurance, the latter is staying low since pension managers don't want to suffer losses similar to the ones realized in 2008. Serious efforts are needed in order to restore the trust among investors. The management of the Bulgarian real sector public companies should become more transparent than it is now and some innovative and liquid products should be introduced in order to facilitate the trade and to attract new investors including such from abroad. Bulgarian pension funds have been abstaining from active trade but at the same time they continue to possess a significant number of shares issued by Bulgarian firms. For the various funds this number is between 10% and 30% of the total value of assets. One can easily conclude that nearly 1/3rd of the portfolio assets are hard to be sold at the moment. If Bulgarian pension companies should liquidate these assets they wouldn't be able to sell them at a price they are currently valued. There is a special regulation that specifies strict rules for evaluation of pension fund portfolio assets. Concerning equities and rights the following methods have been adopted:

- Equities and rights traded on a regulated market are valued on the basis of a weighted average price achieved on transactions committed for the last working day if the total value of all transactions for this day is at least 1% of the total value of the respective emission.

- If this method is inapplicable, the valuation is made by calculating the average price between the highest bid offer which is active at the end of the trading session of the last working day and the weighted average price of the transactions committed for the same day.

- If this method is also inapplicable, this means that there are no transactions committed with certain shares for the last working day, the subsequent equity valuation is made on the basis of the highest bid price active at the end of the trading session for the same day.

- Other methods used in equity valuation:
- Price multiples
- Method of the net assets value
- Discounted cash flow methods

It is easily seen that normative rules give priority to the market price which should serve as an anchor for the everyday assessment of portfolio assets. However, market price is an excellent indicator only when trade is intensive and there are many deals completed with each security emission. The first and the second method require calculation of weighted average price achieved on transactions committed for a certain day. Unfortunately there are lots of securities registered on the Bulgarian capital market and possessed by Bulgarian pension funds that are not object of trade for many trading sessions. In this case the regulation allows pension fund managers to make use of the highest bid price active at the end of the trading session. This means that pension funds can revalue their assets using price that has not served for completion of a single transaction. It is not a surprise that exactly this method is used by most of the pension companies to make their everyday assessment of assets. One can easily guess that the bid price offer is put by the pension managers themselves. They have a big stimulus to use this method and not some of the others allowed by the regulation (price multiples, net asset value and discounted cash flow). It's quite easier than others because you don't have to make any predictions about the future development of the firm, you don't have to prove any of the propositions made and you don't need to be interested about the correctness of the financial statements of the company. This is a problem whose significance would appear in the years to come. The distribution phase is coming closer and if some decisive steps are not taken for raising the liquidity and trade of the capital market in Bulgaria, pension funds could face problems hard to be sorted out.

The implemented pension reform introduced second and third pillar within the pension security system in Bulgaria. Ten years after their effective start, the supplementary compulsory pension funds are still in their accumulation phase. The legislation concerning investment policy of these financial institutions has been changed several times for this period. The investment opportunities have been enlarged significantly and now pension managers have much more freedom in structuring effective portfolios of assets. The liberalization of investments and the financial crises revealed some important problems that should be faced and sorted out in the following years. Two of them concern directly the interests of the insured individuals – the multifund system and the liquidity of the Bulgarian capital market. The financial crises of 2007/2008 precisely showed that it's not possible to construct portfolio of assets that suits both the interests of young and old insured. The investment horizon is quite important in determining the risk profile of the managed portfolio. The second problem is much more fundamental and trickier. Bulgarian stock exchange needs some reforms that would make trade intensive and securities traded much more liquid. Currently Bulgarian pension funds keep the equity shares bought during the years before the crises but they abstain in buying massively new ones. The choice they make is just to transfer a part of the resources into foreign shares which are more liquid and less risky. This type of instrument is very important for long term investors such as pension funds because history shows that the yield realized on it is usually higher than the inflation rate. Preserving purchasing power of savings is a fundamental aim of pension funds. Intensifying the trade on Bulgarian stock exchange would allow pension companies to keep Bulgarian savings work for the Bulgarian economy. Having in mind that Bulgarian economy is a developing one, we could expect higher growth rates during the following years than the ones typical for the developed economies. Investing in Bulgarian equities would allow millions of insured to benefit from this and would make the chances for success of pension reform significant. This could happen only if risks facing investors are lowered and liquidity of securities trading is raised.

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RESEARCHING MARGINAL ISSUES OF BUSINESS PLANNING FOR BUSINESS DEVELOPMENT. THE CASE OF SECONDARY SECTOR IN THE PREFECTURE OF KAVALA

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ABSTRACT

This work aims to trace and detect the role of business plans (BP) in the development of the Greek companies. According to the supporters of the business plans, companies that integrate a business plan in their management toolbox, they have a greater potential to develop as well as to preserve their business level of action. More specifically, a positive correlation between business development and sustainability and business plan implementation is assumed. Following this assumption, this work elaborates on marginal issues of business planning, (i.e., organizational structures, financing, entrepreneurial incentives, entrepreneurs' expectations, the entrepreneurial environment etc.) and in particular if and how these issues are indeed addressed within companies.
The study focuses on manufacturing enterprises, located in the prefecture of Kavala, Greece and especially on those that occupy more than 50 employees. The intuition behind this focus is that medium or large enterprises are more likely to utilize modern management tools (like Business Plan software) and therefore, they would be more prone to provide us with the necessary feedback.

KEYWORDS

Business Plan, Medium and Large enterprises, Manufacturing Enterprises

JEL CLASSIFICATION CODES

M-10, O-21.

13. INTRODUCTION

A Business Plan (BP) is a functional, useful and essential tool for improving the enterprises performance. Lately, business plans are a mandatory requirement for an enterprise in his effort to claim for funds through bank loans, state-funded projects and other related sources. The central aim is to analyze the existing situations and guide the future actions of the stakeholders towards predefined directions. A BP should always be neat, comprehensible and realistic. Business Plans also refer to specific activities with a specified time-window (James,1998; Theodoropoulos, 2003; Papadakis, 2007).

Ultimately, a business plan is a decision making tool, which can be exploited to communicate the business vision and operational pathways to any potential readers. The contents of a BP may vary according to the sector or the field of interest of the company, however, there is a set of core information that is always present, such as the company's history and background, the management team, products or services pronided, the target market, technologies involved, as well as some financial elements and forecasting (Theodoropoulos, 2003). A critical point is that business plans should turn away from their static nature. Each BP should be updated regularly since every business environment and the global conditions have rich dynamics (Patrick & Bruce, 2003).

A BP has multiple purposes. It can be exploited internally in a company (by the founderor managers) as well as by external bodies (e.g. investors, consultants, state agencies) (James, 1998; Tsagklakanos, 1997; Theodoropoulos, 2003). A popular use of Bps is to advertise an idea for a business activity in order to attract funds like Venture Capitals, Business Angels of even to convince stockholders that a particular idea worth investing on.

14. FIELD RESEARCH

2.1 Prefecture of Kavala in General

The city of Kavala is the major city of the Prefecture situated in North Eastern Greece. The city of Kavala is the second greatest city and port in Macedonia as well as one of the most important ports in Nortnern Greece. It is 680 km away from Athens and 165 from Salonika. The prefecture is populated by 145.054 habitants (63293 of them in the city of Kavala).

2.2 Research Methodology and Goal

This work was conducted through field research to a significant amount of entrepreneurs (mostly new ones) with the goal to evaluate their attitude towards entrepreneurship and to record any issues that concern the Business Plans execution by the managers of the interviewed enterprises. In other words, the purpose of this work is exploratory since it strives to detect if marginal issues related to a business plan execution, such as the management structure, the entrepreneurial incentives, the entrepreneurs' expectations etc., are indeed considered in business decision making.

The questionnaire that was used consists of five sets of questions, which interrogate the characteristics of enterprises as well as the attitude of entrepreneurs towards various issues of a BP. Three types of questions are mostly used: a) Closed questions (predefined answers) b) Open questions and c) Questions with ordinal or ratio scaled answers. In particular, the questionnaire includes binary questions as well as Likert-scaled questions. The open styled questions were used to provide entrepreneurs with the ability to express its thoughts more freely. In addition, it was meant to have a broad scope of topics questioned in order to address most of the existing issues.

During the questionnaire design, significant efforts were devoted to:
- End up with a simplified, comprehensive and motivating questionnaire
- Reassure non-redudancy of contents
- Formulate the questions in a way that avoids unfairness or prejudice over specific answers (Saunders κ.ά., 2000, Σταθακόπουλος, 2005).

The prefecture of Kavala accounts for a total of 2.635 companies in the secondary sector, according to the Chamber of Kavala. However, in this work the object of the reserach is narrowed to those companies that occupy more thatn 50 employees (636 companies). The response rate was 8.2 percent, i.e. 52 companies finally responded with a valid questionnaire. Data were analyzed through the SPSS software. Ordinary descriptive statitics provided us with results such as data frequencies (Norusis, 1999).

15. RESULTS

3.1 Respondent position in the enterprise

Regarding the position of the respondent person in the enterprise 32 of them (62%) were founders of the companies while the rest 20 (38%) were managers.

3.2 Legal status of enterprises

The greatest part of the interviewed companies (50%) are S.A. (Société anonyme - Public limited company). Limited partnerships are 33% of the sample while general partnerships are 15%. The rest 2% are limited liability enterprises.

3.3 Number of employees

Table 1 presents the number of employees for the sample. Most enterprises (75%) are small enterprises, i.e. 34% occupy less than 50 employees while an additional 41% occupies a number of employees between 50 and

60. Last, a quarter of the sample (25%) can be considered to consist of large enterprises, since it occupies more than 60 employees.

Table 1: Number of employees

Number of employees per enterprise	Answers	
	Frequency	%
<50	18	34
50-60	21	41
>60	13	25
Total	**52**	**100**

3.4 Startup year

Table 2 presents the startup year for the enterprises. Half of the enterprises were founded somewhere in between 1996 and 2000 while only a small percentage (4%) refers to rather old enterprises (founded before 1996).

Table 2 :Startup year

Startup year	Answers	
	Number	%
Before 1990	2	4
1991-1995	8	15
1996-2000	26	50
2001-2005	9	17
2006 +	7	14
Total	**52**	**100**

4.5 Utilization of Personal Computers

Among 52 enterprises that were interviewed, 49 (94%) use personal computers for business purposes. This percentage is not encouraging since the PC usage appears to be a sine qua non requirement for an enterprise to be competitive. Table 3 presents the business department that actually uses the PC. In a descending order, the departments that use the most the PC are the secretariat, the sales department, the warehouses and the accounting office. Last to that list appear to be the actual production departments.

Table 3: Business departments that use PC

Departments	YES		NO	
	Frequency	%	Frequency	%
Secretariat	30	61	19	39
Sales	28	57	21	43
Warehouse	21	43	28	57
Accounting	20	41	29	59
Production	1	2	48	98
Distribution	2	4	47	96
Παρεχόμενες υπηρεσίες	5	10	44	90

4.6 Internet access and connection type

Forty two out of the fifty two enterprises (80.7%) have a business internet connection line and use internet for business purposes. The remaining percentage (19.3%) is rather large and should be addressed by policy makers in order to create incentives for the global adoption of internet as a business tool. Enterprises that do not use internet are indeed disadvantaged in the local and the global competition, since they lack a plethora of information and communication tools.

Table 4 present some relative statistics. Regarding the number of years that enterprises have internet access, there is a small percentage (17%) which has internet access for more than five years, while 50% of the enterprises that have internet access hold this access for more than 10 years, reflecting their interest to follow technological advancements and adopt to modern environment.

Table 4: Number of years with internet access

Number of years	Answers	
	Frequency	%
Less than 5 years	7	17
5-10 years	13	33
10 +	22	50
Total	**42**	**100**

Table 5 presents the Internet services that enterprises use. The most popular service appears to be the e-mail, while electronic transactions fall on the other side of the spectrum with quite low popularity (especially when compared with the indices of other E.U. countries). This low adoption could be due to the lack of trust that entrepreneurs feel about the internet security.

Table 5: Internet services that enterprises exploit

Internet Service	YES		NO	
	Frequency	%	Frequency	%
e-mail	33	78	9	22
web site	38	91	4	9
B2B Electronic transactions	22	52	20	48
B2C Electronic transactions	17	41	25	59
Web banking	11	26	31	74

4.7 Submission of proposal for R&D national or international funded programmes

Forty-one out of fifty-two enterprises have submitted a proposal to get funded for a R&D project. In particular, 47% has submitted a proposal to renew its equipment while a 34% has submitted a proposal to get a financial support to get ISO certification. There is also a 29% which got funded for their business startup.

Table 6: Submission of proposals for R&D projects

Proposal submission	YES		NO	
	Frequency	%	Frequency	%
Equipment renewall	24	47	28	53
Quality certification	17	34	35	66
Other	15	29	38	71

Moreover, there was a question to identify the funding body for the startup of the enterprise. Just 12 enterprises replied, as it is presented in Table 7.

Table 7: Funding body for the startup of the enterprise

Funding Body	Answers	
	Frequency	%
Hellenic Organization of Small and Medium Sized Enterprises and Handicraft (EOMMEX)	3	25
National Employment Office (OAED)	8	67
Ministry of Rural Development	1	8
Total	**12**	**100**

4.8 Competitiveness elements

Table 8 presents the sample distribution over the variables that are considered important in terms of competitiveness. Incentives and resources availability appear to be the most visible factors. An additional important factor is the expansion to new markets potential. It shall be noted that according to the replies, the state has a major role in adjusting the level of competitiveness. A possible explanation to the latter is the size of the enterprises, i.e. the smaller the enterprise the more it embraces governmental support.

Table 8: Competitiveness factors (%)

Factor	Extremely important	Relatively important	Indifferent	Low importance	Not important
State incentives	34.9	26.8	26.8	6	5.5
Capitals	27.5	37.6	27.5	5.4	2
Specialized Human Resources	20.1	13.6	24.2	10.1	2
Better Organization	28.9	8.7	40.3	16.1	6
New markets expansion potential	27.5	23.5	29.5	11.4	8.1

Table 9 presents the education level of staff. A clear trend towards hiring staff with higher educational level is identified. This is a positive point since the survival of an enterprise in a competitive environment is broadly based on its knowledge power. We could also assume that the founder himself hold a higher education degree.

Table 9 : Number of staff per education level (%)

Percentage of staff	Master	Higher Education	Secondary school	Elementary school
Up to 10	92	94	85	68
11-20	8	1	8	20
21-30	0	5	1	2
31-40	0	0	1	0
40+	0	0	5	10

Table 10 presents the age distribution of the enterprises' human resources. The majority (60%) is aged from 25 to 34 years old and from 35 to 44 years old (an additional 30%). Entrepreneurs seem to prefer younger employees due to their increased ability to adapt to the enterprise's particularities, to learn and to bring fresh ideas into the company.

Table 10: Age Distribution

Age Distribution	Answers	
	Frequency	%
18-24 years old	4	8
25-34 years old	31	60
35-44 years old	15	29
55-64 years old	2	3
Total	**52**	**100**

Table 11 present the skills and qualifications of employees with regard to the requirements of their position. Most managers consider these skills and qualifications as adequate. However, the percentage that considers these skills as "Very much" adequate is just 4%, indicating a need for continuous improvement and enrichment of the employees' skills. There are also some cases when it is hard to find someone with the desired skills or with specific skills at a certain level, so the people finally hired are characterized by a gap between the desired skills and the possessed skills.

Table 11: Sufficiency of employees' skills and qualifications

Skills sufficiency	Answers	
	Frequency	%
Not at all	2	4
Little	22	42
Enough	26	50
Very much	2	4
Total	**52**	**100**

4.9 Elements for the development prospects

Regarding the existence or non-existence of empty positions within the enterprise, just the 21% of enterprises answered that there are indeed some empty positions, while the great majority (79%) replied negatively. Moreover, managers where asked if during the next three years they predict that the number of employees of their enterprise will be modified. There is a 85% which remains optimistic and believes that the number of people employed in their enterprise will either be augmented or remain the same (although some modifications in persons – and not in their number- will take place). In addition, 14% replied that he can not answer this question. This large percentage could be explained as a hold-up attitude, in anticipation to the business and economical trends.

Table 12 : Modification of the employed personnel number during the next three years

Modification of the employed personnel	Answers	
	Frequency	%
It will grow up	22	42
It will remain the same	16	31
It will remain the same as a number but the roster will be modified	6	11
It will diminish	0	2
Do not know / Can not reply	7	14

As long as for the prediction of the altering in the personnel's expertise, 73% replied that a prediction of such a shift is not justified.

Regarding the life-long training of employees, and in particular the question if employees attended any seminar during the last year, the majority (70%) answered with a "no". Just 16 enterprises out of the 52 answered that some of its employees attended some training course. This fact come in sharp contrast with the declared fact of Table 11, wherein managers announced that the skills of their human resources and not as much adequate.

The topic of the seminars that employees attend during the last year were mostly related to technical issues (38%) and marketing (42%). The exact statistics are presented in Table 13.

Table 13: Training topics

Training Topics	Number	%
Marketing (advertising, sales, etc.)	5	42
Accounting	1	6
Management	1	6
Technical Issues	6	38
Computer Education	2	13

As long as for the prospect of their business sector, managers appear to be neither pessimistic nor optimistic, as the results of Table 14 demonstrate. Indeed, 22% seems to be rather optimistic for the next 12 months for the development of the particular business sector

Table 14: Development Prospects for the sector

Prospect	Answers	
	Number	%
Very pessimistic	4	7
Slightly pessimistic	9	18
Neither pessimistic nor optimistic	22	43
Slightly optimistic	15	28
Very optimistic	2	4

16. DISCUSSION AND CONCLUSIONS

The purpose of this work is exploratory, i.e. to detect what entrepreneurs think about some marginal issues of business planning. Analyzing and evaluating the pertinent results, the following findings can be inferred: Entrepreneurs employ mostly personnel with an average educational level and they believe that their skills and qualifications are sufficient to deliver the business value. However, there is a clear movement towards hiring personnel with a higher educational level. This is a positive sign, with regarding to the dominance of the knowledge-based economy.

Albeit the economic crisis which is evolving, managers are rather optimistic about employing human resources. Of course, the majority thinks that it will not increase the number of persons employed, but considering that the majority refers to SMEs, and the enthusiasm of young entrepreneurs this answer is rather expected.

As far as the investment prospects are concerned, the business environment seems stable, keeping a short-term point of view. The dominant attitude is waiting. However, business people appear to be rather optimistic for their chances to grab an entrepreneurial opportunity and in order to be prepared theyoutline short-term business plans. The dominant funding source appears to be own capitals (usually family – especially in the case of preserving the family business). In this point, we shall remind that the sample was familiar with the entrepreneurial spirit since either they were entrepreneurs by their own, or they had a very close relative that was in the business.

Although the business environment is in big recession in Greece, and business people express widely their dissatisfaction of the entrepreneurial laws, regulation as well as lack of support by the government, they appear quite confident that their business endeavor will survive and that they will succeed, and maybe this is the most vital (and yet encouraging) element of the survey.

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ERP PACKAGE EVALUATION: THE CASE OF SMALL AND MEDIUM ENTERPRISES

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ABSTRACT

In this paper the basic options of ERP package evaluation in small and medium enterprises are explored. The criteria of ERP selection and implementation are examined in order to measure and to interpret their relevance and impact on enterprises' performance. Moreover, these criteria are tested in terms of significance in the selection process of ERP package. The research was developed in Eastern Macedonia and Thrace region using primary data from 83 small and medium enterprises. According to the results, the most significant criteria in ERP selection are cost, compatibility to enterprise's systems and ERP matching with the enterprise's organizational structure. Furthermore, project management and implementation duration of ERP have minor but significant impact on enterprise's performance, while there is modest relevance with ERP selection criteria and enterprises' characteristics.

1. INTRODUCTION

In the early of the 20th century a really competitive environment regarding enterprises was created. Modern enterprises in order to reciprocate to new demands should have the ability to adjust to differentiated conditions of new technologies at speed and flexibility. The fast rate of upgrade and continuous enhancement of information systems is a serious ally for enterprises, because it contributes to the process of an increasing mass of data, but at a shorter period. Simultaneously, it is also a strong opponent, because the advancement of new technologies tends to become in a ruthless chase which never stops. For that reason, the implementation of Enterprise Resource Planning (E.R.P) is essential.

The usage of these information systems leads enterprises to a new era, as functions and procedures of their departments are assembled to a united information system, unlike the traditional way of organisation where every department had its own information system and created its own database. The new way of organisation enables resources and information management to be easier and more effective. Although these systems have been established in the information systems market, there are still controversial views upon this issue that might exist due to the wide range of their implementation.

ERP systems after their wide acceptance by large enterprises are gradually expanded in the field of medium – sized enterprises as well. The basic goal of an ERP system is the integration of individual procedures of various departments (finance department, production, sales) into the enterprise, in order to fulfil its main business activities successfully. "Integration" is the key – element since the implementation of an ERP system provides better structures to the enterprise, which allows the employees to work more efficiently and more productively (Stolovisky, 2007; Kumar et al., 2003; Mabert et al., 2001).

In this paper the importance of a set of criteria that are employed by enterprises in ERP selection is explored. These criteria are relevant to the basic functions of the enterprises, and determine its efficacy and its effectiveness. In those terms the assignments aims to research the basic options of ERP selection and to correlate them by the basic characteristics of the enterprises. It is notified that the basic hypotheses stated below, of the assignment are integrated in the selection process of ERP by enterprises.

A number of studies focus their interest in the importance of ERP for enterprises' performance and as a sequence they shed strong light in the crucial role that selection criteria play (Hecht, 1997; Verville and Hallingten, 2002; Baki and Hakar, 2005;Avshalom, 2000; Themistocleous et al., 2001). The most significant of these criteria according to the aforementioned studies are functionality, technological issues, cost, service and support, supplier of the application, compatibility with other systems, convenience in customisation, implementation time, and advisory services. It is worth notable that the matching level of ERP systems to the enterprise proceedings has vibrant influence in its performance. In other words the more appropriate the criteria of ERP selection are the biggest is the likelihood of the successful implementation of the programme (Uta et al., 2007).

In this perspective lies the notion of this study which is the exploitation of ERP selection criteria on behalf of the enterprises. The study uses primary data selected throughout questionnaires that were distributed in 83 enterprises of Eastern Macedonia and Thrace region in Greece. Following Valsamidis et al. (2009) the criteria that were employed in order to measure and to interpret their importance in ERP selection are the following: function and effectiveness, technical support, ERP Cost, suppliers assistance, supplier fame surplus, ERP credibility, ERP compatibility to enterprise's systems, ERP customization, supplier market share, matching in the organizational structure of the enterprise, supplier technical skills and knowledge, supplier recommendations implementation duration of ERP, supplier technical and methodological assistance, external consultants and project management. These variables were measured and then correlated by a set of enterprise's characteristics, so to understand their importance and their influence on ERP selection and on enterprise's effectiveness and efficacy as well.

Therefore the paper aims to offer answers on the following questions:

- Which are the most important criteria of ERP selection for an enterprise?
- Is there any relevance between the importance of the criteria of ERP selection and the basic enterprise's characteristics?
- Does effective project management and implementation duration of an ERP have influence on enterprise's performance?
- Business processes reengineering is positively related with ERP implementation?

These questions constitute the basic hypotheses of the paper. According to the most important findings of the research, cost, compatibility to enterprise's systems and ERP matching with the enterprise organizational structure are the most significant criteria. Project management and implementation duration of ERP have minor but significant influence on enterprise's performance whereas there is moderate relevance with ERP selection criteria and enterprise's characteristics. The paper is organized as follows: in section 2 the literature review of ERP studies with emphasis to being put in the selection criteriais developed. In section 3 the research design and methodology are analyzed. In section 4 the results of the empirical research are presented and in section 5 the relevant discussion is developed and the proposals for future research are supported. Finally, in section 6 the conclusions are indicated.

2. LITERATURE REVIEW

The ERP software and supplier selection is a crucial issue for the success of the overall project. The first step in the whole process should be an introduction team of evaluation and choice. In this team should participate the IT Manager of the enterprise and the representatives of the most important functions and processes, but in contrast not the managers. The leader of this team should be designated the manager who represents enterprise'sorientation. During the evaluation of ERP software a key role must be appointed to the external advisor of the enterprise, who acquires expertise and objectivity. Due to his post, he is the most appropriate person to identify enterprise's needs and to keep the balances. Finally, due to his experience he is capable of providing benchmarking services in order to draw up the composition of the standards (Brewer, 2000). Evaluation must take into consideration many criteria and follow a systematic procedure.

Functionality is one of the most important factors according to which the team will decide whether this particular ERP packet meets the needs of the enterprise(Baki and Hakar, 2005). The choice of the proper software(Technological Criteria) should be of great importance and consequently its choice must reflect the latest trend of technology. The team also must assure that the supplier of the packet will be committed to follow the technological advances and to incorporate every new development into the packet (Baki and Hakar, 2005). It might also be useful for the enterprise to have an external advisory team in order to evaluate the proposed packet from a technical point of view (Verville and Hallingten, 2002). Cost is a crucial factor in the process of choosing the proper ERP (Hecht, 1997). Taking into consideration that installation cost in compliance with current costs might upgrade software cost up to sever or ten times higher, service and support which must be provided with the application, plays an important role in the successful cooperation between the final user and the supplier of the application (Themistocleous et al., 2001).It is important to follow an evaluation procedure of the various available suppliers of ERP Systems and during this procedure should be taken into consideration the power and the reputation of the supplier, its economic stability and its vision (Verville and Hallingten, 2002; Verville et al., 2007; Rasidh et al., 2002). It is important for the enterprise to examine if the proposed ERP System will have the ability to be unified or to interact with the other systems or with other software packets that might the enterprise use, in order to cover some special needs (Baki and Hakar, 2005).Many enterprises are obliged to customise specific parts of an ERP System. Due to the necessity of adjusting the solution which is being offered by the system to the enterprise's needs, the ERP supplier should provide the proper tools in order the enterprise's technical staff or independent advisory companies to readjust software (Avshalom, 2000).The

implementation of an ERP System in the whole enterprise is an expensive and complex project. Implementation time might be reduced significantly when there are solutions of specified applications for a certain field of business or industry. Many businesses use advisers in order to facilitate not only the implementation but the choice of the ERP as well. Advisers should have experience in specific business fields or industries, comprehensive and discerning knowledge for specific modules and should have the ability to find which packet is the most appropriate for the enterprise (Mudimigh et al., 2001).

The implementation process of an ERP system is very crucial. It is realized thought 4 phases. In phase 1 the basic criterion is the compatibility of the ERP system with enterprise's orientation, for example financial, commercial, productive, manufacturing or public organization. According to Motwani et al. (2007), the result of this phase should not have more than 7 software ERP programs. During the second phase the evaluation of first level is being analysed, in which the selected systems of the first phase are being evaluated not only as far as it concerns their technical and functional characteristics but also according to the characteristics of the supplier. The result of this phase includes 2 – 4 of the most dominant ERP systems. The most representative criteria are being presented above. This phase is regarded as the core of the realisation process and demands the maximum contribution from all the involved parts in the team. In phase 3 the preparation of the customised system is realized, in order to be in full implementation. In phase 4 the whole system is put under full operation. After the full operation of the system all the functional problems are being recorded, analysed and fixed. Beyond the dealing of the implementation problems, system improvement and business process improvement is regarded as a continuous project, which aims at the dynamic adaptation of the business into the changing market conditions (Jarrar et al., 2000).

Nowadays, business enterprises face a more compound and competitive environment than they have ever dealt before. The worldwide market for ERP has depicted significant growth in the last two decades (Bonasera, 2005; Reilly, 2005; Sutton, 2005). Further information regarding ERP can be found at Gattiker and Goodhue, 2005; Staehr, 2010; Chen, 2001; Holland and Light, 1999; Joseph and Esteves, 2009; Burns, 2006).

The key – elements of a successful implementation are condensed in the following:

- The choice of the software supplier which is of vital importance.
- The proper registration of the final client – user requirements before the implementation and their absolute compliance.
- The client – user on its turn should form its requirements with clarity and aiming at the minimum complexity, because ERP systems are on their nature complex and potential rise in this field would result in making these systems inapplicable and extremely expensive.
- The proper staff training which often is not taking into serious consideration.

Chen (2001) supports that that ERP systems are difficult, complex and with a high level of failure during their practical implementation. Nevertheless, he supports that ERP systems have the ability to fulfill the prerequisites and cannot be ignored. Companies ought to be careful when planning the implementation of an ERP system because if it is accomplished properly, it might offer a competitive advantage which might be important for the survival and success of anenterprisein the future.

Finally, there are several studies regarding the effect of ERP systems have in accounting(Sutton, 2005; Bedell, 2005; Mauldin and Richtermeyer,2004; Aladwani,2001;Rom and

Rohde,2006;Sayend,2006;Arnold,2006). Moreover, there are studies regarding the operational risks related to ERP installation(Huang, Li and Lin,2004;Wang et al., 2005). Regarding ERP and integration (DeChow and Mouritsen,2005; Yusufa, Gunasekaranb, Wu,2006; Choi et al.,2007). Regarding ERP suppliers (Rushin and Clark-Rushin,1998; Songini,2001; Plexico, 2006). Regarding factors of success of an ERP system (Motwani, Subramanian, Motwani,2005; Ngai, 2007).

3. RESEARCH DESIGN AND DATA COLLECTION

In this section the basic elements of research design and methodology are indicated. The basic tool is a questionnaire that was distributed to enterprises that use an ERP system. The basic scope of the empirical research is to evaluate the significance of ERP for the enterprise's function. The effect of the ERP in the function of an enterprise is a very important process (Valsamidis et al., 2009). Also, the success of the ERP implementation in an enterprise has been measured in the study of Wu and Wang (2007). The evaluation of ERP in enterprise efficacy takes into account a variety of functions such as efficacy, technical support, management etc. Moreover, the level of the ERP in enterprise's effectiveness is a matter of its characteristics.

In Figure 1, the model thatis used in order to estimate the influence of ERP implementation in enterprise's function is shown.
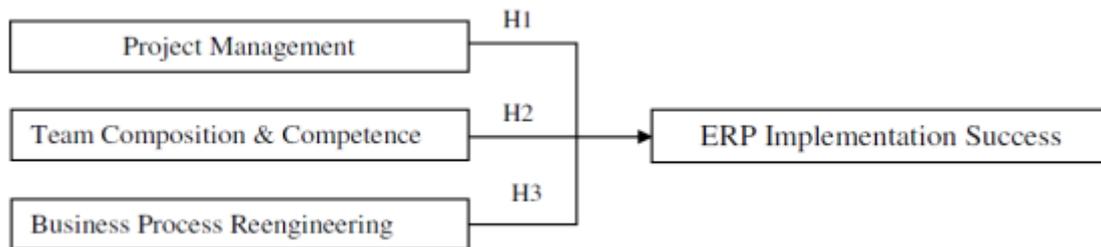
Figure 1. ERP Project Enviroment and ERP implementation success.

The hypotheses of the model are the following:

Hypothesis 1: Effective project management is positively related to ERP implementation success.

Hypothesis 2: ERP team composition and competence is positively related to ERP implementation success.

Hypothesis 3: Business processes reengineering is positively related to ERP implementation success.

Hypothesis 4.The implementation status of individual ERP system modules contributes to changes in operational performance.

The main aim of the research design is to counterweight the factors that affect the choice of an ERP system in an enterprise. In total 16 factors were selected throughout the study of a literature review (Shyur, 2003; Baki and Sakar, 2005; Rittammanart et al, 2008; Valsamidis et al, 2009). These criteria are function and effectiveness, technical support, ERP cost, suppliers assistance, supplier fame surplus, ERP credibility, ERP compatibility to enterprise's systems, ERP customization, supplier market share, matching in the organizational structure of the enterprise, supplier technical skills and knowledge, supplier recommendations, implementation duration of ERP, supplier technical and methodological assistance, external consultants and project management.

These criteria were classified in a five level Likert scale namely 1= Not at all, 2= A little, 3= Moderate, 4=Much, 5= Very Much, in order to measure the effect of the ERP in the aforementioned functions. The categorization took place, in order to schedule the correlation of the effectiveness of the ERP implementation in these functions by the latter dimension of the questionnaire which was enterprise'scharacteristics.

The research about enterprise's characteristics was the second aim of the research and was based also in the current literature review of the studies about ERP's impact on enterprises (Uta et al, 2007). The characteristics of modern enterprises that were selected are 12 and are the following: Scope of Activity, Segmentation Operation, segmentation of departments, Years of Enterprise Operation, Annual Turnover, Average number of employees before ERP implementation, EmployeesvariationaftertheERP implementation, durationofpilot test before its implementation, totalcostofERPimplementation and function.

The analysis employed the descriptive statistics and the frequencies of these variables. The descriptive characteristics that are used are mean, maximum, minimum, and standard deviation of the variables. The research about the relevance of ERP criteria selection and enterprise's characteristics uses Pearson correlation, and notifies the statistical significant results and the aforementioned regression analysis. Moreover t-tests are selected in order to study the potential deviations on the results. The analysis of the results exploits the implementation of software package SPSS 16.0.

The research process was designed in order to measure and to interpret the ERP effect in the enterprise performance. The key element of the primary research was a questionnaire that was distributed in 120 companies of Eastern Macedonia and Thrace region via email in the autumn of 2011. The enterprises' characteristics were received from the Chamber of Commerce of the region. The managers and the executives of the enterprises were the final recipients of the questionnaire. The questionnaire was responded from 83 companies, a fact that denotes a respond rate of 69.17%. The respondents fill in the queries in order to issue the basic elements of enterprises' performance and the impact that ERP implementation had on it. This procedure was the base of the analysis of the results so to estimate the total impact of ERP in enterprises' performance.

4. RESULTS

In this section the characteristics of the enterprises are presented. The majority of the enterprises operate both in services and sales branch. This is the case for the 56.6%, whereas 18.1% is integrated only in services activities and 25.3% in services, respectively (see, Figure 2). The segmentation of enterprises' operation is a choice for the 65.1% of them, and Finance, Management, Human

Resources, Production, Sales are the most prevalent sectors in enterprises functions. Interestingly, most of the enterprises are active more than 15 years (55.4%). The classification of up to five years is represented by the 19.3%, 14.5% is participated in 5 to 10 years and the remaining 10.8% is referred to the category of 11 to 15 years.

In addition there are differentiations in the annual turnover field. The bulk of enterprises have annual sales that exceed 1600000 euro (48.2%). Approximately one quarter (24.2%) hit sales between 1300001 and 1600000, a ten per cent between 800001 and 1300000 (10.8%) or below 300000 (9.6%) and the rest 7.2% sales are from 300001 to 800000 (see, Figure 4). In this perspective, it is not surprising that in the most of the enterprises employed, before the ERP implementation, more than 30 people. More specifically,enterprises with more than 100 employees hold the 27.7% of the sample, and enterprises that employee from 31 to 100 people represent the 42.2%. Respectively enterprises in the category from 1 to 5 employees are equal to 8.4% of the sample, from 6 to 12 the 14.5% and from 13 to 30 7.2% as well.

However, the most interesting issue might be about the ERP validation from the employees. Answers are allocated almost equally as the 51.8% stands negatively and 45.2% positively. Further, there are important deviations in the duration of pilot program before ERP implementation. Not even a month answered the 31.3%, from 1 to 6 months declared the 47%, between 6 and 12 months the 16.9%and more than a year the 4.8%. The cost of implementations varied from 16000 to 20000 for the 34.9%, the 42.2% paid from 12001 to 16000 , the 15.7% declared that had expenses from 8001 to 12000, up to 4000 the 4.8% and from 4001 to 8000 only the 2.4% (see, Figure 3).
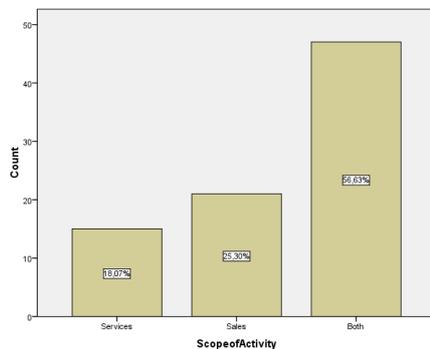
Figure 2. Scope of Activity   Figure 3. Total ERP Cost
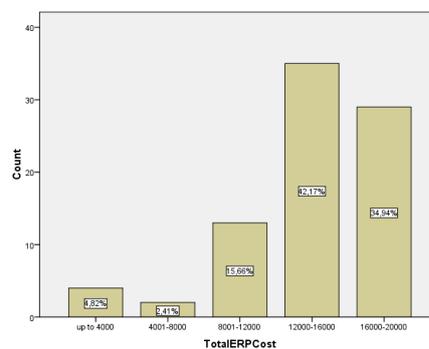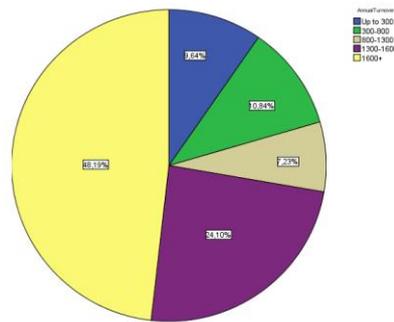
Figure4. Annual Turnover

The basic descriptive characteristics of the criteria regarding the ERP selection are studied. It is noted that the five level Likert scale is used (1= Not at all, 2= A little, 3=Moderate, 4=Much, 5= Very Much), in order to estimate the importance of each criterion on ERP selection. Thus, in all measurements the maximum value is 5 and the minimum one is 1.

Table 1 depicts the results about the first five criteria. The greater mean score is achieved by the supplier fame surplus (4.06) a variable that has the lowest standard deviation of this set (0.88). In the second place lies the cost (4.0- 1.05), and in the third position the influence of ERP in functional effectiveness of the enterprise (3.93-1.045). The last two places are conceived by the supplier assistance (3.73-1.2) and the level of technical support (3.4-1.11). It is interesting that the fame surplus of supplier is in the top, a result that demonstrates the anticipated quality of an ERP.

Table 1. Descriptive Statistics (First Criteria Group)

	N	Minimum	Maximum	Mean	Std. Deviation
Functional Effectiveness	83	1,00	5,00	3,9277	1,04512
TechnicalSupport	83	1,00	5,00	3,3976	1,11464
Cost	83	1,00	5,00	4,0000	1,05922
SupplierAssistance	83	1,00	5,00	3,7349	1,20045
SupplierFameSurplus	83	1,00	5,00	4,0602	,88826
Valid N (listwise)	83				

Hence in the second group of criteria (see, Table 2) the major variable is the compatibility to enterprise's systems (4.31-0.85). According to this finding it is valid to state that ERP is selected in order to improve enterprise's effectiveness. Thus, the second most valuable criterion is the positive effect of the system to the organizational structure of the enterprises (4.04-0.98). The third one is

customization (3.93-1.09), the fourth credibility of the system (3.807-1.29) and the last one the market share that the supplier enjoys (3.79-1.11)

Table 2. Descriptive Statistics (Second Criteria Group)

	N	Minimum	Maximum	Mean	Std. Deviation
Credibility	83	1,00	5,00	3,8072	1,29217
Compatibilityto Enterprisesystems	83	1,00	5,00	4,3133	,85437
Customization	83	1,00	5,00	3,9277	1,09079
SupplierMarketShare	83	1,00	5,00	3,7952	1,11267
OrganizationalStructureofEenterprise	83	1,00	5,00	4,0361	,98086
Valid N (listwise)	83				

In Table 3, are portrayed the descriptive results of the third group about the criteria of ERP selection. Scores here are lower that the aforementioned two tables as, no mean of the six variables is grater than the value of 4 ("much"). The superior grade is for the variable of supplier recommendation (3.95-1.1), and the second for the implementation and mainly for the ERP duration (3.83-1.03). Technological and methodological assistance to enterprises' functions achieves an average respond equivalent to 3.78 (1.27), the influence in external consultants operation 3.33 (1.1) and surprisingly project management scores at the lowest one of 3.19 (1.02).

Table 3. Descriptive Statistics(Second Criteria Group)

	N	Minimum	Maximum	Mean	Std. Deviation
SupplerTechnicalSkillandKnowledge	83	1,00	5,00	3,6988	1,06765
SupplierRecomendation	83	1,00	5,00	3,9518	1,10325
ImplementationandDuration	83	1,00	5,00	3,8313	1,03381
TechnicalandMethodologicalAssistance	83	1,00	5,00	3,7831	1,27880
ExternalConsultants	83	1,00	5,00	3,3253	1,10551
ProjectManagement	83	1,00	5,00	3,1928	1,02954
Valid N (listwise)	83				

According to the aforementioned findings the frequencies in the significance of each criterion can be analysed. In functional effectiveness fields the prevalent answer is much (44.6%), and follows very much (31.3%) and moderate (14.5%). Not at all and a little declares only a 4.8% for each scale. In the importance level of the technical support that ERP provides to enterprise's function responses are in favour of moderate (33.7%). Much is in the second place (31.3%), and very much in the third (16.9%). Not at all receives 7.2% and a little 10.8%. But in contrast cost is a very important factor in ERP selection as very much answers the 41%, much the 30.1%, and moderate the 19.3%. Only the 2.4% declares not at all and a little the 7.2%.

Sequentially, the answers are quite similar for the criterion of supplier assistance. In the greater level of responds, lies the 28.9%, and in the next one the 41%. Moderate notion about the supplier assistance has the 12%, and minor the 10.8% respectively. However, a 7.2% states not at all. The supplier of ERP is a crucial determinant of its selections as this significant orientation accrues and in the supplier fame surplus as well. Only the 2.4% states not all and 3.6% a little in this criterion whereas moderate perspective has the 10.8%. In contrast much responds the 51.8% and very much 31.3%. Therefore, it is not surprising that credibility scores are high enough. In the very much scale lies the 42.2%, and in the following one the 21.7%. In the moderate field is placed the 18.1%, in the low the 10.8% and in the lowest the 7.2% in that rank.

High scores are observed and for the case of compatibility to enterprise's systems criterion. Not at answered only the 1.2%, and a little the 2.4%. One out of ten enterprises placed in the moderate field in this factor (10.8%), whereas very much stated the half (50.6%) and much around the one third (34.9%). However, in customization criterion great importance shares the 38.6%, very much the 28.9%, moderate the 22.9%, a little the 6% and not at all the 3.6%. Relatively close to the aforementioned criterion are the results of the supplier market share variable. Very much address the 32.5%, much the 31.3% and moderate the 22.9%. In contrast the lowest answer is selected by the 3.6% and a little the 9.6%.

ERP selection is crucial for the matching with the organizational structure of the enterprise. The highest scale receives a respond rate equal to 41% and the higher 28.9%, respectively. Moderate options about the organizational structure has almost one quarter (24.1%) and not important the 4.8%. Last but not least, not important at all reviews only the 1.2%. Interestingly indeed the technical skill and knowledge has heterogeneous distribution in enterprises preferences. The median scale takes more than one quarter (28.9%), the higher almost one third (32.5%) and the highest almost equivalent of one quarter (26.5%). On the other hand not at all responds the 3.6% and a little the 8.4% correspondingly. In addition the supplier recommendation follows this trend as the 22.9% of the enterprises stands moderate, the 28.9% positively and the 39.9% very positively. In the negative field lies a 4.8% of non importance and a 3.6% of a very low importance as well.

Furthermore, the implementation and duration of ERP is also a significant factor for its selection. In the moderate field stands about the one quarter (22.9%), whilst much answered the 36.1% and very much the 30.1%. Moreover, the not at all option here is represented by the 2.4% and the a little choice by 8.4%. Thus, the technical and methodological assistance seems to have also significant influence in the ERP selection. From 8.4% receives the lowest and the lower scale each, but the moderate one is below 20% (18.1%). This factor is declared of much importance by the 26.5% and of very much importance by the 38.5%. The external consultancy is not nevertheless as significant as the

moderate selections comes first (41%), and follow the upper one (21.7%) and the most significant (18.1%). In this field not at all stated the 6% and a little the 13.3%. Last but not least are depicted the findings about the project management. These were not as significant as the anticipated ones as of much importance is characterized by the 38.6%, and of very much importance the 6%. The moderate option is up to 30% (31.3), the lower is equivalent to 16.9% and the lowest to 7.2% respectively.

In the next six tables are portrayed the correlations results between the selection criteria and enterprise's characteristics (Tables 4 and 4a). In the first criteria group functional effectiveness has minor positive correlation with the scope of activity (0.275), technical support with the segmentation operation (0.217), and supplier assistance with annual turnover (0.252). Moreover functional effectiveness is negatively correlated with pilot duration (-0.344), but positively with total ERP cost (0.536). Inverse relevance with the duration of pilot period has the cost variable (-0.307) and positive with the total cost (0.45). Last but not least the supplier assistance and the supplier fame surplus are both positively correlated with the total cost of the programme (0.268 and 0.375 respectively).

Table 4. First Criteria Group

	Scope of Activity	Segmentation Operation	Years of Operation	Annual Turnover
Functional Effectiveness	0.275	×	×	×
Technical Support	×	0.217	×	×
Cost	×	×	×	×
Supplier Assistance	×	×	×	0.252
Supplier Fame Surplus	×	×	×	×

Table 4a. First Criteria Group

	Employees before ERP	Employees Variation After ERP	Pilot Duration	Total ERP Cost
Functional Effectiveness	×	×	-0.344	0.536
Technical Support	×	×	×	×
Cost	×	×	-0.307	0.45
Supplier Assistance	×	×	×	0.268
Supplier Fame Surplus	×	×	×	0.375

In Tables 5 and 5a are depicted the results between the second selection criteria group and enterprise's characteristics. Credibility has only statistical significant correlation only with ERP cost (0.332), whereas compatibility with scope of activity (0.256) and with cost (0.376) as well. Supplier market share is positively connected with the scope of activity (0.219) and interestingly customization is negatively associated with annual turnover (-0.283). ERP cost is present and for the case of organizational culture of the enterprise as positive association is observed (0.231).

Table 5. Second Criteria Group

	Scope of Activity	Segmentation Operation	Years of Operation	Annual Turnover
Credibility	×	×	×	×
Compatibility to Enterprise's Systems	0.256	×	×	×
Customization	×	×	×	-0.283
Supplier Market Share	0.219	×	×	×
Matching with the organizational culture	×	×	×	×

Table 5a. Second Criteria Group

	Employees before ERP	Employees Variation After ERP	Pilot Duration	Total ERP Cost
Credibility	×	×	×	0.332
Compatibility to Enterprise's Systems	×	×	×	0.376
Customization	×	×	×	×
Market Share	×	×	×	×
Matching with the organizational culture	×	×	×	0.231

Finally in Tables 6 and 6a are depicted the results between the third group of selection criteria and the characteristics of the enterprises. Supplier's technical skills are correlated significantly only with total ERP cost. This is the case for the supplier's recommendations (0.237), whereas implementation duration is positively associated with scope of activity (0.233). It is interesting that the Supplier level of technical and methodological assistance is negatively correlated with the pilot duration (-0.218). Finally, the external consultant has negative correlation with employee's variation after the ERP implementation and the project management has in contrast positive connection with segmentation operation (0.237).

Table 6. Third Criteria Group

	Scope of Activity	Segmentation Operation	Years of Operation	Annual Turnover
Supplier Technical Skills and Knowledge	×	×	×	×
Supplier Recommendations	×	×	×	×
Implementation Duration	0.233	×	×	×
Supplier level of technical and methodological assistance	×	×	×	×
External Consultants	×	×	×	×
Project Management	×	0.237	×	×

Table 6a. Third Criteria Group

	Employees before ERP	Employees Variation After ERP	Pilot Duration	Total ERP Cost
Supplier Technical Skills and Knowledge	×	×	×	0.223 (0.043*)
Supplier Recommendations	×	×	×	0.237
Implementation Duration	×	×	×	×
Supplier level of technical and methodological assistance	×	×	-0.218 (0.048*)	×
External Consultants	×	-0.307	×	×
Project Management	×	×	×	×

The regression analysis took place in order to test the influence level of ERP project management to enterprises' characteristics. Additionally, the criterion of duration of program implementation was tested as independent variable in enterprise' characteristics. Tables 7 and 8 depict the findings.

Table 7. Regression analysis

	b Coefficients (Sig)	Adjusted R Square	F (Sig)	beta standard error	
	MODEL 1				INDEPENDENT VARIABLE
Scope of Activity	0.113	0.01	0.177	0.083	
Segmentation Operation	0.110	0.044	**0.031**	**0.05**	
Annual Turnover	0.121	-0.04	0.411	0.147	Project Management

Table 8. Regression analysis

	b Coefficients (Sig)	Adjusted R Square	F (Sig)	beta standard error	
	MODEL 2				INDEPENDENT VARIABLE
Scope of Activity	0.176	0.043	**0.034**	**0.081**	
Segmentation Operation	0.013	-0.012	0.807	0.052	
Annual Turnover	-0.084	-0.08	0.569	0.147	Implementation Duration

The project management criterion has positive influence in the segmentation operation of the enterprise as only in this field (0.11) there are statistically significant results (0.031). Project management has not significant impact in the annual turnover or the scope of activity. But the fact that project management procedures are positively correlated with the segmentation of enterprises departments is a crucial impact of ERP.

On the other hand, the duration of the ERP implementation seems to have positive impact on enterprise's scope of activity (0.176). Only this influence can characterized as statistically significance (0.034). The other two dependent variables (annual turnover and segmentation operation do not receive any significant impact from the duration of ERP implementation.

The results regarding t-test are demonstrated in the Table 9. T-test was used in order to comprehend the potential differences in the answers about the selection criteria of ERP. Totally seven pairs of these criteria were structured. In some of them there are significant differences between them and in some of them not.

There are statistically significant differences in the pair of functional effectiveness and technical support (0.002). Functional effectiveness had greater effect in the selection process than the technical support of the program. This is the case for the couple of implementation duration and the project management (0.00). It is notified that project management variable scored lower than the duration of ERP implementation. The third pair, that its means are differentiated significantly is external consultancy with supplier recommendation with the former to score lower than the latter (0.00).

The four remaining pairs (i.e. cost-supplier fame surplus, supplier technical skill and knowledge-supplier assistance, credibility-customization, organizational structure of enterprise – technical and methodological assistance) do not have significant differences in their average scores. This finding reveals a relative homogeneity in the selection criteria of ERP, from the enterprises of the sample.

Table 9. Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	FunctionalEffectiveness – TechnicalSupport	,53012	1,47613	,16203	,20780	,85244	3,272	82	,002
Pair 2	ProjectManagement – ImplementationandDuration	-,63855	1,38439	,15196	-,94084	-,33626	-4,202	82	,000
Pair 3	Cost – SupplierFameSurplus	-,06024	1,16189	,12753	-,31395	,19346	-,472	82	,638
Pair 4	SupplerTechnicalSkillandKnowledge – SupplierAssistance	-,03614	1,53373	,16835	-,37104	,29876	-,215	82	,831
Pair 5	Credibility - Customization	-,12048	1,61847	,17765	-,47389	,23292	-,678	82	,500
Pair 6	ExternalConsultants – SupplierRecomendation	-,62651	1,52788	,16771	-,96013	-,29288	-3,736	82	,000
Pair 7	OrganizationalStructureofEnterprise– TechnicalandMethodological Assistance	,25301	1,44698	,15883	-,06294	,56897	1,593	82	,115

5. DISCUSSION-FURTHER RESEARCH

Thebasic aim of this study is the research regarding the importance of different criteria in ERP selection process. The responds of 83 different enterprises in Eastern Macedonia and Thrace region, in Greece, it was used. These answers were analysed in order to understand the relevance of these criteria with enterprises' characteristics and their potential influence on enterprise's function as well.

In the field of the criteria in ERP selection process the greater importance was appeared in the fields of compatibility to enterprise's systems, the matching with the organizational structure of the enterprise, cost and supplier fame surplus. In addition, significant influence exercise in the ERP selection factors like the functional effectiveness, credibility, supplier's recommendations, customization, credibility and the duration of ERP implementation. Interestingly the scores of project management were not high enough, but stood in the moderate scale (3.19) and comparatively to the other variables was the lowest one.

Hypothesis 1, stands but not in a great level as the criteria of ERP selection are significant factors of enterprise operation, but not in a high level. In addition, the duration of the implementation of the program also exercise impact on enterprises' functions but significantly only in the cope of activity (hypothesis 4). Therefore, the criteria of ERP selection are significant factors of enterprises' operation, but not in a high level. However, a greater sample of respondents might give more significant and more valuable results.

Furthermore, hypothesis 2 was not proved as the variations of the employees about the implementation of ERP in the enterprises have negative correlation only with the services of external consultancy. This limiting discovery might be an outcome of the organizational structure of small and medium enterprises that operated in Greek economy. Thus, small and medium enterprises should adopt strategies of learning by doing and collective action as well. In contrast, hypothesis 3 is valid as the supplier of ERP program plays a significant role in its selection and therefore impacts on enterprises' functions. Hypothesis 4 is valid since the duration of the ERP implementation has significant impact in the scope of activity.

In this perspective our results are relevant enough to those of Valsamidis et al (2009), and especially in the fields of functional effectiveness and in the role of supplier of ERP. According to the importance of influence of the cost of ERP selection and implementation the findings of the assignment are in contrast to the aforementioned study. The significance of cost in ERP selection and implementation is an outcome that is present in the results of Hecht (1997). The fact that liquidity is a crucial matter for the majorities of small and medium enterprises, can be interpret the great gravity that is given to the total cost of the program. Moreover, the significant correlation of supplier's with different options of enterprise's functions also reveals significant dimensions of cost factors.

The limitations of the research lie on the relative small number of the enterprises that were participated. This restriction accrued as a matter of the difficulty to extend the research on the enterprises that function abroad in countries like Romania and Bulgaria. The extension of the research in different countries, would gave the opportunity to explore the different dimension of ERP selection and implementation.

Nevertheless the findings of the research disclosed significant options of ERP process in small and medium enterprises. As it is stated in the conclusions of the study small and medium enterprises

should adopt strategies of collective learning and knowledge (Keebleand Wilkinson, 1999), in order to achieve effective implementation of ERP in their functions. In this perspective, ERP selection and implementation will evolve in a crucial input of enterprises'performance.

Further research should focus in the collaboration fields of small and medium Greek enterprises, in ERP proceedings. The research in fields such as collective action and learning and collective knowledge will shed strong light in the relevance between ERP and enterprise's performance. Thus, ERP could be confronted as an input of the effectiveness of business networks and local development as well.

6. CONCLUSIONS

As far as the process for the selection of an ERP packet becomes under specific conditions, priorities and methodology, it is certain that the final selection would be the most suitable for the satisfaction of the enterprise's objective goals. There is no doubt that every organization or every enterprise has its own needs and consequently the evaluation degree and the final decision differs. Every enterprise should pay attention to its own criteria and should focus its evaluation on issues like Technology – Functionality – Convenience in usage – Adaptability in enterprise's needs – Easily assimilated by users and enterprise's executives.

One of the most important criteria in the selection of an ERP packet is its flexibility and dynamic towards changes. It should be taken into serious consideration the fact that modern enterprises function in a very competitive and continuous changing business environment. Enterprises should be flexible to current changes in order to survive and in extension to succeed. Another important factor is that Greek market is developed into a highly demanding market as far as it concerns its choices towards applications packets in every field. The crucial reasons for this market attitude is that in recent years Greek market had coped great difficulties due to quick decisions and carelessness of the past. Additionally, there is ruthless competition and great need for proper organisation as means of success.

An ERP system should take advantage of an enterprise's existing infrastructures. It is common sense that in order for an enterprise to maximise the information and capabilities that an ERP programme provides, it should have an excellent internal organisation and interconnection among its departments, due to the limitations that such a programme poses. The existence of interest is also of crucial importance. In other words, the enterprise's personnel should cooperate successfully and it should also be keen on continuous training and education. Managers of departments ought to have a leading role in order to accomplish their task. As a final conclusion it can be supported that the implementation of an ERP programme is for enterprise's interest. Taking into consideration that it is a decision of great importance (there are many examples of enterprises that took the decision, spent a lot of time and money on such a programme and in the end either they delayed the implementation of the programme either they abandoned the programme), the enterprise that decides to implement an ERP programme should ensure that it has the proper infrastructure and organisation in order to do it.

The basic problems that will arise and enterprises ought to cope with during the realization of the programme sum up in:

- Natural reaction of every employee to every novelty.

- The existence of individual fields of the enterprise that have special information systems per division (the so called "Islands of Information), which don't allow information exchange in every field.
- Closed and non flexible architecture of many ERP systems doesn't allow a quick and successful incorporation of these systems into an enterprise.
- The so called "Best Practice" solutions or procedures that were incorporated in some ERP systems failed in taking into consideration cultural specificities and differences of various markets, fields and enterprises.

These conclusions are matching with the basic findings of this study. It can be stated indeed that the composition of different criteria according to enterprise's special characteristics might be the solution for an effective implementation of ERP. In this perspective the selection and the implementation of ERP can be evolved as a vibrant comparative advantage of the enterprise. Therefore, the cooperation and the collaboration of different departments and sections of an enterprise is a crucial input of the selection of the appropriate criteria of ERP and its effective implementation as well.

Conclusively, in order an enterprise to complete successfully the implementation of the proper integrated information system should take into consideration a set of reasons: Management's commitment, availability of essential involved executives, full training of the final users, credibility of the available elements, ensure proper funding, operational plan project, a realistic implementation schedule and effective project management. Finally, the selection of an ERP system is not the final goal of an enterprise, but the base line of its course towards continuous enhancement and improvement.

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BUSINESS INTELLIGENCE FOR STUDENTS

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ABSTRACT

To know the past and forecast the future, to achieve the goals defined by their business strategies, many companies are adopting Business Intelligence (BI) tools integrated in their information systems. In this context, we strongly believe that students need to learn theory and practical application about BI.

After the study of BI measurement, metrics, and performance management techniques, students need to explore a data collection and analysis methods by developing and analyzing themselves an online application using BI software tools, open source for a local small business.

To help both faculty and students assess for themselves the value of open source software solutions, Jaspersoft has provided a suite of BI solutions in educational purpose. At the same time, employers are increasingly interested in finding graduates prepared as today's workforce having knowledge on BI.

Jaspersoft offers an unique technology that allows programmers to build BI-oriented applications, process huge amounts of data and present trends, statistics and decision-helping reports in a flexible manner, no matter the platform: web-based or mobile.

The paper presents the components, benefits, technology requirements, designing and implementing business intelligence techniques. Based on world statistics, we choose to use Jaspersoft, one of the top ten BI software, to model the most frequently used analysis requirements, displaying the most relevant data and indicators used by organizational management.

KEYWORDS

Business intelligence, analytics, OLAP, learning.

JEL CLASSIFICATION CODES

C81, A23, C63

INTRODUCTION

The negative influence of the crisis on today's business requires an intelligent management computer-based to improve profits, called *Business intelligence*.

The concept of Business intelligence (BI) refers to the software applications used for gathering and analyzing data about a company, in order to supply the better business decisions. The term refers to the human intelligence capacity applied in business environment and to the value of actual, precise and relevant information. The second semantics is related to the expert information, knowledge and methods efficient for the management of business (Ranjan, 2009). Firms have depth and statistical knowledge about influence factors on decisions, such as the concurrence, partners, customers, economic environment, and internal operations to take a quality business decision.

According to the opinions of Forrester Research, the BI architecture is multi-level and it may be separated into at least two stacks. In order to realize a separation between the levels of the BI architecture, Forrester Research refers to data preparation and data usage as two separate, but closely linked segments of the business intelligence architectural stack (Evelson, 2010).

Data marts can be also used as an intermediate structure for collecting data from different sources and their content is replicated periodically in data warehouses. The concept of data marts is transparent for the BIsystem users. Data warehousesare periodically supplieddata onsubsequenttransactionswithoutend userintervention.

2). At second stage is a management model for extraction, transformation and processing data, based on different type of models for statistic interpretation, analysis and forecasting data. At this level are defined reporting components (annual reports, analysis, dashboards, charts, etc.) using technologies like OLAP (online analytical processing), data mining and analytical reporting.

The OLAP engine is a query generator having the ability to explore and analyze summary and detailed information from a multi-dimensional database. OLAP tools offer to managers the ability to use a forecasting data and "what-if" analysis. OLAP can only mark the trends and patterns within the data that was requested, they will not discover hidden relationships or patterns, which require more powerful tools like data mining (Olszak & Ziemba, 2007).

The main characteristics of OLAP are:
▪ multidimensional view of data (data hypercube),
▪ ability to perform intensive calculations
▪ time intelligence.

The multidimensional view refers to the enterprise activities looked from different angles: time, location, products, benefits, human resources etc.

The most effective analyze is making a comparison between the synthesized data and a theory-driven model. If there isn't such a theoretical model completed, it can use the expansion method by data-driven techniques, also called Data mining. DM software analyzes relationships and patterns in stored transaction data based on open-ended user queries. Several types of analytical software are available: statistical, machine learning, and neural networks. This technology records a qualitative leap through its ability to find new issues of activities, connections among events, facts, sequences and patterns of behavior (Zaharie et al, 2009).

Through statistical or modeling techniques, data mining tools make it possible to discover hidden trends or rules that are implicit in a large database. Data discovered by these tools must be validated and verified and then to become operational data that can be used in decision process.

OLAM (on-line analytical data mining) systems are OLAP systems used for data mining, in order to discover new information from multidimensional data.

3). The third stage is represented by data visualization tools, that can help managers to examine data graphically and to identify inter-relationships. BI systems attempts to present data in a form that is relevant for strategic decisions.

At this level, one can find tools for reporting and presenting data in a friendly manner. A very efficient solution that can be used also to integrate data is to develop a business intelligence portal (Bara et al, 2009). The main purpose of a BI portal is to integrate data and information from a wide range of applications and repositories, in order to allow visualization of many systems, either internal or external to the organization, through a simple Web interface. Therefore, a BI portal can be seen like a Web-based, secure interface, which can offer a unique integration point for the applications and services used by employees, partners, suppliers and clients of the organization. The main advantage of the information portal is that it can be easily offered as a service to the wide public.

4). At fourth stage a BI system is capable to execute simulations and obtain insights about business problems. In this manner is possible to gaining more knowledge, to forecast the future based on data obtained from different business context.

In figure 2 is represented the hierarchy of a BI system, from the level of transactional data until the organizational strategy.

Based on a vast amounts of data collected through the transactional systems, the companies implemented a data warehouse. The development of Business Intelligence concepts and technologies creates a management environment where existing and new data can be the support for improved decision making (Pugna et al., 2009). Furthermore, the existence of OLAP and Data mining tools creates opportunities for management to improve forecast accuracy and create a predictive ability in decision making and organization strategy.

Figure 3. Virtual Practice Scheme
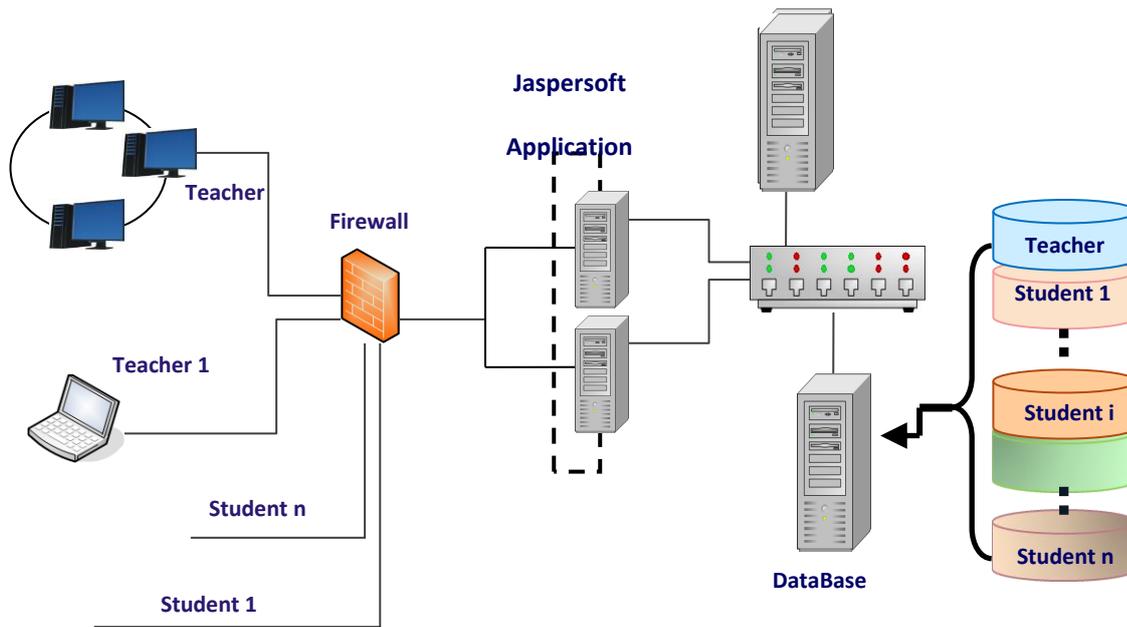
Business Intelligence is used to gather information and to combine all the capabilities available in the company in order to establish trends and future markets, technologies, features of the environment in which the company competes, the implications of the competitor actions.

- Who are the users of the BI systems?

Business intelligence is used by decision makers throughout the firm. At lower levels of management, it helps individuals to achieve their daily work, periodic reports and analyzes. At high managerial levels, it is the input to strategic and tactical decisions.

- How do you gather date and transfer them to BI?

Business intelligence is a form of knowledge. The techniques used in knowledge management for generating and transferring knowledge apply. Some knowledge is bought while other knowledge is created by analysis of internal and public data. Knowledge transfer often involves disseminating intelligence information to many people in the firm.

Studentsalready havenotionsofdesignand implementation ofdatabasesfrom previous yearsof study,prerequisite forbuildingadata warehouseforsmalland mediumbusiness. Well known DBMSs supported by Jaspersoft include Oracle, IBM DB2, Microsoft SQL Server, PostgreSQL, MySQL all of them compliant with JDBC (Java Database Connectivity technology).

Our experiment will work on such a database, testing various options of Jaspersoft. Using this technology all information from the projected databases is available for BI reports, analysis and dashboards.

This section shortly explains how to prepare data to be used in reports, OLAP views, dashboards in Jaspersoft. A sample data source is organized in a data structure, using the fields (attributes) to realize the relationships among tables. We propose the following structure of an Access database, designated to represent the examination results of the students (figure 4).

There are many free software tools to accomplish the migration from an Access database into a PostgreSQL database. Then, users must define a data source connection inside Jaspersoft. To connect to a data source is important to configure the Data source and define a driver by setting the server path and database name in the JDBC Wizard. After setting these parameters, it is necessary to check the connection and the database server is running properly.

Next step is creating the joins between tables, as shown in figure 6.

Figure 6. Creating the joins between tables
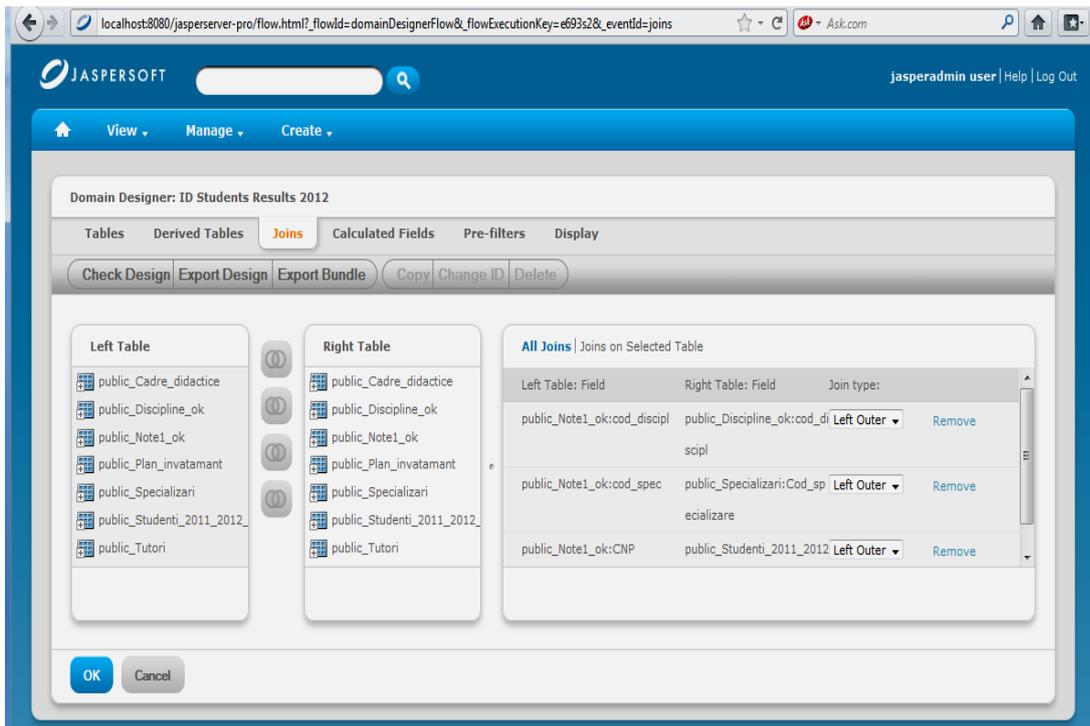
An Ad Hoc Report is created interactively in the *Ad Hoc Editor* by dragging and dropping columns of dataonto a table, chart, or crosstab. Users may then filter the data and save the report. AnAd Hoc report can either be run or re-opened for further data exploration
A Dashboard is a collection of reports, input controls, graphics, labels, and web content displayedtogether. Users create dashboards interactively in the Dashboard Designer and savethem in the repository (figure 7).

Figure 7. An example of Dashboard
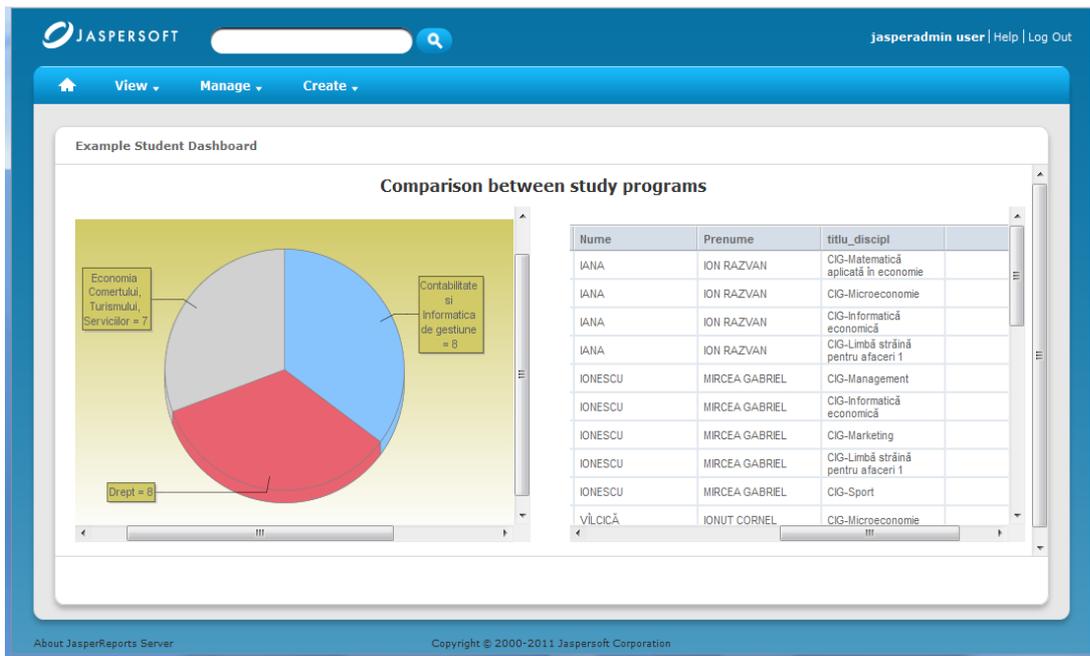
The second approach describes business intelligence as the top layer of the architectural stack such as reporting, analytics and dashboards (Bara et al., 2009).

This paper presents the components, benefits, technology requirements, designing and implementing business intelligence techniques. As experimental part, we choose to explore a data collection and analysis methods for a small business using the BI software Jaspersoft.

We emphasize the advantages of using Jaspersoft for students: for example, to apply Jaspersoft's iReport Designer in order to defining operational reports and apply JasperAnalysis for creating OLAP solutions (Gile, 2006).

Also, students will learn the difference between the traditional, SQL-based tools and new technologies like data warehouse, data mining and analytical processing and reporting.

WHAT IS A BI SYSTEM?

A BI system is built on a foundation consisting of large amounts of data, synthesized using new technologies such as data warehousing and data marts. The next step is the analysis of these data, finding patterns, relationships, and also structural, functional and causal types of connections.

In this manner, the life cycle of BI systems evolves four stages (Kocbek & Juric, 2010)- figure 1:

- **Getting data** – collects and organizes data from different sources.
- **Analyzing the data obtained through BI operations** – is based on different type of management models for extraction, analysis, transformation and processing data.
- **Identifying trends, changes and incorrectness** – Trend forecasting by using predictive analytics. Identify opportunities within the business by using complex mathematical methods and algorithms.
- **Simulations and gaining new knowledge** about business problems and opportunities.

Figure 1. The life cycle of business intelligence systems
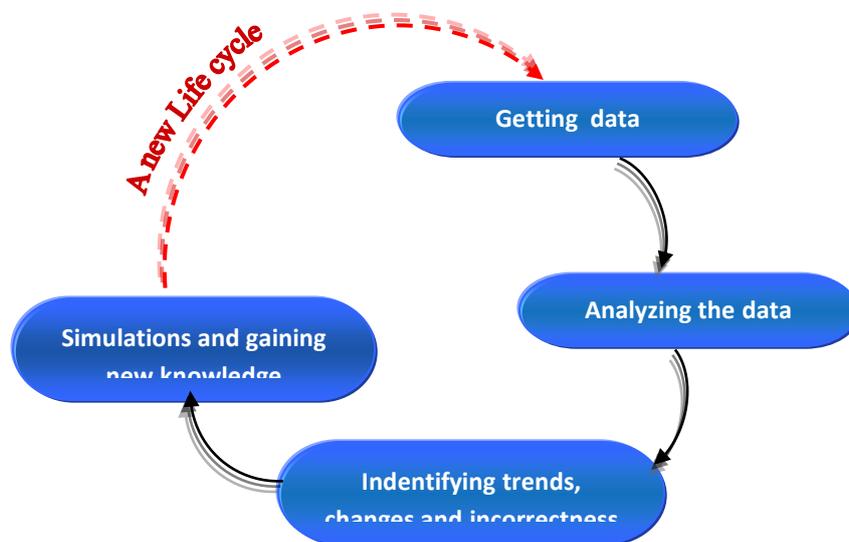
1). At first stage is implemented a data warehousing solution that collects and organizes data from internal and external sources. A data warehouse contains statistical and current data, organized and optimized for the purpose of analysis. Data warehousing represents an ideal vision of maintaining a central repository of all organizational data. Centralization of data is needed to maximize user access and analysis.

In addition, data can be stored selectively taking into account certain domains or activities or other criteria in data marts, which is the access layer to data warehouse, organized on purpose to obtain data for end users.

Figure 2. BI Platform – support of enterprise management
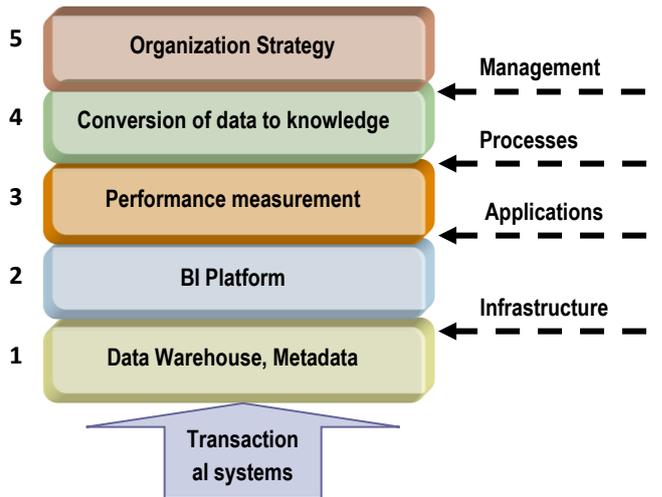
3. BUILDING A BI SYSTEM WITH JASPERSOFT IN EDUCATIONAL PURPOSE

To help both faculty and students themselves to assess the value of BI software, we used a suite of BI solutions from JasperSoft to create a demonstration with educational purposes. At the same time, employers are increasingly interested in finding graduates having knowledge on BI, as today's workforce.

This study adopted a quasi-experimental research method to evaluate the influence of the business intelligence in learning process of managerial tools on the students. The experiment is at the beginning and it will be conducted during 14 weeks (one semester) in two undergraduate classes of Department Banking andFinance of the Faculty of Economics, University of Pitesti, Romania.

Practically we simulated a virtual students' practice vs. a traditional one and we tried to prove the advantages of this new method:

- Developed on the entire grounding cycle
- The practice does not involve any extra-spaces
- Practical works after classes
- There is a demo-company for study
- Each student has its own company for practice
- All practical works are mandatory for the student
- Individual study
- Availability: 24 hours weekly

Figure 3 presents a scheme of virtual practice that highlights the possibility of students to work on the university network or on their personal computers. First, students must learn some theoretical concepts and in this purpose teachers have the mission to answer students' questions about the relevance of BI to the business environment and management strategy (Negash, 2004):

- *What is new about business intelligence compared to previous informatics systems?*

Business intelligence is a natural consequence of a series of previous systems designed to support decision making. The emergence of data warehouse as a repository, the advances in data cleansing, the continuous improvement of the hardware and software features, and the boom of Internet technologies that provided the user interface, all combine to create a richer business intelligence environment than was available previously.

- *What types of information supply a business intelligence system?*

Students will define domains to join, filter and realize the processing of the data using either the Ad Hoc Editor or iReport.

Figure 4. An example of student database
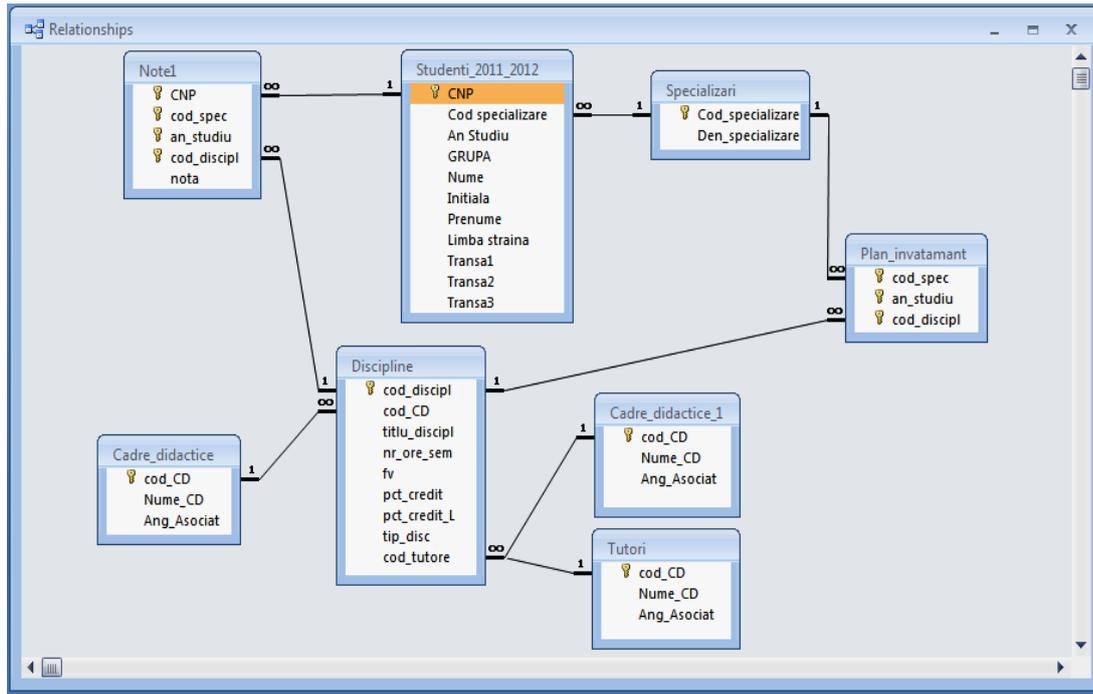
Domain is a virtual view, created and stored in the server without modifying the data source. Users can save a report based on a Domain for others to run, and can also save the settings in a Domain Topic so others can design similar reports.

Figure 5. Creating a Domain by selecting the tables
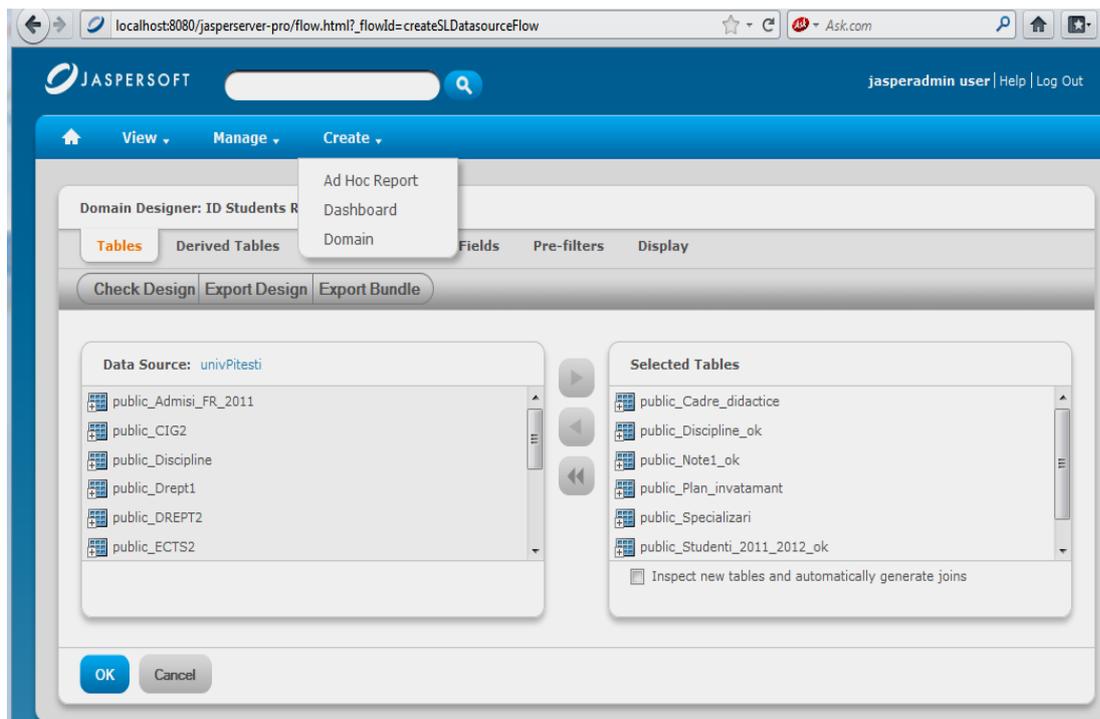
Finally, the study will use the achievement test to evaluate the learning effect, built on reports and OLAP analysis to survey the degree of the learning model and to assess the performance of classroom learning.

All response data from students will be recorded into semester projects so that we can establish correctly the learning performances for BI model.

CONCLUSIONS

BI systems have a powerful impact on strategic decisions quality to reduce the time for making decisions and thus these systems must have the ability to allow managers to view data in different perspective (to drill-down and roll-up to aggregate levels, to navigate and on-line query data sets) in order to discover new factors that affect business process and also to anticipate and forecast changes inside and outside the organization.

In this context, we strongly believe that students need to learn theory and practical application about BI technology.

The highly regarded effectiveness of these practical applications lies in a powerful combination of theory, principles, and applied techniques using real-world tools. Data, collected from the firm and other sources, is stored and analyzed in a database the students themselves must design.

We choose to use Jaspersoft, free software for BI, to model the most frequently used analysis requirements, displaying the most relevant data and indicators used by organizational management.

In the final section of this paper and based on the foregoing, we propose to continue those learning experiences in the following semester, and repeat the experiment with a larger population and by using more BI instruments.

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GLOBALIZATION AND IT'S EFFECTS ONTURKEY, BRIC, BALKAN, EAST EUROPEAN COUNTRIESAND THE DIFFERENT STRATEGIES PERSUEDBY THE EMERGING MARKETS

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ABSTRACT

This article intends to study globalization particularly from the perspective of less developed countries (LDCs) and newly industrializing countries (NICs).

After World War 2 (WW2), LDCs and NICs implemented a closed economy model, import-substitute industrialization, interventionalism and protectionalism. This was in line with most development economists at the time who observed market imperfections, increasing returns to scale and interdependence between sectors in these countries. However, implementations in most went overboard with excesses resulting in balance of payments crises, high inflations and worsening of income distributions.

This was observed by many new breed development economies economists in the '70s who advised New Classical Development Theory of non-interventionalism. Since public opinion in many of these countries had also arisen against closed economy, during the '70s and '80s, they turned toward market economy, outward orientation and export encouragement through flexible exchange rates. In he '90s, the use of computers and open attitudes ushered in globalization stage in which freer trade, direct private investment flows are fully encouraged and in addition, free flow of financial funds are allowed. 1997-98 Global Financial Crisis which emanated in South East Asian Countries due to misuse of financial funds received spread all over the world, including Russia, Turkey, Argentina, etc. Hence there was a substantial contraction in the flow of financial funds and direct private investments. Starting from a lower level, in the '90s, globalization nonetheless continued to expand till these days as an inevitable and irreversible trend.

The volume of international trade today, direct private investments (DPI) and private financial funds (PFF) going to LDCs, NICs and emerging markets definitely prove that globalization has become widespread and irretrievable. Accordingly, all these countries, rather than denying or opposing globalization, seek to obtain maximum benefit from the process. This requires choosing a "suitable globalization strategy" that should be part and parcel of "good (overall) governess".

1. INTRODUCTION: DEFINING GLOBALIZATION

Globalization involves maximally free movement of goods and services (international trade), free movement of Direct Private Investments (DPIs) also involving purchases of firms, participations and mergers, and as the most important ingredient, free movement of short and long term (private) financial funds and credits between countries worldwide, both developed (DCs) and developing (LDCs, NICs), also including newly "emerging markets". Flow of immigrant workers and their remittances to mother countries is also another important ingredient; but de facto flow is much greater than the legally allowed (de jure) immigrants for work. We should underline even at this starting stage that the latter group of countries (LDCs, NICs, etc.) are as involved in globalization as the DCs, and benefiting greatly.

2. BRIEF HISTORICAL PERSPECTIVE

Globalization may have started with the years earlier than 90's but a wider historical perspective shows that it was a long developing process. The real storting point was post WW 2 (1939-45) when the allies, led by the USA created the IMF, the WB and enacted GATT in order to prevent restrictions on international trade after the war. Severe restrictions had been implemented after WW I with catastrophic economic and political consequences for all European and Western countries. Following WW 2, in addition to free trade, free flow of DPIs and the principle of encouragement of private enterprise had also been agreed upon. Just prior to WW 2 and following the Great Depression of 1929-34, on the other hand, Keynes had devised a macro economic system that, unlike its predecessor, the Classical system, advised government interventions at the macro level (monetary and public finance policies) to prevent unemployment and business cycles, which most DCs accepted at the time and thereby lived a relatively stable high growth period till the 70's when oil prices were raised by OPEC. The DCs had only minimal interventions to the economy at the micro and the sectoral level, excepting the case of agriculture.

In contrast, however, development economists generally believed that in those early post WW 2 years LDCs lacked competition at sectoral levels. This, plus economies of scale and the need to establish new industries dictated that governments of LDCs implement not only merely "macro" but also "micro" and sectoral policies, All this involved interventionism, planning and protectionism, a closed economy model and import-substitute industrialization (for more details: Toye, 1993; Hiç, 2001; Birol 2007). The only exceptions were the "Asian Tigers" which implemented an export-oriented growth strategy but in a milieu of interventionism and protectionism. Thus, the model they implemented was not "market economy" proper. Their special political and economic relations with the USA and the flow of direct private investments from the USA to the manufacturing sector of these countries had enabled them to pursue such a development strategy effectively.

Throughout the 50's to 70's in all other LDCs generally interventionism and protectionism were carried to excesses, resulting in frequent balance of payments crises, hence low income growth, high inflation and worsening income distribution. Therefore, the public opinion in these countries also changed. Thus, upon the prodding of the IMF during the years 70's to 80's most countries discarded the closed economy model, turning towards the market economy, outward orientation, and export encouragement while curbing excesses of import-substitude industrialization. L.A. countries, Turkey, India, South East Asian countries all shifted towards the market economy and outward orientation.

It was just about at this point that technological developments had allowed entry into the "globalization" process, encompassing not only the DCs but also the LDCs and NICs.

But as soon as globalization started the world experienced in 1987/89 a severe "global financial crisis". The crisis emanated in the South Eastern Asian countries to which much financial funds had flown from Japan and other DCs. Their governments had used these funds to build mostly (social) infra-structure that did not add to their manufacturing and exporting capacity. Hence, when due to bad economic management and corruption economic and political crisis erupted, they all were very hard hit. Financial funds that had entered also tried to find way to leave these countries, thus worsening the situation. Therefore, there was a temptation to call such financial funds as "hot money", hence argue against them. But if we make a sober analysis we should conclude that financial flows (i.e. short term bank credits lent) are not necessarily "hot" because of their substance. They become "hot" (that is, strive to leave the country) only in case we mismanage the economy or give rise to political instability. With very many creditors wanting to take back their funds from all LDCs and NICs, the financial crisis did become global, many countries like Turkey, Argentina, Russia very also hard hit while S.Korea and Japan suffered seriously. Since the economy of the USA, in particular, was robust at the time, the global financial crisis was soon taken into control while IMF showed special care to those countries (like Argentina, Turkey, etc.) in serious crisis.

The global financial crisis had temporarily a negative effect on the process of globalization, but soon globalization began to rise again. In fact, when USSR was dismantled in 1989, 1990 Eastern European and Balkan countries all chose the market economy, outward orientation and entry to the globalization process. Therefore, throughout the economically good years 2000's worldwide globalization became a widespread and irretriavable process, useful not only to DCs but more to LDCs, NICs and emerging markets. This is shown with the aid of some basic statistics in the following section.

3. BASIC STATISTICS THAT SHOW GLOBALIZATION ALREADY BECAME WIDESPREAD AND IRRITRIVABLE

To prove that globalisation already became widespread and irretriavable basic statistics are given in this section concerning international trade, DPI flows and flow of financial funds.

Firstly world international trade, exports plus imports has increased considerably; since globalization started growth of trade was far above the average GNP growth of the world (all countries) as a whole. Merchandise trade, in particular, was most robust compared to mining and agriculture. To wit, in 2006 the volume of total manufacturing trade was 11.783 billion dollars (WTO, World Trade Developments, Washington, 2007; details, including country breakdown may also be followed through the internet). Greatest players in both exports and imports were the USA, Germany, China and 6 South Eastern Asian Countries; with Japan, France, UK coming in second tier. Mexico, Brazil, India, etc. were comparatively below; but after globalization evidently the share of emerging markets, NICs and LDCs increased considerably.

It should be underlined here that as Ricardo had proven long ago, in international trade both countries involved benefit (win-win situation), that is, it is not a zero-sum-game as opponents (including Latin American structuralists) argue. Hence, present expansion of trade must be benefitting emerging markets, NICs, LDCs as well as DCs; in fact the first group more. Negative reactions against globalization in the USA is already on the increase in recent years.

Another important item of globalization is the flow of DPIs. In 2006 total DPIs worldwide (also involving participations, mergers, purchases of firms) totalled 1.3 trillion dollars, of which about 29%, that is, 448 billion dollars went to the formerly mentioned countries (UNCTAD, World Investment Report, 2007). The above figure is a big lure for all emerging markets, NICs and LDCs that should prevent them from shutting their doors to DPIs, hence to an important aspect of globalization.

Thirdly, still more important is the volume of financial flows received by LDCs, NICs and emerging markets. In 2006 total financial funds flown only to these countries totalled 572.8 billion dollars all received from the private sector, including private banks and other private creditors. They had actually paid back funds and credits to official international institutions (- 65 billion dollars), thus diminishing their debts to them. The total debt stock of LDCs, NICs, and emerging markets in 2006 had been 2.888 billion dollars, of which 247.6 billion belonged to international financial institutions, 355 billion to other "official" creditors and all the rest to private banks and private institutions. Thus, flow of financial flows offers still another very important lure for these countries to embrace globalization.

No doubt the USA comes first as single country in receiving DPIs also followed by France while China and Hong Kong have started to occupy a dominant place. USA is also the first among countries that sends DPIs abroad (UNCTAD, World Investment Report, 2007).

When we study individual countries and their growth rates prior to globalization (say, period 1983-87) and during globalization (say, period 2002-2006) we find that there is an increase in the growth rates of both, but the growth rates of LDCs, NICs and emerging markets have surpassed those of DCs by a wide margin (the relevant figures may be followed from UN Statistics Division, National Accounts Database, 2006, through the internet). These high rates of growth had been attained not only by China, India, but even by African countries with rich resources and which allowed DPIs to exploit these. The figures above definitely prove the point advanced by pro-globalization experts (eg: Bhagwati, 2004) that globalization is a win-win situation and not a zero-sum-game.

4. GLOBALIZATION STRATEGIES OF SELECTED EMERGING MARKET, NICS

The analysis above implicitly should have brought out that the argument offered by many former pro-globalization experts that it would cut down considerably on the policy options open to a nation-state, that most economic decisions would be taken say, by firms outside which had made an investment in the country in question (e.g. Kennedy, 1993) is an exaggeration. Definitely the scope of economic policy options of the nation-state will diminish but the nation-state and its policy making authority would still remain. No doubt, it would not resort to administrative pricing; it would definitely not resort to absolute protectionism, etc. which are, at any rate, excessive and unwanted. But economic policy making, hence "good governance" by the nation-state would still remain and play a crucial role (Rodrik, 1999). In fact J. Stiglitz (2002), when criticizing the IMF had accepted globalization as inevitable but faulted IMF policy recommendations to LDCs and NICs. Thus, his views can also fit squarely with the need of "good governance" accepted here.

It should be introduced that the selecting of a "proper globalization strategy" is also an important segment of good governance. Because of time limitations I can mention and compare only a selected number of emerging markets and their different globalization strategies.

The first country to be mentioned that has chosen a suitable globalization strategy is China (see Friedman, 2006). She mainly relies on encouraging the flow of DPIs mostly into manufacturing by means of powerful

incentives plus existence of cheap and disciplined labor. Her entry to WTO proves sufficient security for DPIs flowing to China. Thus, she enlargens her manufacturing sectors and employment and reduces regional income differences. Part of manufacturing is consumed internally while a large part is exported, thus raising China's trade surplus and foreign exchange reserves. The yuan was also kept deliberately low to further encourage exports, but raised more recently. Though as a huge country, China still has a long way to proceed in order to carry income benefits to all regions and peoples, with the very high growth rates attained over such a large span of time she would soon become the third largest economy in the world.

India is another country that implements a suitable globalization strategy in view of the opportunities that exist in her economy (Friedman, 2006). India has a large English-speaking, well-educated mathematicians, software experts and has thus taken on keeping the files of most of the American banks and firms (outsourcing from the USA side), which the latter found preferable because of low salaries paid to high quality Indian engineers and software experts.

The present economic strength of say, Russia (also of Venezuela, Iran, etc.), on the other hand, come not from globalization directly but from high prices of petroleum and natural gas. No doubt, however, increased consumption and production due to globalization has, in addition to petroleum production restrictions, played an important role in the rising demand and hence rising prices of petroleum and natural gas. The present Russian government, however, often uses petroleum and natural gas sales and pipelines as a "political" weapon. In this respect, the behaviour of Venezuelan government is also similar.

Still another group of countries we should briefly mention here will be the 12 mostly Eastern European and Balkan countries, which mostly gained independence recently after USSR crumbled in 1989, 1990, (namely Czech Republic, Poland, Hungary, Estonia, Slovania, Lithuania, Letonia, Bulgaria and Romania; as well as Cyprus-Greek Administration and Malta). After gaining independence they all endorsed ties with the Western world, market economy and outward-orientation. But they also enjoyed the opportunity to apply to the EU for full membership. The EU gave them a priority say, over Turkey, for political reasons rather than "economic" and they were accepted as full fledged EU members. For these countries EU membership definitely brought both political security and political advantages and democracy, as well as economic. In the case of economy, they would, for instance, receive large sums of regional development as well as agricultural subsidies. They also would have to watch for the inflation rate, as well as outside debt. Thus, rather than chosing globalization "at large" they had the benefit to become globalized, or be a part of a single market in a 27-country EU. Their EU membership will no doubt raise the level of DPIs flowing to these countries.

Lastly I would like to mention Turkey as a country which, despite her outward success in growth, has not chosen a very suitable globalization strategy. Turkey faced a severe economic crisis in 2001, had to make a stand-by agreement with IMF and started radical economic reforms, foremost strengthening of the structure of her banks, austerity measures and privatization. Having made several political reforms, Turkey was also accepted by the EU as a "candidate" member. The new government that came to power with the 2002 elections continued with IMF reforms and at the same time strived to get a date from the EU in 2004 to start full membership negotiations. But in taking advantage of globalization it chose not to expand its manufacturing capacity but primarily to expand its capacity to receive financial funds and credit. Therefore, interest rates were raised to lure the flow of financial funds. Since both political and economic security had been attained large sums did enter Turkey in addition to DPIs. The exchange rate was repressed to artifically low levels and this reduced both export potential and also agricultural production and agricultural employment. Thus, although growth rates were high, employment could not rise much because of the negative situation in agriculture; in fact unemployment rate started to rise in the more recent years. Total foreign debt also increased considerably.

Moreover, a large part of foreign credit were received by municipalities and they used these funds to build municipality infra-structure and roads. A catastrophe, however, did not erupt because firstly the Turkish banking system has become relatively strong since the 2001 measures. Secondly, a worldwide financial crisis is tried to be avoided by the joint efforts of all major countries and international organizations because such a crisis could hurt every one. Thirdly, the recent rise in worldwide agricultural prices – again mostly an indirect result of increased consumption due to income increases brought about by globalization – could likely revitalize the Turkish agriculture in future. Still, Turkey's recent choice of globalization strategy stands out as the least advantageous and the most risky for the long-run.

5. CONCLUSION

To summarize and to conclude, the volume of international trade today, DPI and PFF going to LDCs, NICs and emerging markets definitely prove that globalization has become widespread and irretrievable. Accordingly, all these countries, rather than denying or opposing globalization, seek to obtain maximum benefit from the process that takes into account the potentials of the economy in question.

Choosing a "suitable globalization strategy" should be part of "good governance" required of respective governments. Thus, for instance, China and India have both chosen globalization strategies that suit their respective economies.

China has rigorously encouraged DPI flowing to manufacturing sector, offering disciplined workers at low wages. Part of production went to domestic consumption, considerable part to exports, thereby raising China's trade surplus and foreign exchange reserves.

India, in turn, developed her software industry with English-speaking Indian computer programmers who work with relatively low salaries, thus receiving outsourcing programmes particularly from the USA.

The newly independent Balkan and East European countries also chose a "suitable globalization strategy", namely applying to the EU and being affected as full members. This will enable them to receive regional developmental and whole DPI going to these countries will increase.

But Turkey, in contrast, relied less on receiving DPI and more on receiving financial funds and external credit. She has, therefore, raised the interest rate and the increase in the flow of financial funds and external credit repressed the foreign exchange rates. As a result, while external debt increased, imports and foreign trade deficit also widened over time, becoming even worse by the rising petroleum prices. Thus, in today's worldwide financial setbacks, Turkey's choice of globalization strategy stands out as the most risky.

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THE INTERRELATION OF DEMOGRAPHIC CHANGES AND STRUCTURAL IMPACTS UPON A REGIONAL AGRICULTURAL ECONOMY

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Abstract. It was strongly argued over the last years that the importance of agri-food sector in rural economies has significantly been diminished. Employment share in the later sector has declined depriving the rural economy income and viability. Among other factors, structural damages in rural population have caused structural and dimensional changes in rural employment.

So, an attempt is made to investigate the interrelationship between demographic changes and employment changes, in order to assess the overall impact upon a rural economy. This is achieved by combining the methodological approaches of labour market accounts and of extended input-output (I-O) framework.

This combined methodological approach was applied in a NUTS II Greek region, where over the last years, significant demographic and economic changes have been recorded. The results clearly demonstrate that the changes in the rural population and in the agri-food employment influence not only the viability of agricultural sector, but also the entire rural economic viability. So, demographic changes, agri-food employment changes and the performance of the entire rural economy are strongly interrelated and this interrelation is identified and measured.

KEYWORDS: Labour Market Accounts, Extended Input-Output modelling, Demographic and Employment Changes

JEL CLASSIFICATION CODES : J21, J43, Q18

1. Introduction

Over the last ten years, most of the today's developed world faces either a local population decrease or an immigration increase. These population changes are associated with direct and collateral effects upon the economy. As a result of these changes entire rural regions are brought at the end at severe social and economic crisis.

In this work an attempt is made to investigate the relationship between demographic and socio-economic changes in rural areas, identifying the impacts of population changes on the regional employment and the output growth. To measure these impacts, two methodological techniques are followed, the labour market accounts and the extended I-O model (Batey and Madden 1999). Variables like the working age population, the labour force, migration and the economic activity rate can be correlated with the use of the labour market account technique. Then, these variables are embedded in an extended form of a regional I-O model, which can represent more than adequately the demographic and economic status of the region.

It has long been established by a number of scientists (Batey and Madden 1983, Madden et al. 1996, Oosterhaven and Folmer 1985, Oosterhaven and Dewhurst 1990) that the best way to measure the employment impact of the demographic and economic changes is an integrated analysis of the two aforementioned techniques. The use of the first technique, the labour market accounts, allows to correlate the changes in population and employment (see Batey, 1985, Madden and Batey, 1980), while the second technique, the extended I-O model, can identify and measure the impact of the above mentioned changes in a regional economy (see Batey and Weeks, 1987, Batey and Rose, 1990, Madden and Bazzazan 2000, Bazzazan and Batey 2003).

Although this integration has long been studied and applied in many developed countries it is the first time it was applied in the south of EU. However this paper differs from others since the employment vector was not further disaggregated to include commuting.

2. Applied Methodology

2.1 Labour market accounts

The labour market accounts are a technique used to analyse the relationship between labour supply and labour demand at regional level (Batey and Madden 1999).
The basic equations of the aforementioned technique are:

$$L = E + U \qquad (1)$$
$$Y = L / W \qquad (2)$$
$$X = W / P \qquad (3)$$

Where combining variables as regional population (P), working age population (W), total employment (E), unemployment (U) and total net out-migration in a given period (M) derive the size of the labour force L, the economic activity rate Y and the proportion of the population that is of working age X, (Batey and Madden 1999).

The correlation of regional demographic and employment variables gives the economic picture of the region under study (Batey and Madden 1999). With the use of the abovementioned variables a number of other dimensionscan be derived, such as the change in the labour force before taking account the migration(Δl),the natural increase in the labour force

(ΔN), the increase in the labor force caused by changes in the economic activity rate (ΔA) and the net change (ΔS) in employment shortfall (S), as shown in the following equations (4), (5), (6) and (7).

$$\Delta l = L - L_{-1} + YXM \qquad (4)$$
$$\Delta N = (W - W_{-1}) Y_{-1} + XMY_{-1} \qquad (5)$$
$$\Delta A = W (Y - Y_{-1}) + XM (Y - Y_{-1}) \qquad (6)$$
$$\Delta S = \Delta l - (E - E_{-1}) \qquad (7)$$

Where L_{-1}, Y_{-1} are the values of labor and economic activity rate in the base year and YXM is the net total of out-migrant workers who are assumed to have the same proportion of working age population X and economic activity rate Y, as the whole population. With the use of the change in labour force and employment it can also be calculated as is shown below.

$$\Delta l = \Delta A + \Delta N \qquad (8)$$

Replacing Δl in the above equation, ΔS also equals to:

$$\Delta S = (U - U_{-1}) + YXM \qquad (9)$$

Combining equations (7), (8) and (9) leads to:

$$\Delta A + \Delta N - \Delta E - \Delta U = YXM \qquad (10)$$

This is the equation, which links all the activity levels of the labor market accounts. To measure the impacts of the population change, this equation has to be embedded in an extended input-output model (Batey and Madden 1999).

2.2 Extended Input – Output Model

The demographic – economic models can adequately measure the flows among the economic and demographic sectors of a regional system using a linear approach, where the behaviour of the model can be thoroughly observed, as declared by Batey et al. (1993) and Oosterhaven and Dewhurst (1990).

As base is used an input – output model inserting demographic variables in order to measure the impact of demographic changes impact on regional economy. This extended input – output model is represented by equation (11) according to Batey and Madden (1999).

$$\begin{bmatrix} (I - A) & -h_c^e & -h_c^u \\ -h_r & 1 & 0 \\ s\rho\lambda & 0 & 1 \end{bmatrix} * \begin{bmatrix} \Delta\chi_1 \\ \Delta\chi_H^e \\ \Delta x_H^u \end{bmatrix} = \begin{bmatrix} \Delta d \\ \Delta d_H^e \\ \Delta d_H^u \end{bmatrix} \quad (11)$$

Where (I-A) the Leontief matrix, h_c^e a column vector of consumption coefficients for employed workers, h_c^u a column vector of consumption coefficients for unemployed workers, h_r a row vector of income to labour coefficients, s^u the average welfare payment to an unemployed worker, ρ the parameter expressing the proportion of job vacancies that are taken by locally- residents workers who were previously unemployed, λ the vector of labour demand coefficients, Δx_1 the change in

industrial gross output by sector, $\Delta x_H^e \Delta x_H^u$ the change in the total household income for employed and unemployed, Δd_1 the change in industrial final demand by sector and $\Delta d_H^e \Delta d_H^u$ is the change in exogenous household income for employed and unemployed workers.

However, so far all the variables are calculated in monetary units but in order to incorporate the labour market accounts they must be converted into population units. According to Batey and Madden (1999), this can be achieved by a new model, which is shown in the equation below.

$$
\begin{bmatrix}
(I-A) & -WH_c^e & -s^u h_c^u \\
-\lambda' & I & 0 \\
\lambda \rho & 0 & 1
\end{bmatrix}
*
\begin{bmatrix}
\Delta \chi_1 \\
\Delta e \\
\Delta \mu
\end{bmatrix}
=
\begin{bmatrix}
\Delta d_1 \\
\Delta E \\
\Delta \pi
\end{bmatrix}
\quad (15)
$$

Where W the diagonal matrix of wage rate by sector, H_c^e a square matrix of consumption coefficients for employed workers in which entries in any given row are identical, λ' the vector of labor demand coefficients, Δe the change in employment by sector as a consequence of changes in d_1, E or π, $\Delta \mu$ the change in unemployment by sector as a consequence of changes in d_1, E or π, $\Delta \pi$ the change in the size of the labor force defined here specifically as change in unemployment ΔU, ΔE the exogenous change in employment by sector.

Although the model is now in units of population it needs further extension so that all the labor market account variables can be included as exogenous inputs. So equation (15) can be transformed in the below equation:

$$
\begin{bmatrix}
(I-A) & -WH_c^e & -s^u h_c^u & 0 & 0 & 0 \\
-\lambda & I & 0 & 0 & 0 & 0 \\
\lambda \rho & 0 & 1 & -1 & -1 & 1 \\
0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 \\
\alpha \lambda (1-\rho) & 0 & 0 & 0 & 0 & 1
\end{bmatrix}
*
\begin{bmatrix}
\Delta x1 \\
\Delta e \\
\Delta \mu \\
\Delta A \\
\Delta N \\
\phi
\end{bmatrix}
=
\begin{bmatrix}
\Delta d1 \\
\Delta E \\
\Delta \pi \\
\Delta A \\
\Delta N \\
m
\end{bmatrix}
\quad (19)
$$

Where m the sum of net migration and the increase of unemployment and (m=YXM) and φ the endogenous net in- migration of workers.

From all these variables mentioned above only the change in industrial gross output by sector (Δx_1), the change in employment by sector as a consequence of changes in d_1, E or π (ΔE) and the change in unemployment by sector a as a consequence of changes in d_1, E or π ($\Delta \mu$) are endogenous variables. So all these equations show the impact of changes that happen in all the remaining exogenous variables upon these three endogenous variables.

So according to the input-output methodology the extended demographic economic model of equation (19) in order to measure the impacts of the exogenous variable changes can be expressed in the form.

$$A^* \, X = Y \qquad\qquad (24)$$

And solving the system to X derives:

$$X = B^* Y \qquad\qquad (25)$$

Where B is the inverted matrix A. From (25) using the input-output methodology are extracted the employment multipliers (Miller and Blair, 2009) and the impacts of changes in each of the elements of the labour market accounts in turn, setting all the other input variables to zero (Batey and Madden, 1999).

3. Empirical Results

3.1 The demographic and economic profile of the region of Anatoliki Makedonia and Thraki (AMT) (1981-2001)

AMT, a region in northeast Greece, went under a population increase of 6% from 1991 to 2011, and has a demographic density from 45, 1 in 1991 to 42, 82 residents per square km in 2011. The primary sector of region of AMT, namely the rural sector covers the 96% of AMT's total area (NSSG, 2011), while it produces the 19% of total regional gross product and occupies the 25.6% of total workforce of AMT for 2011. The main products of the region are cereals (wheat, mainly), tobacco, cotton, tomatoes, potatoes, olive oil and apples. Also developed is the region's livestock farming, like sheep and goats, swine and poultry, heavily producing meat, milk, cheese and eggs. In the previous years, until 2010, the region had also an intense constructional and manufacturing activity. An important part of the regional economy is the tertiary sector of services, given the sector's 21,7% of total regional employment in 2011.

Regional employment is 5,6% of the country's total employment, while unemployment for the last decade oscillates in levels little lower than the corresponding national percentage. Table 1 presents the distribution of employment of the most important economic sectors for 1991 and 2011 in national and regional level. The sectors of agriculture, forestry and trade, wholesale and retail have the higher percentage of workforce of region. More specifically in the agricultural sector, for 1991 and 2011 respectively, 33,4% and 30,4% of total of regional workers are employed.

Table 1a. Main variables of the labour market accounts for the region of AMT (1991-2011)

	1991	2001	2011
Population	570496	611067	606170
Working age population	486521	499485	403625
Employment	200717	217958	208882
Unemployment	17111	19673	62965
Migration	2381	2085	5038

Source: National Statistical Service of Greece, National Inventories

Table 1b. Distribution in sectors of employment in national and regional level

Sectors of Economy	Greece			Region AMT		
	1991	2001	2011	1991	2001	2011
Agriculture, hunting, forestry and fishing	719749	670791	504107	93145	76555	58929
Wholesale and retail trade services	553409	806453	744778	24520	45181	31810
Public administration and defense	272298	362541	358968	16045	16786	24806
Constructions	252288	284633	241773	11431	14722	8003
Hotels and restaurants	223676	250917	317393	10153	11348	11984
Services of education	219967	247513	304321	10863	12548	13346
Food, beverages and tobacco - Manufacturing	625036	249180	418967	29038	7278	19640
TOTAL EMPLOYMENT	**3820175**	**4260547**	**4079286**	**227346**	**217958**	**208882**

Source: National Statistical Service of Greece, National Inventories 1991, 2001, 2011

3.2 Application of the model

Following the described methodological procedure the labour market accounts for the region were completed and all the main variables were calculated. The results of the accounts can be seen in

the Table 2 where the increased employment shortfall during the decades 1991-2001 and 2001-2011 is demonstrated. In the first decade, the negative economic activity rate and the negative change in employment must also be strained, which state that there was an important decrease in the employed people. However, the economic activity rate increased in a large scale during the second decade and so has the employment of the region leading in a positive change in employment and a decreased unemployment.

After completing the labour market accounts for the two decades, their variables are fed into the extended input-output model. This was constructed from the national input-output matrix of Greece was regionalized using the FLQ approach (see Miller and Blair, 1985). So, two models were constructed each one representing the respective decade.

Table 2. Labour market accounts for the region AMT for the two decades

	Region AMT	
	1991-2001	**2001-2011**
Change in the labour force(**Δl**)	21628	39475
Natural growth change in the labour force (**ΔN**)	18454	23842
Economic activity rate change in labour force (**ΔA**)	3173.36	15633
Net change in employment shortfall (**ΔS**)	3372.8	48551
Net out migration (**m=YXM**)	810.81	2259
Change in employment (**ΔE**)	17241	-9076
Change in unemployment (**Δπ=ΔU**)	2562	46292

The two constructed extended input-output models underwent several runs reflecting variations in the natural change in the labour force (**ΔN**), the economic activity rate in the labour force (**ΔA**), the change in employment (**ΔE**) and unemployment (**ΔU**) and the net migration (**m**) in order to calculate the employment impact on the region. As it can be seen in the Table 3 natural growth change in the size of labour force has the larger impact on the regional employment. Intriguingly in the first decade the economic activity rate leads to 286 job gain, in the second one leads to 152 joblosses. The change in employment is also negative, meaning that the employment supply of the region during the 2001-2011 decade suffered great losses. This reduction combined with the positive change in unemployment which means that employment demand decreased leads to the deduction that one of the greatest problems of the region with significant impact on its economic viability is the high unemployment. Moreover it must be outlined that during the second decade there was an important decrease in the labour demand that leads to a respectively important increase in the unemployment of the region and stretches the total net impact of the demographic changes further. Another fact is

the increased migration to the region, which conveyed to an increased labour supply during the second decade.

Table 3. Employment impacts in the region AMT for the decades 1981-1991 and 1991-2001

	Region AMT	
	1991-2001	**2001-2011**
Natural growth change in the labour force (ΔN)	1661	1974
Economic activity rate change in labour force (ΔA)	286	-152
Net out migration (m=YXM)	173	201
Change in employment (ΔE)	1552	-2014
Change in unemployment (Δπ=ΔU)	231	785
Total net impact of demographic change	3803	794

So totally in the region was recorded a 3803-job gain in the first decade and a 794 job gain in the second decade. This means that during the first decade, in the aftermath of Greece's entrance in EU, combined with the significant flows of funds, the region of AMT had substantial increase in employment demand and supply and the demographic changes were generally positive.However, in the second decade, where the first signs of the forthcoming economic crisis began to be apparent, the negative demographic changes drifted away employment demand in the regional economy and their results significantly diminished the regional economic growth and viability.

Table 4 describes the employment impacts for the ten most important sectors (in an aggregated form that was used in the extended input-output model) of the regional economy after demographically determined changes. The biggest impact is presented by the sectors of agriculture-hunting-forestry-fishing, followed by the sector of food-beverages and tobacco. The public administration and defense sector has also very significant economic effect in the region since it has relatively high employment impact, which is partly justified by the fact that there is a large amount of military services stationed in the area. So, sectors like agriculture, hunting and forestry, food, beverages and tobacco, wholesale and retail trade services and manufacturing are very sensitive to demographically determined changes, unlike other sectors such as constructions, real estate renting and business activities and financial intermediation.

Table 4. Employment impacts in the industrial sectors of AMT for the two decades 1991-2011

	Sectors of the economy	Employment impacts	
		1991-2001	2001-2011
1	Agriculture, hunting, forestry and fishing	8856	6710
2	Food, beverages, tobacco and Manufacturing	2089	1812
3	Wholesale and retail trade services	1216	995
4	Public administration and defense	546	786
5	Services of education	345	457
6	Hotels and restaurants	339	364
7	Financial intermediation	332	349
8	Real estate renting and business activities	256	291
9	Constructions	231	207
10	Transportations and communications	205	289
	Total employment impact	14415	12260

4. Conclusion

The purpose of this article was first to demonstrate the combination of two analytical methodologies applied to a Greek region and second to measure the effects of demographic changes in population in regional employment, through multipliers estimation. To achieve all this, an extended input – output model was constructed presenting the picture of the whole economic transactions and figures. In addition, through the multipliers estimation, the impacts of the demographic changes that occurred in the specific region during the last twenty years were evaluated.Then the course of the agricultural sector and its employment was studied.

The results as presented in the fourth part of this paper demonstrated the high dependence of the region's economic viability to agriculture even though a significant decrease in the employed people is noticed. Also important is an increase of the food- beverages-tobacco and manufacturing sector and of the wholesale and retail trade sector, where are traced the most effects of the demographically determined changes. The regional impacts of the demographic changes during the first decade, in combination with significant EU fund flows, were generally positive. However, in the second decade, where the first signs of the forthcoming economic crisis can be traced, the negative demographic changes induced, in the regional economy, also negative employment rates and their results significantly diminished the regional economic growth and viability.

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A SECTORIAL APPROACH OF IMPLEMENTATION THE EUROPEAN QUALIFICATION FRAMEWORK (EQF) IN THE AGRICULTURAL SECTOR

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ABSTRACT

The EQF (European Qualifications Framework) is a common European reference system which will link different countries' national qualifications systems and frameworks together. This will help learners and workers wishing to move between countries or change jobs or move between educational institutions at home. The primary users of the EQF will be bodies in charge of national and/or sectoral qualification systems and frameworks. Although Qualifications within the Agricultural sector in Europe share a common base, each country represents significant geographical differences that result in variable Learning Outcomes. The ImpAQ project (Implement Agriculture Qualification) recognizes the importance of researching different national qualifications in order to contribute to the comparative analysis at national and European level. The ImpAQ aims to compare the Qualifications related to the agricultural sector, by identifying and analyzing the main issues to be addressed with the purpose of connecting them to the EQF and focusing on the best resolving approaches following the "best fit" criterion. Within the ImpAQ project the consortium developed and applied ICT tools for collecting information from countries of consortium members to build Inventory Database of Agricultural Qualifications and Agricultural Matrix. The matrix cells contain that which qualification entitle for job in the product/process. The Inventory Database and the Agricultural Matrix is used for comparison qualifications. The concept is based on a map which provides to the ImpAQ project partners a common reference framework concerning the agriculture sector, in order to enable a coordinated collection of the qualifications in each country. The map is the result of 3 cross dimensions: a broader definition of the agriculture sector which includes traditional agriculture, an enlarged vision of agriculture, and multifunctional agriculture; a list of the processes occurring according to the analysis of activities related to multifunctional agriculture; a selection of the production chains, qualitatively significant and strategic for the development and expansion of agriculture. The developed Bridge document proposes to represent all sector Qualifications by using a common and shared framework which allows to catch national, regional and local differences and varieties. Working with the EQF and learning outcomes includes a change in our educational dimension. It is a paradigm shift and it asks for more than investigating present qualification systems and sticking EQF levels on them. Ownership and capacity building in the work field of the EQF is crucial in this process. The introduction of the EQF is the challenge to build the bridge between the labour market and educational institutions. All should be involved in this process. This will create ownership and will develop the capacities of all partners. Most educational institutions are not aware of this paradigm shift and what is needed to become a modern educational organization which is aware of the needs of the present European economy. Final Report of the ImpAQ Project Includes the project results, offers orientations on how to support the comparability of Q in the Agriculture field. Proposes an abstract of the issues/possible solutions on the base of ImpAQ experience, for the use of all stakeholders.

KEYWORDS

Agricultural sector, EQF, Learning Outcomes, Qualifications, Labour market

JEL CLASSIFICATION CODES

J24

INTRODUCTION

The EQF (European Qualifications Framework) is a common European reference system which will link different countries' national qualifications systems and frameworks together. This will help learners and workers wishing to move between countries or change jobs or move between educational institutions at home. The primary users of the EQF will be bodies in charge of national and/or sectoral qualification systems and frameworks.

The development of the European Qualifications Framework for Lifelong Learning (EQF) commenced in 2004 in response to requests from Member States, the social partners and other stakeholders for a common reference tool to increase the transparency of qualifications. An initial blueprint, proposing an eight level qualifications framework based on learning outcomes, was published by the European Commission and consulted upon in the latter half of 2005. The consultation demonstrated that there was widespread support for the initiative, and a revised text was adopted by the Commission as a proposal in September 2006.

This proposal recommended the establishment of an overarching qualifications framework, which would serve as a translation device to make qualifications more readable and understandable across different countries and systems in Europe (Young, 2010). The core of the EQF consists of 8 qualification levels, which are described through learning outcomes (knowledge, skill and competence). The principal aims of the EQF are to promote citizens' mobility between countries and to facilitate their lifelong learning. The formal adoption by the European Parliament and Council of the Recommendation establishing EQF was completed on 23 April 2008 (European Parliament Council, 2008).

It is encompasses general and adult education, vocational education and training as well as higher education. The eight levels cover the entire span of qualifications at the end of compulsory education to those awarded at the highest level of academic and professional or vocational education and training. Each level should in principle be attainable by way of a variety of education and career paths.

There are two distinct elements in Implementation of EQFprocess. Member states are invited:

- to relate their national qualifications levels to EQF, in particular by referencing, in a transparent manner, their qualifications levels to the EQF levels set out in the Recommendation and
- to adopt measures, as appropriate, all new qualification certificates, diplomas and 'Europass' documents issued by the competent authorities contain a clear reference, by way of national qualifications systems, to the appropriate EQF level.

The Recommendation establishing the EQF also advises that Member states designate National Coordination Points (NCPs) to support and, in conjunction with other relevant national authorities, guide the relationship between national qualifications systems and the European Qualifications Framework with a view to promoting the quality and transparency of that relationship. It is recommended that the tasks of NCPs should include referencing levels of qualifications within national qualifications systems to the EQF levels. A transparent methodology is used in the referencing process providing access to information and guidance to stakeholders on how qualifications relate to EQF through national qualifications systems. The participation of all relevant stakeholders (including in accordance with national legislation and practice, higher education (Dill, 2010) and vocational education and training institutions, social partners, sectors and experts) are necessary on the comparison and use of qualifications at the European level.

Europass introduced a portfolio of documents to be used by individuals to describe their qualifications and competences. In the future, all relevant Europass documents, in particular the Europass diploma and the Europass certificate supplement, should contain a clear reference to the appropriate EQF level. The EQF is fully compatible with the qualifications framework for Higher Education developed under the Bologna Process. Specifically, the EQF descriptors at levels 5-8 refer to the higher education descriptors agreed under the Bologna Process. However, the formulation of the EQF level descriptors differs from the Bologna level descriptors developed specifically for higher education needs because, as a lifelong learning framework the EQF also encompasses vocational education and training (VET) and work contexts, including at the highest levels.

QF Embodiment (Exchanging Experiences Gained In Relation To The Establishment Of The National Qualifications Frameworks) project promoted by the Hungarian National Institute of Vocational Education wishes to contribute to one of the main goals of the EQF via the engendering of close cooperation and the exchanging of experiences with the partner countries (Sweden, Spain, Greece, The Czech Republic, Romania and Estonia) and the establishment, convergence and testing of the qualifications frameworks of five selected sectors. Project goals include the provision of an opportunity to discuss the experiences the participating countries gained in terms of the development of their national and sectoral qualifications frameworks as well as the establishment of the qualifications frameworks of the four selected sectoral qualifications contained in the work plan and the convergence thereof to the EQF. Based on documents compiled by experts beforehand, the national and sectoral qualifications frameworks of the partner countries has been presented and tested at a project conference (Karvázi at al., 2009).

The HE-LEO project (Competence Orientation and Learning Outcomes in Higher Education) project wanted to link the European discussions on EQF and on the Bologna Process on an institutional level to the HE-sector.

There is a gap between the intended goals and the transformation on an institutional level into daily practice. Therefore, the project aims with an action orientated approach to bridge this gap between European policies and an institutional approach of transformation and implementation by focusing on pilot projects in form of case studies in selected subject areas at universities. The main goals of this project are:

- to develop partnerships between national bodies for higher education (ministries) and HE-institutions for developing mutual trust and exchange of experiences with regard to competence orientation and learning outcomes for the HE-sector related to the EQF;
- to link the discussions on the Bologna process of the HE-sector with the EQF focussing on competence orientation and learning outcomes;
- a comparative synthesis of competence orientation and learning outcomes in the HE-sector on the basis of pilot projects.

Within these goals the main aims of this project are:

- state of the art of competence orientation and learning outcomes in selected subject areas at the partner institutions;
- exchange and transparency about competence orientation and learning outcomes in the selected subject areas in the HE-sector - presentation of good practices as well as areas of conflicts in regard to competence orientation and learning outcomes in the HE-sector using the EQF as common reference point.

The European Qualifications Framework (EQF) provides a common reference framework which assists in comparing the National Qualifications Systems, Frameworks and levels, whether for general and higher education or for vocational education and training (Hegarty, 2010). This online tool allows users to compare their national qualifications frameworks and those of other EU member states and countries participating in Education and Training 2010 programme with the EQF.

EQF E-learning Courses for Eco-Farming (Eco-Farming) was highly successful Leonardo da Vinci pilot project. It developed modules for level 3 (for eco-farmers) and for level 5 (for eco-experts) according to the requirements of the EQF. The project ended in 2008.

PROJECT CONCEPT AND OBJECTIVES

The concept is based on a map which provides to the ImpAQ project partners a common reference framework concerning the agriculture sector, in order to enable a coordinated collectionof the qualifications in each country (ImpAQ: The Agriculture Matrix, 2010).

2.1 The map of production chains and processes

The map is the result of 3 cross dimensions (Figure 1.):

- a broader definition of the agriculture sector which includes traditional agriculture, an enlarged vision of agriculture, and multifunctional agriculture;
- a list of the processes occurring according to the analysis of activities related to multifunctional agriculture;
- a selection of the production chains, qualitatively significant and strategic for the development and expansion of agriculture.
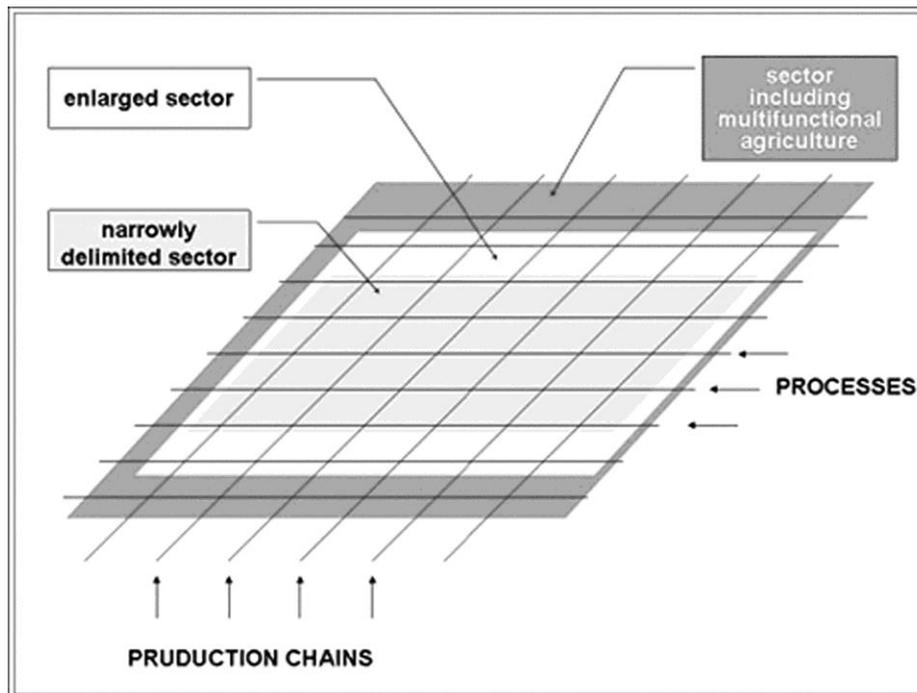
Figure 1. The production chains and processes map (Source: ImpAQ: The Agriculture Matrix, 2010)

The reference perimeter of the agriculture sector is that resulting from the integrated use of the definitions proposed by the European Council (2000), by OECD (2001) and by the U.S. Census Bureau (2002). Here are the definitions slightly revised.

The narrowly delimited sector of Agriculture and Forestry comprises activities primarily engaged in growing crops, breeding and raising animals, and harvesting timber. In some countries, the sector extends to cover the harvesting of fish and other animals from their natural habitats, that is, fishing and hunting. The entities in this sector are often described as farms, ranches, dairies, greenhouses, nurseries, orchards, or hatcheries. The sector distinguishes two basic activities: agricultural/animal production and agricultural support activities.

The enlarged sector includes also entities engaged in agricultural research or in administering programs for regulating and conserving land, mineral, wildlife, and forests. Furthermore, this definition takes into consideration the full agriculture-food (and feed and timber) pathway from land handling to cultivation, harvesting, processing, distribution, and consumption, including quality control and safety.

The multifunctional agriculture sector extends to cover land maintenance, nature and biodiversity custodianship, environmental services linked to ecosystem management, rural preservation, outdoor recreation, ecotourism, traditional craftsmanship, related knowledge development and diffusion/training activities.

2.2. Main Objectives of the ImpAQ Project

ImpAQ project responds to the following European Commission's general objectives:
- support the development, promotion and application of the learning outcomes approach for all qualifications at all levels;
- support the development and implementation of overarching National Qualifications Frameworks (NQFs) based on learning outcomes at all levels;
- support the referencing of national qualifications levels to the EQF in a transparent and credible way supporting mutual trust between countries and sectors.

ImpAQ specific objectives are:
- Make a comparative analysis of the use of the Learning Outcomes (LO) approach to describe agricultural Qualifications issued in the partner countries.
- Develop guidelines to implement the referencing process by comparing the results of the envisaged comparison adopted in their own countries and those reached by using only the Learning Outcome - LO approach.
- Indicate applicative hypothesis of the different models of the macroscopic, microscopic (in function of the country's having or not a NQF) or combined referencing process comparing the problems and the adopted solutions for the management of the two processes.

- Establish guidelines to increase the coherence of the Qualifications Systems (regional, national and sectoral) by using the best practices analyzed.
- Establish guidelines to coherently achieve the referencing at different levels, according to the present contextual characteristics, by involving the different target groups of the partner countries.
- Produce a synthesis framework which collects precise indications regarding the characteristics of the created NQF and the related construction process, and which specifies operational indications to be submitted to the competent Authorities in the partner countries.

2.3. Target Groups

ImpAQ is targeted to the agricultural sector's large audience that includes a wide range of entities interested to the EQF:

- Public bodies/other institutions in charge of EQF: National Coordination Points, institutional bodies (ministries of agriculture, education, environment, local bodies), other public research organizations.
- VET/HE agencies and private research organizations: primary/secondary schools, vocational training/research agencies, HE institutions.
- Agricultural sector associations: farmer associations, unions, professional orders, guilds.

The ImpAQ project identifies and analyses National Qualifications within the Agricultural sector in order to compare and link them to the European Qualifications Framework (EQF).

Although Qualifications within the Agricultural sector in Europe share a common base, each country represents significant geographical differences that result in variable Learning Outcomes. ImpAQ recognizes the importance of researching different national qualifications in order to contribute to the comparative analysis at National and European level.

2.3. Building the Matrix and Inventory database

Every partner had to fill in the production chains and processes matrix related to their home countries. This matrix contains the main characteristics of the training programs every EQF defined levels (2-8: from Vocational Education and Trainings to PhD training programs). We had to collect the necessary information from different sources (Figure 2.) which were the following:

Institutions

- Ministry of National Resources (Ministry of Education)
- National Institute of Vocational and Adult Education
- Ministry of Rural Development - Rural Development Educational and Advisory Institute
- Universities

Materials

- Europass - http://nrk.nive.hu/home/?lang[lang]=en
- Professional Qualification Database (Inventory) – http://www.nive.hu
- BSc - Ministry of National Resources - http://www.nefmi.gov.hu/english
- MSc – Ministry of National Resources - http://www.nefmi.gov.hu/english
- PhD (http://www.doktori.hu) – Generally no English description
- University Diploma Supplements – Universities
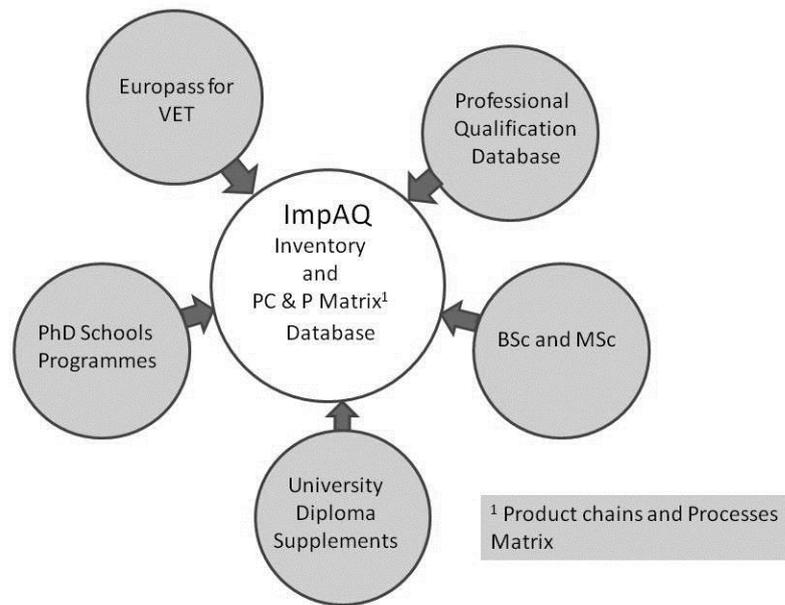
Figure 2. Hungarian Information sources for building the Matrix and Inventory Database

Information has been collected from different databases and systems. The information services is developing, the Figure 3 shows the Hungarian national systems and their links.
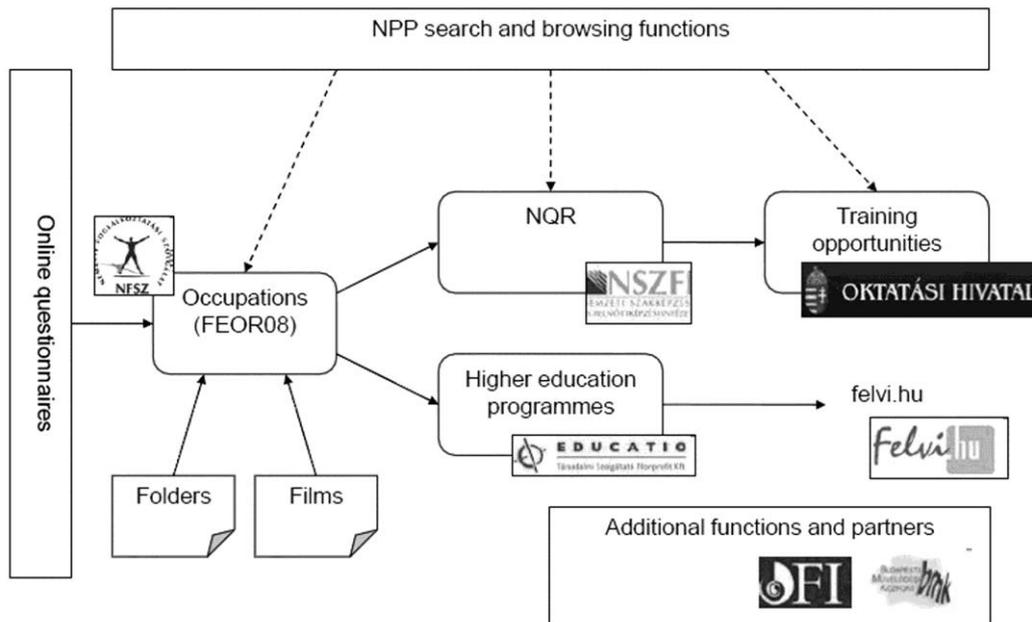
Figure 3. The Hungarian National Databases (Source: Tibor Bors Borbély-Pecze, 2011)

The Professional Qualification Database contains description of Vocational Educational Training Programmes. After selecting the agricultural related training programmes from the database the Europass database gave the necessary information about VET Programmes such as the Qualification Type, English Name, EQF, Related Qualification, English Name, Description, Comments, Learning Outcomes were collected from the above sources.
Europass consists of five documents:

- two documents (Europass curriculum vitae (CV) and Europass Language Passport) you can fill in yourself; and
- three other documents (Europass Certificate Supplement, Europass Diploma Supplement and Europass Mobility) filled in and issued by competent organisations.

Europass is supported by a network of National Europass Centres.

Europass has been established by the Decision No 2241/2004/EC of the European Parliament and the Council of 15 December 2004 on a single transparency framework for qualifications and competences.

Information from BSc and MSc education programmes came from Ministry of National Resources and higher education institutes. The University Diploma Supplements are given by Universities to students. There is no national database for this purpose. We had to collect the necessary information about the PhD training programmes from the Website of Doctorate Schools.

The Qualification Inventory database contains 4 data groups about qualifications from the countries of project members. The data sets are 1. Registry, 2. Structure (of training program), 3. Other information and 4. Qualifications (Figure 4.)

- The VET in Agriculture belongs to the NQF
- Ministry of Rural Development (earlier Ministry of Agriculture and Rural Development) is responsible for the VET in Ag
- Takes place in 124 schools out of which 51 have pure agricultural profile others have industrial, commercial and other types of courses, too.
- Most of them are run by municipalities and some of them (21 schools united in 3 "training centre")
- On the National List of Qualifications (NLQ) there are 45 agricultural qualifications which are divided into 200 additional or partial qualifications.
- The professional fields of agricultural qualifications include general farming (crop production and animal husbandry), horticulture, agricultural machinery (operation, maintenance and repair), forestry and hunting, land survey and cartography, food industry.
- courses at the vocational schools last for 1-2 years and ended with a vocational examination in front of an examination board.
- The major requirements of the courses and the examination are stated in a legal regulation

Figure 4. The Qualification Inventory (the first 3 field of Registry dataset)

The qualification dataset contains the Learning Outcomes of the qualification. The Figure 5 show the LO of Fat stock qualifier which information came from Europass database. The Inventory contains information about the following number of qualifications from Hungary: Level 3: 1, Level 3: 35, Level 5: 16, BSc: 13, MSc: 19, PhD: 6.

Figure 5. The Qualification – Learning Outcomes

THE PORTAL SYSTEM

The proposed architecture was based on dialoguing between the web client and the server that can manage the operational database. Web servers are running applications like service middleware, enabling the transfer of three-level architecture of the system, (e.g. client, application server, data server). The application layer is then made operational with tools to enhance the management of distribution and balancing. The web portal provides services for project members (entering the data into the Matrix database, Inventory, etc) and it works as information service for public users. The main page is shown in Figure 6.

3.1. The application architecture

The application architecture is proposed according to the three-tier model, realizing the web based technologies (HTML, DHTML, PHP). The objectives of application architecture should be part of the environment to the extreme simplification of presentation (presentation logic) and partly towards the realization of an intermediate component on which to deploy the business logic (middle-tier component), with a third component, the data (logical data) fully accessible by means of standard connectivity. The adoption of multi-layer model for the system is optimal due to the fact that it eliminates any forced options regarding technological features, thus allowing to focus on the development of a more efficient system.

Figure 6. Web portal of the ImpAQ project (Source: ImpAQ Web portal)

The project main server's parameters are the following:

- Application Server: Apache HTTP Server version 2.2.x ;
- PHP version 5.3.x
- RDBMS : MySQL 5.1.x.

The Apache HTTP Server Project is an effort to develop and maintain an open-source HTTP server for modern operating systems including UNIX or Windows. The goal of this project is to provide a secure, efficient and extensible server that provides HTTP services in sync with the current HTTP standards. Apache has been the most popular web server on the Internet since April 1996. The Apache HTTP Server is a project of The Apache Software Foundation.

PHP is a widely-used general-purpose scripting language that is especially suited for Web development and can be embedded into HTML.

MySQL is an open source product, which allows us to reduce cost of production and management systems, but at the same time ensures reliability, scalability and high performance. In fact MySQL has become the de-facto standard for websites with high traffic due to its query-engine, high performance, offering excellent speed both in the operations of data entry and research.

The choice to implement the architecture was the Joomla CMS. Joomla is a content management system platform for publishing content on the World Wide Web and intranets as well as a Model–view–controller (MVC) Web Application Development framework.

The system includes features such as page caching to improve performance, RSS feeds, printable versions of pages, news flashes, blogs, polls, website searching, and language internationalization. It is written in the PHP programming language and uses the MySQL database system to store information.

3.2. The Agriculture ImpAQ Matrix

Once coordinators have entered all the data, the platform is accessible by all project partners that could compile the ImpAQ Matrix. Clicking into intersection cells Process/Product (Figure 6 - ImpAQ MATRIX), will be displayed a new page where the user can select one or more qualification type from the drop down list or he can add one or more qualifications through the free text area to the process/product couple, and for each he must assign the EQF level. The number of elements assigned to the couple will be displayed into the cell of the matrix (ImpAQ The Agriculture Matrix, 2010)

Figure 7. The MATRIX of the ImpAQ (Source: ImpAQ Web portal)

3.3. The Q-Inventory

By using this tool, each partner will carry out inventories of qualifications that meet the established criteria and will provide the requested information. The inventory is organized into four sections: Section 1- Registry, Session 2 - Structure, Session 3 – Other information, Session 4 – Qualifications (ImpAQ Analysis tool, 2010).

From the Agricultural Matrix we can access a series of printable reports:

- Overall Preview
- Preview of Description/Comments
- Overall Preview Global
- Related Qualifications for EQF level
- Preview of Description/Comments Global.

The first report shows the Qualification type, the English name, the EQF level and the related qualifications filled in for each matrix's intersection of the current country. The second one shows detailed information about each Qualification Type (Qualification Type, English Name, EQF, Related Qualification, English Name, Description, Comments) for the current country. The third one shows the Qualification type, the English name, the EQF level, the related qualifications and its English name filled in for each matrix's intersection grouped for country. The fourth one shows a table containing the number of related qualifications for each country ordered by EQF level and taken only once. The fifth one shows detailed information about each Qualification Type (Qualification Type, English Name, EQF, Related Qualification, English Name, Description, Comments) grouped by country.

OUTCOMES AND SOME REMARKS

The situation in VET institutions, most policy makers and boards of directors of these organizations are hardly aware of the consequences of the implementation of the EQF in their educational system. In a way most educational institutions on VET level assume that the NCPs will tell them what EQF level they ought to print on their present certificates, and that is all. The ImpAQ project showed as an outcome that in many countries level 1, 2 and even 3 of the EQF in diverse sectors in education does not exist. That means that for most of the workforce in Europe there is no vocational education. They cannot step into the EQF system if the entry level is 3 or 4.

The distance between the present educational system and a learning outcome approach is quite big. Practically all the stakeholders have constantly underlined the following points (Burriel at al):

- The interest and urgency of the qualification approach in the agriculture sector in consideration of the problems related to the evolution of the labour market, including the immigrant labour force, and the evolution of the sector itself.

- The relevance of a proper definition of the sector and in particular the correctness of the definition of multifunctional agriculture.
- The usefulness of the matrix developed and used within the project, a tool considered indispensable independently from the disagreement(s) of the elements of the definition.
- The importance of an analysis of the several differences at a national level, including the role of professional associations and registers, and the legal value of diplomas and state examination for access to certain protected professions.
- The usefulness of instruments such as the "bridge" and the "ruler" developed by the project.
- The necessity of further comparative analysis in relation to additional countries and to other sectors (including those overlapping with multifunctional agriculture).

CONCLUSIONS

The Qualifications Inventory concerning the Agricultural sector represents the qualifications issued in the partner countries, related to the EQF levels through the analysis of their Learning Outcomes - Learning outcomes (both in terms of representation model and content) which help understand what is the quota of common Learning outcomes for the Qualifications comparable at the same level and what is the quota of specific Learning outcomes related to territorial specific features.

The project's long term impact can concern both project target groups and beneficiaries, the wide range of entities interested to the EQF and agricultural sector, and the citizens as indirect target group. In detail, the results of the comparison of the EU qualifications of the agricultural sector according the Learning Outcomes approach will produce a pivotal long term impact.

ACKNOWLEDGEMENT

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ANALYZING THE EFFECTS OF EU ENLARGEMENT ON BULGARIAN AGRICULTURAL TRADE

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ABSTRACT

It is often highlighted that European Union's fifth enlargement was motivated mostly by the political aspiration of ending the political separation of Europe rather than the promotion of specific economic objectives. However, as it concerns Bulgaria, the results of its accession, in 2007, does not restrict only to political gains. Clear economic benefits can be pinpointed that extends from its GDP growth to a surge in agricultural exports. Within this context, this paper, tries to estimate the effect of the Bulgarian accession on its agricultural trade in comparison to the relative effect of EU enlargement on agricultural exports and imports of the adjacent EU partners, Greece and Romania. In order to achieve that objective, an augmented Gravity Equation Model will be estimated utilizing the latest available data of Bulgarian, Greek and Romanian agricultural exports and imports with their EU partners, for the period 2000-2010.

1. INTRODUCTION

Since the initiation of the fifth European Union enlargement process, several authors have contributed to the literature, both with *ex ante* and *ex post* analyses, on the effects of such a major political and economic development for Europe. In a recent attempt, Breuss (2009) highlighted that the accession of the twelve new member states was motivated mostly by the political aspiration – of the initial EU members - for ending the political separation of Europe rather than the promotion of specific economic objectives. However, as it concerns Bulgaria, the results of its accession does not restrict only to political gains. Clear economic benefits can be pinpointed, as the fact that the Bulgarian economy achieved a six percent economic growth, only during the first two years of its full membership (Tsachevsky, 2010). As it regards its agricultural sector, *ex ante* literature indicates significant opportunities for the growth of Bulgarian agricultural sector and the expansion of its agricultural exports due to the existence of evident comparative advantages (Erjavec et. al., 2007; Caporale et. al., 2009, Bojnec & Ferto, 2009; 2010). Furthermore, the expected gains of enlargement have been described as bilateral, since the initial EU members were projected to face considerable export opportunities to the new member states (Antiminiani, 2007).

Indeed, the majority of optimistic analyses that had projected a considerable development in agricultural trade are now verified. According to the latest available trade flows data from Eurostat (Table 1), Bulgaria is facing a surge in agricultural exports and imports since 2007. EU27 consist the major destination for Bulgarian agricultural and food products, while the average rate of exports and imports growth is 31.6 percent and 14.6 percent respectively for the period 2007-2010.

Table 1. Total Agricultural exports and imports of Bulgaria to EU (in million Euros)

	Exports				Imports			
	EU27		Total		EU27		Total	
	Value	% of total	Value	Annual increase (%)	Value	Share total (%)	Value	Annual increase (%)
2007	952.2	81.2	1172.8		952.2	74.9	1270.9	
2008	1313	69	1902.8	62.2	1313	75.6	1735.9	36.6
2009	1270.4	64.6	1966.2	3.3	1270.4	75	1693.5	-2.4
2010	1466.8	57.6	2544.9	29.4	1466.8	79	1855.8	9.6

Source: Eurostat, 2012

Within this context, the main objective of the present paper is to estimate the effect of the Bulgarian accession to EU in 2007 on its agricultural exports and imports in comparison to the relative effect of EU enlargement on the agricultural exports and imports of Greece and Romania. Greece and Romania are the only other EU partners of Bulgaria to the Balkan Peninsula. Alongside, Greece consist also a major source for FDI flows to Bulgaria with 2.6 m€ FDI inflows in 2009 (Tsachevsky, 2010). Therefore, a secondary objective of our research is to estimate the magnitude of bilateral agricultural trade relations among the three Balkan EU countries. In order to achieve that objective, an Augmented Gravity Equation Model will be estimated, utilizing the latest available data of Bulgarian, Greek and Romanian agricultural exports and imports with their EU partners for the period 2000-2010.

The estimation of an augmented Gravity Equation Model provides an opportunity to enrich our main research objectives. Thus, our estimated model will be enriched with properly specified independent variables that will facilitate the estimation and comparison of the effect of geographical characteristics (geographical distance and the case of a landlocked trade partner), the existence of common language and the effect of political liberalization on Bulgarian agricultural trade vis-à-vis the agricultural trade of Greece and Romania.

The rest of the paper is organized as follows: Next section briefly presents the gravity equation framework. Then, section three describes the specification of the estimated model and data used while section four presents the results of the estimations and section five concludes.

2. METHODOLOGY, DATA AND RESULTS

2.1 The Gravity Equation Model framework

The law of gravity, formulated as the Gravity Equation Model (GEM) has been used extensively for the empirical analysis of international trade and foreign direct investment flows (Cheng and Wall, 2005). In analogy to the Newtonian physics, from where it's derived, the standard GEM (Wall, 2000) asserts that the value of bilateral trade between any two trading partners is an increasing function of their economic masses, as measured by their national incomes, and a decreasing function of the physical distance between them.

Particularly, using Y_i and Y_j as variables of the national incomes of any countries i and j that trade bilaterally and D_{ij} as the variable that indicate the physical distance between them, the value of trade (T_{ij}) between those countries is expressed in log-linear form as:

$$\ln T_{ijt} = a + \beta \ln Y_{ti} + \gamma \ln Y_{jt} + \delta \ln D_{ijt} + \varepsilon_{ijt}, \tag{1}$$

where α, β, γ and δ are the parameters to be estimated. The linear formulation of the standard GEM facilitates the estimation of the parameters α, β, γ and δ as it consists a multiple regression model which will be estimated using ordinary least squares (Frankel, 1997, p. 50). Therefore, for the estimation, the natural logarithm of trade flows value observations between two countries (lnTij) will be treated as dependent variable and the natural logarithm of GDP of both trading partners (lnYi, lnYj) and the natural logarithm of kilometers between the two countries (lnDij) will function as independent variables. The expected sign, after the estimation, for β and γ is positive while for δ is negative (Krugman and Obstfeld, 2005, p.13; Battersby and Ewing, 2005).

However, as Krugman and Obstfeld (2005) note, for a comprehensive research of international trade, extra factors (besides geographical distance and the size of GDP of the trading partners) that affect international trade must be considered. This deficiency is treated empirically by adding to the standard GEM additional independent

variables. The gravity equation model, in this case, is called augmented GEM since it is enriched with additional independent variables (Cheng and Wall, 2005).

The linear logarithmic form, of the augmented GEM, can be viewed as an extension of the standard GEM, enhanced with quantitative variables, country indicators and bilateral or unilateral dummy variables. The added variables represent the various other factors that impact international trade beyond geographical distance and income. Therefore, model (1) can take the form of the following model where,

$$\ln T_{ijt} = a + \beta \ln Y_{ti} + \gamma \ln Y_{jt} + \delta \ln D_{ijt} + \zeta'_{ijt} Z_{ijt} + \varepsilon_{ijt} \qquad (2)$$

Z'_{ijt} represents a vector of added quantitative variables, indicators or dummy variables that express unilateral characteristics or bilateral common characteristics of the trading partners i and j.

The most commonly used, additional independent variables that enrich augmented GEMs, is the size of the total population of a country, the size of GDP per capita or the size of a country's surface area expressed in units of square kilometers (Cheng and Wall, 2005; Glick and Rose, 2002; Cavallo and Frankel, 2008). Quite often, as independent variables, policy indicators are used. One such indicator is the Economic Freedom of the World Index which is issued annually by the Fraser Institute in Canada. The index measures the relative consistency of a country's policies towards the concept of economic freedom (Gwartney et. al. 2006). Furthermore, frequent is the use of dummies that express simultaneous participation of both trading partners to the European Union (Martinez-Zarzoso, 2003, Koo, 2006) or the fact that two countries share a common language (Melitz, 2003), a common border (McCallum, 1995), colonial ties (Rose, 2004) or the fact that a country is an island or landlocked (Wong, 2008).

2.2 Model specification and data

Following the scope of this paper, an augmented GEM will be estimated for each investigated country, for each trade direction and for each period considered. Thus, formulating accordingly the general form of the augmented GEM (2), the following two models will be estimated for each trade direction (exports and imports). Each of the models (3) and (4) will be estimated six times, one time for each investigated country i=1 (Bulgaria), i=2 (Greece), i=3 (Romania) and one time for each investigated period (2000-2006, 2007-2010).

$$\ln X_{ij,t} = a_0 + a_1 \ln Y_{i,t} + a_2 \ln N_{i,t} + a_3 \ln Y_{j,t} + a_4 \ln N_{j,t} + a_5 \ln D_{ij}$$
$$+ a_6 \ln EF_j + a_7 EU15 + a_8 EU12 + a_9 BGRO + a_{10} BGGR + a_{11} GRBG$$
$$+ a_{12} GRRO + a_{13} ROBG + a_{14} ROGR + a_{15} ComLang_{ij} +$$
$$a_{16} LndLock_j + \varepsilon_{ij,t} \qquad (3)$$

$$\ln M_{ij,t} = a_0 + a_1 \ln Y_{i,t} + a_2 \ln N_{i,t} + a_3 \ln Y_{j,t} + a_4 \ln N_{j,t} + a_5 \ln D_{ij}$$
$$+ a_6 \ln EF_j + a_7 EU15 + a_8 EU12 + a_9 BGRO + a_{10} BGGR + a_{11} GRBG$$
$$+ a_{12} GRRO + a_{13} ROBG + a_{14} ROGR + a_{15} ComLang_{ij}$$
$$+ a_{16} LndLock_j + \varepsilon_{ij,t} \qquad (4)$$

The variables of the above models are defined as follows:

$X_{ij,t}$ denotes the value of total agricultural exports of Bulgaria (i=1), Greece (i=2) or Romania (i=3) respectively, to the EU27 countries (countries j) in each year t,

$M_{ij,t}$ denotes the value of total agricultural imports of Bulgaria (i=1), Greece (i=2) or Romania (i=3) respectively, from the EU27 countries (countries j) in each year t,

a_0 is the constant term of the equation,

$Y_{i,t}, Y_{j,t}$ represents countries i (Bulgaria, Greece and Romania) and j GDP in year t,

$N_{i,t}, N_{j,t}$ represents the population of countries i (Bulgaria, Greece and Romania) and j in year t,

D_{ij} denotes the physical distance between country i and country j measured as the great circle kilometers distance between capitals,

EF_j represents country's j index of economic freedom as it published annually by the Fraser Institute, Vancouver, Canada

$Lndlock_j$ is a dummy variable that equals one if country j is landlocked,

$ComLang_{ij}$ represents a dummy variable that equals one if Bulgaria, Greece or Romania respectively and country j share a common language and zero otherwise,

$EU15$ represents a binary variable that equals one if country j is a member of the fifteen initial members of European Union (up until 2004) and zero otherwise,

$EU12$ represents a binary variable that equals one if country j is a member of the twelve new EU member states that entered European Union to the enlargement of 2004 and 2007,

BGRO   is a dummy variable that equals one if Bulgaria's (country i) export or import partner is Romania (country j)

BGGR   is a dummy variable that equals one if Bulgaria's (country i) export or import partner is Greece (country j)

GRBG   is a dummy variable that equals one if Greece's (country i) export or import partner is Bulgaria (country j)

GRRO   is a dummy variable that equals one if Greece's (country i) export or import partner is Romania (country j)

ROBG   is a dummy variable that equals one if Romania's (country i) export or import partner is Bulgaria (country j)

ROGR   is a dummy variable that equals one if Romania's (country i) export or import partner is Greece (country j)

a_n represents the parameters to be estimated,

$\varepsilon_{ij,t}$ is the error term of the equation which is assumed to be log normally distributed with mean zero. It represents the numerous other determinants of bilateral imports that are not captured by the variables included in our model (Feenstra et. al., 2001).

The dependent variable of the model consists of values of Bulagarian, Greek and Romanian total agricultural imports or exports with their current EU partners over eleven years period (2000-2010). Observations of import and export flows are classified by Standard International Trade Classification Revision 3 (SITC Rev. 3) at one and two digit level. Following that classification, the 'total agricultural trade' investigated sector, according to World Bank (2009), consists of import and export flows classified in SITC code 0 "Food and live animals", code 1 "Beverages and tobacco", code 4 "Animal and vegetable oils, fats and waxes" and code 22 "Oil-seeds and oleaginous fruits".

Exports' and imports' observations come from the UNcomtrade database (United Nations Commodity Trade Statistics Database) of United Nations (UN, 2009), while GDP and population data of the 27 EU member states are gathered from the statistical web service of the International Monetary Fund (IMF, 2012). Both trade observations and GDP figures are deflated using the U.S. consumer price index (Consumer Price Index - CPI) with base year the 2010. CEPII database constitute the source of geographical distance figures that comprise the distance variable as well as the origin of data for the synthesis of all dummy variables utilised (CEPII, 2009)

The dataset consists theoretically of (3 reporter countries x 26 partners x 11 years) 858 trade observations for each trade direction (exports and imports). Although, due to the existence of zero trade flows, for certain years, the actual dataset is relatively reduced. Therefore, the zero observations (1.1 percent of the total theoretical observations) are omitted and estimations are conducted using only the actual import and export flows. Including the observations for the sixteen explanatory variables of the estimated model and the two directions of trade, a total dataset of 27,152 observations is finally constructed. In Table 1 the summary statistics of the included variables are presented.

Table 2. Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
T_{ij}	1697	0.08	0.17	0.00	1.38
Y_{BG}	563	31.14	14.02	12.90	51.82
N_{BG}	563	7.74	0.17	7.51	8.15
Y_{GR}	570	239.60	76.63	127.60	348.67
N_{GR}	570	11.07	0.07	10.94	11.18
Y_{RO}	564	108.19	57.41	37.31	204.34
N_{RO}	564	21.74	0.33	21.43	22.44
Y_{EUm}	1697	516.19	789.33	3.85	3,640.73
N_{EUm}	1697	18.55	22.87	0.39	82.39
D_{ij}	1697	1544.87	651.50	125.31	2,978.07
EF_j	1697	7.26	0.49	5.19	8.25

2.3 Estimation Results

Prior to the estimations of models (3) and (4), it is expected that the majority of the estimated parameters that represent our main research objectives will present positive signs. Negative exceptions will consist the variable that estimates the effect of a landlocked partner country. However, the coefficient of the variable that represents common language between a reporting and a trading partner is expected to be positive.

The distinction between "new" and "old" EU partners after and before the enlargement of 2004-2007, is also reflected to the methodology of the performed estimations for the two models. As described to the previous section, each model will be estimated two times. Once for the period 2000-2006, in order to capture the effect of EU 15 (EU15 dummy variable) initial members on Bulgarian, Romanian and Greek agricultural exports and imports, and once for the period 2007-2010 (after Bulgaria's and Romania's accession), in order to capture the evolvement of the EU15 effect as well as the effect of EU 12 "new" members on agricultural trade.

Ordinary Least Squares' regressions, for the model (3) and (4) are presented in the following Tables 3 and 4. Each table contains the estimations' results for each trade direction, for the three investigated countries and for each period. The first column of each table presents the independent variables of the estimated models. Next to each variable, the respective estimated coefficients are presented with their t-statistic values. Each coefficient is labeled with one, two or three asterisks, corresponding to a level of significance $\alpha = 0.15$, $\alpha = 0.05$ and $\alpha = 0.01$ respectively. In the last two rows of each table, the sample size N of trade flows and the coefficient of determination R square are presented.

The results indicate that the majority of variables included to the specification of the augmented GEMs are statistically significant least to 0.15 significant level. Therefore, as the results indicate, for the period 2000-2006, the effect of EU15 (the "old" EU partners) on Bulgarian agricultural exports is positive and statistically significant at level a=0.05 with an estimated coefficient of 1.15. Since 1.15 consist the semi-elasticity of the depended variable towards the independent (which is in a log form), the magnitude of such a coefficient means that during the period 2000-2006, Bulgarian agricultural exports that had as destination the 15 "old" EU member states was by 215.8% higher than to the candidates countries (EU12). For the period 2007-2010, the respective coefficient was estimated with a figure of 2.33 and statistical significance at a=0.05 level. The figure of that coefficient means that Bulgarian agricultural exports to EU15 members were by 9.3 times higher than the exports to the "new" EU members for the period 2007-2010. Consequently, it is estimated that Bulgaria's accession to EU in 2007 fostered the already enhanced agricultural exports to the EU15 countries by 3.4 times in relation to the rest EU27 countries.

Table 3. Regression results for the agricultural exports of Bulgaria, Greece and Romania
during the periods 2000-2006 and 2007-2010

2000-2006	Bulgaria		Greece		Romania	
	α_n	t	α_n	t	α_n	t
lnY_i	1.767***	(3.65)	-0.342	(-0.69)	0.317	(0.73)
lnN_i	-3.126	(-0.46)	27.921*	(1.06)	4.485	(0.45)
lnY_j	-1.051***	(-3.45)	0.603***	(3.58)	1.487***	(4.28)
lnN_j	1.886***	(7.01)	0.518***	(3.45)	-0.291	(-0.97)
lnD_{ij}	-1.617***	(-5.21)	-1.917***	(-11.6)	-2.156***	(-4.63)
$lnEF_j$	0.407	(0.29)	1.347**	(1.83)	-0.878	(-0.48)
EU15	1.153**	(2.19)	0.735***	(2.75)	1.477**	(2.09)
EU12	-0.208	(-0.51)	0.934***	(4.26)	3.367***	(6.03)
BGRO	-2.969***	(-3.97)	-	-	-	-
BGGR	-0.163	(-0.29)	-	-	-	-
GRBG	-	-	0.127	(0.39)	-	-
GRRO	-	-	0.000	(0.00)	-	-
ROBG	-	-	-	-	0.010	(0.01)
ROGR	-	-	-	-	1.948***	(2.94)
$ComLang_{ij}$	2.067***	(5.06)	2.674***	(11.82)	0.408	(0.91)
$Lndlock_j$	-1.077***	(-4.84)	-0.472***	(-4.72)	-0.291	(-0.91)
α_0	28.212	(1.85)	-41.490	(-0.68)	7.784	(0.24)
N	180		182		181	
R^2	0.7867		0.933		0.7326	
2007-2010						
lnY_i	2.339*	(1.24)	0.457	(0.48)	1.122	(0.62)
lnN_i	-17.597	(-0.95)	41.251**	(1.95)	-26.85***	(-2.95)
lnY_j	-1.552**	(-2.17)	0.395*	(1.54)	0.561	(0.76)
lnN_j	2.494***	(4.04)	0.662***	(2.98)	0.503	(0.79)
lnD_{ij}	-2.182***	(-4.24)	-2.000***	(-11.2)	-1.549**	(-2.26)
$lnEF_j$	-5.347*	(-1.37)	2.942**	(2.05)	-1.733	(-0.38)
EU15	2.337***	(2.66)	1.148***	(3.96)	0.940	(0.88)
EU12	0.177	(0.20)	0.886***	(2.81)	1.966**	(1.99)
BGRO	-1.496*	(-1.15)	-	-	-	-
BGGR	-0.514	(-0.53)	-	-	-	-
GRBG	-	-	0.247	(0.68)	-	-
GRRO	-	-	0.164	(0.37)	-	-
ROBG	-	-	-	-	0.575	(0.41)
ROGR	-	-	-	-	0.953	(0.92)
$ComLang_{ij}$	3.642***	4.95	2.853***	(9.91)	0.445	(0.61)
$Lndlock_j$	-0.499*	-1.17	-0.804***	(-5.97)	-0.522*	(-1.03)
α_0	71.146	1.88	-79.972	(-1.46)	843.677	(3.11)
N	104		104		104	
R^2	0.7873		0.9484		0.6482	

On the other hand, Greek exports, during the period 2000-2006, are estimated with a coefficient of 0.73 for the dummy of EU15 and 0.93 for the dummy of EU12. However, during the post accession period (2007-2010) the respective coefficients were 1.14 for the EU15 and 0.88 for the EU12 countries variable. Therefore, the results indicate that Greece experienced enhanced exports to EU15 countries by 108.5 percent during the 2000-2006 period and 215.1 percent during the 2007-2010 period. Contrary, Greek agricultural exports was higher, relative to the model predictions, by 154.4 percent to the EU12 countries for the period 2000-2006 and 137.7% for the 2007-2010 period. Thus, the enhanced Greek agricultural exports to the new EU members were marginally limited after Bulgaria's and Romania's accession to EU.

Table 4. Regression results for the agricultural imports of Bulgaria, Greece and Romania during the periods 2000-2006 and 2007-2010

2000-2006	Bulgaria		Greece		Romania	
	α_n	t	α_n	t	α_n	t
lnY_i	1.185**	(1.69)	0.529	(0.44)	-0.096	(-0.2)
lnN_i	-3.319	(-0.34)	54.861	(0.86)	10.749	(0.92)
lnY_j	0.480*	(1.07)	0.276	(0.68)	2.385*	(6.71)
lnN_j	0.944***	(2.30)	0.977***	(2.69)	-0.598**	(-1.89)
lnD_{ij}	-0.276	(-0.61)	-1.318***	(-3.31)	-0.670**	(-1.5)
$lnEF_j$	-0.105	(-0.05)	5.783***	(3.21)	0.227	(0.11)
EU15	-3.633***	(-4.8)	1.122**	(1.74)	-2.65***	(-3.37)
EU12	-3.530***	(-6.09)	-1.246***	(-2.35)	0.143	(0.23)
BGRO	-2.643***	(-2.44)	-	-	-	-
BGGR	2.417***	(3.02)	-	-	-	-
GRBG	-	-	2.274***	(2.88)	-	-
GRRO	-	-	0.520	(0.57)	-	-
ROBG	-	-	-	-	3.618***	(4.34)
ROGR	-	-	-	-	2.551***	(3.84)
$ComLang_{ij}$	1.657***	(2.69)	4.116***	(7.55)	1.693***	(3.33)
$Lndlock_j$	1.148***	(3.42)	-0.188	(-0.78)	0.978***	(2.66)
α_0	19.086	(0.86)	-123.034	(-0.84)	-22.487	(-0.59)
N	174		180		175	
R^2	0.7838		0.851		0.779	
2007-2010						
lnY_i	2.868*	(1.55)	-0.181	(-0.09)	0.987	(0.75)
lnN_i	-37.864**	(-2.07)	22.083	(0.49)	-57.667	(-0.87)
lnY_j	0.883*	(1.38)	0.672*	(1.23)	1.582***	(2.96)
lnN_j	0.607*	(1.08)	0.736*	(1.55)	-0.205	(-0.45)
lnD_{ij}	0.149	(0.5)	-0.624**	(-1.64)	-1.98***	(-4.00)
$lnEF_j$	2.535	(0.68)	1.260	(0.41)	2.186	(0.67)
EU15	-3.018***	(-4.26)	0.524	(0.85)	-0.063	(-0.08)
EU12	-1.416*	(-1.61)	-0.785*	(-1.16)	1.473**	(2.05)
BGRO	0.504	(0.46)	-	-	-	-
BGGR	3.623***	(4.72)	-	-	-	-
GRBG	-	-	3.202***	(4.11)	-	-
GRRO	-	-	0.101	(0.11)	-	-
ROBG	-	-	-	-	0.859	(0.85)
ROGR	-	-	-	-	0.500	(0.66)
$ComLang_{ij}$	1.226	(1.66)	4.261***	(6.92)	1.135**	(2.16)
$Lndlock_j$	0.540	(1.39)	0.1878	(0.65)	-0.178	(-0.49)
α_0	72.002	(1.92)	-37.826	(-0.32)	190.284	(0.96)
N	105		104		104	
R^2	0.771		0.893		0.821	

Bulgaria's concurrent EU partner, Romania, was estimated with a coefficient of 1.47 during the pre-accession period, for its agricultural exports to the "old" EU members, and a coefficient of 3.36 for the "new" member's parameter. The magnitudes of such coefficients suggest that Romania exported by 3.3 times more, than the model predicted, with the EU15 members and 27 times more with the EU12 members. After its accession in 2007, the estimated coefficient for the EU12 dummy is estimated considerably decreased with a figure of 1.96, meaning that Romania's exports was by 6.1 times higher than the predictions of our estimated model. Therefore, as the estimated coefficients depict, after Romania's accession to EU, its agricultural exports to the "new" EU countries are significantly lower than the model implies.

As it concerns agricultural imports, for the period 2000-2006, the effect of EU to Bulgarian imports is estimated negative, statistically significant at 1% level and with an important magnitude. Specifically, for the dummy that represents the initial EU15 members the estimated coefficient is -3.63, meaning that Bulgaria traded less with its EU15 partners than by the other countries by 97.3%. The same trend continued for the period after 2007. The coefficient of -3.01 suggests that Bulgaria traded less with its EU15 partners than by the other countries by 97 percent during the period 2007-2010.

Greek imports on the other side, for the period 2000-2006, were estimated with coefficients of 1.12 and -1.24 for the dummies that stands for EU15 and EU12 members. The intensity of those coefficients suggests that Greece imported agricultural products of 2.1 times more from members of the European Union during 2000-2006 and 71% less from EU12 members. For the dummy that represents participation of trade partners to the "new" EU members, for the period 2007-2010, the estimated coefficient is -0.78, meaning that Greece traded less with its "new" EU12 partners than by the other countries by 54.3 percent.

As it concerns Romania, the magnitude of the coefficient of EU15 dummy (-2.65) suggest that Romania imported agricultural products of 92.9% less value from the "old" EU15 members during 2000-2006, in relation to the level of imports the model is predicting. Contrary, EU12 countries consists an important origin of Romania agricultural imports, for the period after the accession (2007-2010), since a coefficient of 1.47 is estimated. The intensity of this parameter indicates that Romania imported 3.3 times more from its EU12 partners than from the other EU countries.

Bilateral trade relations among the adjacent Balkan EU countries were estimated significantly intense, both in the negative and positive sense. As the results indicate, the coefficient for the dummy variable that stands for the Romania as a destination for the Bulgarian exports (BGRO) was estimated negative (-2.96 for the period 2000-2006 and -1.49 for the period 2007-2010). The magnitude of that coefficients indicate that Bulgarian exports to Romania was of less value by 94.8 percent for the pre-accession period and of less value by 77.4 percent for the post accession years. Consequently, the concurrent accession to EU enhanced Bulgarian exports to Romania by 49.6 percent. As it regards imports, the dummy variable that indicates Greece as the origin of the Bulgarian imports (BGGR) is estimated positive with a significant magnitude (2.41 for the period 2000-2006 and 3.62 for the period 2007-2010). Thus, Greece consist a favourable origin of Bulgarian agricultural imports since imports from Greece are estimated enhanced by 10 and 36 times for the periods 2000-2006 and 2007-2010 respectively.

Concerning the other characteristics that influence international trade and have enriched our estimated models (geographical distance, the case of a landlocked trade partner and the existence of common language), among the statistically significant coefficients, the majority of them are having the expected sign. In particular, for the Bulgarian exports the estimated coefficient for the distance variable, for the period 2000-2006, is -1.61 and for the period 2006-2010 is -2.18. Additionally, the coefficient of the dummy that represents lack of access to sea transportation by a EU partner country is -1.077 for the period 2000-2006 and -0.499 for the period 2007-2010, meaning that Bulgarian exports are respectively by 65.9 and 39.2 percentage lesser with a landlocked country than with a country with access to the sea. Moreover, the coefficients 2.06 and 3.64 (for the period 2000-2006 and 2007-2010 respectively), for the dummy of common language between Bulgaria and its partners, indicates that Bulgaria traded agricultural products respectively of 6.8 and 37 times more with countries that share a common official language than with the other partners.

Contrary, for the Bulgarian imports, among the statistically significant parameters, the estimated parameters for the dummy that represents the case of landlocked EU partners is 1.14 for the period 2000-2006, indicating that Bulgarian imports are by 2.1 times augmented with a landlocked country. In addition, the coefficient 1.65 (for the period 2000-2006), for the dummy of common language between Bulgaria and its partners, denotes that Bulgaria imported agricultural products by 4.2 times more from a country that share a common official language.

3. CONCLUSIONS

It is evident that Bulgarian agriculture, since its accession to EU, is facing a surge in agricultural exports. *Ex ante* researchers had highlighted the significant opportunities that EU's fifth enlargement was offering to Bulgaria and all the new member states, due to the presence of considerable comparative advantages. According to the estimations of our augmented Gravity Equation Model, Bulgaria's accession to EU, in 2007, fostered the already enhanced agricultural exports to the initial EU15 countries by 3.4 times. Contrary, agricultural imports were estimated relatively anemic in comparison to the level of imports our model implied. However, even that level of imports is estimated relatively amplified after Bulgaria's accession. Bulgaria's trade relationships with its neighboring countries are estimated considerably active. Greece consist a favourable origin of Bulgarian agricultural imports. The pre-accession augmented imports from Greece are estimated significantly fostered after 2007 by 2.5 times. Finally, Romania, the concurrent Bulgaria's EU partner, is an essential destination of agricultural exports since the simultaneous accession to EU enhanced Bulgarian exports to Romania.

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CONSTRAINTS AND STRENGHTS OF MICROFINANCE IN AGRICULTURE: A COMPARISON BETWEEN ALBANIA AND HONDURAS

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ABSTRACT

An early strand of the literature focuses on the preferences of farm households toward risk. Majority of these studies, on the basis of both experimental and observed data on farmer behaviour, conclude that peasants are risk-averse, (e.g., Moscardi & de Janvry 1977, Binswanger & Sillers 1983). However, this empirical literature wrongly attributes to risk aversion all the departures from economic efficiency and confounds risk behaviour with other underlying factors. The empirical evidence (Roumasset, 1976; Binswanger, 1980, Eswaran & Kotwal, 1989 and 1990) makes it possible to postulate that such differences in farms behaviour could only be explained by the differences in farm household constraints, such as access to credit, marketing, extension programs, institutional arrangements, etc. (Mendola, 2007).

On this brief statement of the problem, the paper compares two national cases, Albania and Honduras, discordant in terms of results of micro-credit applied to agriculture. The performances of these micro-credit systems are used as indicators of market opportunities for the farm household and its structural development in disadvantaged socio-economic contexts.

The comparison proposed is based on an exploratory research on the Albanian Savings and Credit Associations (Belletti & Leksinaj, 2011a), and a *logit* model calibrated using the database collected in the research project "Alternative Rural Financial Systems, the case of Honduras" (Falck, 2001).

The hypothesis supported in this work is that the opportunities offered to peasant farm households by access to microcredit is positively influenced by its connection to local markets while it is adversely affected by specialization and international market dependence.

In Albania, access to credit is producing positive results in the direction of a better integration between farm households and local markets.In addition, this integration seems to occur in a process of consolidation of smallholding structures resulting from agrarian reform rather than an evolution toward specialization.

By contrast, in Honduras the farm household is characterized by specialization in the production of commodities largely traded on the international market (coffee, cereals, etc.), and this despite the fact that Honduras farm household appears suited to production oriented to self-consumption under the constraint of size and the high cost of market access.This smallholding does not seem able to find in the credit opening channels a sufficient condition to initiate a process of income generation.

So the smallholding placed in difficult socio-economic contexts seems to be able to generate income if it is oriented to production for local markets while it seems to be financially inefficient if it is oriented to foreign commodities markets.

The case of Albania shows that access to credit results in increased economic and financial efficiency of peasant farm but not the increase of farm size.

INTRODUCTION

The agricultural sector, and more generally the rural economy are getting more and more attention from the international community, facing the main challenge of 21st century, sustainable economic development. Agriculture embodies at the same time a relevant share of causes and a relevant share of possible solutions connected with the sustainability issue. Economic liberalization and globalization process, climate change,

emancipation from the condition of indigence of the Southern World's populations, biodiversity preservation and reconstruction, are all aspects of an intricate system of matters which place agricultural economy in a central position.

Therefore, observing economic industrialization as a process that has affected for over a century the availability of natural resources with an inexorably negative balance in spite of any technological innovations introduced, it is now time to rethink the concept of innovation from a macro point of view, applying it to the development process cybernetics. Agriculture is the base of any economy from the most backward economy to the most advanced one. The role of agriculture as a macroeconomic stabilizer, independent from the generated GDP, is so crucial that the EEC was established in 1957 on a common agricultural policy, which is still the cornerstone of the EU, although no longer the only one. Rethinking the economy development modes according to new opportunities and to new constraints means, therefore, rethinking the running of agriculture, of food market and the rural society role in the twenty-first century.

On this brief premise, it should be noted that an early strand of the agricultural economics literature focuses on the preferences of farm households toward risk. Majority of these studies, on the basis of both experimental and observed data on farmer behaviour, conclude that peasants are risk-averse, (e.g., Moscardi & de Janvry 1977, Binswanger & Sillers 1983). However, this empirical literature wrongly attributes to risk aversion all the departures from economic efficiency and confounds risk behaviour with other underlying factors. The empirical evidence (Roumasset, 1976; Binswanger, 1980, Eswaran & Kotwal, 1989 and 1990) makes it possible to postulate that such differences in farm behaviour could only be explained by the differences in farm households' constraints, such as access to credit, marketing, extension programs, institutional arrangements, etc. (Mendola, 2007).

Hence, in this paper the role of the *peasant farm household* (Ellis, 2003) in the economic development process is the central issue investigated in relation to the progress and innovation challenge of worldwide agriculture. The objective of the study is to use of micro-credit systems as indicators of differences in peasant farm households' constraints in generating income. The interpretation of empirical results deals with the issue of the potential of peasant farm household in the rural development process and tries to point out some key elements for the policy makers with respect to territorial rural development strategies. The hypothesis underlying the study is that the farm households access to microcredit systems and performances are influenced by market orientation. Specifically local markets and short food supply chains (Renting, 2003) exert a positive influence whereas specialization in commodity markets exerts an adverse influence. The basic method of the study is a comparison of two national cases, Albania and Honduras, discordant in term of results of micro-credit applied to agriculture.

In Albania, even today, agricultural farm structure is similar to that of agrarian reform in the early transition period. An agrarian reform led to the division of land, previously dominated by state-run cooperatives, and its distribution in micro-farms, on the basis of a principle of equality (Ellis, 1992). In order to summarize these developments what is easily noticeable is that even though some two decades have already passed by since the transition, the regime of private ownership of land resulting from the reforms has not yet evolved towards a market-oriented structure (Swinnen & Gow, 1999). Rather it is characterized as an agricultural model labelled as self-sufficient (Tripp, 2006) and oriented towards self-sustenance. With farms of an average area of about 1hectare, labour-intensive and with low use of external inputs, the Albanian agricultural system theoretically can be classified as a case of peasant farm household.

The main system of rural micro-credit in Albania is the Union of Albanian Savings and Credit Associations (ASCs Union). In spite of considering the entrenched and constant effects of agrarian reform arising from the inelasticity of land market (Ellis, 1992), the experience related to the ASCs Union point towards the presence in Albania of a process of virtuous consolidation in agricultural structure, driven and steered by self-sustenance in a long-term perspective. The peasant household farm has for almost ten years been efficiently benefiting from the possibility of non-subsidized credit provided by the ASCs Union with the aim of optimizing surplus production after self-sustenance to move towards the local food market. And this is done through investment capable of boosting productivity with the progressive adaptation of the farm to the market needs rather than in increasing size and farm specialization (Belletti & Leksinaj, 2011a).

Therefore, the presence of an internal process of wealth creation through non-subsidized credit and in the absence of supporting policies in agricultural incomes describes an anomaly in agriculture. This case alone can be explained on the basis of the inverse relation between productivity and farm size (Ellis, 2003) which constitute empirical recurring evidence in agriculture. Thus, the Albanian peasant farm would precisely find in its small size not only a natural guide to self-sustenance but also the strengths of natural economic and financial efficiency.

At the moment the ASCs Union represent an efficient credit channel for more than 10% of Albanian farms (more than 30,000 members in 2010, ASCs Union report, 2010) highlighting the income generation potential of peasant farm household through optimization of its capacity to produce a surplus to move towards the local food market. Evidently, this result is achieved when the markets are not isolated and access to ASCs Union financial services is granted. The ASCs Union is still ranked by the Global Platform of Microfinance (MIX) on the top 100 microfinance institutions in the world (specifically the ASCs Union is one of the best rural financial funds).

By contrast, in Honduras the fragmentation and limits of the rural microfinance experience seem to indicate the presence of a constraint to sustainable progress of the peasant farm household. This constraint appears as the effect of family farm specialization towards commodity markets. Likewise in the case of Albania, the structure of the farm household in Honduras is suited to self-consumption. However, being very isolated from local food markets (both from a territorial point of view and from an institutional one) the household is forced to produce stackable commodities, especially coffee and cereals, seeking to generate some income from intermediated markets. Conversely, in Honduras the peasant farm household forced into commodity production cannot find in the microcredit access an efficient tool for income construction.

This paper deals with the hypothesis that the rural environment can find in the family-run farm, involved in local food market an efficient, a profitable and subsidies independent framework, thus representing a viable alternative to agricultural specialization and industrialization. In this framework the crucial role of agricultural inputs (property rights on seeds *in primis*) must be emphasised and the alternative provided by *Low External-Input Technology* (LEIT, Tripp, 2006) agricultural models deserves investigation. The commodities markets on the contrary do not allow family farms to find in the credit a boost for the income generation, because these markets are not profitable, but risky and unstable. Moreover, the experiences of many developed countries, above all Europe and USA, demonstrate that subsidies and protectionism are essential tools for compensating the inefficiency and the iniquity of the industrialized food system.

METHODOLOGY

As previously mentioned, the proposed paper illustrates the result of a comparative analysis between two national case studies, Albania and Honduras, on the issue of *peasant farm household sustainability* and its potential role in the pathway of development rethinking. Thus, the focussed study object is the peasant farm household behaviour, while *the micro-credit practice applied to agriculture is used as an indicator* of the divergent economic and financial performance of the peasant farm in two scenarios very different from each other concerning agricultural market access. Hence, the comparative scheme is used to adequately theorize the strengths and constraints of peasant farm oriented to auto-consumption in a state of increasing competitiveness and power concentration in the international agri-food supply chains.

Regarding the case of Honduras, it needs to be stated that the significant database used in this work was collected within an international research project on microfinance in Honduras during 2000 (Falck, 2001). This research was planned and coordinated by Mayra Falck researcher (at that time) at the Pan-American Agricultural University of Zamorano (EAP, el Zamorano) Honduras. At that time we directly participated in the data collection developed with the crucial cooperation of more than 600 farmers (and their families) living and working hard in all regions of Honduras, mainly in the most isolated rural areas of the country. The database was collected through the joint elaboration, test and administration of a particular *face to face* qualitative and quantitative questionnaire – administered, as already mentioned, to a *quota-sample* of farmers involved in microcredit practice – within an exploratory structure aimed at investigating the development of the microfinance experience in Honduras two years after the impact of Hurricane Mitch in 1998. Regarding the case of Albania, it needs to be stated that the opportunity to use the significant data presented in this work is the result of a stable and profitable partnership on the topic of rural microfinance between the Polytechnic University of Marche, the Agricultural University of Tirana, the ASCs Union Board of Directors and ASCs Union farmers (members). This research "joint venture" started in 2006 under the Scientific Cooperation Agreement between the Italian and Albanian Government and it has no plans to stop. During these years, in addition to the collection of quantitative and qualitative data on SCAs Union performance and evolution, many *in-depth interviews* have been conducted with key players of SCAs Union's Board of Directors.

Concerning the feasibility of comparing two cases study so far apart in space and time, it is of interest to point out that Jung (2011) defines space and time, quoting Kant (The *Critique of Pure Reason*, 1787), as pure concepts used by consciousness for interpreting moving bodies. However, on the basis of the concept of *synchronicity* (Jung, 1946) developed moving from the experimental research of Rhine (1934) on *extra-sensory perceptions* (ESP) and *psychokinesis* (PC, Rhine, 1948), space and time appear as no absolute dimensions, but relatives and underlying the psychical content of *collective unconscious.* In this age, crucial for the survival of humanity, the influence of collective unconscious on economic behaviour perhaps deserves more attention.

AGRICULTURE AND MICROFINANCE IN ALBANIA

The Union of Albanian Savings and Credit Associations (ASCs Union) is a micro-credit based system on the model of Grameen Bank in Bangladesh (Grameen Bank, 1988). Today, the ASCs Union in Albania represents the

main source of crediting in non-subsidized agriculture. ASCs were legally recognized as such on 3 May 2001 after a decade of both institutional and operational development. In 2001, the ASCs network was present in 175 villages, while in 2010 present in 1073 villages scattered across 16 districts out of 36 national districts (figure 1).

In the period 2004-2010 the number of ASCs increase from 90 to 97 while the average number of members for each ASC jumped from 118 individuals to 319 (+270%). Briefly stated, the system's expansion is verified more through the increase of "pioneer" ASCs than on the basis of the creation of new groups. The expansion of existing ASCs and the high number of members of any Association confirms the presence in Albanian rural society of two main elements pointing to the success of a micro-credit program (Chavez & Gonzales-Vega, 1995): personal reliability and reputation as a form of guarantee and steering capabilities that in its turn hints at the presence of a good level of social capital (Belletti & Leksinaj, 2011b). For the period 2003-2010, the ASCs network expansion is shown in figure 2. Today the number of Union members is above 30,000 units.

Figure 1. ASCs Union territorial outreach and ASC average size

	2004	2005	2006	2007	2008	2009	2010
ASCs village outreach	352	432	522	698	805	994	1073
ASC members on average	118	138	169	203	240	266	319
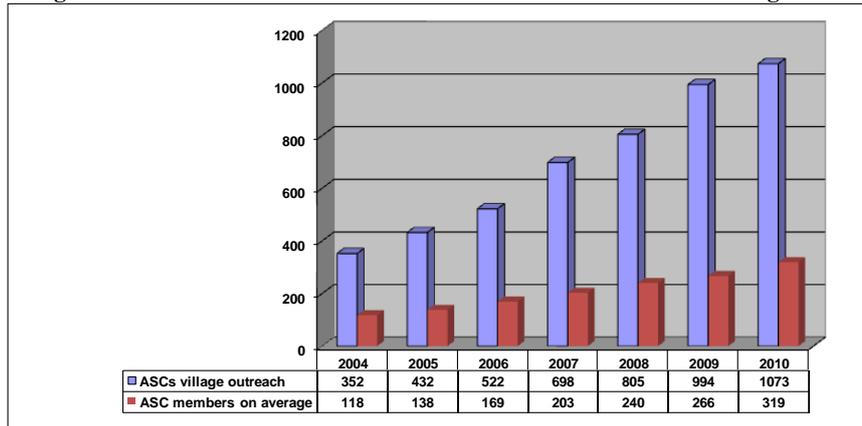
Source: elaboration on Albanian Saving & Credit Union Reports (2010)

The increasing trend of ASCs Union membership is associated with a levelling trend of active borrowers. In 2010, the active clients of ASCs Union represent around 59,6% of total ASC Union members (figure 2). This evidence shows that despite the broad participation of rural society in establishing a credit cooperating system, some difficulties are present such as the lack of profitable markets and the insufficiency of financial capital that prevent the system from developing its maximum potential in terms of the relation between effective customers and association members. Nevertheless, the evolution of ASCs Union lending performance is shown by a positive trend all through the period 2001-2010 (figure 3). It is interesting to highlight that during the period of the first world financial crisis (2008-2010) the level of loan portfolio shows quite a positive slope. In the period 2003-2010 the average loans within ASC systems increased the equivalent of about 1700 Euro in 2010 (figure 4) corresponding to 57.07% of the Albanian per capita Gross National Income (MIX-Market, 2012).

Figure 2. ASCs Union network evolution

	2003	2004	2005	2006	2007	2008	2009	2010
members	8161	10584	12815	16260	20457	24682	28235	31027
active clients	7621	7157	8650	10655	14209	17809	18579	18504
members/active clients (ratio)	93,4%	67,6%	67,5%	65,5%	69,5%	72,2%	65,8%	59,6%
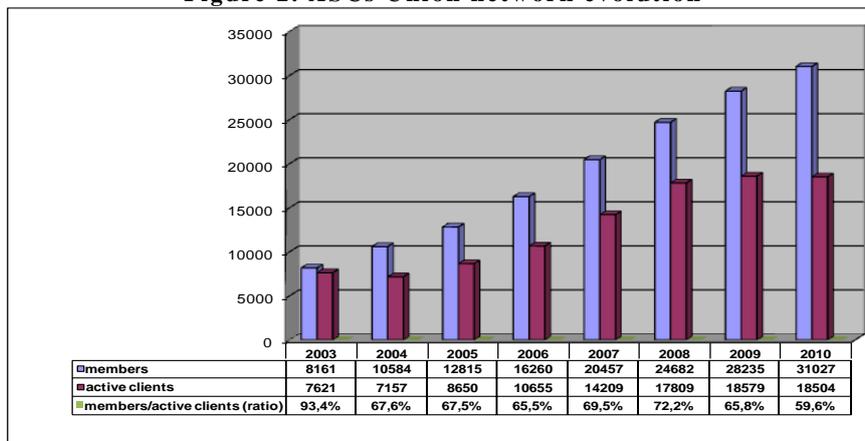
Source: elaboration on Albanian Saving & Credit Union Reports (2010)

Figure 3. ASCs Union loan portfolio trend
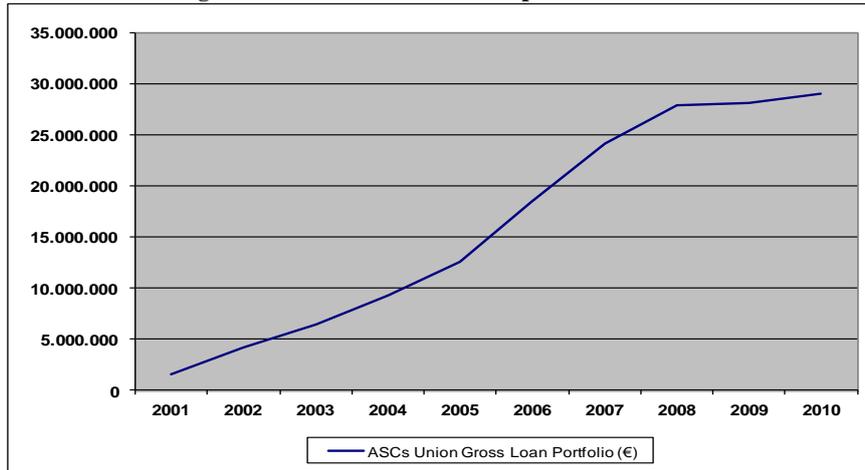
Source: elaboration on Albanian Saving & Credit Union Reports (2010)

Portfolio at risk increased steadily going up from 0.5% to 3.6% for the period 2007-2010 (figure 5). Nevertheless the level of late credit payment remains largely under control. Considering that in 2010, the ASCs Union return on assets (ROA) was 1.63% and the return on equity (ROE) was 6.69%, the operational self-sufficiency (OSS) was 121.3% and the write-off ratio was 1.32% (ASC Union, 2012). The gross loan portfolio to total assets ratio is 68.33% in 2010 (Mix-Market, 2012). By the end of 2010 the ASCs Union results with a total assets equivalent to about 42,7 million Euros corresponding to an increase of 13,7% against year 2009 (ASCs Union Report, 2010).

Figure 4. ASCs Union average credit
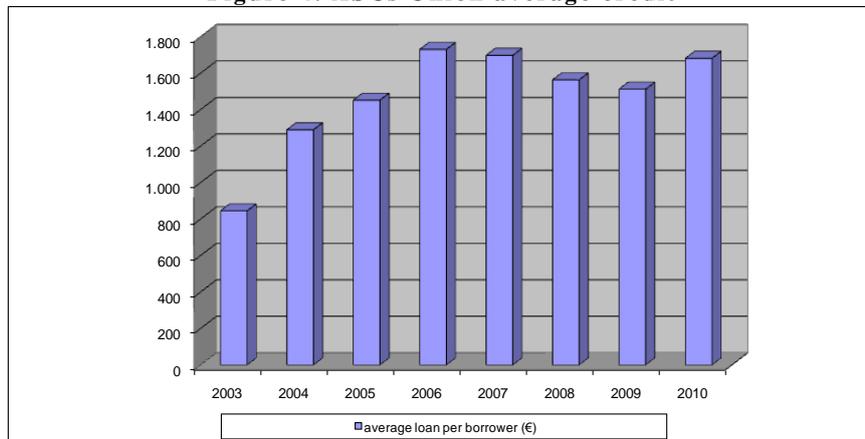
Source: elaboration on Albanian Saving & Credit Union Reports (2010)

Figure 5. ASCs Union portfolio at risk (> 30 days)
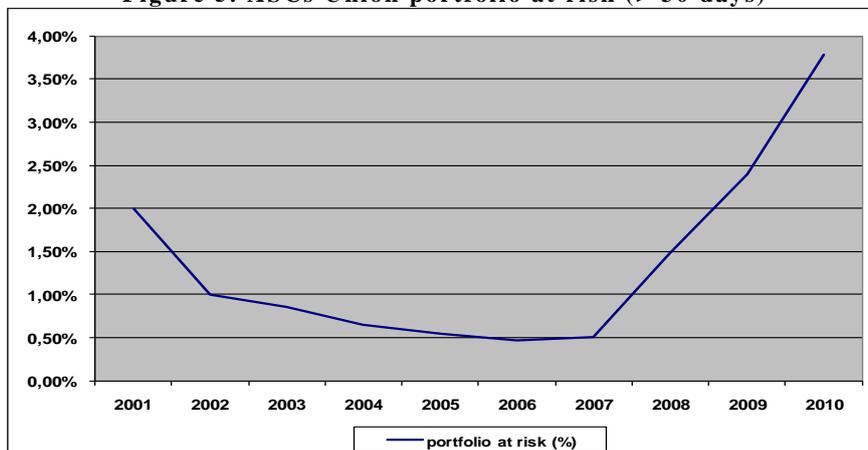
Source: elaboration on Albanian Saving & Credit Union Reports (2010)

Figure 6. ASCs Union Equity and Savings amount
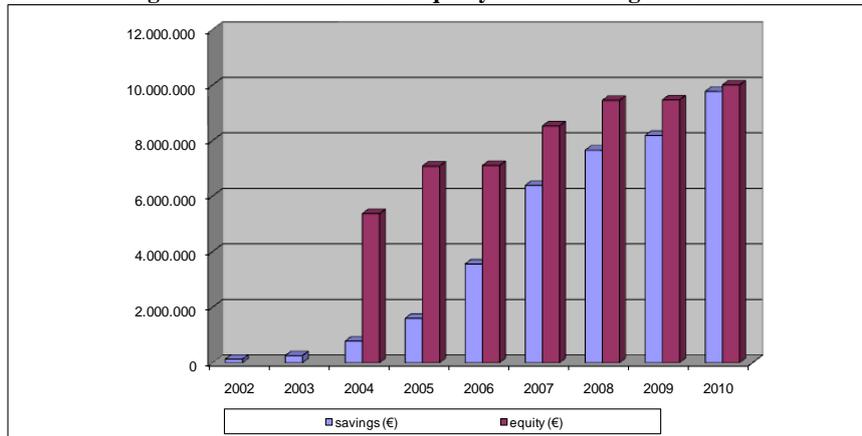
Source: elaboration on Albanian Saving & Credit Union Reports (2010)

The savings portfolio (deposits) increased by 18% in the period 2009-2010, equity increased by 5.3% in the same biennium (figure 6). The growth of savings is an important key in understanding how the credit system is generating income from agriculture and related activities, and at the same time it is generating social trust in the system as a strengthened endogenous institution. The average deposit balance per borrower was the equivalent of 6,690 Euros in 2010, corresponding to 227% of the Albanian per capita Gross National Income (MIX-Market, 2012). In Albania the security of savings is a very sensitive issue and for this reason it is a excellent indicator of the financial system's reliability.

In Albania the peasant farm household does not require loans to buy land and to be oriented towards the market. Rather it seeks loans to strengthen its structure based on production for self-consumption (Belletti & Leksinaj, 2011a). This consideration is confirmed by numerous empirical verifications of the inverse relation between productivity and size of farm (Berry and Cline, 1979). Demand for credit has led to increased productivity of land already owned and maximizing that part of production which, by exceeding the amount necessary to guarantee an adequate level of consumption and savings in the farming household, represents a shadow price on self-consumption less than the market prices and thereby price-fetching and available for sale (De Janvry, Sadoulet & Murgai, 2002).

AGRICULTURE AND MICROFINANCE IN HONDURAS

Whereas Albania is characterized by a relatively equitable land distribution, which as mentioned above is the indelible effect of the agrarian reforms of the early transition period, the opposite is true of Honduras. Indeed although more than 70% of Honduran farms have a mean size of 1.6 hectares, they however account together for little more than 10% of the country's arable land. The inequitable land distribution is compounded by a strong dependence of *agricoltura campesina* on the international agricultural market, conferring competitive advantage on the larger farms and those that are geographically better placed with respect to the markets. But besides the competition by *fincaslatifundistas* (monopolistic farms), the peasant farm also faces, on the internal market, the competition from subsidized imports especially from North America and Europe, and on the external front the problems of an unstable, risky and monopolistic/monopsonistic international market. The inequitable land distribution and the dependence on the international agricultural market adversely affect the profitability and stability of peasant farm household. This is reflected in fragmentary and scarce recourse to microcredit in terms of both income generation and savings accumulation.

Cajas Rurales and Bancos Comunales are the two major credit systems providing non-conventional rural financing in Honduras (table 1). Table 2 reports a dichotomous response model (*logit*), where Y is the binary dependent variable that takes value 1 if it represents the event "Caja Rural", and value 0 when it stands for "Banco Comunal". The X regressor matrix consists of 10 independent variables extracted from a database of 168 variables included in a questionnaire administered to a sample of 600 SIFARs (SIFAR is the acronym of *alternative rural financing systems*) in Honduras. The sample represents 15% of the registered SIFARs operating in the territory (Falck, 2001). After database cleanup there were 516 valid questionnaires for the construction of the logit generalized linear model synthetically defined below.

Table 1. Representativeness of SIFAR type (2000)

SIFAR type	% in the Inventory	% in the Sample
Caja Rural	63	62
Banco Comunal	29	29
Other	8	9

Source: http://mayra-falck.rds.hn/doc/microfinanzas/Cajas_ruralessifar.pdf, Honduras

The main difference between Caja Rural and Banco Comunal found by the model is that the former is the microcredit institution providing loans to *agricoltura campesina* whereas the latter, despite having arisen and evolved in rural areas, finances trade and craft enterprises. The fact that farms are financed by only one of the two Honduran rural microcredit systems is critical. Three main factors can help understand the reasons for this divide: i) the geographical distribution of each microcredit provider in rural areas due to their isolation from market economy; ii) the characteristics of the institutions promoting microcredit programs in Honduras; iii) the different financing sources that supply the two systems. In low IDH municipalities the dominant microcredit type is the Caja Rural (accounting for 78.2% of "branches" vs. 13.53% of Bancos Comunales; table 3).

Table 2. Determinants of Caja Rural and Banco Comunal

Dependent Variable: ONE-CAJA-RURAL, ZERO-BANCO COMUNAL
Method: ML - Binary Logit (Quadratic hill climbing)
Date: 03/18/10   Time: 10:17
Sample: 1 516
Observations included: 516
Convergence achieved after 5 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AVERAGE SAVINGS	-0.389740	0.099666	-3.910442	0.0001
SAVINGS TO NON-MEMBERS	0.528680	0.134224	3.938778	0.0001
CREDIT TO NON-MEMBERS	0.351974	0.163264	2.155866	0.0311
CREDIT TO AGRICULTURE	1.872623	0.330728	5.662130	0.0000
CREDIT TO CONSUMPTION	0.719100	0.312300	2.302595	0.0213
LOAN FUND	-0.582247	0.091972	-6.330708	0.0000
SAVINGS FUND	-0.290606	0.084913	-3.422414	0.0006
TRADE AND CRAFT INVEST.	-1.485279	0.695156	-2.136612	0.0326
OWN CAPITAL	0.413798	0.120183	3.443079	0.0006
AGRICULTURAL INVEST.	1.173235	0.493431	2.377711	0.0174
C	0.913158	0.540214	1.690366	0.0910

Mean dependent var	0.682171	S.D. dependent var	0.466085
S.E. of regression	0.305979	Akaike info criterion	0.690682
Sum squared resid	47.27955	Schwarz criterion	0.781199
Log likelihood	-167.1959	Hannan-Quinn criter.	0.726153
Restr. log likelihood	-322.6148	Avg. log likelihood	-0.324023
LR statistic (10 df)	310.8379	McFadden R-squared	0.481748
Probability(LR stat)	0.000000		

Obs with Dep=0	164	Total obs	516
Obs with Dep=1	352		

Source: http://mayra-falck.rds.hn/doc/microfinanzas/Cajas_ruralessifar.pdf, Honduras

Table 3. Low-IDH municipalities in relation to SIFAR type

Municipality	Department	N. of SIFARs	Type of Organization	
			BC**	CR***
Intibucá*	Intibucá	110	0	110
Lepaterique*	Francisco Morazán	98	22	76
Guajiquiro*	La Paz	85	5	78
Colomoncagua*	Intibucá	77	0	77
Concepción	Intibucá	72	0	72
Atima*	Santa Bárbara	70	61	6
Reitoca*	Francisco Morazán	70	5	62
Yamaranguila*	Intibucá	64	5	9
Opatoro*	La Paz	63	0	63
San Marcos de Sierra*	Intibucá	59	0	59
Curaren*	Francisco Morazán	57	9	48
Santa Elena*	La Paz	47	0	47

Erandique*	Lempira	46	2	44
Yorito	Yoro	45	20	1
San Juan*	Intibucá	42	7	34
Total		**1005**	**136**	**786**
%		**100%**	**13.53%**	**78.20%**

* Municipality with IDH <0.425 (very low) ** Banco Comunal *** Caja Rural
Source: http://mayra-falck.rds.hn/doc/microfinanzas/Cajas_ruralessifar.pdf, Honduras

In municipalities exhibiting an intermediate IDH Bancos Comunales accounts for 69.76% of all SIFARs vs. 27.9% of Cajas Rurales (table 4). As regards the credit capital, the model highlights that the loans provided by Cajas Rurales come from own capital, i.e. savings plus shareholders' shares, whereas Bancos Comunales receive external capital from the credit institutions specializing in microfinancing to which they are connected; such capital then feeds a loan fund that consistently exceeds that of Cajas Rurales.

Table 4. Medium-IDH municipalities in relation to SIFAR type

Municipality	Department	N. of SI.F.A.Rs	Type of Organization	
			BC**	CR***
Catacamas	Olancho	80	80	0
Comayagua	Comayagua	48	29	18
Danlí	El Paraíso	44	33	7
Villa de San Antonio	Comayagua	43	8	35
Total		**215**	**150**	**60**
%		**100%**	**69.76%**	**27.9%**

Source: http://mayra-falck.rds.hn/doc/microfinanzas/Cajas_ruralessifar.pdf, Honduras

These findings indicate that in Honduras peasant family farming is risky and unprofitable and as a result tends to be shunned by microfinance providers. These farmers therefore obtain loans exclusively from Cajas Rurales, i.e. self-financed microcredit institutions that lend the savings of the same farmers, who are therefore simultaneously providers and beneficiaries of microfinancing. At the time of data collection, the average value of the loans granted by 60% of Cajas Rurales ranges from 1000 to 20,000 Lempiras (40-800 Euros), whereas the average value of those granted by 60% of Bancos Comunales exceeded 30,000 Lempiras (ca. 1200 Euros). Bancos Comunales also lend greater amounts of savings than Cajas Rurales.

In a microcredit system self-financing based on shareholders' shares and savings deposits is a virtuous factor, denoting self-sufficiency in income generation from financial services. At the same time, however, the evolution of a rural microcredit environment where the agricultural sector is ignored by microcredit institutions operating through the collection of additional resources from the capital market indicates that in Honduras small farmers cannot escape their economic isolation even through microcredit. Clearly their market is not profitable, and the tendency to self-consumption related to the small farm size finds in specialized farms and in those operating in the commodities market a constraint that prevents finding in financing an income-generating factor. This is why the institutions specializing in microfinance do not do business with farmers.

CONCLUSION

The potential of microcredit in agriculture as well as the constraints that can limit its influence in terms of induction of income generation depend first of all on the peasant farm household structure and on the opportunities of its target market. The Albanian peasant household farm finds in microcredit an income generating tool that passes through the connection to local markets rather than through an evolution towards production specialization and an orientation to the commodities market.

In contrast the Honduran peasant household farm, despite the size constraint that would result in a natural tendency towards self-consumption, is oriented towards the commodities market. Microcredit granted to this type of structure is associated with a scarce induction of income generation, so much so that it has been found that rural microcredit systems have evolved a discriminating attitude towards farmers. The Bancos Comunales, the institutions that can operate with external financial capital, ignore farmers whereas the "risk capital" of Cajas Rurales, the institutions specifically providing microcredit to peasant household farms, is provided only by shares and the scant savings of the rural communities where they operate.

The comparison of rural microcredit systems in Albania and Honduras supports the hypothesis that rural areas can find in peasant household farms connected to local agri-food markets efficient, profitable and subsidy-independent producers that represent a possible alternative to farm specialization and industrialization. This is

particularly desirable given the range of problems and sustainability issues that are entailed by the latter, also in terms of the millennium challenges climate change and poverty. Conversely their orientation to the commodities markets does not allow peasant household farms to find in credit access a sufficient spring to induce income generation, since such markets are unprofitable, risky and unstable. Besides the European and North American experience demonstrate that subsidies and protectionism are, until the opposite is proved, indispensable tools to compensate the inefficiency and unfairness inherent in the industrialized agri-food system, whereas Honduras, Albania and a growing number of States, either developing or developed, are unable to guarantee protection and subsidies to rural areas and thus to peasant household farms. They therefore become, despite themselves, ideal cases to experiment alternatives to the agro-industrial model.

Clearly, the economic sustainability of the self-sufficient farm, producing for self-consumption, rests on the prerequisite of integration of the farm income with non-agricultural income; hence the *transnational part-time structure* of the Albanian as a condition to envisage alternative scenarios (Belletti & Leksinaj, 2011a). In this work microcredit is used as an experimental tool to seek "clues" for alternatives for sustainable development. Therefore the opportunities and constraints of farm microcredit are in fact opportunities and constraints for the socioeconomic development of rural areas.

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MANAGEMENT POSSIBILITIES OF HOUSEHOLD TAX BURDEN

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ABSTRACT

One of the groups of people's financial goals is a tax planning, i.e. management of the tax burden, which is not given sufficient attention currently. In order to reveal the theoretical aspects of the household tax burden management, the household tax burden management process, the concept of tax deductions, tax classification, i.e. their types and forms are analysed in this paper. The analysis of the literature revealed that there are three attributes to specify the types of tax deductions (according to nature, according to whom the tax deduction is determined and the tax deduction validity) and three forms of tax deduction (providing a smaller payment of tax, providing the tax payment deferral or exemption from it. The deductions, which provide a smaller tax payment, can be arranged by reducing the tax object or increasing the tax-free share by reducing the tax rate, the payment itself or refunding the tax share already paid).

The practical aspects of management possibilities of the household tax burden are revealed by the comparative study of the Eastern European countries (Lithuania, Estonia, Ukraine, and Russia) and the Austrian income tax deductions. Since households are the best placed to manage the personal income tax burden, this article focuses specifically on tax deductions. Tax deductions for households in each country are analysed according to the form of tax reductions highlighted when revealing the theoretical aspects of management of the household tax burden.

A performed comparative study of the personal income tax deductions in the Eastern European countries and Austria revealed similarities and differences of management possibilities of the household tax burden in the analysed countries. The study revealed that basic principles of management possibilities of household tax burden are essentially identical in the analysed countries, but the management strategy of the household tax burden in each country differ with regard to the differences in tax deductions applied.

KEYWORDS

Tax burden, management, households, tax deductions.

JEL CLASSIFICATION CODES

H24, H31

INTRODUCTION

Though it is often argued that the household tax burden is heavy, however, there is few researches carried out on management of household tax burden and they are more theoretical than practical, indicating the need for the analysis of tax deduction. The management of the tax burden, or in other words, its planning, in Lithuania is often synonymous with tax evasion, so possibility of tax planning, optimization, however, undeservedly neglected in general, although the planning activities of the tax burden are carried out all around the world in order to be more competitive.

These foreign authors analysed the management issues of tax burden on households: Hallmann and Rosenbloom (2003), Altfest (2004), Martin et al. (1982), Pavlenko (1999). In Lithuania, these studies are not sufficiently developed. Some authors analyse the management of the tax burden as one of the components of a personal financial management, while paying little attention to this part (Jurevičienė&Klimavičienė, 2008; Jurevičienė, 2008), the others just analyse the concept of tax deductions and their classifications (Medelienė & Sudavičius, 2011; Buškevičiūtė, 2003,2008; Aleknevičienė, 2005). Therefore, after the analysis of theoretical survey data in this paper a practical study, a comparative analysis of income tax deductions of Lithuanian, others selected Eastern European countries and Austria, enabling to present similarities and differences of management possibilities for the household tax burden between the analysed countries were carried out.
The object of the research – the household tax burden.

The goal of the research – after the analysis of the theoretical aspects of the tax burden management to list the household tax burden management possibilities in Lithuania, others selected Eastern European countries and Austria.

In order to achieve the goal, the following objectives are dealt with:

1. to reveal essence of the household tax burden management;
2. to provide theoretical aspects of management possibilities of the household tax burden;
3. to present the practical aspects of management possibilities of the household tax burden based on Lithuanian, others selected Eastern European countries and the Austrian law.

The research methods. When revealing the theoretical aspects of the household tax burden management, logical analysis and synthesis of educational, scientific literature and online sources data, abstraction techniques have been used in this paper. While analysing practical household tax burden management aspects in Lithuania and other selected countries in Eastern Europe and Austria, the general scientific method is used, i.e. comparative analysis, synthesis, abstraction, induction, deduction.

PRINCIPLE OF HOUSEHOLD TAX BURDEN MANAGEMENT

Although scientists attracted attention to the topic of personal financial management in Lithuania 13 years ago, but it is not sufficiently developed areas of science yet. It is worth noting that in developed countries much more attention is paid to this subject.

When analysing a variety of approaches to personal finances distinguished in the literature, it is agreed that one of the aspects in which they can be dealt with is planning (Taujanskaitė & Jurevičienė, 2010). One of the components of the personal financial management is management of household tax burden which occurs through the tax planning. The entire management process of household tax burden is disclosed in Figure 1.

Figure 1. Management process of household tax burden
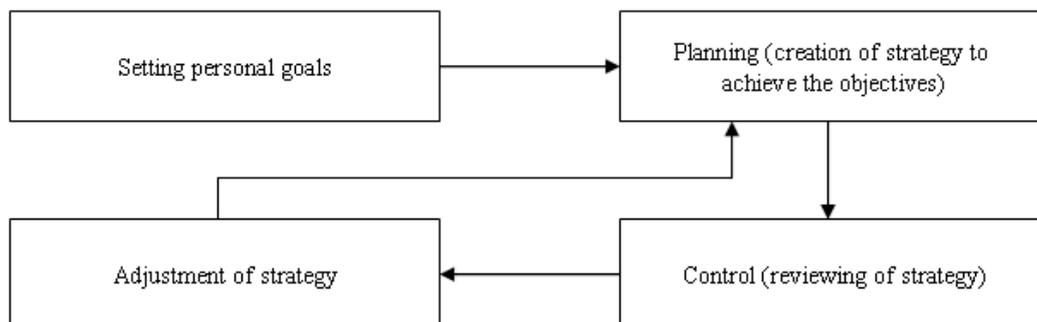
Source: created by the author in accordance with Martin, J.D. et al., 1982.

As it can be seen from the data in Figure 1, the starting point of the household tax burden managing process is a personal goal setting. The next step is the creation of an action plan to achieve the objectives, i.e. strategy formulation, which is periodically evaluated to ensure that the plan is effective (step three). If it is ascertained that a strategy does not achieve the objectives, the strategy is adjusted (step four), i.e. it is returned to the planning process again (Martin et al., 1982).Thus, after the analysis of the household tax burden management process, it is clear that it covers such basic management functions as: planning, organization and control.

According to Stoškus and Beržinskienė (2005), planning as a management function, is considered as a priority function, which forms the basis for all other management functions. These authors point out that the planning function includes not only the conclusion of the program (strategy development), but also setting targets. The same attitude is expressed by Stoner at al. (1999). So based on the statements of these authors, the household tax burden management process may be modified, i.e. it can be divided into three main stages: planning, control and adjustment.

As the law provides possibilities to save on taxes, tax planning is a very important process. During this process, the analysis of individual current and projected revenues is combined by establishing a strategy how to defer payment of taxes or reduce their amount. The main aim of the tax planning strategy is to minimize people's tax obligations. Since the minimization of tax burden is important in the investment process, the above mentioned strategy allows achieving that the long-term investor could achieve the maximum rate of income tax deduction taking into consideration the tolerable level of risk (Jurevičienė, 2008).

According to Hallman and Rosenbloom (2003), Altfest (2004), one of the people's financial goals groups is tax planning , i.e. reduction of tax burdens, therefore, to manage the tax burden, it is necessary to find ways to reduce

the tax burden and their application possibilities. According to those authors, the tax burden management is relevant when being alive, as well as in case of death. Jurevičienė and Klimavičienė (2008) also argue that households should plan taxes in order to reduce the tax burden. It is an integral part of both business and private life.

Although tax laws have intended exceptions, which establish the right for taxpayers to use tax deductions, but the concept of tax planning is often confused with of tax avoidance concept, i.e. illegal activity. Reduction of tax burden can be both legal and illegal, but tax planning is a concept related only to legal action. This is proved by both the doctrine of the Constitutional Court (1997), which provides a "different legal regulation concerning certain categories of persons in different situations", and characterization of tax planning provided by Pavlenko (1999) where it is stated that it is the development and implementation of various legal systems when applying strategic planning methods.

Depending on the economic policy existing in the country, each country chooses whether to undertake a variety of tax exemptions and deductions for specific industries, business groups, and so on, by encouraging them, or refusing from those exemptions and discounts, believing that the market promotes optimal economic balance when the tax system operates under the "fixed rules" principle (Gylys, 2006). However, by providing tax deductions, the objectives are achieved both at the national level as well as a specific group or individual level, depending on whom the deduction is applied, for example, if the country provides the deduction for certain types of investments, it induces a stronger and more stable domestic economy and improves the situation of investors (Martin et al., 1982).

Of course, by providing tax deductions, it is important to achieve the original purpose, i.e. that the deductions would be used by those who need them most. In practice, there are instances where the tax deduction does not reach its goal completely (Novošinskienė & Slavickienė, 2010).

Thus, the management of the household tax burden is understood as planning, i.e. creation of strategy to reduce the household tax burden, its control and, if necessary, the adjustment process. The most important step of this process is discriminated in the literature as tax planning i.e. reduction or avoidance of tax burdens by using legitimate tax deductions. Therefore, in order to manage the tax burden, it is necessary to find ways to reduce the tax burden, i.e. analyse the deductions and possibilities of their application.

THEORETICAL ASPECTS OF HOUSEHOLD TAX BURDEN MANAGEMENT

As the management of household tax burden is expressed through the various tax deductions, in particular, it is important to clarify the concept of the tax burden management possibilities. The following concept of tax deduction is presented in Law on Tax Administration of the Republic of Lithuania: "Tax deduction is exceptional tax treatment set by the law to the taxpayer or a group, which is more favourable compared to normal conditions". However, the definition is sufficiently narrow, i.e. content of the tax deduction is revealed only, but the forms of tax deductions are not specified. Auštrevičius et al. (1991) indicate one of the forms of tax deduction where they state that the tax deduction is "part of the fee, by which, under certain conditions, the fee is reduced". However, a much better concept of tax deduction is provided by Sudavičius (2010), who indicates that tax deductions can be described as taxation provisions set by the law for a taxpayer or taxpayers' group and those provisions are more favourable compared to normal conditions and allow the taxpayer not to pay tax in general or to pay a lower tax rate (Sudavičius, 2010). Thus, the tax deduction has discriminatory feature (Vainienė, 2005).

The extent of tax deductions depends on the historical traditions, each state fiscal policy for economic and social direction, from international law, and some of the deductions are designed to prevent the double taxation of the same object (Medelienė & Sudavičius, 2011). Figure 2 reflects the classification of tax deductions in the literature. As data in Figure 2 shows there are types and forms of the tax deductions differentiated. Types of tax deductions by their nature are divided according to three criteria:

➢ By nature: global and individual character. Those taxpayers, who comply with all provisions set in tax law for tax deduction, shall be entitled to tax deductions of the global nature. Tax deductions of individual nature are granted to taxpayers who submit a reasoned request in writing to the competent authority to grant such a tax deduction. Also, individual tax deductions can be provided under the contract.

➢ According to whom the tax deduction is determined for: subjective and object-oriented. Subjective tax deduction is a deduction which is used by the state to alleviate the tax burden to particular taxpayers (for example, people with social needs). In case of object-oriented deduction, the right to receive tax deduction is granted to the user of the particular object of taxation.

➢ According to the tax deduction validity (application) period: permanent and temporal. Permanent deductions are provided only by the relevant tax law. They remain in force until new adopted law repeal the established deduction. Temporal deductions are established by special tax laws (Medelienė & Sudavičius, 2011).

The analysis of the literature revealed that there are three forms of tax deductions: providing a payment of lower tax, providing tax deferral or providing an exemption. The deductions, which provide a lower tax payment, can be arranged by reducing the taxable object or in other way by increasing non-taxable part of the taxable object, by reducing the tax rate or the same tax or by refunding tax already paid.

Figure 2. Classification of tax deductions
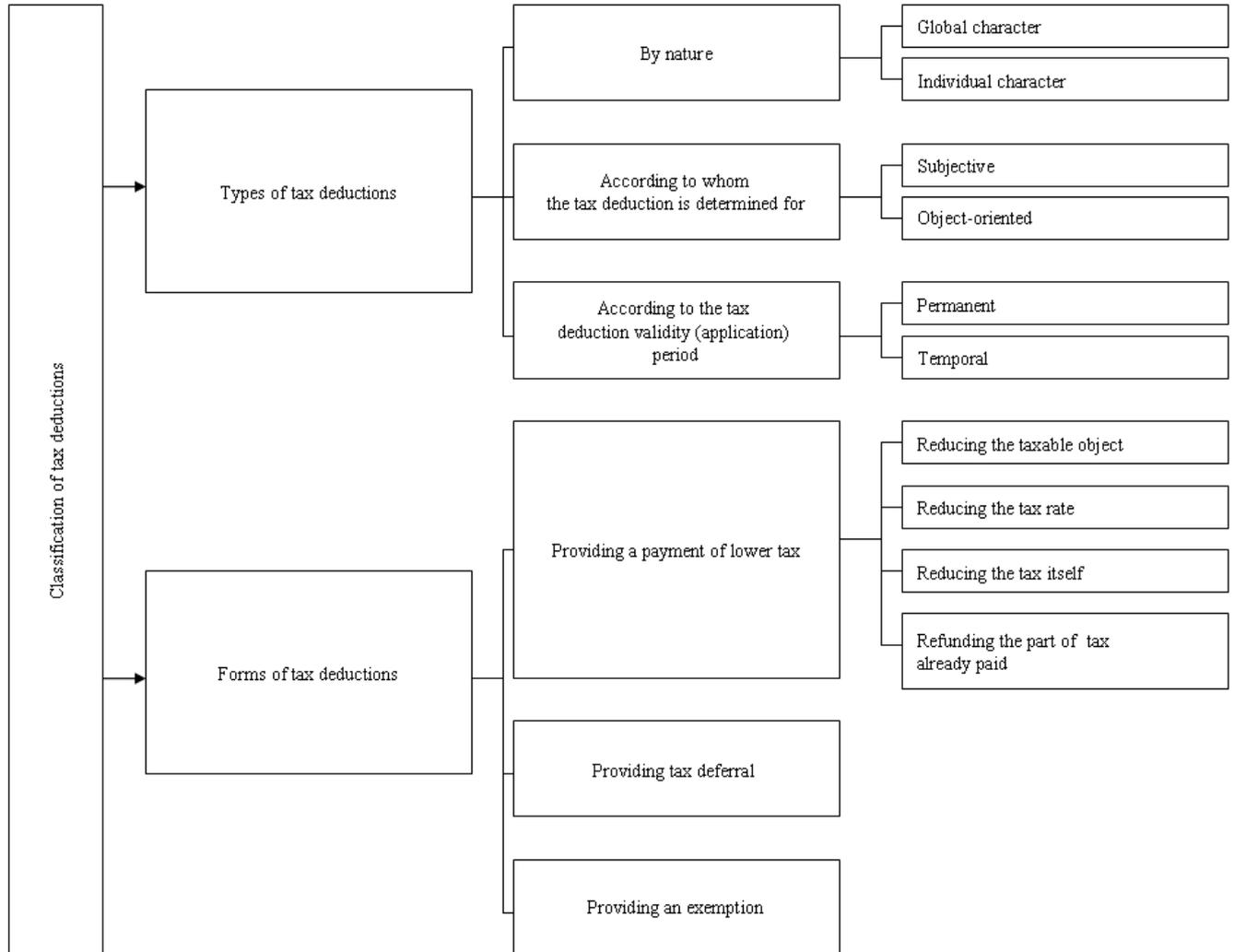
Source: created by the author in accordance with Medelienė, A. and Sudavičius, B., 2011; Buškevičiūtė, E., 2008; Aleknevičienė, V., 2005; Buškevičiūtė, E., 2003.

Thus, the management of household tax burden is expressed through the various tax deductions. The analysis of the literature revealed that there are types and forms of the tax deductions differentiated. In order to reveal the theoretical aspects of the management of household tax burden the classification of tax deduction forms is used in the article.

PRACTICAL ASPECTS OF HOUSEHOLD TAX BURDEN MANAGEMENT

When analysing the theoretical aspects of household tax burden management, it was found out that households in order to reduce their tax burden or, in some cases to avoid it completely, i.e. to manage it, may use the tax deductions provided to them. Therefore, investigating the ways which can be used in order to achieve legitimate reduction of the household tax burden, the existing tax deductions were tested in four selected Eastern European countries (Lithuania, Estonia, Ukraine, and Russia) and Austria. The research samples were selected by using selection of assessment (intuition) i.e. research objects are chosen subjectively, believing that they are representative.

Since households are the best placed to manage the personal income tax burden, namely the deductions, if these taxes are tested as they exist in each of the countries listed when performing the comparative study of existing tax deductions. The comparison method can be used to achieve one of the methodological problems solutions, i.e. narrative, which seeks to identify similarities or differences between the research objects (Tidikis, 2003), therefore, using this method, the main similarities and differences of tax deductions in analysed Eastern European countries and Austria are presented in the article. The main research results are disclosed in Table 1. The results are grouped according to the form of tax deductions highlighted when revealing the theoretical aspects of the household tax burden management.

Table 1. The main income tax deductions in Lithuania, Estonia, Ukraine, Russia and Austria

Forms of tax deductions		Lithuania	Estonia	Ukraine	Russia	Austria
	By reducing the tax object	Tax-exempt amount of income; the costs incurred may be deducted from the income	Tax-exempt amount of income; personal income is exempted in certain cases	Tax-exempt amount of income; the costs incurred may be deducted from the income	Tax-exempt amount of income (standard deductions); Social benefits are applied; Property deductions; Deductions for specialists	A progressive tax system is applied; Special expenses; Exceptional costs
Providing a lower tax payment	By reducing the tax rate	There may be a lower tax rate of income from individual activities (5 %).	Reduced tax rate of royalties applicable, as well as certain pensions (10 %)	Lower tax rate on dividend income (5 %)	Lower tax rate on dividend income (for residents - 9 %, non-residents - 15 %)	In some cases, the half tax rate charge is allowed
	By reducing the tax itself	-	-	-	-	Tax credits
	By refunding part of the tax	It is possible to recover the overpaid tax	It is possible to recover the overpaid tax	It is possible to recover the overpaid tax	It is possible to recover the overpaid tax	It is possible to recover the overpaid tax; Income-related costs are paid
Providing of the tax deferral		-	-	-	-	-
Providing an exemption		The list of non-taxable income is defined, property deductions	The list of non-taxable income is defined	The list of non-taxable income is defined, property deductions	The list of non-taxable income is defined, property deductions	The list of non-taxable income is defined

Source: created by the author in accordance with Law on Income Tax of Individuals of the Republic of Lithuania, 2002; Ministry of Finance of the Republic of Estonia, 2000; Bate, C. T. et al, 2002; ZAO Deloitte and Touche CIS, 2012; Austrian Agency for International Cooperation in Education and Research, 2011; Federal Ministry of Finance, 2009.

As it can be seen from data in Table 1, between the basic personal income tax deductions available in all analysed countries, there are deductions which provide a lower tax payment (reducing the tax object, tax rate, repayment of tax paid) and deductions, which provide an exemption. Among the main provided deductions, Austria provides tax exemption itself only, but deduction to defer the payment deadline does not refer to any state.

Studying what the cases are for tax deduction to be applied, when there is the possibility to pay less tax, reducing the tax object, it was found that the tax object in the analysed countries can be reduced by non-taxable income amounts and costs incurred. The results showed that all tested countries apply amount of non-taxable income, only in Austria progressive tax system is valid. In Lithuania the applied non-taxable amount of income which is related to labour relations is progressive. The maximum annual amount of non-taxable income in this country may be about 1630 EUR. Non-taxable amounts are also applicable both for children and disabled persons (Law on Income Tax of Individuals of the Republic of Lithuania, 2002). Non-taxableamount of incomeapplied in Estoniais related to labour relations and amounts to 1726 EUR per year. Also, an additional tax exemption is applied for public pensions - 2304 EUR per year and non-taxable income up to about 2900 EUR per year if it is received by an individual engaged in individual activities who has sold his/her manufactured, produced, unprocessed agricultural products (Ministry of Finance of the Republic of Estonia, 2000). The non-taxable amount in relation to labour relations, for children, to the disabled and veterans is intended in Ukraine (Bate, C. T. et al, 2002). In Russia these deductions are called the standard deductions, i.e. amount of non-taxable income for children and the disabled. Parents (foster-parents) receive a standard deductions for the first and second child 1400 RUB, for the third and each subsequent child and the disabled child 3000 RUB (approximately $40 or $100.), whose income per calendar year does not exceed 280,000 RUB. Also, a monthly non-taxable amount of 500 or 3000 RUB may be granted for a group of disabled and people with social needs in this country (ZAO Deloitte and Touche CIS, 2012).

As it can be seen from Table 1 data, tax object is reduced by the incurred costs that can be deducted from income, thereby reducing the tax burden. Life insurance instalments, contributions for studies, in pension funds can be deducted from income in Lithuania (some are given a possibility to deduct the interest on housing). Self-employed person's costs may also be deducted as well (Law on Income Tax of Individuals of the Republic of Lithuania, 2002).Not only part of the interest paid for the real estate, if the main housing is funded by, the cost to get an education, but also a certain amount paid to health institutions for personal medical needs may be deducted in Ukraine (Bate, C. T. et al, 2002).

Social, property deductions and deductions for specialists belong to this group of deductions in Russia. In this country, the social deductions up to 120,000 RUB (4,000 dollars) can be applied when the instalments are paid to educational institutions, to Russian non-state pension funds, contributions from insurance contracts with insurance companies licensed in Russia, pavements made for the medical expenses in the Russian medical institutions, including the payments for voluntary insurance. In addition to the limitation of 120,000 RUB, the following deductions are possible: tuition fees for the children under 24 years to licensed educational institutions (an annual limitation of 50,000 RUB for each child), charity to scientific, cultural, health and social security organizations, which are partly or fully funded by the federal, regional or local budgets. However, such instalments cannot account for more than 25 per cent of the taxpayer's taxable income at standard income tax rate. Costs for expensive medical treatment may also be deducted.

In Russia there are the property deductions applied which are the other type of deductions also allowing reducing the tax object. There are three deductions associated with the property deductions: sale of property (including residential real estate), purchase of residential real estate and transaction losses related to the sales securities and FITTs (financial instruments of term transaction — broadly, financial derivatives). In case of a sale of property, possibility of deduction depends on the type of property and retention period. Further there are taxation cases listed where the property ownership period is less than three years:

- the deduction is applied to income from real estate sales for an amount up to 1 million RUB when there are no documents (approximately $ 33,000) or the documented cost of the property, depending on sum which is higher;
- the deduction is applied to income from the sale of other assets, other than securities, for amount up to 250,000 RUB (approx. $ 8300) or the documented cost of the assets, depending on sum which is higher.

For sale of securities, investment funds and FITTs units there are special rules applied: taxable income is income from sales minus the documented costs. When a taxpayer buys residential real estate, or participates in its construction, as well as buys a land plot, a one-time deduction of up to 2 million rubbles (approximately U.S. $ 67,000) is allowed on costs incurred in the year of acquisition. Interest on a loan used to finance the expenditure, or to refinance a loan taken out for that purpose is also deductible without limitation. Any part of deduction, which is not completely used in a calendar year, may be carried forward indefinitely. If the taxpayer is an employee of a Russian company, residential property deductions on purchases may be claimed through the payroll. In all other cases, including other property transactions, deductions are available via the annual income tax return. Again, special rules apply to transactions with securities and FITTs.

The third type of deductions, reducing the tax object, which is applied in Russia, is a professional deduction which is generally granted to an individual who is engaged in commercial activities as an individual entrepreneur.

Qualifying expenses that may be deducted are those that directly enable a person to derive his income from that commercial activity. The deductibility of professional expenses is subject to various limitations similar to those provided for legal entities.The expenses claimed must either be fully supported by proper documentation or a deduction limited to 20% of the taxpayer's commercial income can be claimed instead. There are also deductions that apply specifically to an author's income (ZAO Deloitte and Touche CIS, 2012).

There are two types of deductions reducing the tax object used in Austria; they are special and extraordinary expenses. Specific expenses are not related to the taxpayer's professional obligations; they are a result of the person's private sphere. These expenses may be fully deductible up to certain limit or are subject to other restrictions. Special expenses that may be deducted up to a certain limit are the following: donations to churches and religious communities (limited to 200 EUR per year); expenses for personal tax advice (unlimited); special gifts to certain organizations to be supported (up to 10 per cent from previous year's income); postponed losses.

The special expenses such as personal health, life and accident insurance instalments, contributions to pension funds, residential construction and renovation costs; costs of acquisition of the shares when they are released, or of a company issuing new ones; expenses when purchasing participation certificates, the following restrictions are applied: the maximum amount that can be asked of all these costs is 2920 EUR per year to a taxpayer. This sum is double for single parents. For parents having at least three children, the amount rises up to 1460 EUR (Austrian Agency for International Cooperation in Education and Research, 2011). However, only 25 per cent of actual costs incurred are allowed as tax deduction, provided that 25 per cent from the maximum amount is not exceeded (Federal Ministry of Finance, 2009).

The second type of deductions, reducing the tax object, applied in Austria, is extraordinary expenses. They are defined as expenses that are not related to the professional obligations of a taxpayer, but they significantly affect the taxpayer's economic activity, for example, doctors and hospitals fees, expenses for medical treatment, dental treatment costs, therapeutic aids, birth costs, child care costs, etc. This deduction depends on income, i.e., with annual incomes of up to 7,300 EUR, taxable at 6%, when income ranges from 7,300 to 14,600 and from 14,600 to 36,400, respectively taxable at 8 and 10% and when revenues excess 36,400 EUR per year - a 12% exemption is applied (Austrian Agency for International Cooperation in Education and Research, 2011).

When studying cases where tax deduction can be applied if there is the possibility to pay less tax by reducing tax rate, the study showed that a lower tax rate may be paid in Lithuania on income from individual activities (5%), in Estonia charging author's income and certain pensions (10%), in Ukraine and Russia the taxation of dividend income (5% in Ukraine, in Russia 9% applied to permanent residents, for non-permanent residents 15% tax rate), while in Austria taxation to half the tax rate can be applied, when the dividends, instalments from private funds, the taxpayer's income from the operation of the patented invention, and so on are taxable.

The tax deduction, providing a lower tax payment when lowering the cost from the analysed countries only Austria presents it as one being between the major income tax deductions for citizens. Tax credits which reduce the calculated amount payable are applied in this country. There are the following examples of tax credits distinguished:

- single parent credit, which depends on the number of children (the minimal 494 EUR per year);
- employee tax credit which is 54 EUR per year;
- cross-border tax credit or cross-border worker's tax which is 54 EUR per year;
- transportation tax credit which is 291 per year;
- child tax credit: 58,4 per month for one child or child alimony tax credit from 29,2 up to 58,4 per year for a child (Austrian Agency for International Cooperation in Education and Research, 2011).

In examining whether tax deduction can be provided in the Eastern European countries and Austria, when there is the possibility to pay less tax, refund part of the tax, the study results showed that there is a possibility to recover the overpaid amount of tax in all countries, and in Austria benefits related to income can be attributed to this deduction as well. These benefits are related to the taxpayer's professional obligations. They are partially reimbursed if these costs are related to employment. Each employee is entitled to receive a lump sum amounting to 132 EUR per year of income-related expenses, regardless of whether the expenditure was actually incurred or not. Examples of partially reimbursable expenses are the following: tuition fee, a computer and the internet, work clothing, special literature, language courses, transportation costs (commuting from home to work), travel expenses and so on (Austrian Agency for International Cooperation in Education and Research, 2011).

Table 1 data shows that in literature there is the second form of tax deductions found, which provides tax payment deferral and is not indicated between the basic personal income tax deductions in neither of analysed countries.

The third form of tax deductions, which provides an exemption, is found in all analysed countries, i.e. all countries provide a list of non-taxable income (generally allowances, student grants and social allowances, etc. are tax-free), while Lithuania, Ukraine and Russia next to the this form of deductions put property taxes, which when the property is maintained for three years or more, the incomes are also tax-free.

So, after the comparative study of the basic personal income tax deduction in Lithuania, Estonia, Ukraine, Russia and Austria it was found that from the three tax deduction forms listed in literature, only two is widely used in

analysed countries, i.e. the countries do not indicate tax deduction providing tax deferral between the main income tax deductions. The deductions providing a lower tax by reducing the tax object are implemented in all countries with tax-exempt income and the deduction of expenses incurred. Deductions which are used to reduce the tax rate mostly are applied for dividends in Austria, Russia, Ukraine, and in Lithuania for income from individual activities, and in Estonia on an author's income and certain pensions. The personal income tax itself is reduced only in Austria, which uses tax credits, eliminating the estimated amount of income tax payable. There is a possibility of recovery of tax already paid in all countries. Income-related costs are presented and paid next to this deduction in Austria. These benefits are related to the taxpayer's professional liability, i.e. employees have opportunity to receive a lump sum. The results revealed that a third form of tax deductions which provides an exemption usually is implemented by determining the list of non-taxable income in the analysed countries.

In summary, the fundamental provisions of management possibilities of the household tax burden are essentially identical in the analysed countries, but the management strategy of the household tax burden in each country is different with regard to the differences in tax deductions.

CONCLUSION

Management of household tax burden is understand as the planning, i.e. creation of strategy how to reduce household tax burden, its control and, if necessary, the adjustment process. The most important step in this process set in the literature is tax planning, i.e. reduction of tax burden or the avoidance of it using legitimate tax deductions. Therefore, in order to manage the tax burden, it is necessary to find ways to reduce the tax burden, i.e. analyse the deductions and possibilities of their application.

The analysis of the literature revealed that there are three forms of tax deductions: providing a payment of lower tax, providing tax deferral or providing exemption. The deductions, which provide a lower tax payment, can be arranged by reducing the taxable object or in other way by increasing non-taxable part of the taxable object, by reducing the tax rate or the same tax or by refunding tax already paid.

After the comparative study of the basic personal income tax deductions in Lithuania, Estonia, Ukraine, Russia and Austria it was found that from the three tax deduction forms listed in literature, only two are widely used in analysed countries, i.e. the countries do not indicated tax deduction providing tax deferral between the main income tax deductions. The deductions providing a lower tax payment by reducing the tax object are implemented in all countries with tax-exempt income and the deduction of expenses incurred. Deductions which are used to reduce the tax rate mostly are applied for dividends in Austria, Russia, Ukraine, and in Lithuania for income from individual activities, and in Estonia on author's income and certain pensions. The personal income tax itself is reduced only in Austria, which uses tax credits, eliminating the estimated amount of income tax payable. There is a possibility of recovery of tax already paid in all countries. Income-related costs are presented and paid next to this deduction in Austria. These benefits are related to the taxpayer's professional liability, i.e. employees have the opportunity to receive a lump sum. The results revealed that a third form of tax deductions which provides an exemption usually is implemented by determining the list of non-taxable income in the analysed countries.

In summary, the fundamental provisions of management possibilities of the household tax burden are essentially identical in the analysed countries, but the management strategy of the household tax burden in each country is different with regard to the differences in tax deductions.

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INFLATION UNCERTAINTY, OUTPUT GROWTH UNCERTAINTY AND MACROECONOMIC PERFORMANCES: COMPARING ALTERNATIVE EXCHANGE RATE REGIMES IN EASTERN EUROPE

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ABSTRACT

This paper uses Exponential GARCH models of inflation and output growth and monthly data for the six Eastern European countries covering the period of 2000:01 to 2011:07 to estimate the effect of real and nominal uncertainty on macroeconomic performance. We also estimate the feedback effect from inflation and output growth to their uncertainties. Our main results support the conventional view that real and nominal uncertainties influence the macroeconomic performance and vice versa; nevertheless, these effects are not systematically different in currency board countries, compared with the inflation targeting regimes. Indeed the international anchor of European Union integration plays a dominant role to determine these relations and hence marginalizes the role of domestic anchors i.e monetary policy regime differences.

KEY WORDS: inflation, inflation uncertainty, real uncertainty, monetary regimes, Eastern Europe

JEL CODES: C22; C51; E0

1) Introduction

In the late 90's, after severe financial and economic crisis, accompanied by inflation and exchange rate instability, Eastern Europe have emerged two groups of countries that have chosen radically contrasting monetary regimes. The first group was formed by the countries with Currency boards and strongly fixed exchange rate regimes (Estonia, Lithuania, Bulgaria and partly Latvia) and the second one was composed of Inflation targeting countries (Poland, Czech Republic, Hungary and later Romania). The reasons for this choice were complex. Overall though, one of leading arguments was the belief about the ability of two regimes to provide low inflation and to anchor inflationary expectations. This was viewed as a prerequisite for successful nominal and real convergence towards the EU integration and as a whole for economic growth. Over time, and especially with the launching of accession process and subsequently the EU membership, the differences in achievement and performance of both groups of countries began to become increasingly subtle and unsystematic. This in turn undermine the importance of choosing one or another monetary regime and gave reason to believe that the hypothesis of neutrality of the monetary regime can not be rejected.

The task of the present study is to compare empiricaly the performance of the two regimes in terms of the relationship between inflation, inflation uncertainty, nominal and real uncertainty from 2000 to now. In other words, we test the hypothesis of non-neutrality of monetary and exchange rate regime with respect to these connections. The article is constructed in three sections. The first section presents the theoretical foundations of the study, especially the main characteristics of both monetary regimes as well as the major theoretical relationships between nominal and real uncertainty. In the second section we set out and discuss empirical results obtained. In the last section we conclude.

2) Theoretical framework

As already pointed out the choice of both polar regimes - Currency boards and Inflation targeting was dictated primarily by the necessity to curb inflation, to fix inflation expectations and to accelerate growth. In this line of reasoning credibility of the monetary regime, and its ability to establish discipline were the leading motives behind the choice of individual countries. Monetary regime is the primary institutional anchor that is systemic in nature, not only to inflation but also to the overall developments of the economy.

There is little doubt that both monetary regimes, namely Currency Board and Inflation targeting are very opposites in nature. Currency board aims to import credibility and discipline from the outside by legally fixing exchange rate to the leading currency and by means of full monetary base coverage with foreign reserves. The monetary policy is removed because the balance sheet of central bank contains no domestic assets. The Central bank cannot perform open market operations, some elements of monetary policy are available through the manipulation of reserve requirements and banking regulation. It relies on an automatic link between balance of payments and money supply, and the real exchange rate and interest rates are supposed to quickly address imbalances. Institutional and balance sheet separation of the treasury form the central bank, makes him to pursue conservative fiscal policy, and as a rule to maintain fiscal surpluses and low public debt. Proponents of Currency board consider that it produces high levels of discipline and credibility.

In turn, Inflation targeting in practice pursues the same objectives (high credibility and discipline), but with others, and above all internal to the country mechanisms. These are clearly defined inflation target, transparency, as well as active conduct of monetary policy. It is relies on good knowledge of the economy model and transmission mechanisms. In purely theoretical terms Inflation targeting requires fully floating exchange rate. Supporters consider this monetary regime appropriate to combine the power of enhancing the level of fiscal discipline and credibility without eliminating the possibility for discretionary reaction when shocks.

If we focus specifically on our sample countries we can say that those who have introduced Currency Board are generally small and highly open peripherals economies that pursued quick integration into the monetary system of the developed European countries. For example, the Currency boards in Estonia and Lithuania, were introduced at the beginning of transition, the main objective explicitly was to break the influence of Russia and the Russian economy. Bulgaria, in turn, introduced Currency board in mid 1997, after a deep financial and monetary crisis, a period of hyperinflation and a sharp devaluation of national currency. Its main task was to break with years of inflation, monetary instability and lack of structural reforms. In this sense, the choice of the CB in Bulgaria can also be seen as a decisive geostrategic choice, strategic integration into the European monetary area. Turning to the three countries with Inflation targeting (Poland, Czech Republic and Hungary, and to some extent Romania), we see that they have the characteristics of central European countries, they have some traditions in an economic and monetary policy prior to period of communism, and aspirations for independent and equal cooperation with leading European economies. Poland, the Czech Republic and Hungary, to varying degrees, began the transition with a fixed rate and progressively gained knowledge and experience in implementing monetary policy. These are countries that put much effort in building macroeconomic models serving the base for the implementation of Inflation targeting regime. The case of Romania is somewhat peculiar, Romania has a number of characteristics similar both to Central European countries as well to Bulgaria, and that explains oscillations and late implementation of inflation targeting.

Turning to the theory, the multi-dimensional relationship between inflation, growth and their uncertainties has been widely discussed in the literature. Since a complete set of hypotheses is large, the empirical studies separately cover several aspects of this nexus. Friedman's (1977) rule, which assumes a positive association between inflation and its uncertainty, motivates the empirical testing of this bi-directional relationship. Now, regarding the effects of inflation on uncertainty, literature mainly finds a positive impact of inflation on nominal uncertainty. As the survey results of Golob (1994) show that 17 out of 21 studies find a positive impact of inflation on nominal uncertainty. Nevertheless, an alternative strand of literature argues that high inflation increases the cost of uncertainty and hence forces the agents to invest more time in predicting future prices (Frohman et al., 1981). Higher cost of ignorance, in terms of wealth and income loss, necessitates better information about these variables and hence high inflation becomes predictable.

Now, concerning the feedback effect from uncertainty to inflation; two opposing sets of hypotheses have been forwarded by the literature. According to the first view that has been advanced by Cukierman and Meltzer (1986),

higher uncertainty augments inflation by raising the short run benefits of inflation uncertainty. Notwithstanding the aversion of a long run higher inflation, policy maker seeks short run objectives of higher output from inflation surprises. This increases optimal inflation level in an economy. This positive relationship, which is known as 'Cukierman-Meltzer hypothesis' after the notation used by Grier and Perry (1998); is also supported by many empirical studies (see also Fountas et al, 2004). In sharp contrast to this view, Holland (1995) argues that central banks work for stability objectives, the so-called 'stabilizing Fed hypothesis'. As soon as uncertainty increases after inflation, central bank reacts by contracting money supply to avoid the welfare loss due to uncertainty; making this inflation and nominal uncertainty relationship negative. This hypothesis has been further complemented by empirical studies of Grier and Perry (2000) and Grier et al (2004) etc. Finally, some mixed evidence based on country specific and time specific results are also documented by Caporale and Kontonikas (2009) among others.

Regarding the inflation effects on real growth variability, literature usually complements the signalling extraction model of Lucas (1973). In this environment, inflation obscures the signalling channel of production and hence inhibits the output growth. Producers increase their production as an immediate response of price changes but as soon as they come to know the overall price change, they reverse back these decisions causing higher output growth variability due to inflation.

Likewise, inflation uncertainty also directly impacts output growth and its volatility. Nominal uncertainty influences growth through different channels; i.e through its effect on the long-term real interest rate, real wage, tax revenues, long-term investment plans of consumers and investors etc. Since the effects on all these channels are different and interdependent with the other policy organs, literature does not provide any precise and overwhelming evidence regarding the effect of uncertainty on output growth or its volatility. Pindyck (1991) substantiates an adverse effect of uncertainty on growth that appears through investment channel. Taylor (1979), on the other hand, assumes an inverse relationship between real and nominal uncertainties in the presence of real world rigidities. To illustrate, if supply shock hits an economy and real wages are rigid downward, real output fluctuations can only be avoided at the cost of higher nominal uncertainty. These results have been empirically supported by Fuhrer (1997) and Cecchetti and Krause (2001), among others.

Finally, the relation between real growth volatility and growth has also been widely analyzed in the literature with (again) contradictory findings. First, according to Devereux's (1989) model, higher growth uncertainty, result lower degree of indexation. This further makes it easier for the policy maker to use inflation surprises as a tool for higher output objectives. This all ends up with high average inflation and lower growth. Second, according to Black (1987), uncertainty increases the degree of specialization in an economy and hence yields more growth. His work on business cycle fluctuations elaborate that higher degree of specialization in an economy will result a positive real growth and volatility nexus (see Fountas and Karanasos (2007) and references therein for empirical support on this view).

Going back to the new EU member states we can point out that all abovementioned links are carried out within the two fundamentally different monetary regimes (Currency board and Inflation targeting), each of which strives to achieve both nominal and real stability as well as predictability. Monetary regime by itself is an essential institutional environment which lays down the basic features of the whole set of behavioral relationships (Maurer, 2006).

3) Empirical analyses and interpretations

3.1) Methodology

Here we briefly discuss our selected exponential GARCH (E-GARCH) model that has been actualized to estimate the stochastic component of real and nominal uncertainties for our new EU members. This specific functional form has an advantage of taking into account the asymmetry in the inflation and uncertainty relationship and hence provides a better way to test the Friedman's view. Since according to Friedman, higher inflation exerts larger uncertainty, using a symmetric variance of the error term (standard GARCH models) as measure of uncertainty is a poor approach to test this hypothesis (see Brunner and Hess, 1993 for more details). Following the traditional notations, let π_t and y_t represent the inflation and the output growth, respectively and define the residual vector ε_t as $\varepsilon_t = (\varepsilon_{\pi t} \varepsilon_{yt})'$. A more specific form of the bivariate VAR (p) model can be described as;

$$\pi_t = a_0 + \sum_{i=1}^{p} a_i \pi_{t-i} + \sum_{i=1}^{p} \rho_i y_{t-i} + \eta i_{t-1} + \tau Oil_{t-1} + \varepsilon_{\pi t},$$

(1)

$$y_t = b_0 + \sum_{i=1}^{p} b_i y_{t-i} + \sum_{i=1}^{p} \delta_i \pi_{t-i} + \lambda y_{EU(t-1)} + \varepsilon_{yt},$$

(2)

Here 'i' represents a change in the nominal interest rate. For the currency board economies we have used interest rate of European central bank (ECB). 'Oil' in the first equation shows oil price changes and 'yEU' represents European Union Industrial Production Index (IPI); to incorporate the effect of regional shocks on the domestic output. Our volatility estimates are based on the vector autoregressive (VAR) models and the specific number of lags is selected using Akiake Information Criteria (AIC) and Schwarz Information Criteria (SIC). Since E-GARCH specification models the logarithm of the conditional variance, it does not impose non-negativity constraint on the coefficients. Uncertainty in both variables is captured in the following way:

$$h_{\pi t} = \alpha_0 + \alpha_1 h_{\pi,t-1} + \beta \left| \frac{\varepsilon_{t-1}}{h_{t-1}} \right| + \gamma \frac{\varepsilon_{t-1}}{\sqrt{h_{t-1}}}$$

(3)

$$h_{yt} = \alpha_0 + \alpha_1 h_{y,t-1} + \beta \left| \frac{\varepsilon_{t-1}}{h_{t-1}} \right| + \gamma \frac{\varepsilon_{t-1}}{\sqrt{h_{t-1}}}$$

(4)

Here 'γ' estimates the asymmetry in the relationship. If 'γ' is positive then positive inflation change causes more uncertainty than the negative one of the same magnitude. Our next step estimation consists of the Granger causality tests to see the exact direction of effects between real and nominal variables as well as their uncertainties.

3.2) Data

To test all these set of hypotheses, we use monthly data of six eastern European economies over the period of 2000-01 to 2011-07, using International Financial Statistics (IFS, 2011). The selected sample includes three currency board economies; Bulgaria, Estonia, and Lithuania, and three inflation targeting countries Czech Republic, Romania, and Poland. For these economies, inflation is represented by the annualized monthly difference of the logarithm of the consumer price index $[\pi_t = \log(CPI_t / CPI_{t-1})1200]$ and real output growth is also measured accordingly $[y_t = \log(IPI_t / IPI_{t-1})1200]$. Our stationarity tests indicate that all the variables are non-stationary at their level and stationary at first difference, hence we use first difference of all variables in the analysis. Summary statistics of both these variables are given in Table 1. One prominent difference between inflation targeting (IT) and the currency board (CB) economies is the standard deviation of IPI which is higher for the CB economies than for the IT countries. Since IT regime explicitly focuses on the price stability, it reduces real uncertainty better than the CB based monetary regime.

Table 1
Data Description

	Inflation			Industrial Production Growth		
	Mean	Standard Deviation	JB Normality	Mean	Standard Deviation	JB Normality
Bulgaria	5.73	3.34	4.98c	4.17	9.92	50.69a
Estonia	4.14	2.85	2.42	5.78	14.08	75.29a
Lithuania	3.01	3.33	17.08a	5.83	11.23	11.22a
Czech Rep.	2.46	1.83	13.34a	4.33	8.98	83.08a
Poland	2.85	1.58	3.14	5.63	6.75	14.56a
Romania	11.21	7.71	53.13a	3.81	5.82	47.81a

3.3) Empirical Results:

In order to apply our selected AR (p) - E-GARCH (1, 1) model we need to have the estimates of real and nominal uncertainty that are free from autocorrelation but contain volatility clustering; to justify the manipulation

of this econometric technique. To do this, we ran AR (12) model and obtained the following results for the residuals.

Table 2
Preliminary Tests on the residuals

	Bulgaria	Czech Rep	Estonia	Lithuania	Poland	Romania
Inflation						
Q12	5.56	4.72	4.46	4.45	12.05	6.01
Q12	5.26a	7.35a	0.01	0.23	7.43a	0.07
Q122	10.32	9.58	4.46	8.48	17.45	19.66c
Output						
Q12	7.32	8.25	4.82	9.11	6.91	11.33
Q12	4.01b	5.74a	0.33	4.45b	1.39	3.17c
Q122	10.68	31.12a	26.71a	10.43	25.12a	23.77a

Notes: Q12 is the 12th-order Ljung-Box test for standardized autocorrelation. Q12 and Q122 are tests for ARCH effects using squared residuals. 'a', 'b' and 'c' show 1%, 5% and 10% level of significance, respectively.

Our residual diagnostics (presented in Table 2) show no sign of remaining autocorrelation for both inflation and output growth series. However the LM style ARCH tests show conditional heteroscedasticity in all cases except for two inflation series (Estonia and Lithuania). Hence we use our AR (p) - E-GARCH (1, 1) test for both inflation and output series and the results are presented in Table (3)

Table (3)
Estimates of AR(p)-EGARCH(1,1) model of inflation

	Bulgaria	Czech Rep	Estonia	Lithuania	Poland	Romania
Intercept a0	-0.025a	0.021a	0.001	-0.017a	-0.005	0.006
a1	0.228a	-0.111a	0.227a	0.105	0.448a	0.135a
a2	0.124	0.152b			-0.255a	
a3			0.091	0.149b		
a4	-0.138c				0.19c	0.116c
a5					-0.407a	
a6	-0.199a	-0.147c			0.378a	0.146b
a7		0.053		-0.106	0.378a	-0.137c
a8				-0.098	0.233b	
a10	-0.128c	-0.102c	0.093		-0.272a	-0.015
a11			-0.106		0.388a	
a12	-0.038	0.282a	0.012	0.246a		0.008
Yt-1	0.026a	0.021a	0.036	0.018a	0.006	-0.005
It-1	-0.0079b	0.003b	-0.004	-0.005	0.001	-0.0003
Oilt-1		-0.0001a	-0.0001c		-8.52E-05c	
α0	-5.048b	-16.971a	-4.55	-8.56	21.435a	-2.014b
α1	0.511b	-0.519a	0.57	0.185	-0.839a	0.782a
β	0.318	-0.661b	-0.19	-0.406b	-0.295	-0.52a
γ	0.615a	0.523a	-0.17	0.128	-0.081	0.116b
R2	0.18	0.39	0.22	0.21	0.37	0.11
F-Statistics	1.84	3.78	2.12	2.11	3.58	0.88
Log Likelihood	397.96	440.25	558.61	459.09	514.06	464.52
Q12	7.817	5.31	7.92	4.63	11.61	8.14
Q12	0.01	0.01	0.04	0.41	0.65	0.19
Q122	5.36	10.27	4.88	7.98	10.59	12.09

Notes: Q12 is the 12th-order Ljung-Box test for standardized autocorrelation. Q42 and Q122 are tests for ARCH effects using squared residuals. 'a', 'b' and 'c' show 1%, 5% and 10% level of significance, respectively.

Here we present the results of equation (1) and (3) for all countries. Most of the autoregressive coefficients are significant in almost all countries, showing strong influence of previous inflation to determine

prices today. On our selected covariates, changes in the previous period output amplify the level of inflation today. Effect of interest rate changes is different; it increases inflation when domestic interest rate increases (i.e in case of Czech Republic) and decreases inflation when ECB interest rate goes up (i.e in Bulgaria). One interpretation can be that higher interest rate in the ECB can result capital flight from this CB based economy which further lowers reserve money, money supply and as a result inflation in this small economy. However this systematically different effect is significant only in these two countries. Oil price increases lower the inflation in all cases where their impact turns out to be significant.

Turning to our volatility results, GARCH impact is significant in all the cases where our first step residual tests have identified the presence of heterscedasticity in the inflation process. The most interesting results come from our asymmetric parameter 'γ', its sign is positive in all significant cases. This substantiates the Friedman and Ball effect regarding the impact of inflation volatility on its level. Higher inflation is indeed more volatile and hence more costly in terms of its impact on relative prices and output growth in an economy. Since welfare cost of inflation increases at its higher levels, price stability becomes an optimal choice for these economies; irrespective of the differences in the monetary policy regimes in these countries.

In the next step, we want to see the possible differences in macroeconomic performance of these economies due to different monetary policy regimes, being practiced there (equation 2 and 4). Here again we get standard results for the relationship between growth variability and growth. One notable outcome appear from the fact that in almost all economies (other than Lithuania), regional shocks lower growth of these economies. Since European Union is the largest trading partner of our selected economies, fluctuations in the industrial production of the countries exert negative impact on the output growth of these economies. Asymmetry in the output growth and its uncertainty is again positive, albeit, insignificant in most of the cases.

Table 4
Estimates of AR(p)-EGARCH(1,1) model of Output Growth

	Bulgaria	Czech Rep	Estonia	Lithuania	Poland	Romania
Intercept b0	0.271a	1.159a	-0.005	0.664a	0.624a	1.154a
b1	0.133b	0.118		0.281a	0.225c	0.026
b2	0.324a	-0.022	-0.101	0.217b	0.196b	-0.094b
b3	0.179a	0.034	0.083		0.181b	-0.061
b4		-0.063	0.084	-0.293a	-0.045	-0.021
b5		-0.101	0.377a		-0.081	-0.039
b6					0.139c	
b7					-0.202a	
b8		-0.141c		-0.188a	-0.023	0.049
b9		-0.161c		0.116c	-0.033	-0.318a
b10	-0.147a	-0.356a			-0.153b	-0.149a
b12	0.631a	0.512a	0.028	0.187a	0.599a	0.431a
Πt-1	-0.325	1.442	-0.014	-0.721	-2.039c	-0.761
YEU(t-1)		-0.007a	0.001a	-0.007a	-0.001	-0.004a
α0	-2.728a	-1.488	-2.554b	-2.573	-1.844	-10.53a
α1	0.681a	0.791a	0.719a	0.619b	0.823a	-0.421b
β	0.812a	0.178	0.367	0.459	0.734b	1.11a
γ	0.303	0.223	0.652a	0.137	0.249	0.125
R2	0.67	0.73	0.08	0.54	0.67	0.63
F-Statistics	14.59	14.11	0.874	10.22	8.52	9.56
Log Likelihood	204.69	205.86	298.72	168.38	236.62	225.44
Q12	12.06	10.97	5.24	8.94	11.79	6.85
Q12	0.66	1.46	0.11	0.38	0.48	0.11
Q122	13.37	8.68	15.06	14.88	8.75	11.79

Notes: Q12 is the 12th-order Ljung-Box test for standardized autocorrelation. Q42 and Q122 are tests for ARCH effects using squared residuals. 'a', 'b' and 'c' show 1%, 5% and 10% level of significance, respectively.

Finally, in order to know the exact nature of the relationship and the direction of effects between real and nominal variables, we ran Granger causality tests. Various directions of effects have been tested for different variables; nevertheless, here we present some important channels through which real and nominal variables can influence each other. In most of the cases, inflation yields high nominal and real uncertainty; again supporting Friedman and Ball hypothesis. Nominal uncertainty, however, does not lead to a significant real uncertainty. In the same way, output growth uncertainty aggravates the nominal uncertainty and real growth in almost all significant cases. These results support the conventional view of price stability for sound macroeconomic performance, irrespective of a specific policy regimes followed by a country.

Table 5
Bivariate Granger-causality tests on the relationship between inflation and output growth as well as their uncertainties

Optimal Lag	Bulgaria	Czech.Rep	Estonia	Lithuania	Poland	Romania
Panel (A) H0: Inflation does not Granger-cause inflation uncertainty						
4 lags	29.41a(+)	9.89a (-)	43.62a (-)	18.76a (+)	4.68a (+)	11.07a (+)
8 lags	12.15a (+)	4.92a (-)	23.37a (-)	8.66a (+)	2.53b (+)	7.29a (+)
12 lags	5.68a (+)	4.54a (-)	17.57a (-)	5.06a (+)	1.98b (+)	4.49a (+)
Panel (B) H0 : Inflation does not Granger-cause output growth uncertainty						
4 lags	0.26	1.21	1.21	2.65b (-)	1.26	0.82
8 lags	0.84	2.32b (+)	0.76	1.11	1.48	0.56
12 lags	0.92	2.48a (+)	0.86	0.78	1.73b (+)	0.61
Panel (C) H0 :Inflation uncertainty does not Granger-cause output growth uncertainty						
4 lags	0.06	3.05b (+)	0.02	0.55	1.16	1.75
8 lags	0.32	3.66a (+)	0.56	1.41	0.93	1.11
12 lags	0.27	7.58a (+)	0.57	1.42	0.97	0.32
Panel (C) H0 :Output Growth does not Granger-cause inflation uncertainty						
4 lags	0.46	0.83	3.42a (-)	1.83	0.98	0.48
8 lags	3.01b (-)	0.37	2.23a (-)	1.48	1.07	0.58
12 lags	1.52	0.79	1.92b (-)	1.23	1.54	0.45
Panel (D) H0 :Output growth uncertainty does not Granger-cause inflation uncertainty						
4 lags	0.24	0.82	1.52	0.39	1.42	0.25
8 lags	0.18	0.58	1.13	2.42b (+)	1.98c (+)	0.43
12 lags	0.28	0.57	1.28	1.78b (+)	2.54a (+)	0.89
Panel (D) H0 : Output growth uncertainty does not Granger-cause output growth						
4 lags	2.72b (+)	11.51a (+)	2.73b (-)	1.54	5.45a (+)	3.74a (+)
8 lags	2.28b (+)	4.57a (+)	1.54	1.81c (-)	1.65	2.09b (+)
12 lags	2.25b (+)	2.31b (+)	1.43	1.09	1.92b (+)	1.87b (+)

Notes: The numbers in the first column give the lag structure. Figures are F-statistics.
A (+) (-) indicates that the sum of the lagged coefficients of the causing variable is (positive) (negative).
'a', 'b' and 'c' show 1%, 5% and 10% level of significance, respectively. The bold (underlined) numbers indicate the optimal lag length chosen by AIC (SIC).

4) Conclusion

This paper tries to analyze the relationship between macroeconomic uncertainty (real and nominal) and macroeconomic performance (inflation and output growth) for the two group of Eastern European countries, working under bi-polar exchange rate regimes; currency board versus inflation targeting economies. This study basically addressed two issues of the previous literature. First, since the literature on exchange rate regimes offers different possibilities for the effect of adopting a particular regime on the growth or instability of a country (see Aghion et al, 2009), we tried to see how these two opposing regimes influence the interaction between real and nominal variables. Second, the literature on the effect of inflation and output growth on macroeconomic performance of an economy, hardly addresses the case of emerging economies (exception include the paper of Jiranyakul and Opiela, 2010 for the East Asian Economies), we tried to fill this gap by taking the case of emerging economies of Eastern Europe.

Our main results indicate that although macroeconomic instability influences inflation and output growth of a country and vice versa, these effects, nevertheless, are not dependent upon a specific exchange rate regime followed by an economy. For example, in our selected sample this relationship can mainly be influenced by European union accession process. Since this external anchor is strong, it eats away the domestic differences of monetary regimes or exchange rate regimes for that matter. These findings complement the Kim's (1993) view that transitory uncertainty caused by domestic factor is not so effectual to influence the macroeconomic

performance of the countries. Permanent uncertainty, caused by the global factors, nevertheless, is a major factor to bring changes in these variables (see also Evans, 1991). Inflation in both these regimes is equally harmful for its direct effect on growth (as well as its uncertainty) and indirect effects; through inflation uncertainty channel. Since all these real and nominal interactions between growth and volatility have been rarely addressed for the developing countries, the role of different domestic and international institutions to influence these variables remains the task of future research.

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EVOLUTIONARY PROCESSES IN ECONOMICS: MODELING OF MACROGENERATIONS DYNAMICS

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ABSTRACT

A scientific paradigm of irreversible changes in the natural sciences has opened new prospectsin economic researches.

The modern school of evolutionism offers a wide variety of economic development models. However the evolutionary approach, rather successfully applied on the theory of company and innovation, has not received adequate development in the analysis of macroeconomic processes.

So the objective of the study is modeling of the macroeconomic growth as the evolutionary process. To solve this problem the hypotheses of the macrogenerations model have been formulated based on the evolutionary theory and the log-normal function has been selected as a model of macrogeneration. In order to increase the adaptive properties of the model the additional parameters have been introduced into the function.

Based on the dynamics of GDP of the EU a series of calculations with different macrogenerations parameters has been made. Experiments have confirmed the theoretical assumptions about the moments of their appearance and dynamics. It was shown that the duration of macrogenerations is being reduced with technological progress.

These results correspond with the theoretical assumptions and are suitable for further analysis of evolutionary processes in the economy.

KEYWORDS

Economic Growth, Evolutionary Theory, Macrogeneration Model.

JEL CLASSIFICATION CODES

C61 O11

1. INTRODUCTION

Evolutionary theory sees economic development as an irreversible process of complexity, diversity and productivity increase of production due to recurrent changes of technologies and institutions.

Veblen is considered to be the first who has used the term"socio-economic evolution" [1]. Another author of the fundamental concepts in evolutionary economy (EE) is Schumpeter. He offered the main principles of economic analysis in terms of the evolutionary approach, described the endogenous mechanisms of the economic development [2].

The modern school of evolutionism offers a wide variety of economic models. Nelson and Winter offered the model of the company routines that became the basis for future researches in this area [3]. Also we should notice the works of Aghion and Howitt [4] who used the Schumpeter's idea of competition between innovative enterprises; Silverberg's school which investigated not only Schumpeter's paradigm, but Kondratiev's theory [5], Kwasnicki, who conducted an econometric evaluation of technologies competition based on the replication equations [6], Foster and Young's researches in stochastic evolutionary selection [7].

However, at the macro level scientists mostly deal with the Kondratiev and Schumpeter's concepts [8]. Developing the Kondratiev's ideas, Freeman [9] and then Glaziev [10] introduced the paradigm of techno-economic changes. Glaziev said that the new technological system (TS) appeared when the old TS still dominated in economic structure. The redistribution of resources happened when the old TS was beginning to exhaust their potential.

Maevsky has criticized the Freeman and Glaziev's concepts for the complexity of practical application. He introduced the concept of macrogenerations (MG). Maevsky studied macrogenerations economic nature, their evolution and relationship with GDP dynamics; he also grounded probability of new MG appearance [8]. But in our humble opinion the main disadvantages of his approach are: 1) the fact that the final choice of a hypothetical set of macrogenerations is not strictly, and 2) the total number of macrogenerations in his model is unreasonably high.

So the objective of our study is modeling of the economic growth as the evolutionary process. The term "macrogeneration" will be used to describe the macroeconomic system that is based on a specific technology or combination of technologies and is involved in the production of national product.

Modeling assumptions are:

A. Macro-level of economy can be represented as a set of macrogenerations.

B. Each macrogeneration is involved in the GDP production, and all of them produce GDP of this year.

C. Each MG is described by embryonic phase, the phase of growth, the phases of saturation and decline.

D. New macrogeneration is born when the current one reaches its limits.

E. The redistribution of resources between macrogenerations corresponds to the phases of their development.

Our search has two stages with three tasks each:

1. The MG identification based on the US data within the period of 1930-2011
a. Identification of technological intervals based on the analysis of parameters drift of Cobb–Douglas production function (CDPF);
b. Simulation of the macrogeneration life cycle and evaluation of its parameters based on empirical data;
c. Analysis of the macrogeneration phases and their relationship with CDPF parameters drift.
2. The European MG identification and international comparisons based on the GDP statistics within the period of 1969-2011:
a. Clustering of European countries;
b. Simulation of the macrogeneration dynamics based on empirical data;
c. International MG comparisons.

2. THE MG IDENTIFICATION BASED ON THE US DATA

2.1. Identification of technological intervals based on the analysis of the macroeconomic function parameters drift

To solve the first task the Cobb–Douglas production function has been used: $Y = AK^{\alpha}L^{1-\alpha}$, where Y is the GDP [11], L is the labor input [12], K is the capital input [13], A is the productivity factor, α is the elasticity of capital.

To estimate the CDPF parameters several experiments have been made based on the US statistics within the period of 1930-2011. A series of experiments with sliding window showed that:

1) the dynamics of CDPF parameters is cyclical;
3) α and A vary in antiphase;
2) in some intervals α goes to an prohibitive area (Fig.1).
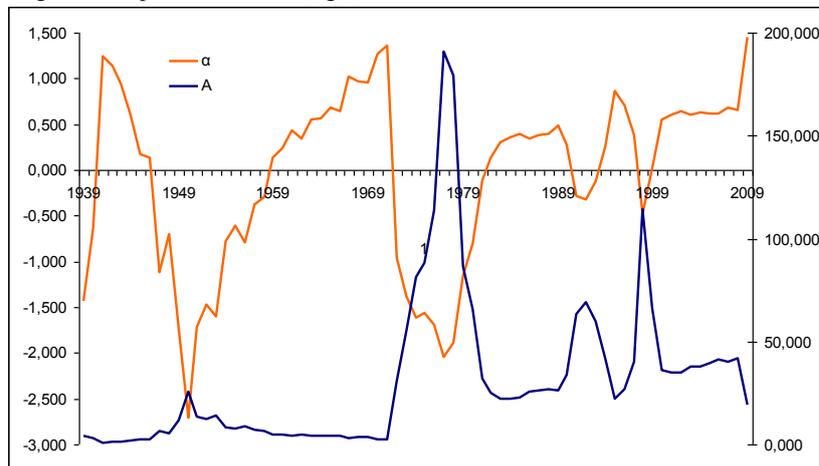
Fig. 1 - The α and A drift

To explain the results in terms of evolutionary theory we have made the assumption that at those intervals where α became negative, there is a change of MG when the relationship between the capital and labor changes radically. Also the periods of α increase correspond to the growth phase of macrogenerations, and on those intervals where α is negative, there is a change of technology and reallocation of production factors.

Based on the drift analysis the assumption about five cycles of evolution has been made. The results allow to indicate the following periods of MG appearance:

1) the first macrogeneration should be born before 1930,
2) the second one within the period from 1945 to 1950,
3) the third one within the period from 1970 to 1975,
4) the fourth one within the period from 1985 to 1990,
5) the fifth one within the period from 1995 to 2000.

These results correspond to Glaziev's theoretical assumptions.

2.2. Simulation of the macrogeneration life cycle and evaluation of model parameters based on empirical data

According to the above mentioned assumptions, macrogeneration life cycle consists of:

− short embryonic phase when the contribution of the new macrogeneration to the economy is irrelevant;
− the phase of rapid growth, when the new macrogeneration begins to collect resources from their predecessors;
− saturation phase, when the current MG reaches its limits;
− decline phase, when there is a final reallocation of resources between macrogenerations.

To describe the macrogeneration life cycle we have selected the log-normal function (Fig. 2):
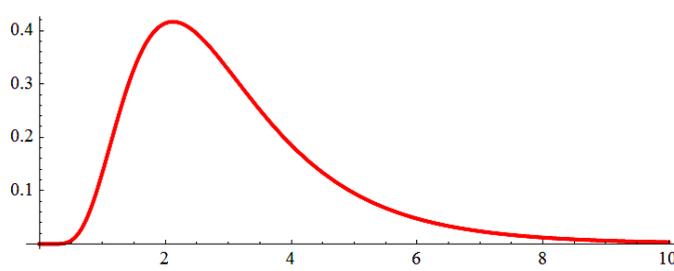
$$f(t) = \begin{cases} \dfrac{1}{t\sigma\sqrt{2\pi}} e^{-\frac{(\ln t - \mu)^2}{2\sigma^2}}, & t \geq 0 \\ 0, & t < 0 \end{cases}$$

Fig. 2 – Log-normal function with $\mu = 1$ and $\sigma = 0,5$

To extend the parametric setting, we introduce into the model some additional parametres:

$$s(t) = \begin{cases} \dfrac{A}{(t-\tau)} e^{-\frac{(\ln(t-\tau)-\mu)^2}{2\sigma^2}}, & t \geq \tau \\ 0, & t < \tau \end{cases}$$

(1)

Here τ sets the embryonic phase, μ and σ are the technological parameters; A is the potential of macrogeneration.

Based on these assumptions, we identified the macrogenerations based on U.S. statistics within the period of 1930 and 2011 [11]. The criterion was the minimizing of the sum of squared deviations of model values from the real data:

$$z(\tau, A, \mu, \sigma) = \sum_{t=1}^{80} \left(f(t, \tau, A, \mu, \sigma) - y_t^* \right)^2 \to \min$$

(2)

The function f is the sum of the functions s_i, which are describing the macrogenerations:

$$f(t, \tau, A, \mu, \sigma) = \sum_{i=1}^{5} s_i(t, \tau_i, A_i, \mu_i, \sigma_i)$$

$$s_i(t, \tau_i, A_i, \mu_i, \sigma_i) = \frac{A_i}{t - \tau_i} e^{-\frac{[\ln(t-\tau_i)-\mu_i]^2}{2\sigma_i^2}}$$

(3)

To solve the task (2)-(3) statistical data was scaled. The task was solved using the software Mathematica 8.0.

As a result the following parameters were obtained: τ = {4.65; 20.00; 40.78; 53.35; 63.77}, A = {0.60; 1.00; 4.90; 7.84; 12.34}, μ = {0.48; 3.00; 3.00; 3.00; 3.00}, σ = {0.25; 0.52; 0.50; 0.48; 0.42}.

It is seen that all σ are less than 1 and close to 0.4-0.5, that indicates embryonic phases. Most of μ take the maximum of 3, trying to make the functions s_i smoother.

Analysis of Figure 3 shows that macrogenerations appear in the maximum of their predecessors region and have the embryonic phases. The intervals between appearance and duration of macrogenerations are reduced (Tab. 1).

Table 1 – Phases of the macrogeneration life cycles

	s_1	s_2	s_3	s_4	s_5
Appearance	1926	1950	1970	1983	1993
Embryonic phase	1926	1950-1955	1970-1975	1983-1988	1993-1999
Growth phase	1926-1927	1955-1964	1975-1985	1988-1999	1999-2010
Saturation phase	1927	1964-1976	1985-1987	1999-2004	
Transition to new MG	1955	1976	1993	2004	
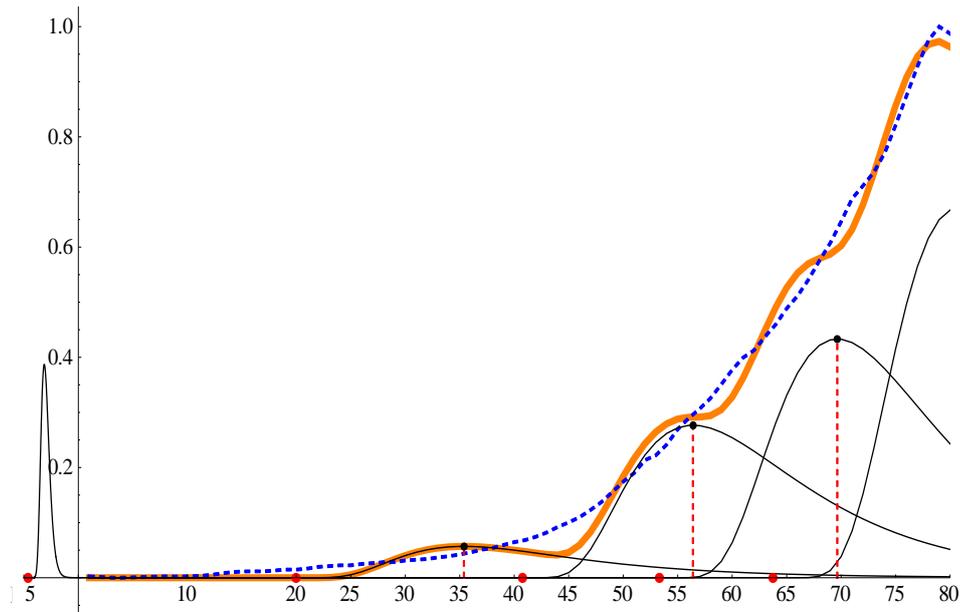
Fig. 3 – Approximation of GDP by set of macrogenerations

2.3. Analysis of the macrogeneration phases and their relationship with the production function parameters drift

Drift analysis (Fig. 1) and the dynamics of macrogenerations (Fig. 3) show that:
1) growth phase of the macrogeneration corresponds to an increase of α,
2) saturation phase of the macrogeneration corresponds to a local maximum of α,
3) the appearance of new macrogeneration corresponds to a decrease of α,
4) transition from one MG to the next corresponds to a local minimum of α.

Table 2 – Correspondence between macrogenerations phases and behavior of α

First interval	Macrogeneration phases	Behavior of α
1950	Growth phase of s_2	Growth
1962	Saturation phase s_2	Local maximum
1963	Embryonic phase of s_3	Decrease
1968	Transition from s_2 to s_3	Local minimum
1969	Growth phase of s_3	Growth
1980	Saturation phase s_3	Local maximum
1981	Embryonic phase of s_4	Decrease
1983	Transition from s_3 to s_4	Local minimum
1983	Growth phase of s_4	Variable dynamics
1993	Saturation phase s_4	Local maximum
1990	Embryonic phase of s_5	Constant
1997	Transition from s_4 to s_5	Constant
1999	Growth phase of s_5	Growth

The study of macrogenerations phases confirmed our assumption that in those areas where the elasticity of capital became negative, macrogenerations were changed. In the growth phase macrogenerations are filled with the capital (α increases), the new macrogeneration collects the resources from the current ones.

3. THE EUROPEAN MG IDENTIFICATION AND INTERNATIONAL COMPARISONS

3.1. Clustering of European countries

To compare MGs of European countries, first we clustered them using Kohonen maps [14]. As a result 3 clusters have been indentified based on GDP, population and area:
1) the largest and richest countries form zero cluster;
2) large, but not rich countries form the first cluster;
3) small countries with a low level of GDP form the second cluster (Fig. 4).
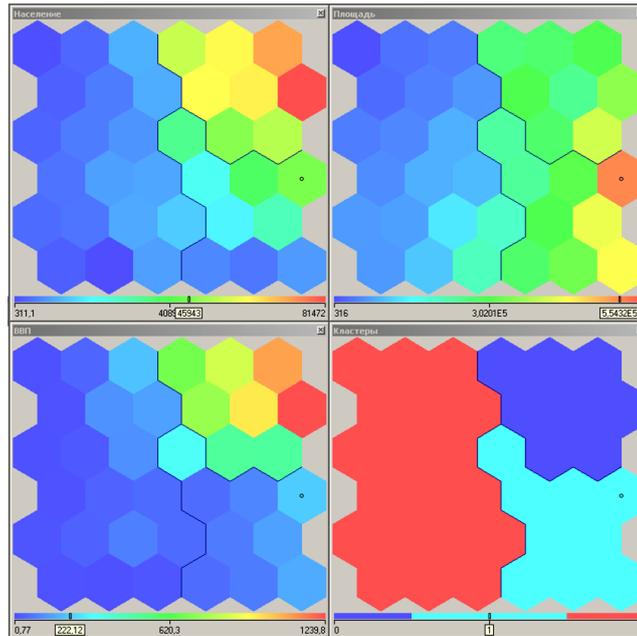
Fig. 4 – Kohonen maps: a) map of the population, b) map of the area, c) map of the GDP, d) map of the clusters

The clusters cores characterize the most typical objects of each cluster (Fig. 5).

Fig. 5 – The clusters cores

3.2. Identification of the Europeanmacrogeneration based on empirical data

We selected some countries from each cluster to analyze their MG dynamics.

Three countries – Germany, Italy and France have been chosen from zero-clustrer. The GDP dynamics of these countries within the period of 1969-2011 [15] is shown in Fig. 6.
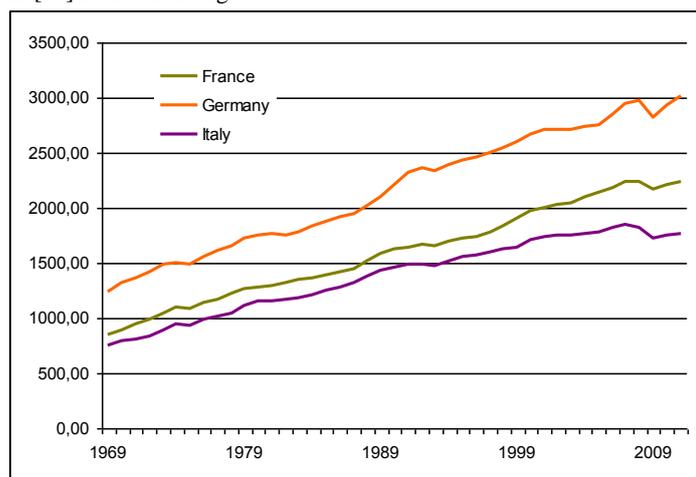
Fig. 6 – GDP dynamics of Germany, Italy and France

Basing on the above mentioned assumptions and the results of previous experimentswe made (and experimentally confirmed) theassumption about the appearance of three macrogenerations during the study period. For each of the compared countries the following task was solved:

$$z(\tau, A, \mu, \sigma) = \sum_{t=1}^{43} \left(f(t, \tau, A, \mu, \sigma) - y_t^* \right)^2 \to \min$$

(4)

where

$$f(t, \tau, A, \mu, \sigma) = \sum_{i=1}^{3} s_i(t, \tau_i, A_i, \mu_i, \sigma_i)$$

$$s_i(t, \tau_i, A_i, \mu_i, \sigma_i) = \frac{A_i}{t - \tau_i} e^{\frac{-[\ln(t-\tau_i) - \mu_i]^2}{2\sigma_i^2}}$$

(5)

The results are presented in Tab. 3.

Table 3 – Macrogenerations parameters of Germany, Italy and France

Macrogenerations parameters	Germany	France	Italy
z	0.120	0.035	0.012
τ	3.89; 11.83; 25.14	2.50; 12.31; 24.74	1.13; 12.38; 24.13
t	1966; 1981; 1994	1967; 1981; 1994	1968; 1981; 1993
A	7.25; 10.01; 10.80	4.15; 5.55; 7.79	3.19; 4.31; 5.21
μ	3.0; 3.0; 3.0	3.0; 3.0; 3.0	3.0; 3.0; 3.0
σ	0.63; 0.52; 0.49	0.56; 0.55; 0.50	0.53; 0.56; 0.51
Maximum capacity	0.44, $\tau=9.6$; 0.57, $\tau=27.12$; 0.61, $\tau=40.9224$	0.24, $\tau=12.11$; 0.32, $\tau=27.18$; 0.44, $\tau=40.31$	0.18, $\tau=14.03$ 0.25, $\tau=27.07$ 0.30, $\tau=40.00$

Analysis of Tab. 3 shows that the macrogenerations capacity in all three countries increases. Germany had the maximum, but the growth rate is lower here than in France and Italy.

The moments of macrogenerations appearance are very close to each other. If we compare them with obtained for the U.S. (where the experiment was based on data within the period of 1930-2011), we will see that the moments of the European macrogenerations are very close to them (in the U.S. they were 1970, 1983 and 1993).

The macrogenerations dynamics of Germany, Italy and France is shown in Fig. 7.
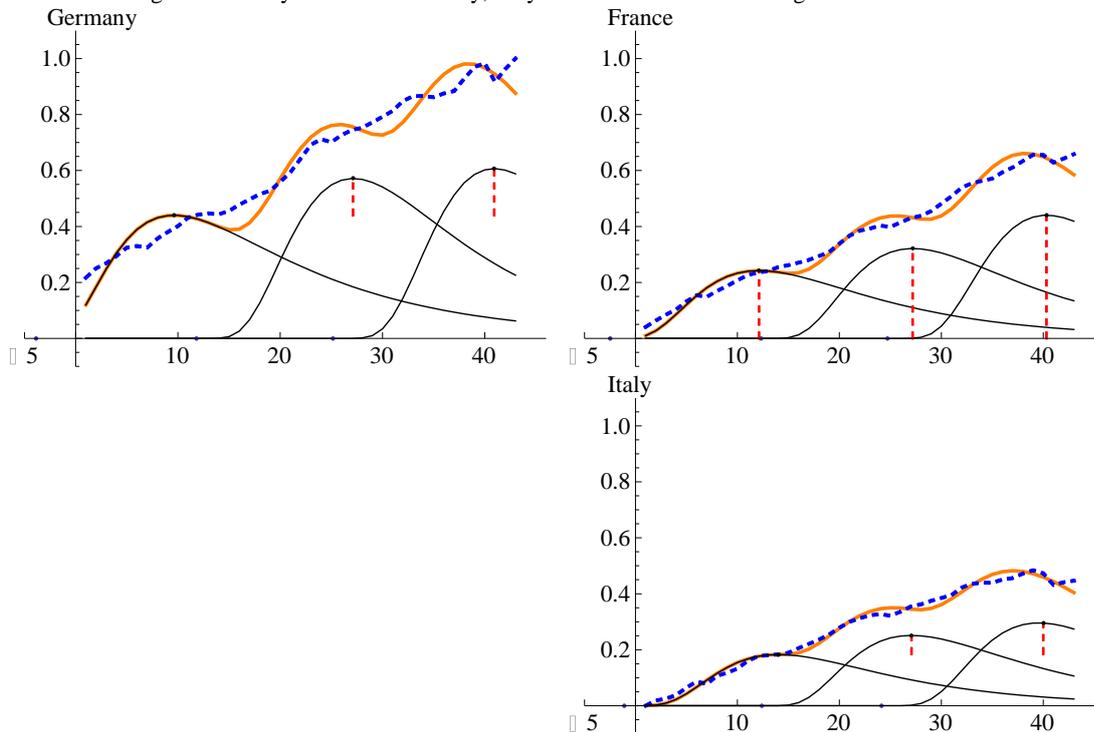
Fig. 7 – Macrogenerations dynamics of Germany, Italy and France

Let's consider the first cluster. Here we chose four countries – Norway, Poland, Greece and Ukraine. The GDP dynamics of these countries is shown in Fig. 8.
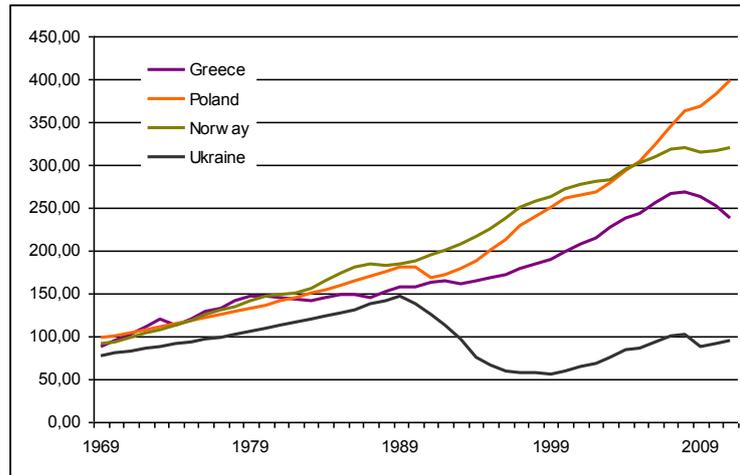
Fig. 8 – GDP dynamics of Norway, Poland, Greece and Ukraine

For each of these countries the task (4)-(5) has been solved. The results of the approximation is better here than for the zero-cluster (Tab. 4).

Table 4 – Macrogenerations parameters of Norway, Poland, Greece and Ukraine

Macrogenerations parameters	Norway	Poland	Greece	Ukraine
z	0.092	0.052	0.024	0.009
τ	2.56; 12.57; 24.86	1.32; 15.47; 27.18	3.74; 11.83; 24.04	7.10; 10.00; 30.20
t	1967;1982;1994	1968;1985;1996	1966;1981;1992	1962;1979;1999
A	4.89; 6.93; 9.21	3.19; 5.12; 7.91	4.37; 3.94; 7.98	1.84; 1.25; 0.78
μ	3.00; 3.00; 3.00	3.00; 3.00; 3.00	3.00; 3.00; 3.00	3.00; 2.38; 2.55
σ	0.57; 049; 0.48	0.59; 0.44; 0.42	0.59; 0.51; 0.45	0.37; 0.28; 0.52
Maximum capacity	0.29, τ=11.96 0.39, τ=28.28 0.52, τ=40.75	0.19, τ=12.82 0.28, τ=32.05 0.43, τ=44.08	0.26, τ=10.44 0.22,τ=27.33 0.44, τ=40.42	0.098, τ=10.42 0.12, τ=20.04 0.07, τ=39.91

Analysis of Tab. 4 shows that macrogenerations capacity increases only in two countries (Norway and Poland). In Greece the second macrogeneration is weaker than the first one, but the maximum capacity of the third MG twice more than the second one. In Ukraine the third macrogeneration is lower their predecessors.

It should be noted that MG appearance in Norway and Greece are close to the zero-cluster, while in the post-socialist countries there is a delay of the last macrogeneration (with significant potential at the beginning).

Macrogenerations dynamics of Norway, Poland, Greece and Ukraine is shown in Fig. 9.

Norway

Poland
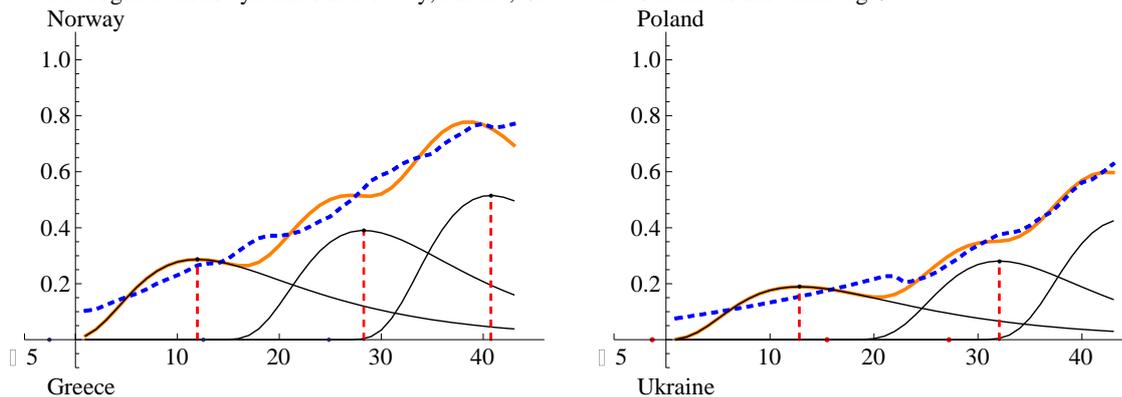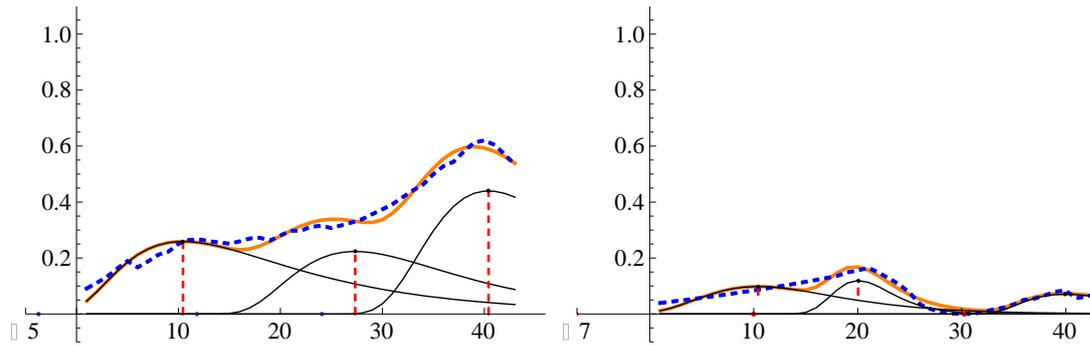
Greece

Ukraine

Fig. 9 – Macrogenerations dynamics of Norway, Poland, Greece and Ukraine

Finally we consider the second cluster, from which three countries – Bulgaria, Belarus and Lithuania were chosen to be analyzed. The GDP dynamics of these countries is shown in Fig. 10.
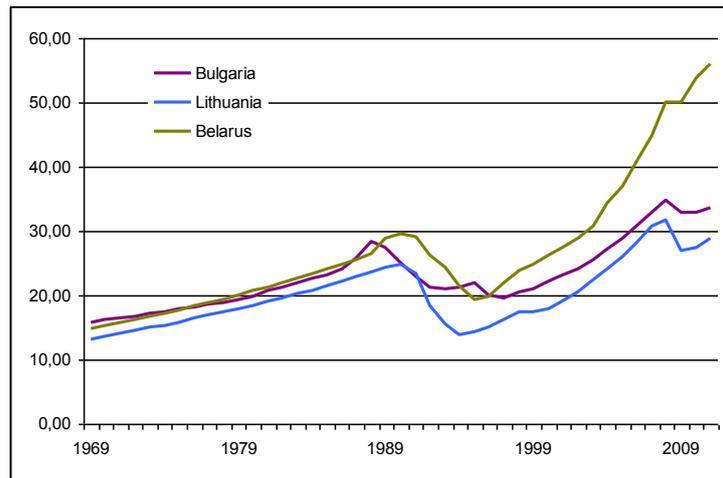
Fig. 10 – GDP dynamics of Bulgaria, Belarus and Lithuania

For each of these countries the task (4)-(5) has been solved. The results of the approximation are also high here (Tab. 5).

Table 5 – Macrogenerations parameters of Bulgaria, Belarus and Lithuania

Macrogenerations parameters	Bulgaria	Belarus	Lithuania
z	0.093	0.052	0.078
τ	0.0; 16.95; 24.85	1.32; 15.47; 27.18	1.01; 20.0; 23.53
t	1969; 1986; 1994	1968; 1985; 1996	1968; 1979; 1993
A	4.98; 1.77; 7.38	3.18; 5.12; 7.91	4.29; 7.78; 0.47
μ	3.00; 3.00; 3.00	3.00; 3.00; 3.00	3.0;3.0; 2.12
σ	0.43; 0.37; 0.37	0.59; 0.44; 0.42	0.31; 0.2; 0.2
Maximum capacity	0.27,τ=16.73 0.09, τ=34.47 0.39, τ=42.33	0.15, τ=10.97 0.22, τ=22.51 0.75, τ=41.99	0.22, τ=17.21 0.40, τ=39.30 0.06, τ=31.54

Analysis of Table 5 shows that the macrogenerations capacity increases in Belarus only. In Bulgaria the second macrogeneration is weaker than previous one, but the capacity of third MG is four times more than the second one, that indicates a great potential for the development. In Lithuania the third macrogeneration is not only significantly lower than the previous two, but its saturation become before the peak of the second one. It indicates the catastrophic situation in the economy of Lithuania.

The moments of embryonic phases in the cluster vary insignificantly. The macrogenerations dynamics of Bulgaria, Belarus and Lithuania is shown in Fig. 11.

Belarus   Bulgaria
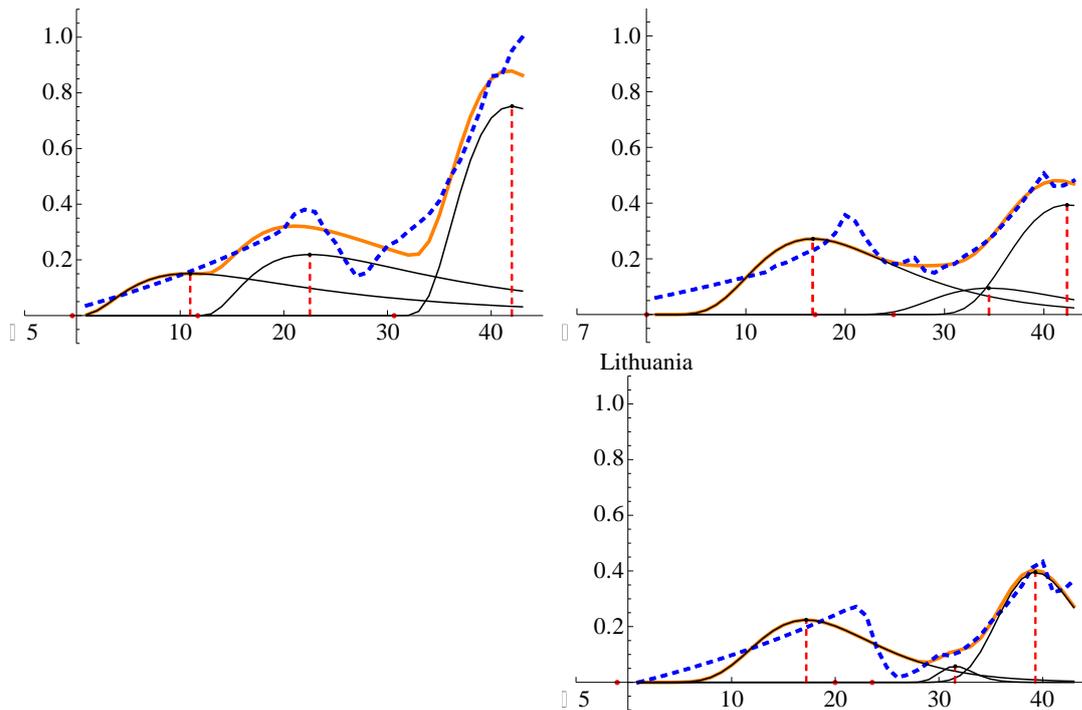
Fig. 11 – Macrogenerations dynamics of Bulgaria, Belarus and Lithuania

4. CONCLUSION

1. The assumptions about macrogeneration dynamics have been made to model the economic growth as the evolutionary process and the log-normal function have been selected to describe the macrogeneration life cycle.

2. Macrogenerations parameters have been evaluated based on empirical data.

3. The experimental results confirmed the model assumptions about the appearance and dynamics of the macrogenerations. It was shown that macrogenerations appeared in the maximum of their predecessors region and had the embryonic phases. The intervals between appearance and duration of macrogenerations are reduced.

4. The relationship between the CDPF parameters drift and macrogenerations phases is determined. The study of macrogenerations phases confirmed the assumption that in those areas where the elasticity of capital became negative, macrogenerations were changed. In the growth phase macrogenerations are filled with the capital (α increases), the new macrogeneration collects the resources from the current ones.

5. The international comparisons show that the largest and richest countries MG capacity increases. In the large but not rich countries the situation is different but not critical; in the biggest cluster some countries show catastrophic dynamics.

6. Nowadays the third macrogeneration peak comes nearer in all of observed countries. It indicates the appearance of a new macrogeneration in the coming years. Therefore, it is very important to pay special attention to the technological potential of the economy.

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TARGETS CONSTRAINS AND IMPACTS OF TRANSITION PROCESS IN CENTRAL AND EASTERN EUROPE COUNTRIES

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ABSTRACT

The beginning of transition process of central and Eastern Europe counties followed from the fast increase of the commerce with European Union. From 1992 till 1994 signed important commercial agreements with a) Visegrad in 1992 b) with Bulgarian and Romanian and c) with Baltic countries in 1994.

These agreements targeted to mutual concessions of every country with the European Union for liberalization of commerce with receiver the main benefits from this of the transition countries. With exception of Albania and former Yugoslavian countries all the other states under transition made applications to entry European Union. After the collapse of communistic system all the meta-communistic countries faced the difficult and hard provocation of transition policy to go in political democracy and to the modern capitalism.

It is visible that the countries of ex-soviet union in central Europe AND bALKANS realized this transition process in a fast way with relatively low economic and social cost and rewarded for this with the E.U entrance despite other counties which passes a very difficult and painful transformation, with a long run and slow transition process, paying a higher price comparing with the other neighbor countries (Dabrowski and Radzdwill, 2005).

So for the transition countries most of the reformations concerning the external stability realized with the aid of two factors a) the organizations of E.U and NATO and b) the world organizations as IMF, World Bank and WTO. The influence of this of world and peripheral institutions had different influences and impacts in the different countries.

So for the central and Eastern European countries, the Baltic states and Balkans the process of regional integration was very effective and material by the external aid supply. Oppositely, other countries which mainly depends from the international organizations appeared to be less effective and with less satisfied results.

Historically, countries with managed economies had being isolated from the world markets because of the existence of state monopolies in external commercial relations, the lack of investments, the lack and short comes in autonomy of production in enterprise level and the absence of the proper administrative control, the inflexibility in prices are events that cumulatively had as a result technically low prices but high imported good prices and a distortion and crook about resources allocation.

The bilateral and multilateral commercial flows were organized according to the central state decisions and the intergovernmental exchanges within the framework of the COMECON.

Despite of the four communistic countries, Yugoslavia (from 1996), Poland (from 1967), Romania (from 1971) and Hungary (from 1973) was entered to G.A.T.T., in reality their participation was rather typical, because of the incompatibility of the commerce forms and the type of their economic systems, and the obligatory character of the decisions taking under the inter intercommunity commercial relations with the COMECON.

But after the collapse of COMECON and the U.S.S.R the G.A.T.T and W.T.O agreements had not said the main rules for the commerce in the area. For the central Europe and Baltic countries the E.U offer an early participation in commercial contracts and treaties batter than G.A.T.T and W.T.O.

In relation with commercial policy these countries can enter in E.U, that means customs union, which combining with the exterior commercial policy they have a access to the single European market. Summarizing with the section of international commercial agreement, the former centrally managed economy, has a benefit from the local public goods and any of them that have been entered in the E.U participate in the common European commercial policy. Their economies has benefited from the vast European market and four basic freedoms (Free speculation of goods, goods and services, capitals and labor). Also they participate to the common European agricultural policy with the relevant benefits of subsidies as income grand. The rest of the countries not participating to common European institutions and markets are excluded from the advantages of international regulations remaining in some aspects isolated to the autarky way of development.

KEYWORDS: transition, transition passage, shock policy

JEL CLASSIFICATION CODES

FOO, P20.F50

1. THE TRANSITION PROCESS FOLLOWED BY THE S/E EUROPEAN COUNTRIES

The economic transition from managed economy to the free market economy, is realized by four general steps (Bitzenis, 2003a).

1. The first step is the macroeconomic stabilization program that must be adopted in order to improve the macroeconomic indicators, like the inflation, the interest rate, the unemployment and generally and the effort to reduce the debt and the budget deficits, to increase the industrial production, to make contact with new commercial partners and to improve the living conditions of citizens.

2. The second step is the liberalization of economic activities (in relations with prices, commerce, money convertibility, abolition of monopolies etc) which must accompanied with a strong institutional restructuring of the system. So to avoid crisis, the state must establish quickly the stabilization program.

3. The third step, is to reduce the volume of public sector by a swift privatization program, and the reorganization of the system, the imposition of hard restrictions in state's budget and the reduce of subsidies and grand for social programs. It is obvious that from the application of all the above, this countries faced high levels of unemployment and rapid downgrade of the quality of life.

4. The fourth step is, the creation of new laws, that promote the statutory reformations and structural changes, that must be introduced in order to stabilize and establish the market system (company laws, tax system etc) but because the successful transition is not coming only from the interior actions and information, but equally needs and external aid from international organizations like I.M.F, World Bank, W.T.O, O.E.C.D. and other organizations which must bring the relative aid in funds and institutional support under which is possible to adopt some determine targets of stabilization and development (Bitzenis, 2003a).

Together with the other changes and reformations in the economic system, the transition process includes at parallel and a political transition, from the autarchic and depressive system to a democratic state. Only a few of these countries experienced a kind of limited democracy like Czech Republic and Baltic countries with demi-democracy regimes, like Poland, Latvia and Hungary.

But Russia and other Soviet Republics did not have any democratic tradition the last fifty to sixty years and also they had not knowledge to establish a new independent state. So the pass a mandatory process forced to found from zero the institutions of an independent state.

Under these conditions, a new parliamentary democracy, very often connected with political instability in the first period of transition. Countries like Bulgaria, Romania and Poland faced with difficult complications of political type n the transition period.

On the other side, the same transition is painful socially from the hard political agenda to achieve the difficult transition process that contributes to political turbulences. (Dabrowski, 1996).

So as we can see there are many historical changes where the transition to new liberalized economic institutions, accompanied with deep political changes as happened in Germany, Austria and Japan, after World War II. Also many underdeveloped countries the last 20 years mainly in Latin America experienced difficulties (Dabrowski, (1996).

Yugoslavia is a unique case where having one single party regime, was in a continuous danger because of tensions between the central federal government and the governmental elites of the six federal states.

Balancing continuously between the central managed planning and the self-management in enterprise level (Gelvich, 1983). We can observe that the above mentioned countries experienced many different ways of transition to democracy, included case from revolutionary expositions, until the peaceful rearrangement of the same power elites.

So studying now from the historical distance the ways of transitions to civil democracy and the free market, in Bulgaria, Romania and partially in Albania we can tell that this process accompanied with some moderate to high social disturbances, without serious impacts finally, to the normal information in the structure of these countries. opposite from Yugoslavia ,where we had wars and confrontations between armies of the federal states leads finally, to the separations to six independent states.

2. TARGETS AND RESTRICTIONS OF THE TRANSITION PROCESS

2.1 OBJECTIVES AND LIMITATIONS OF TRANSITION PROCESS

For the transition from the closed type to open type economy, is needed a total information of the system to all sectors, in order to achieve the partial targets and aims. (Pournarakis, 2004)[1].

The different ways of transition in Balkans do not end up in different forms of democracy.

Thus, democracy presents many similarities in Bulgaria and Romania, arising from a second democratic transition that took place during the period 1996 and 1997 (Diamandouros, 2000).

This second transition took place through elections, after the first period of governance by Communist elites belonging to the former regime, which managed to take over leadership of new parties, to win the original elections and to be in power, after the collapse of real socialism. A similar case is that of Albania, in spite of its own specificities, due to the uprising in 1997. By contrast, Yugoslavia was marked by nationalist conflicts and external military interventions to such an extent that any attempt of democratization was undermined.

The main factor of democratization complications in Bulgaria and Romania is the simultaneous double transition from real socialism to democracy and from centrally planned economy to market economy. Respectively, in the countries that made up

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[1] price formation in a bases of demand and offer

Yugoslavia until 1990, the problems of democratization are associated with the so-called "triple transition" (Offre, 1996). Specifically, the civil and economic change takes place at the same time as the restructuring in the territory of Yugoslavia and the creation of new states-nations, as a result of wars during the period 1991-1995 and the NATO's intervention in 1999.

3. TRANSITION STRATEGIES - THE PROPOSED THEORETICAL FRAMEWORKS

There are three basic parameters for classifying the transition strategies (Dabrowski, 1996):

1. The speed of actions in the main fields of transition: macroeconomic stabilization, liberalization and institutional changes, privatization and restructuring.

2. The comprehensiveness and internal consistency of implemented policies, creating critical mass of reforms and avoiding macroeconomic mismanagement.

3. The cumulative progress in transition achieved so far.

With respect to all three factors, the countries of Central and Eastern Europe may be classified into six broad categories. The categories are defined mainly along the third criterion, i.e., the cumulative progress in the transition process, although the two other criteria also play an important role. The proposed categories are (Dabrowski, 1996):

1. One country (the former German Democratic Republic (GDR) in 1990) embarked on an extremely radical transformation of the economic system that was made possible through the rapid importation of a stable currency and of economic institutions from West Germany.

2. A group of countries (Poland, the CzechRepublic, Slovakia, Albania, Estonia, and Latvia) embarked on a radical path of transformation (in terms of the speed and consistency) containing the initial macroeconomic stabilization and an extensive domestic and external liberalization of the economy.These programs were followed by privatizations. (Some delays in privatization came from the need to draft appropriate legislation and set up monitoring institutions). By the end of 1994, these countries accomplished the critical mass of reforms and completed the first stage of the transition process.

3. By the end of 1994, Hungary and Slovenia achieved a level of progress in the transition process similar to the second group of countries. They moved, however, much slower but in a rather well-coordinated way.

4. Countries in the middle of the process implemented a number of significant changes, which were not completed until the end of 1994 to transform their economies. This group is made up of three types of countries:

a) Lithuania, Kyrgyzstan, and Moldova failed to do radical stabilization and liberalization at the beginning of transition. Now, they are doing more to stabilize and liberalize their economies successfully, and they have a chance to catch up with.

b) Romania and Russia engaged in important reforms, but have not had well-coordinated transition policies and have suffered macroeconomic mismanagement.

c) In 1991, Bulgaria started a radical liberalization and stabilization program similar to Polish and Czech-Slovak ones.

5. A few countries undertook no significant changes and made little progress towards liberalization and privatization of the economy until the end of 1994.

6. Countries at war (Bosnia and Herzegovina, Serbia and Montenegro, Georgia, Armenia, Azerbaijan, Tajikistan, and Croatia), where economic transformations coincided with the war, disorganizing the economy and leading to hyperinflation.(Offe, C., (1996), "Varieties of Transition : The East European and East German Experience", Polity Press, Cambridge).

From the Balkan countries, Bulgaria, Romania, and F.Y.R.O.M. originally adopted the gradual approach to transition process, while Albania followed the application of the "Shock therapy" model. Yugoslavia found it less necessary to take reforms, as it did not follow exactly the principles of the centrally planned economy. But, the civil armed conflicts delayed all reforms for the transition to market economy. Thus, after the end of the war, there was the need to adopt direct measures. The choices of Balkan countries are presented in the respective financial performances and social impacts of the policies followed (Karafotakis, 1999).

In all former socialist countries, including those in which the policy of gradual approach was adopted, there was a need for direct changes under the form of "shock" policy at some point. This fact leads to the conclusion that any delays due to gradual implementation of necessary measures may have negative impact on transition process (Kipas, 2005).

In all countries in transition, a sharp decline in production was noticed during the period 1989-1993. It was also noted the dismantling of services and their industrial infrastructure. The contraction in GDP of Balkan countries ceased during the period 1993-1995, while from 1996-1997 their growth path was steady with average growth rates exceeding by far the EU average.

But the introduction of market rules, such as price liberalization, had negative social and economic impacts. The unemployment has increased in all countries, while the household income has fallen significantly. At the same time, the representatives of the old regime took advantage of the power vacuum and constituted the new urban (middle) class.

It should be also noted that there are doubts about the reliability of statistical elements during the transition period, as the measurement of the real economic variables was difficult after the collapse of the socialist regime, and especially the measurement of those coming from the private sector and underground economy. Furthermore, price liberalization after 1989, hyperinflation and the weights based on the price level, render particularly difficult the calculation of GDP.

It is also noticed that the statistical elements before 1989 are not quite reliable, as the socialist regimes used to hide the truth

for the problems such as unemployment, while maintaining the price level artificially low, without any significant changes,

with no connection to the real prices (Karafotakis, 1999).

4. TRANSITION PROCESS ANALYSIS

Price liberalization, inflation, productive activity

After the fall of the Berlin Wall and the overthrow of the socialist regimes in Eastern Europe, the former Soviet bloc countries were characterized as "countries in transition". During the original elections the new elites, which were actually the old ones, promised to bring freedom and economic efficiency, and aimed at involving their countries in the "game" of liberal globalization and reaping the benefits for themselves.

In many cases, their objective was to establish the old privileges through access to property (Le Monde Diplomatique, (2004), "The new face of the world", Volume 3).

This also explains the adoption, by the majority of those countries, of the patterns promoted by the institutions, which in their turn promoted globalization, such as the International Monetary Fund (IMF), as well as the European Commission which determines the criteria for EU membership. In those countries where the access to education and crucial goods was a part of the welfare state and the employment in large enterprises was accompanied by social infrastructure, such as kindergartens and hospitals, the "less state" constituted a significantly negative impact (Le Monde Diplomatique, (2004), "The new face of the world", Volume 3).

The dependence on imported products of multinational companies has led to the increase of external deficits, without positive counter-effect in the field of know-how transfer. The large inward flow of Foreign Direct Investment in the banking sector has led to a larger reduction in financing towards the public enterprises and services that offered the most employment a few years ago (Le Monde Diplomatique, (2004), "The new face of the world", Volume 3).

The system of centrally planned, almost full-time employment has turned into structural unemployment exceeding 20%, during a period that even in more favored countries, the large enterprises had not been restructured yet. The reduction in birth rates mirrors the situation, while the social indicators, especially in the health sector, record negative development in Balkans. Among the countries that were due to become EU members, priority was given to those countries that had avoided wars, such as Romania and Bulgaria (Le Monde Diplomatique, (2004), "The new face of the world", Volume 3).

Some of the problems were those related to the property rights, and how the public enterprises would turn into private. Even if the problems tackled by the so-called transition economies of Eastern Europe were similar in any case, the way they were addressed was different, based on their own history. The economic restructuring and marketization process was motivated by the desire of the Eastern Europe countries to become EU members (Le Monde Diplomatique, (2004), "The new face of the world", Volume 3).

5. TRANSITION EFFECTS

The effects of the transition of Balkan countries' economies are as follows (Kipas, 2005):

• The implementation of "shock" policy is not pleasant, given that the changes are painful for the citizens. But, it can be seen that the countries that have adopted that policy have presented better results.

• The reforms in all countries were followed by the exacerbation of social problems such as poverty, unemployment, crime etc.

• The macroeconomic stabilization is a prerequisite for development. The inflation and exchange rate stabilization are the main factors to achieve this objective.

• The fall of socialist regimes was followed by the creation of a new urban (middle) class, which, to a great extent, consisted of the representatives of the old regime. The new class took advantage of the power vacuum after 1989 and governed undertaking the economic and political activity.

• The structural changes have great importance for the transition. Therefore, the macroeconomic changes, such as banking system reform, introduction of competition, etc., should be taken into consideration. Furthermore, during the transition period, the structure of economy changed, while the services sector made a contribution to the GDP generated. By contrast, industrial and agricultural sector's share (in GDP) declined.

- The economic changes have greater importance than the political ones; when economic developments take place directly and binding changes are made, no incentives are offered to politicians for further decisions with the same benefit.

- The countries of Southeastern Europe have lagged behind in terms of the transition process the Central Europe countries, which have taken radical reforms directly. The situation in Balkan economies improved in the second half of the 1990s. Therefore, during the period 2004-2005, in most countries the GDP reached the levels attained in 1989, while consistent perspectives of future development seem to be clear.

Moreover, the benefits of EU membership were more evident for Bulgaria and Romania. In both countries the credit rating was upgraded, while, at the same time, their banking system was rendered more solvent and well-supervised.

6. BULGARIA AND FOREIGN DIRECT INVESTMENT IN 2011 AND 2012

The benefits of E.U. membership

The benefits from the E.U. entrance for Bulgaria for example on the foreign direct investment and generally the investments in the recent years of 2011 and 2012, are as follow.

Bulgaria got EUR 85 M of foreign direct investment in the first two months of 2012, according to preliminary data of the Bulgarian National Bank (BNB).

The foreign direct investment in Bulgaria in January - February 2012 amounted to EUR 84.6 M (0.2% of GDP), compared to EUR 333.2 M (0.9% of GDP) in January - February 2011.

Bulgaria's attracted Equity Capital (acquisition/disposal of shares and equities in cash and contributions in kind by non-residents in/from the capital and reserves of Bulgarian enterprises and receipts/payments from/for real estate deals in the country) for January - February 2012 amounted to EUR 86.5 M.

It decreased by EUR 27.1 M compared to that attracted in the same period of 2011 (EUR 113.6 M), the central bank's data shows.

Bulgaria's receipts from real estate investments of non-residents amounted to EUR 32.7 M, compared to EUR 16.9 M attracted in January - February 2011.

The other capital, net (the change in the net liabilities of the direct investment enterprise to the direct investor on financial loans, suppliers' credits and debt securities) was negative, amounting to EUR 19.8 M in January - February 2011, compared to a positive other capital, net of EUR 203 M in January - February 2011.

Based on preliminary data on profit/loss, the Reinvested Earnings (the share of non-residents in the undistributed earnings/ loss of the enterprise) in January - February 2012 were estimated at EUR 17.8 M, against EUR 16.6 M in the same period of 2011.

By country, the largest direct investments in Bulgaria for January - February 2012 were those of the Netherlands (EUR 25.4 M), South Korea (EUR 16.6 M) and Russia (EUR 13.1 M).

The largest negative flows from Bulgaria for the period were towards UK (EUR -9.3 M) and Sweden (EUR -7.6 M) mainly due to net payments on intercompany credits in accordance with the loan repayment schedules of enterprises, BNB explained.

According to preliminary data in January - February 2012 Bulgaria's direct investment abroad amounted to EUR 17.2 M, compared to EUR 33.9 M in January - February 2011.

Foreign Direct Investment
January - February
(2011 and 2012)
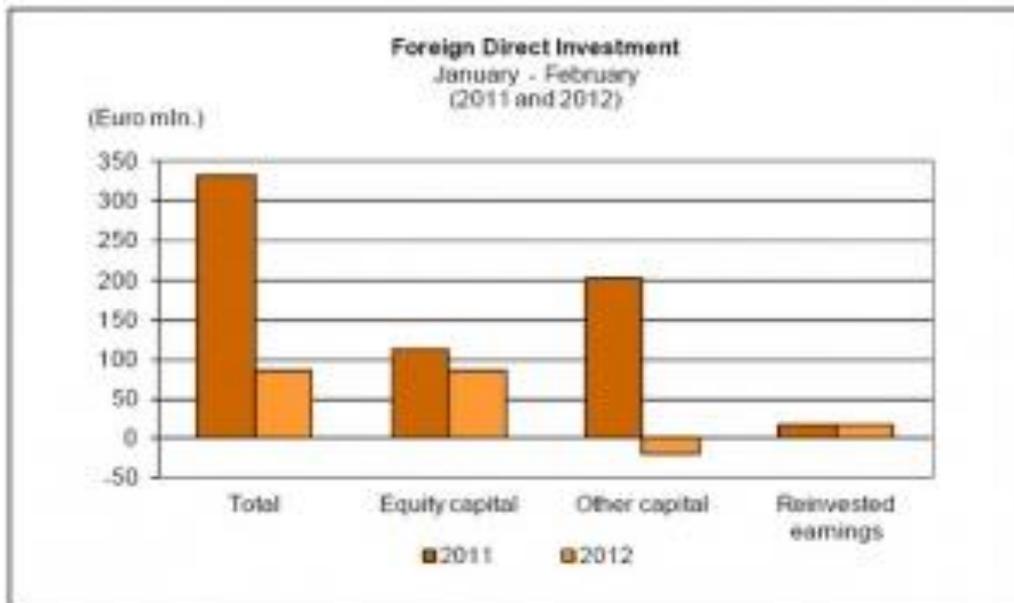
Bulgaria attracted a total of EUR 37 B in foreign direct investment in 2001-2011, according to data from the "Investors of the Decade" Survey of Novinite.com (Sofia News Agency) and Novinite.bg.

This makes 2001-2011 the most successful decade in Bulgaria's history ever in terms of attracting FDI.

Final data of the Bulgarian National Bank and the InvestBulgaria Agency shows that in 2001-2010, Bulgaria's total FDI reached EUR 35.7 B.

In the first three quarters of 2011, Bulgaria FDI was estimated at EUR 535 M, with the last quarter expected to boost the 2011 total to about EUR 1 B, bringing the decade's FDI figure to appr. EUR 37 B. 2007 set a record in Bulgarian history with a FDI peak of EUR 9.05 B.

Foreign investment is very dependent on the situation in one's home country – if your own economy is facing difficulties, it can hardly be expected that you would be thinking of new foreign investments.

FDI Inflow
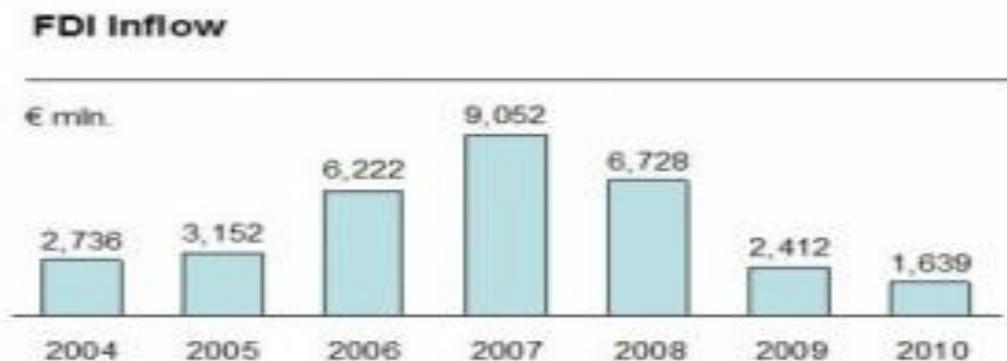
EN
http://www.bulgariabusinessup.com/static.php?content_id=8

7. CONCLUSIONS

After the centrally planned system designated privatization as a main component of economic transformation. Similarly, for the success of the transition, the following conditions are set out Pournarakis E., 2004, International Economic Relations, Pournarakis edition.):

The role of prices established.   The existence of liberalization of trade

The monetary system should be adapted to the market

To develop competition in a transition economy, privatization, restructuring and creation of new firms should take place. The term privatization, besides the selling or leasing of public property, implies the abandonment of any control over all units of the economy, as well as the abandonment of the state monopoly (Bitzenis, 2003a).

At the beginning of the transition, more than 80% of property in Bulgaria was owned by the state, and the cooperative ownership had turned into a variety of state ownership. Although Bulgaria started its transition and liberalization of prices earlier than other Central and Eastern Europe countries, the actual privatization process started later. The relevant legislation for mergers provided the guidelines for the management of converted companies, and then it was covered by Law on privatizations, adopted in 1992, regulating the privatizations of state enterprises (Bitzenis, 2003a).

Although Bulgaria chose a fast way to privatizations in 1992, the results for the period 1992-2002 presented a slight improvement, despite the incentives offered by the World Bank.

The benefits from the E.U. entrance for Bulgaria for example on the foreign direct investment and generally the investments in the recent years

The privatization in Bulgaria actually started in 1993 with the proclamation of sale of 3,485 state and municipal enterprises. However, only 2,396 enterprises of minor importance and capacity were privatized until 1996 (Karafotakis, E.I., (1999), "TheBalkan economies in the early stage of transition during the period 1990-1996", Scientific Library, Kritiki Publications, Athens).

In Bulgaria privatization is carried out based on three methods: privatization by cash, massive privatization and property restitution to private persons. In general, the privatization process has been significantly delayed as a result of government practice, currency crisis and delaying tactic exercised by the directors of large units (Karafotakis, 1999).

During the second stage, the privatizations started in 1997 inBulgaria, under pressure from the International Monetary Fund (IMF), which tries to reduce The economic changes have greater importance than the political ones; when economic developments take place directly and binding changes are made, no incentives are offered to politicians for further decisions with the same benefit.

The countries of Southeastern Europe have lagged behind in terms of the transition process the Central Europe countries, which have taken radical reforms directly. The situation in Balkan economies improved in the second half of the 1990s. Therefore, during the period 2004-2005, in most countries the GDP reached the levels attained in 1989, while consistent perspectives of future development seem to be clear.

Moreover, the benefits of EU membership were more evident for Bulgaria and Romania. In both countries the credit rating was upgraded, while, at the same time, their banking system was rendered more solvent and well-supervised.

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COULD INWARD PROCESSING ATTRACT INVESTORS IN ALBANIA?

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ABSTRACT

Globalization and its effects have attracted the attention of researchers, who assess the possibility of international fragmentation. This means the production process should be shared and realized in several components and in different countries. This process affects positively international trade and leads to faster globalization. The statistics reveal that almost in all Western Balkan countries, exports of finished goods or semi-finished goods (SFG), which are subject of inward processing, represent a considerable share in the foreign trade volume, which in some cases exceed 50% of total exports of the country. However, for small countries is more difficult to attract multinational companies which produce, utilizing outward processing and to compete with outsized countries with cheap labor cost. These large manufacturing multinational companies have concentrated their outward activities in the countries of East Asia and Africa due to low costs of labor, despite the geographical distance of these countries.

A detailed analysis of inward processing exports of Albania over the last years will be presented in this paper, with the main focus on categories of goods, their trade volume and destination countries of exported goods that are processed in Albania, concluding in the prevailing trend.

The paper also aims to analyze the investment environment in Albania and the key issues facing the business that operates in inward processing. The results of data analysis and the main findings will be presented and discussed in the concluding part of the paper.

1. INTRODUCTION

Globalization and its effects have attracted the attention of researchers, who assess the possibility of international fragmentation that means sharing the production process in several components, which can be realized in different

countries. This process affects positively international trade and leads to faster globalization. The statistics reveal that almost in all Western Balkan countries, exports of finished goods or semi-finished goods (SFG), which are subject of inward processing, represent a considerable share in the foreign trade volume, that in some cases exceed 50% of total exports of the country. However, for small countries is more difficult to attract multinational companies with the aim of producing and utilizing outward processing in order to compete with outsized countries with cheap labour cost. These large manufacturing multinational companies have concentrated their outward activities in South East Asia and Africa countries due to low costs of labour, despite the geographical distance and shipping costs from these countries.

A detailed analysis of inward processing exports of Albania over the last years will be presented in this paper, with the main focus in categories of goods, their trade volume, originated countries of imported goods for inward processing in Albania, concluding in the prevailing trend. Data used for analyzing the inward processed goods in Albania are taken from the database of Albanian Customs, Institute of Statistics in Albania (INSTAT) and World Bank. These data take in consideration and analyze the period of time between 2006 and 2011, given that the installation of the new automated system (*Asycuda++*) in the Albanian customs in late 2005. This system enables the accurateness of data provided.

This short study also aims to analyze investment background in Albanian economy and key issues that business which operates in inward processing, encounters. The results of data analysis and the main findings will be presented and discussed in the concluding part of this paper.

2.1 DO HOST COUNTRIES BENEFIT FROM INWARD PROCESSING INDUSTRY?

The integration process of the world's economies as a result of the rapid globalization has increasingly attracted the attention of researchers. The international fragmentation of production has become an important form of economic integration, whereby the production activities are segmented and spread over an international network of production locations across borders. This fragmentation is mostly based on the argument of differenced labour costs, factor prices and geographic approximation.

The rising integration of world markets has brought with it a disintegration of the production process, in which manufacturing or services activities completed abroad are combined with those performed at home (Feenstra 1998). Materials and components produced in one country may cross the national borders in order to be subject of fabrication, assembly, or other processing. Thus, the countries are tied in a vertical trade chain of intermediate goods, because of their specialization in different stages of the production process, due to cost factor or other local advantages (Borga & Zeile 2004).

The trade evidence on textile and garment of the Balkan countries point out the importance of the exported intermediate goods and finished goods, which has been processed in these countries, that affects positively the countries' trade growth and therefore the economic performance. In order to expand their exports, the Balkan countries should follow favourable policies toward foreign direct investments, related to the reduction of obstacles, requirements, restrictions and introduction of incentives for multinational companies.

The manufacturing multinational companies may help the host countries to boost their manufactured exports. The host countries can take advantages on entering the world markets easily, because the foreign multinational companies ensure the link to the final buyers and have experience in international marketing, distribution, and bring new technologies to them (host countries). The multinational companies may build also the transfer channels for knowledge and technology diffusion from foreign multinationals to local country firms.

The effects of multinational companies on host countries can be classified as direct and indirect effects, wherein the direct effects refer to exports from the host countries by the multinational companies affiliates themselves. The indirect effects are related to the impact of the multinational companies on the export activities of the host country firms. Such indirect effects affect the economy welfare by rising exports, government revenue, tax collection and positive influence in terms of trade and the balance of payments (Blomström 1990).

According to (Helleiner 1973) exports and multinational companies' activities can be classified into four different categories according to production characteristics:

    I.   *Local processing of raw materials;*

II.   *Alteration of import - substituting industry to exporting;*

III.   *New labour-intensive final product exports; and*

IV.   *Labour-intensive processes and component specialization within vertically integrated international industries.*

The inward processed exports of Albania, which are in focus of this study fall under the two last categories. Usually, firms in developed European countries seek out manufacturers in East countries like Albania and bring them under contract as suppliers. The Albanian manufacturing companies benefit from access to foreign markets and this may permit them to expand output and achieve economies of scale.

In general, there are many opportunities for less developed countries as exporter of new labour-intensive final products, such as textiles, garment, and other consumer goods. These countries can be noteworthy exporters even without the help from foreign firms. However, the multinational companies plays an important role in this category of exports, helping firms in host countries in setting up the distribution network, keeping in touch with the rapid change in consumer tastes, mastering the technicalities of industrial norms and safety standards and building up a new product image. The design, packaging, distribution, and servicing of the products are of great importance and the lack of such skills makes up a key barrier for less developed country manufacturing companies to enter toward world markets.

The exports of labour-intensive processes and components can be considered as intrafirm trade, but most of them are transactions between multinational companies and domestic firms in less developed countries. This type of production is often reliant on imports of raw materials and intermediate goods; hence it is not obvious that net earnings of foreign exchange will be significant. The main benefits from export processing are instead related to increased employment, skills, wages, and taxes, at least in the short run.

It should be considered that the parent companies, who orders intermediate goods, can change the production process, without necessarily taking into account the interest of host countries. This may happen as a result of changes in the costs of production, the perception of risks, or the policy environment in different host countries (Blomström 1996).

In his survey of the empirical literature on international R&D spillovers Mohnen (1996) identified the fact that foreign R&D contributes to productivity growth more in small countries than in large countries (empirically tested by Mohnen). Later through econometric estimates by Pottelberg with the focus study on a sample comprised of the U.S., Japan, and eleven European countries.

However, according to (Blomström & Kokko, 2003) the potential spillover benefits are realized only if local firms have the ability and motivation to invest in absorbing foreign technologies and skills. To motivate subsidization of foreign investment, it is therefore necessary, at the same time, to support learning and investment in local firms as well.

The benefits take the form of various types of externalities or spillovers. For instance, local firms may be able to improve their productivity as a result of forward or backward linkages with multinational companies' affiliates; they may imitate multinational companies technologies, or hire workers trained by them. The increase in competition that occurs as a result of foreign entry may also be considered a benefit, in particular if it forces local firms to introduce new technology and work harder.

The well-functioning of inward processing regime is of great importance for inward processed exports. It provides relief on customs duty of imported non-domestic goods, which are processed in the country and then exported/ re-exported. The regime provides relief from customs duty, VAT, antidumping duty, countervailing duty and excise duties. There are **two systems of duty relief**, suspension system and drawback system. In both cases there must be an intention to re-export/export the obtained compensating products from the country. Goods must be processed within a certain period and records must be kept for all operations carried out at that time.

In the suspension system import duties are suspended when the goods are entered under inward processing regime to the country. This system is likely to be more suitable, if the goods manufactured are planned for re-export, or transfer them to another inward processing regime suspension authorization holder. If a part of the imported goods is not planned to be re-exported, it should be entered for free circulation with full payment of import duties.

If the goods are imported under the drawback system, the import duties are paid when the goods are entered to inward processing regime. The import duties may be claimed back only if the goods or products are re-exported,

or transferred to an IPR suspension authorization holder. This system usually is suitable in the case that is not certain how much of the imported goods will be re-exported.

Considering that almost all imported goods, which are subject for inward processing in Albania, are planned to be re-exported, the import has been realized under the suspension system. The companies should apply for an authorization, which enables them to import raw materials for production process without payment of customs duties, VAT, or other applicable taxes, depending on the type of goods.

The main positive impacts of inward processing industry for the exporting countries can be summarized as follows:

- *Expansion of the domestic export industry with positive effects on the trade balance and the balance of payments;*
- *Creation of jobs;*
- *Training of technical and managerial staff with modern management and organizational know-how;*
- *Production and process technology acquisition;*
- *FDI can help to channel capital into industries that have the potential to compete internationally, and the global linkages of multinational companies can facilitate their access to foreign markets.*
- *Promote exports;*
- *Advantages in entering world markets, such as established global marketing networks;*
- *Multinational companies also brings in, new technologies that may be diffused among host country firms, making them more competitive abroad*
- *Technology transfers and spillovers of R&D and knowledge;*
- *Positive impact on employment, trade, growth rate, welfare etc.*

2.2 ALBANIAN GARMENT INDUSTRY

Albania is a country with a long tradition in textile and garment production industry. Until 1990s this sector represented one of the strongest and potential sectors of the economy. The system was organized on state-based ownership companies with a high number of qualified workers, where the experience and handcrafting tradition were used. Operating under the conditions of a centralized economy, the industry handled the entire chain of production from the raw materials to the final product. A considerable amount of the raw material was produced locally. The production included a wide variety of value added chain products starting with raw materials (fibres) up to final products. Due to the political and economic transformations of the 1990's, state factories were privatized and both the function of the textile industry and the philosophy of production were subject of substantial changes. In the last 20 years Albanian textile industry is not handling any local raw materials; the entire needed amount is imported.

The manufacturing industry of clothing and shoes is focused on the inward processing regime, where the raw materials and the semi finished goods are imported, processed and then re-exported. After 1990's hundreds of factories have been producing clothes and shoes for the European market under the inward processing regime, even for the well-known brands, such as Dolce Gabana, Nike, Miss Sixty, Pierre Cardin, etc. However, the relationship between the Albanian manufacturing companies with multinational companies and distribution channels is relatively weak. It needs to be underlined that there is a lack of national brands in this manufacturing sector in Albania.

The manufacturing industry and the export of garment products and footwear represent a key factor in the economic development in Albania. The statistics show that in 2011, the main trade partner of Albania remains the EU with 72.5% of total Albanian exports and 64.1% of total imports.

The analysis shows that inward processed export volume accounted for almost 2/3 of the total exports until 2009 (see Figure 1). In order to understand the relationship between the volume of inward processed export versus total export during the last six years, we have gathered and analyzed a series of export data. The 2009 crisis is reflected in the two following years (2010 and 2011), where it can be seen that the export of inward processed goods shows a slight increase in figures. Despite the positive trend of inward processed goods export in 2011, data analysis presents a declining trend in their share on total exports, accounting only for 50% of total export. This can be argued by the fact that during this year the export of electricity, crude oil and other minerals has increased substantially, thus causing the increase of the total exports volume, as shown in Figure 1. Albania's main industries are food processing, textiles and clothing, lumber, oil, cement, chemicals, mining, basic metals and hydropower.

Figure 1. Inward processed export versus total export in Albania during the years 2006-2011
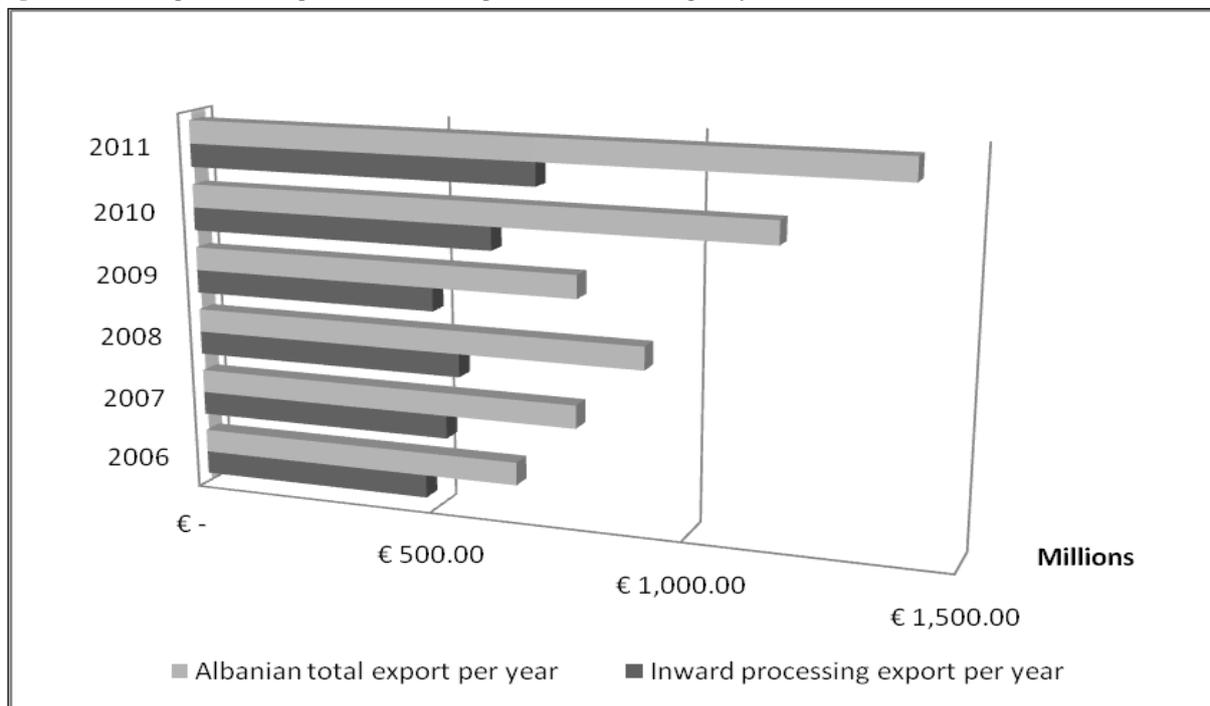
Source: General Directorate of Albanian Customs

Figure 2 represents the volume of shoes and garment export versus inward total processed export for the period of time 2006-2011. As shown in Figure 2, the export of garment and footwear accounts for about 64% of the total export of inward processed goods. This manufacturing sector still remains the most important part of the Albanian industry.

Figure 2. Albanian shoes and garment export versus inward total processed export during 2006-2011

■ Total export of inward processed goods
■ Shoes & Garment inward processed export
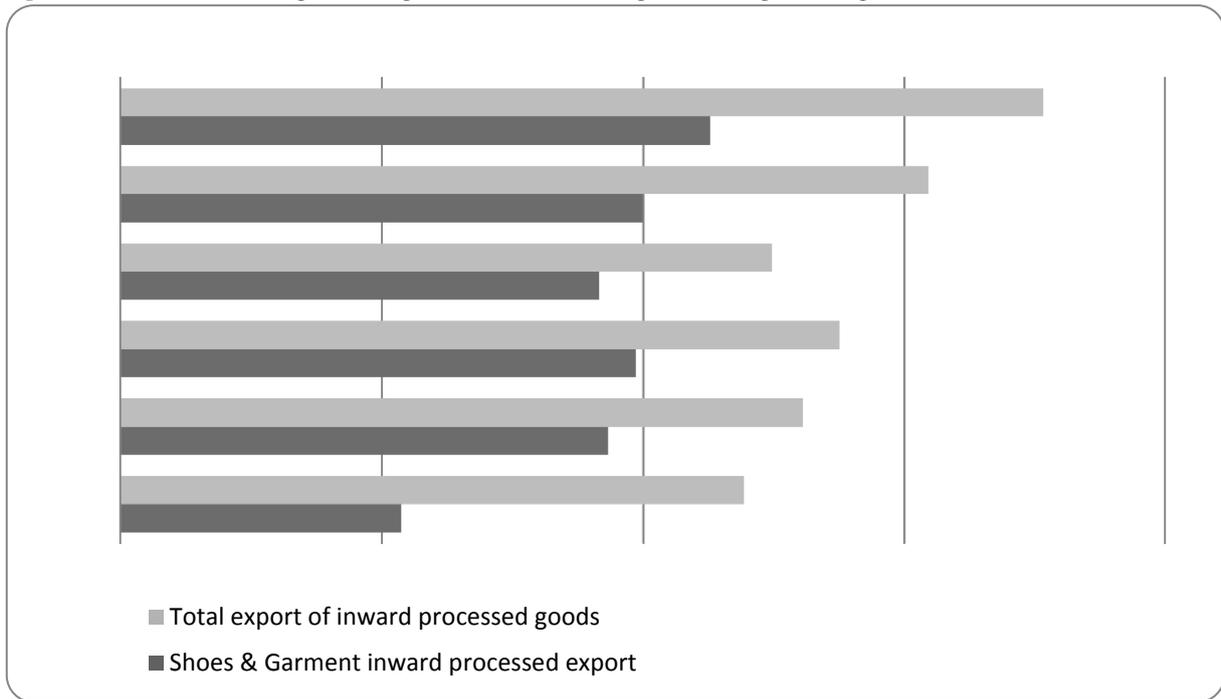
Source: General Directorate of Albanian Customs

Albania exports almost exclusively and especially to bounded EU countries. In 2011 the main destinations were almost entirely European, and the majority of Albanian garment and footwear processed exports were destined to Western European countries. The main three destinations in 2011 were Italy, Germany and Greece with 84%, 6% and 5% respectively. Altogether, they represent 95% of total Albanian garment and footwear exports. Many Italian retailers and clothing designers and brokers have taken advantage of the geographic proximity and low labour costs of the Albanian garment manufacturing industry as well as the fact that many Albanians are fluent in Italian.

It should be also noted that the number of products in the export portfolio of Albania is rather small, making it not very diversified and thus vulnerable. Furthermore, the profit does not remain within the country, especially in the cases of foreign investments, due to a lack of fiscal incentives and economic policies.
The garment industry (oriented towards garment products, tapestry, rugs and preliminary refinement textile natural fibres) and the shoes industry are the leading sectors in the Albanian industry in terms of employment, with more than 300 garment and shoe companies operating in the country.

Data taken by General Directorate of Albanian Customs show that the number of exporting companies of garment and shoes has decreased in 2009 and 2010, as a result of the negative impact of the global crisis, and increased slightly in 2011. However, the import-export levels have had a tendency to increase, as shown in Figure 3. In this aspect it is important to emphasize the positive commercial balance of this industry.

Figure 3. Albanian shoes and garment export trend in years
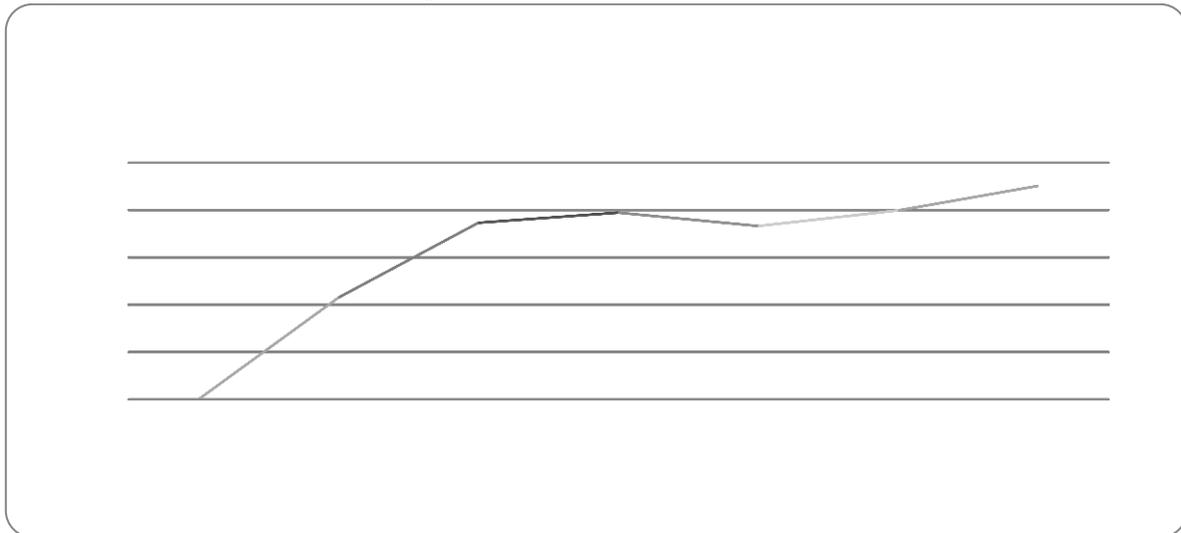
Source: General Directorate of Albanian Customs

2.3 INVESTMENT ENVIRONMENT

Albania is gradually accumulating a consistent history of the economic expansion based on the export increase and on a low and stable inflation. The low inflation is a clear signal of a secure environment for foreign investment and the trading companies wish a more secure environment where they can operate. The low inflation, increasing gross yearly income show that Albania can offer the economic stability needed from the foreign investors. Albania is an affirmed commercial partner country. 72.5% of the Albanian exports go to the European countries and referring to that Albania should continuously meet the commercial EU models, which already have been met. Furthermore, Albania represents an entrance toward the free trade zone in Balkan.

According to the World Bank to start up a new business in Albania needs a few more procedures compared to the average steps in Europe, while the work flexibility is equal to that in many other countries in EU and Balkan region. Albania has made it easier and less costly for companies to pay taxes by amending several laws, reducing social security contributions and introducing electronic filing and payment. One stop shop business registration has been applying successfully by the National Register Centre (NRC). Foreign companies are allowed 100% ownership in Albania and the country is ranked 3rd in the world for protecting investor's needs.

There are many foreign investors operating in the garment manufacturing sector in Albania. They are mostly located in Italy, Greece, and Germany. The foreign investments in the garment sector are positively influenced by the geographic position of Albania because of its access with other Balkan countries and other Western European countries such as Italy and Greece. Albania is an excellent gate between western European countries and Balkan markets. This attractive geographical position favours the cost and the time of transport.

A strong comparative advantage is the fact that the wages and relative costs are lower then in the other neighbour countries. The working labour force is qualified, well experienced and with good skills compared to its prices, but there is a lack of successful managers. The management staff is composed of engineers, production managers, financial persons and selling managers who, because of the nature of production, are more focused on production and investment and not on market research, fashion trends and demands, nor on laboratory testing and research work.

The timely adoption of the working force to the new technology is also one of the competitive most important advantages of the clothing sector and that puts it among three most important and strategic sectors of the manufacturing industry. The investors could benefit from the low wages that are still competitive comparing to the countries in the region. The increase of the human capacities in this industry will allow the increase of the independence of the Albanian enterprises and the orientation of the production for the home market.

However, the garment industry in Albania operates mostly with ready-made patterns coming from the partner European countries. There is a lack of investment on research, development, innovation and creativity, and

also a lack of vocational and professional training programs for the workers and specialists in this sector of industry.

Foreign investors can have agreements and contracts with Albanian sub contractors that enable an extra profit because of the lower taxes and the import of materials without customs duties under the inward processing regime, as well as from the export of the finished goods.

It should be noted that according to Doing Business Report, in the last two years Albania has shown progress in terms of lower time of import, time of export and also lower import/export costs. The garment and footwear sector also benefit from a favourable tax treatment (income tax 10% and corporate tax 10%). Furthermore, there is a relief from customs duties on imported equipments and machineries for production.

The work premises in the garment production companies include all the necessary work environment and area for production and administration. The water and energy costs are also competitive with the other regional countries. On the other hand, it should be mentioned, that the industrial premises in Albania are slightly more expensive then in other Balkan countries. The manufacturing buildings in some cases are state property and the government offers rent agreements based on the number of the working posts that the activity will create.

SWOT analysis pro-s and con-s for foreign investments

<u>Strengths</u>	<u>Weaknesses</u>
Confirmed data for the success of the foreign investors	Relatively low level of new investments in mentioned industry sector
Favourable geographic position with EU countries therefore low shipping costs and timing.	Difficulties in finding a structure/facilities
Enhanced connectivity in the term of transport means.	Fragile financial services and legal framework enforcement.
Favourable customs handling for the import of the raw materials (under the inward processing regime) and manufacturing machines without additional taxes	Processors' might not easily sell or export to other countries
Good language skills	Fluctuation of working force
Flexible, well experienced young working force	Lack of trainings, qualifications, experience.
Competitive working conditions	Production with ready-made patterns.
Access to the Albanian subcontractors during the highest work volume	Inexperienced managerial and technical labour force

Opportunities	**Threats**
Enhanced collaboration with the Italian and Greek investors	Competition with China and South East Asian countries will influence in many producers decisions
High level respective government subsidies to Italian and Greek entrepreneurs	Foreign producers operating in Albania might close or reduce the production due to crises effects in EU
Government and foreign aid funds sustaining small and medium size enterprises	Strong competition with bounded counties in this sector
Favourable geographic position with EU countries	Unconstructive recent political situation in Albania
Favourable situation in inward processing sector for Albania due to Arab spring turmoil	

3. CONCLUSIONS

Albanian garment and footwear manufacturing sectors show an increasing interest in the European market. The garment sector in Albania continuously is being attractive and interesting to foreign investors, who invest in the country either directly or through subcontractors. Knowing this tendency, having a proper expertise, meeting the EU standards and having high quality, Albania has good chances to benefit from the opportunities offered by the EU, especially in those countries with very high consuming demands and incomes. What makes Albania a potential investment country is its good geographic position which enables fast delivery, as well as having a low labour cost and knowing the competitors. The challenge remains the foundation of the Albanian brand names and their promotion.

Globalization is putting all the countries in front of difficult solutions, due to the increasing interest for investments in countries offering lower production cost. The main problem for Albania is the tendency of the investors and well known brand names producers being attracted more and more by countries offering lower cost of production then Albania and other countries of Central Eastern European countries. The Western European countries strategy has started to expand and develop the textile industry in the third countries like India and Africa that offer more, despite the geographic advantage that Albania offers.

An important factor remains the international standards and quality requirements in the multinational companies and their branches in Albania. These standards need to be improved, so that the Albanian companies in this sector can fulfil further the EU standard requirements. Reconstruction of the textile and garment sector towards the infrastructure of the machines and equipment is needed. At the same time, trainings and specialisations should be offered to the human resources in this sector, making possible producing high quality products in Albania. Setting up standards could lead to the reduction of the technical obstacles and there must be more efforts in this process. Trainings on production management, planning and control, as well as tailoring courses for garment production needs, will secure the necessary human resources for the Albanian industry of garment production. It also enables the transfer of technology and will increase the competition in the home and foreign markets.

The challenge is investment in scientific research through academic and research centres in technology, which will provide advanced and modern technology. It is notable to increase the human capacities in the quality management issues within the domestic garment production industry, so that it could offer quality management services to the domestic textile industry regarding management, procedures, and certification of Albanian products, that is of a very high interest for the domestic producers and foreign investments.

The introduction of the automation systems on design and manufacturing process to the highest level of employees will ensure the opportunity to use these systems in the textile/garment industry in Albania and to be more competitive in the international market.

The collaboration between the garment industry and academic institutions has high importance in order to develop technology transfer activities and trainings especially in quality management, quick response, quality control, fashion design, garment production, sewing engineering, and computer-aided design and manufacturing software systems.

The scientific research capacities in the field of textile technology at the textile and fashion departments and academic institutions should be increased with a common interest in quality control of textile materials, study of technological potential of domestic natural raw materials and computerisation in garment domestic industry. The improvement of materials and human capacities of the textile laboratories in Albania, would improve their abilities in quality control of textile materials and products for the Albanian textile industry and it will help to promote the use of Albanian textile raw materials.

Albania is missing a full database for technological potential and characteristics of domestic natural fibres. One of the tasks in the future for the institutions and universities is to complete such projects in order to have a real situation of the potential that Albania has in the textile sector. Research and development as well as the set up of a broad informative database in the industrial potential of Albanian raw materials, possible industrial utilisation, and opportunities of marketing them as raw materials are necessary. It will stimulate a better orientation in race selection from the wool production point of view and a wider possible cultivation of flax and silk in Albania. It will also stimulate the export of those raw materials towards third countries.

The multinational companies have focused the production of high tech products in Asian countries, such as China, Korea, etc. In order for Albania to be attractive for these investors is to expand the production range of inward processed goods, so that most advanced technologies in producing high tech products with a high value in use should be carried out.

Any improvements in the textile and garment industry will have a significant impact on economy of Albania as well as on the country's stability.

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THE PROGRESS OF THE BALKAN ECONOMIES FROM THE CENTRAL PLANNED SYSTEM ECONOMY TO THE MARKET ECONOMY: A COMPARATIVE ANALYSIS OF THE RELATIVE TRANSITION CRITERIA.

Anastasios Karasavvoglou, Pantelis Kallias, Christoforos Chatzivasileiou

ABSTRACT

This article presents a comparative analysis of the transition path of the Balkan economies from the central planned system economy to the market economy according to several criteria which the fulfillment degree defined the completion degree of transition. It also describes the transition path of 6 under consideration Balkan economies with particular emphasis on the fulfillment path of selected criteria. The most important are, the price liberalization, privatization process, restructuring the business environment, the degree of function of competitive forces, the reform of the banking system and the macroeconomic environment. However special mention is made on the parallel path of the 6 economies to their entrance in the European Union.

The conclusion of the transition analysis indicates that the transition process in some countries was fulfilled with rapid rate whereas it was delayed in other countries. Nonetheless, it seems that the essential operations of the market economy were implemented to a satisfactory level in the Balkan economies.

KEYWORDS

Transition path, central planned system economy, Balkan economies.

JEL Classification

F59, P3, P30

1. Introduction

This is the Balkans, no place to mess around, sings the Greek troubadour in his effort to emphasize the historical, political and cultural inimitability of the region.

Since 1989, this area came across enormous changes that no other region in the world faced after the end of the WWII. Civil War, NATO's invasion, borders' changes, conflicts between minorities and diverse ethnic groups, new national states, EU memberships are just few to mention from the vast conversion this part of Europe stumbled upon the last two decades having as a consequence the formation of the modern Balkans.

Under these circumstances, among a rather unstable environment, the Balkan economies launched the transition from the central planned economy system to the market economy system.

The Balkan economies managed to survive and to overcome their problems, achieving an adequate functional level of market economy. To all the Balkan countries, the transition path was always and still remains interweave into the EU.

This paper asses the transition process that the Balkan economies tracked, with the use of specific criteria as applied by the European Bank for Reconstruction and Development (E.B.R.D.). These criteria estimate the rapprochement of their economies to the market economy. The outcome demonstrates either the progress or the lagging of the Balkan economies, in relation to their attempts to adopt and apply the open market's basic principles.

2. Methodological Approach

The transition criteria used in this paper to evaluate and to characterize an economy as a functional one are as follows:

a) GDP's share produced by the private sector

b) the prize liberalization

c) the exchange market and trade liberalization

d) the level of privatization of the economy, separating in small and large scale privatization process

e) the business environment restructuring

f) the competition policy

g) the reformation of the banking sector

The comparative analysis that follows, analyzes by criterion the significance, the characteristics and the exact methodology of the degree of achievement. Most of the tables are formed according to the estimations of the E.B.R.D. using practical reasons of a standard score from 1 to +4 that match the fulfillment of the transition criterion.

3. The Balkan Economies and the transition criteria

3.1. The GDP's share % produced by the private sector

There is no certain percentage level in the international bibliography indicating at which point an economy can be characterized as a functional one. In the present paper, a relative equilibrium of 60% - 40% even 70% - 30% of private -public sector is considered as logical and viable, so that the market regulations operate properly and in parallel the state is able to control the basic economic sectors by practicing social politic on the base of economic criteria and without provoking deficit.

Table 1 demonstrates that among all the Balkan economies, Albania was the first one that in 1996 reached a 75% of GPD solely produced by the private sector. Bulgaria reached that level by 2003. This is quite odd if we consider that Albania is the most isolated economy of the region, but it is mainly a rural economy without any particular industrial production, managing however to privatize 92% of their rural fields by 1992.

Another interesting point of table 1 is the 70% of Romania and the respective 75% of Bulgaria in 2004. Until 2004 these two countries had accomplished most of the EU transition criteria. This indicates that the E.U. does not approve the entry of an economy according to the GDP's % share produced by their private sector. In other words an economy can be functional without having any great GDP's % share produced by the private sector.

In regards to the economies of Bosnia-Herzegovina, Montenegro, FYROM and Serbia, their respective percentages remain on a sustainable level pointing out that under certain conditions there could be a system formation combining both public and private sector in benefit to the wellbeing of their economies.

Table 1. The GDP's share % of produced by the private sector

	Albania	Bosnia - Herzegovina	Bulgaria	Montenegro	F.Y.R.O.M	Romania	Serbia
1991	5	na	20	na	15	25	na
1992	10	na	25	na	15	25	na
1993	40	na	35	na	35	35	na
1994	50	na	40	na	35	40	na
1995	60	na	50	na	40	45	na
1996	75	na	55	na	50	55	na
1997	75	na	60	na	50	60	na
1998	75	35	65	na	55	60	na
1999	75	35	70	na	55	60	na
2000	75	35	70	na	55	60	40
2001	75	40	70	na	60	65	40
2002	75	45	70	na	60	65	40
2003	75	50	75	na	60	65	45
2004	75	50	75	na	65	70	50
2005	75	55	75	na	65	70	55
2006	75	55	75	65	65	70	55
2007	75	60	75	65	65	70	55
2008	75	60	75	65	70	65	60
2009	75	60	75	65	70	70	60
2010	75	60	75	65	70	70	60

European Bank for Reconstruction and Development (EBRD), Transition Report 1998 - 2010

3.2 The price liberalization

Table 2. Price Liberalization

	Albania	BosniaHerzegovina	Bulgaria	Montenegro	F.Y.R.O.M.	Romania	Serbia
1991	1	na	3	na	3	2	na
1992	2	na	3	na	3	2	na
1993	3	na	3	na	3	3	na
1994	3	na	3	na	3	3	na
1995	3	na	2	na	3	3	na
1996	3	na	2	na	3	3	na
1997	3	na	3	na	3	3	na
1998	3	3	3	na	3	3	na
1999	3	3	3	na	3	3	na
2000	3	3	3	na	3	3	na
2001	3	3	3	na	3	+3	3
2002	3	3	3	na	3	+3	3
2003	-4	4	+4	na	4	+4	4
2004	+4	4	+4	na	4	+4	4
2005	+4	4	+4	na	4	+4	4
2006	+4	4	+4	4	+4	+4	4
2007	+4	4	+4	4	+4	+4	4
2008	+4	4	+4	4	+4	+4	4
2009	+4	4	+4	4	+4	+4	4
2010	+4	4	+4	4	+4	+4	4

European Bank for Reconstruction and Development (EBRD), Transition Report 1998 - 2010

As we examine table 2, in1991, inBulgaria and F.Y.R.O.M., most of the product prices were not controlled by the government due to the "shock therapy" policy which was applied in

these countries. The result was the tremendous inflation in both countries in 1992 (82 % in Bulgaria and 1666 % in F.Y.RO.M.). Nevertheless in 1999 Bulgaria demonstrated the most remarkable step as they eliminated restriction prices by law excluding however the prices of carbon, electric power, telephony, gas and cigarettes (E.B.D.R., 1999).

Albania and Romania reached level "3" in 1993, facing similar problems as Bulgaria and F.Y.R.O.Mdid. In 2006 Montenegro through its national independence conquers level "4", which concerns the full price liberalization.

The remarkable outcome of this table is the parallel achievement of level "4" and "+4" by all the above economies by 2003, fulfilling the price liberalization criterion regarded as the most significant to a functional market economy.

3.3 The exchange market and trade liberalization

In table 3, it is worth to mentionthe direct trade occurring in a faster rate in Albania than in the other countries. Albania had reached level "4" since 1992, while Bulgaria, F.Y.R.O.M. and Romania reached that level in 1994. The exchange market liberalization took place in Romania in 1993 by applying the double calculation system, contributing quite positive aspects to the national currency adjustment in the international markets (Karafotakis, 1999).

Bulgaria reached level "+4" in 1999, despite of being a member of the World Trade Organization (W.T.O.) since 1996. This came out due to the increments that the government imposed during the 1996-1997 crisis in the imports, a significant fact that totally disappeared through the normalization of the situation in 1999. Albania reached alike level just a year later as it became member of the W.T.O. on 8 September of 2000. Conversely, and regardless of the fact that Romania since 1995 was a full member of the WTO, the country reached level "+4" in 2004 mainly as a result of the distortions in the exchange markets. Furthermore, it's worth to mention that all the Balkan economies until 2003, except for (or apart from) Serbia, reached level "4" and "+4" at trade liberalization criterion.This designates that since 2003 the transition process was completed, according to this criterion.

Table 3. The exchange market and trade liberalization

	Albania	Bosnia - Herzegovina	Bulgaria	Montenegro	F.Y.R.O.M	Romania	Serbia
1991	1	na	3	na	3	1	na
1992	4	na	3	na	3	3	na
1993	4	na	3	na	3	3	na
1994	4	na	4	na	4	4	na
1995	4	na	4	na	4	4	na
1996	4	na	4	na	4	3	na
1997	4	na	4	na	4	4	na
1998	4	2	4	na	4	4	na
1999	4	-3	+4	na	4	4	na
2000	+4	3	+4	na	4	4	na
2001	+4	3	+4	na	4	4	3
2002	+4	3	+4	na	4	4	+3
2003	+4	-4	+4	na	+4	4	+3
2004	+4	-4	+4	na	+4	+4	+3
2005	+4	-4	+4	na	+4	+4	-4
2006	+4	-4	+4	+3	+4	+4	+3
2007	+4	-4	+4	4	+4	+4	+3
2008	+4	4	+4	4	+4	+4	-4
2009	+4	4	+4	4	+4	+4	4
2010	+4	4	+4	4	+4	+4	4

European Bank for Reconstruction and Development (EBRD), Transition Report 1998 - 2010

3.4 The small scale privatization process

The criterion of privatization, which is relative to the GDP's % share produced by the private sector, is divided in two categories: The small scale privatization process that includes

small industries, rural enterprises of low activities, and the large scale privatization process, which concerns basic segments of the economy, like energy, communications, transportation and high tension enterprises, having a lot of employees.

F.Y.R.O.M. is the first country that completed the small scale privatization process in 1994, by applying a plan which was adopted by the government and the I.M.F. (International Monetary Fund). That project concerned the privatization of more than 1000 low scale enterprises until 1995 (I.M.F., 1995). However, this fact provoked an unemployment increase, which came up to 37,7% in 1995 (E.B.D.R., 2000).

Albania was the second country to fulfill the small scale privatization process in 1995. As mentioned above, Albania managed to privatize the 92% of rural areas in 1992, while in 1993 the Office of Privatization was established (E.B.R.D., 2000). Most rural industries were low scale enterprises and therefore the program was completed faster than in the other countries.

It is impressive that Bulgaria and Romania, despite their EU membership, delayed their small scale privatization programs. Bulgaria tried to denationalize enterprises massively in 1992, however it was a total failure, as none of the 92 candidate enterprises was privatized. The privatization law in Bulgaria has changed 14 times from 1992 to 1998, signifying the major delay of the Bulgarian privatization process. About 200.000 private companies were activating in the country in 1998 that employed 45% of the total workforce, while 90% of them were small scale enterprises (Hazakis, 2000).

In 2000 Bulgaria completed the small scale privatization program, by reaching level "4", as since 1999 the law status has been stabilized and the rural areas became private at a percentage of more than 80%.

In Romania, the program that was applied by the government during 1992-1993, failed completely. In 1995 the situation changed through the Law 55/1995 and therefore Romania managed to reach level "3". The program was completed in 1999, when the rural sector was reformed through the management of the land rights.

Regarding the countries involved in the Yugoslavian conflicts,Montenegro and Serbia completed their programs in 2007 and 2006 respectively, whilst Bosnia- Herzegovina has not completed it yet.

Table 4. Small scale privatization process

	Albania	Bosnia - Herzegovina	Bulgaria	Montenegro	F.Y.R.O.M.	Romania	Serbia
1991	2	na	1	na	3	1	na
1992	2	na	1	na	3	2	na
1993	3	na	-2	na	3	2	na
1994	3	na	2	na	4	+2	na
1995	4	na	3	na	4	-3	na
1996	4	na	3	na	4	3	na
1997	4	na	3	na	4	+3	na
1998	4	2	3	na	4	+3	na
1999	4	2	+3	na	4	-4	na
2000	4	+2	-4	na	4	-4	na
2001	4	-3	-4	na	4	-4	3
2002	4	3	-4	na	4	-4	3
2003	4	3	-4	na	4	-4	3
2004	4	3	-4	na	4	-4	+3
2005	4	3	-4	na	4	-4	+3
2006	4	3	4	3	4	-4	-4
2007	4	3	4	-4	4	-4	-4
2008	4	3	4	-4	4	-4	-4
2009	4	3	4	-4	4	-4	-4
2010	4	3	4	-4	4	-4	-4

European Bank for Reconstruction and Development (EBRD), Transition Report 1998 - 2010

3.5. The large scale privatization process.

In 1996, RomaniaandF.Y.R.O.M were the firstcountries thatfulfilledthe 25 percentofthelargescaleprivatizationprogram, thus achieving thethirdlevelofE.B.R.D.'sranking. In more detail, Romania managed to gain this level as their government adopted a number of regulations (55/1995 Privatization Law, 31/1996 State Monopoly Law and 88/1996 Bank Privatization Law) that gave a boost to the entire privatization process.

The following year, Bulgaria was the next country that managed to fulfill the 25 per cent of the large scale of privatization program. Since 1996, this country along with the I.M.F cooperation preparedanactionplanofmassprivatizations, whilethelegalstatusofthestatewas fullyharmonized. ThelastamendmentofPrivatizationlawtookplacein 1998, defining a new process via the stock market. This event in combination to the stabilisation of the PrivatizationLawthat was enormously changed 13 timesuntil 1998 wasthemajorreasonthatBulgariareached in 2000thefourthlevelofE.B.R.D.'sranking, fulfilling the 50 per cent of their large scale privatization program.

Romania, in 2004, followed the large scale privatization program by fulfilling the 50 per cent of it. That was a result of a long term process and many legislation changes. The most important privatizations were the sale of the state own telecommunication company RomTelekon to O.T.E from Greece, the sale of Romania Development Bank to the French Societe General and the car industry DACIA to the Renault. The year 2004 was a milestone for Romania's economy as it reached the fourth level of E.B.R.D.'s ranking with its 75 per cent of the large scale enterprises to be held by private funds.

As it is shown in Table 5, Albania in 2009 reached the fourth level of E.B.R.D.'s ranking. It is a worth noticing that Albania reached this level during of a globally systemic financial crisis that had reduced the investments across the globe.

The remaining four countries that are under examination in this paper (Bosnia – Herzegovina, Montenegro, Serbia and F.Y.R.O.M.) reached a 50 per cent of their large scale privatization program. The main reason of this delay was the war that took place during the 1990's as well as the general unstable macroeconomic system of the last twenty years.

Table 5. Large Scale Privatization

	Albania	Bosnia - Herzegovina	Bulgaria	Montenegro	F.Y.R.O.M..	Romania	Serbia
1991	1	Na	1	na	1	-2	na
1992	1	Na	-2	na	1	-2	na
1993	1	Na	2	na	2	2	na
1994	1	Na	2	na	2	2	na
1995	2	Na	2	na	2	2	na
1996	2	Na	2	na	3	-3	na
1997	2	Na	3	na	3	-3	na
1998	2	2	3	na	3	-3	na
1999	2	2	3	na	3	-3	na
2000	2	2	-4	na	3	3	na
2001	+2	+2	-4	na	3	+3	1
2002	+2	+2	-4	na	3	+3	2
2003	+2	+2	-4	na	3	+3	+2
2004	+2	+2	4	na	+3	-4	+2
2005	3	-3	4	na	+3	-4	-3
2006	3	-3	4	+3	+3	-4	-3
2007	3	3	4	+3	+3	-4	-3
2008	+	3	4	+3	+3	-4	-3
2009	-4	3	4	3	+3	-4	-3
2010	-4	3	4	+3	+3	-4	-3

European Bank for Reconstruction and Development (EBRD), Transition Report 1998 – 2010

The most important privatizations in F.Y.R.O.M took place during 1999 and 2001. That period of time, their government sold therefinery OKTA to the Hellenic Petroleum, the Stopanska Banka to the National Bank of Greece and the Makedonski Telecommunications to the Deutsche Telekom.

3.6. Business Environment Restructuring

Thefirstcountrythatmadethe initial steptoBusinessRestructuringwas Romania. In 1990 the country adoptednewreforms under the 26/1990 lawregarding thecommercialregistry, and under the 31/1990 on business reconstruction.

Alsoin 1995 it begantoerasethe subsidies towards the loss making enterprises (Hazakis, 2000). However, in 1997, following thesuggestionof the I.M.F, Romania madeastrongereffort in order torestructurethebusinessenvironment with the use of a series government measures better known as the "100 laws" (Karafotakis, 1999).

The next country that made a significant effort was Bulgaria. In 1994 the country achievedthesecondleveloftheEBRD'srankingwhilethegovernmentadopteda certain law regarding bankruptcyinanefforttoerasethelossmakingenterprises. Additionally, the BulgarianStateestablishedthecorporategovernanceanderasedthebusinesses'subsidiesin 2003 whereas they managed to achieve thethirdlevelofEBRD'sranking. Inthemeanwhile, F.Y.R.O.M. followed aparallel path along with the above countries achieving the third level of ranking in 2006 together with Romania.

The three countries that suffered fromthewar (Serbia, Bosnia – Herzegovina, Montenegro) did not accomplish any serious steps towards business restructuring. Despite the fact that the business restructuring should have been on the top of the transition agenda, these three counties gave more emphasis on gaining government revenues from ephemeral profit through privatization rather than recreating a new business environment that would offer long term profits to their economy.

Albania followed an almost parallel path along with the above three countries however failed to erase any subsidiesfortheirenterprises as well as to establish astrong bankruptcysystemthatwouldgivenboost to the economy.

Table 6. Business Restructuring

	Albania	Bosnia - Herzegovina	Bulgaria	Montenegro	F.Y.R.O.M	Romania	Serbia
1991	1	Na	1	na	1	1	na
1992	1	Na	1	na	1	1	na
1993	1	Na	1	na	1	2	na
1994	2	Na	2	na	2	2	na
1995	2	Na	2	na	2	2	na
1996	2	Na	2	na	2	2	na
1997	2	-2	+2	na	2	2	na
1998	2	-2	+2	na	2	2	na
1999	2	-2	+2	na	2	2	na
2000	2	-2	+2	na	+2	2	na
2001	2	-2	+2	na	+2	2	1
2002	2	-2	+2	na	+2	2	2
2003	2	2	-3	na	+2	2	2
2004	2	2	-3	na	+2	2	2
2005	2	2	-3	na	+2	+2	+2
2006	+2	2	-3	2	-3	-3	+2
2007	+2	2	-3	2	-3	-3	+2
2008	+2	2	-3	2	-3	-3	+2
2009	+2	2	-3	2	-3	-3	+2
2010	+2	2	-3	2	-3	-3	+2

Source: European Bank for Reconstruction and Development (EBRD), Transition Report 1998 – 2010

3.7. Competition Policy

Bulgariawasthecountrythatshowedasignificantimprovement until 2005 towards thecompetition policy. The first step was made in 1991 by adopting the CompetitionCommission. Tenyears later, in 2001, under thesuggestionofI.M.Fand theWorldBank,theCompetitionCommissionwas stronglyempowered and tried to adopt measures in establishing a competitive environment in the country.

Nonetheless, in 2004 Bulgaria managed to achieve fulfillment of the 30th chapter of the E.U. regarding the competition policy, and in the following year their economy was characterized as a full functional competitive environment.

Romaniawasthecountrythat also reachedaquitesatisfactorylevelofcompetitiveenvironmentin2006. In 1991 thefirststepwasmadeastheir governmentadoptedthe 11/1991 CompetitionLaw, and soon after in 1996 by adopting the 21/1996 in an effort to reduce the entry limitation in the market (Hazakis, 2000).

In 2006 Romania continued its Heraclius effort by establishing asa satisfactorycompetitiveenvironment and to be characterized as a full functional economy.

Aremarkableprogressbutnot at thesame level as the above mentionedcountrieswas Albania's efforts to establish a competitive environment. In 1995 theAlbaniangovernmentbyadoptingthecompetitionlaw managed to setrulesagainst thedominantcompanies. Moreover, in 2004 the CompetitionCommission was established to minimize theentry limitations in the market.

In regards to the other three countries (Bosnia-Herzegovina, Montenegro and Serbia), they didnotmanage tomake any stablestepstowardsthe greatissueof establishing a competitive environment nor anunimpededoperationof themarketforces.

Table 7. Competition Policy

	Albania	Bosnia Herjegovina	Bulgaria	Montenegro	F.Y.R.O.M	Romania	Serbia
1991	1	Na	2	na	na	na	na
1992	1	Na	2	na	na	na	na
1993	1	Na	2	na	na	na	na
1994	1	Na	2	na	na	na	na
1995	1	Na	2	na	na	na	na
1996	-2	Na	2	na	na	na	na
1997	-2	Na	2	na	na	na	na
1998	2	1	2	na	1	2	na
1999	2	1	2	na	1	2	na
2000	-2	1	+2	na	2	+2	na
2001	-2	1	+2	na	2	+2	1
2002	-2	1	+2	na	2	+2	1
2003	-2	1	+2	na	2	+2	1
2004	2	1	+2	na	2	+2	1
2005	2	1	-3	na	2	+2	1
2006	2	-2	-3	1	2	-3	-2
2007	2	2	-3	-2	+2	-3	2
2008	2	2	3	-2	+2	-3	2
2009	2	2	3	2	+2	-3	2
2010	2	2	3	2	+2	3	+2

European Bank for Reconstruction and Development (EBRD), Transition Report 1998 – 2010

3.8 Reformation of the Banking Sector

Bulgariawasthe first countrytoestablishafullfunctionalbankingsystem mainly based on the developed countries of the European Union resulting to great variances from the other

Balkan countries in that sector. Since 2004, the country managed to harmonize its banking system according to the regulations of B.I.S. (BankforInternationalSettlements) and the international banking system standards. In 1992 this effort began by the liberalization of interest rates and continued rapidly with the privatization of the United Bulgarian Bank by the National Bank of Greece. In 1998 thewholebankingsectorwasdominatedbyfivelargestateownedbankswhichrepresentedthe 2/3 of thetotalassets of the sector. In the same year, Post Bank was privatized as 78% of its share was sold to EFG Eurobank from Greece (EBRD, 1998).

The privatization process reached its peak in ----- when the BulBank was sold to a consortium including the UniCredit and Allianz. That period of time, the privatization of Express Bank to the French Societe General was completed whereas HedrosBank was sold to the Regent Pacific Group. The privatization process of the Banking Sector was fulfilled in 2003 when with the last state owned bank DSK Bank was sold to the Hungarian owned OTP Bank (EBRD, 2003). Following this sale, foreign banks controlled approximately 84 per cent of the total bank assets in Bulgaria.

Romania was the next country that has made a significant effort to reform its banking sector, however with a delay in comparison to Bulgaria. In 1999, RomaniacarriedouttheliquidationofBancorex, whichwasamajor blowto the entire sector. Morethan 85 – 90% ofBancorex loans accumulated to $1.7 bln,wereclassifiedasnonperforming(EBRD, 2000). BancaAgricolawasthesecondlargestailingstateownedbank butunder aspecialsupervisionuntil it wasrecapitalizedby theBudgetState. The privatization of Banca Agricola in 2001, to a consortium including RalffeisenBankandRomanianAmericanFund, resulted to a new status as more than two thirds of the total assets of the banking system was in private hands and about 55 per cent was owned by foreigners (EBRD, 2001). Theprocesswascompletedin 2003 with the privatizationofDSKBankand Banca Comerciala Romana. The only remaining state owned banks were the Saving Bank andEximBank also responsible for exporting credits and guarantees for the country. These two state owned banks had a market share of no more than 1%..

Table 8. Reformation of Banking Sector

	Albania	Bosnia – Herzegovina	Bulgaria	Montenegro	F.Y.R.O.M	Romania	Serbia
1991	1	na	1	na	1	1	na
1992	1	na	-2	na	1	1	na
1993	+1	na	2	na	1	1	na
1994	2	na	2	na	1	1	na
1995	2	na	2	na	1	1	na
1996	2	na	2	na	1	1	na
1997	2	na	-3	na	1	+2	na
1998	2	2	-3	na	3	+2	na
1999	2	+2	-3	na	3	-3	na
2000	+2	+2	3	na	3	-3	na
2001	+2	+2	3	na	3	-3	1
2002	+2	+2	+3	na	3	-3	+2
2003	+2	+2	+3	na	3	-3	+2
2004	-3	-3	-4	na	-3	3	+2
2005	-3	-3	-4	na	-3	3	-3
2006	-3	-3	-4	-3	-3	3	-3
2007	-3	-3	-4	-3	-3	+3	-3
2008	3	3	-4	3	3	+3	3
2009	3	3	-4	3	3	+3	3
2010	3	3	-4	3	3	+3	3

European Bank for Reconstruction and Development (EBRD), Transition Report 1998 – 2010

Theothercountriesthattriedto establish areliablebankingsystemwereF.Y.R.O.MandAlbania. These two countries faced a banking crisis of different levels however both were based on the pyramid scheme. During 1997, in F.Y.R.O.M, a large number of savings houses that operated under the pyramid scheme were eventually forced to end their operations, including the largest

one, know as TAT, in Bitola. In 1996, inAlbaniathecollapse of the pyramid scheme causedmajorsocialdisorder.

Thedominantproblemof the bankingsectorinF.Y.R.O.Mwas the presence of a large number of Banking Institutions (23 in total) especially in a country with only2 million inhabitants where almost 50% of the total assets of the sector was held by Stopanska Banka and KomercijalnaBanka. The government tried to reform the sector in 2001 by establishing new minimum capital requirements limited to € 9M for foreign banking institutions whereas for the respective domestic banks the limit was set to € 3.5M. This resulted to the merger between Pelagoniska Banka and the Komercijalna Banka in Skopje, as well as the Teteks Banka of Tetovo and Kreditna Banka in Bitola.

However, in Albania, the collapse of the pyramid scheme has as a result their banking sector to be in a recovery process for several years. In 1998 thenonperformingloansreached a portion of over 90% ofthe entirebankingassets. In 2000 the government sold their second largest bank, the National Commercial Bank to a consortium including Kentbank (60%) of Turkey, EBRD (20%) and IFC (20%). In 2004 the Savings Bank, Albania's largest bank, was sold to Ralffeisen Group and soon after the entire banking sector came under private management.

During this long transition course, Bosnia – Herzegovina, Montenegro and Serbia made tremendous efforts to reach a satisfactory level of reforming.

Bosnia – Herzegovina started its effort in 1998 with particularly adverse conditions. In this small country 55 Banks were in operation. Thegovernmentbyraisingtheminimumcapitalrequirementstriedtoreducethat number, forcing banks to mergers.In Serbia the respective sector was facing similar problems. In 2001, 81 Banking Institution operated in the country. The key players in the banking sector were six state owned banks. However, it is worth to mention, that five from them failed thecreditstressedtestsof theCentralBank. Therecapitalizationandliquidationplanimplementedin 2002 reducedthatnumberto 33.

InMontenegro, thereform effort wasmadethroughprivatization. In 2003 the government sold the 91.5% of Montenegro Banka to Nova Ljubljaska Banka from Slovenia(EBRD, 2004). Moreover, in 2005 the privatization process was completed as PodgorickaBanka was sold toSocieteGeneral and the total states' share of the banking sector capital had fallen to 13% (EBRD, 2005). Finally, in 2006 the privatization scheme was completed (PljevaljskaBanka's and NiksickaBanka were sold) and only 5 per cent of the bank capital belonged to the state.

4. Conclusions

The above analysis demonstrates that those with the most successful transition paths were Bulgaria and Romania. The tangible proof of this observation is based on their full and equal membership of the E.U. countries. Bulgaria was the first country that fulfilled its obligations and created an economic environment following the system of market economy. Soon after, Romania followed up. Also, F.Y.R.O.M. achieved a good fulfillment level of transition path. Despiteofthetremendousnegativeconditionsofthecountry (domesticproblembetweenminorities, longtermexternalenvironmentsproblemswithGreece,Kossovo issue), F.Y.R.O.Mmanagedtoestablisha quite tolerate functional market economy.

Albania concludes the four countries group (Bulgaria, Romania, F.Y.R.O.M., Albania) characterized by theirunimpededtransitionpathsince 1989 untiltoday. The country managed very satisfactory results bearing in mind their previous condition of an undeveloped state and a lack of basic infrastructures.

The transition path of the three countries that suffered fromthewar that took place during the '90s (Serbia, Bosnia – Herzegovina, Montenegro) should be considered in a different manner. For instance, there can not be a reliable comparative analysis in comparison to the previous four countries (Bulgaria, Romania, F.Y.R.O.M. and Albania) as they faced a different time horizon of the transition process. The above four countries, as it is mentioned, performed an unimpeded transition path. However Bosnia – Herzegovina was an independence state with the present shape since 1995, Serbia since 2000 and Montenegro only since 2006. Additionally the main reason of this unequal comparison was the direct war consequences that these countries had suffered for years and are still obvious.

Nonetheless Montenegro performed the most remarkable transition path that also excels among almost all transition criteria. The two countries that suffered more from the war showed the greatest delay of this transition. However, theirpathto themarketeconomy can be compared to a miracle. The very high growth rates achieved by both countries in the middle of the first decade of 2000 showed a tremendous dynamic in their effort in establishing a full functional market economy.

Finally, there should be a specific reference in regards to the sacrifices of the Balkan people who were treated as being a neoliberal experiment. Unfortunately, theideologicalfundamentalism massively grown the last two decades does not essentially

recognize any other different economic policy. The ideological fundamentalism as an ideological basis did not leave any alternative to the transition country to establish in a free will a new economical political system that would have been human orientated and distortion free by the economical theories.

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ROLES OF BROADBAND NETWORK IN THE RURAL ECONOMY

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ABSTRACT

Fast data networks contribute to the development of social welfare, people use more and more e-services (eg. e-banking, e-commercial, Client Gate) and the entertainment opportunities are expanded significantly also. And they have a great effect on economy too, since information means new production factor for the agri-food and rural economy in the information society. Networks provide economic opportunities for enterprises, since much activity became more effective by internet. They manage the affairs online and take internet-based services for their activities. But this is true just in general. The use of fast networks for economic goals is highly dependent on regional orientation and what combination of the economic sectors in a given area. In Middle-East Hungary there are mainly agro- and commercial enterprises, mostly SMEs, which have an essential function in Hungarian economy. Among these, regarding the usage of internet, the differences are significant. Individual agro-undertakings are the worst situation, they not really know the e-services then not really use them. Commercial enterprises are already using internet for a lot of activities and they recognized the possibilities of fast data networks. In this article I present the situation and future perspectives of broadband network of a middle-east Hungarian rural settlement in point of enterprises. I made the analysis based on surveys and personally interviews. In most countries there is a great difference among settlements from the point of view of the available of information technologies. It depends on mainly regional orientation and functionality. About it the network development strategies are different since the economic environment has an effect on service sector also. Since then there are regions where state interference is required for progress. Connected for this I present the arguments (pros and cons equally) of intensive broadband development concepts of rural areas.

KEYWORDS

SME, broadband, rank, indicator, development, ICT.

JEL CLASSIFICATION CODES

O39, R11, M15

1. INTRODUCTION

Hungary is a Member State of EU from 2004, since then it shall follow the directives and targets. The development of infrastructure and usage of ICT are key areas. The purpose is to create the Information Society, because it has effect on prosperity and economic opportunities. The Member States invested EUR billions in accordance with this purpose and the related tenders aimed at developing two different areas. On the one hand modernization of existing network infrastructure and implementation of greenfield investments in less-favoured areas. On the other to help to reduce the digital divide in internet usage among regions. Since the main part of these projects carried out within the framework of EU co-financing, therefore the measurement of results achieved and the usefulness became significant. The projects analyses are very closes but contain aggregate information. I consider important to analyze the effects of developments on regional or local level, because in this way the containment of target areas can be more clearly. The main topic of my search is to find out what roles the SMEs and rural regions have in the Information Society.

2. THE LITERATURE REVIEW AND SECONDARY DATA ANALYZE

2.1 The broadband situation in Hungary

I present the ICT situation of Hungary compared with the EU by two well-known indicators: one is the NRI (Networked Readiness Index, the other is the E-readiness index. I chose NRI because my search is related principally to the access and usage of NGN (Next Generation Network) infrastructure. Furthermore, my aim is to create an indicator which we can use for analysis the impact of network development investments on regional level. NRI is an appropriate basis, because it contains such economic, social and technological elements which related to broadband network.

I chose E-readiness index because I targeted the SME sector which is the most critical economic industry in the usage of networks. This indicator mainly shows the quality of connection between SMEs and broadband networks, but it include a lot more factors. E-readiness of a SME is defined here as the ability of an SME to successfully adopt, use and benefit from information technologies such as e-commerce (Fathian & Amiri, 2007). Figure 1 shows the NRI and E-readiness scores of EU Member States and the GDP per capita (in PPS) which represents the economic situation and its relation with ICT development.
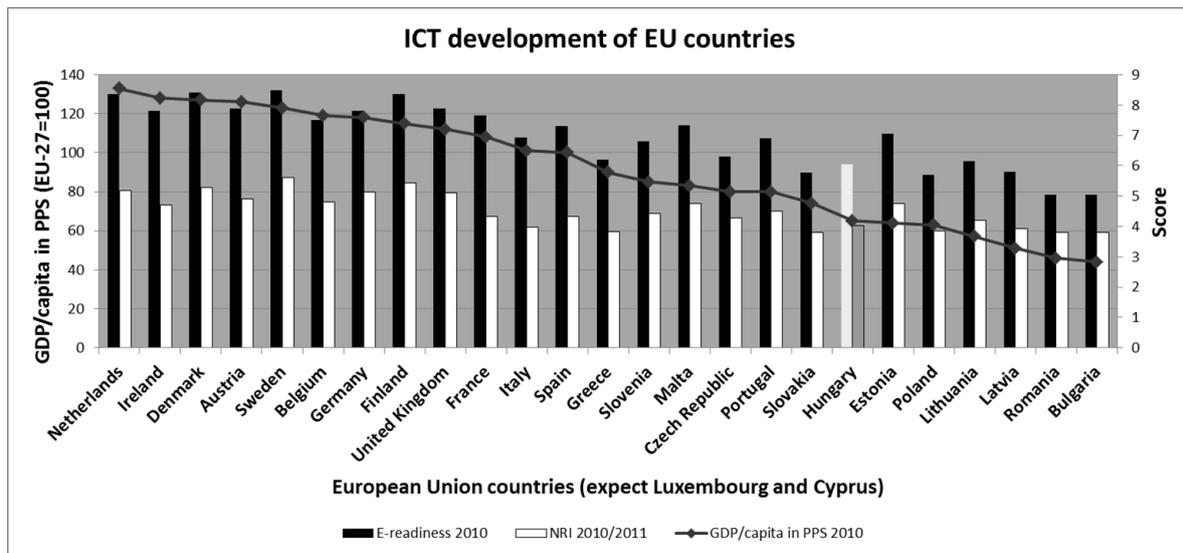
Figure 1. ICT development of EU countries (Source: own editing based on the data of www.weforum.org, epp.eurostat.ec.europa.eu, www.eiu.com)

However the Hungarian NRI scores not worsened during the period analyzed, the country slid down regarding to its rank place. This is due to the fact that other countries – which were behind us before (such as India, China or Chile) – developed quickly. In 2006 and 2011 we reached higher score. In addition to this the results of network development projects.

Hungary has carried out investments by state and EU support. The amount of projects were: 3,8 million euro in 2003 (within the projects IHM-HHÁT-2 and 3), more than 50 million euro in period 2004 and 2006 (within the projects ECOP 4.4.1 and 4.4.2) and 12 million euro in 2007 (within the project EDOP 3.3.1). The total investment value of ECOP 4.4.1, 4.4.2 and EDOP 3.3.1 is more than 100 million Euro (Kis, 2010). The other financial sources for promoting usage and the socio-economic results of these actions are added to that.

OECD estimates 26 Mbit/s average advertised download speed of service providers in Hungary (www.oecd.org). Furthermore the most settlements use optical technology on backhaul network, the upgrading of access networks (last mile) is continuous. The number of broadband subscriptions is almost 265 thousand via FTTx and more than 166 thousand via Docsis 3.0. On the latter networks there are further more than 400 thousand subscriptions, where in case of the terminal equipment (modem) change, above 30 Mbit/s access could be reached. Thus, the share of subscriptions with bandwidth in excess of 30 Mbit/s was 23,3% in 2012 February (www.nmhh.hu). This is a very good result, but the capacity utilization is rather depends on the socio-economic characteristics of a given region. Table 1 shows the current ICT situation of Hungary.

Table 1Several indicator which reflects the Hungarian ICT and economic situation (Source: own editing based on the data of www.weforum.org, www.eiu.com, www.nyilvantarto.hu, www.ksh.hu and epp.eurostat.ec.europa.eu)

Year	2006	2007	2008	2009	2010	2011
NRI ranking (Number of ranked countries)	33 (122)	37 (127)	41 (134)	46 (133)	49 (138)	43 (142)
NRI ranking (among EU-27 Member States)	17	19	20	20	20	21
NRI score	4,33	4,28	4,28	3,98	4,03	4,30
E-readiness ranking (Number of ranked countries)	32 (68)	34 (69)	33 (70)	35 (70)	35 (70)	n.d.
E-readiness score	6,14	6,16	6,30	6,04	6,06	n.d.
Number of internet subscription	1 329 620	1 832 023	2 310 914	2 803 543	3 341 464	4 324 810
Number of mobile internet subscriptions	199 784	356 721	570 835	933 000	1 306 912	2 154 842
Number of Client Gate registrations	420 534*	556 238*	694 598*	801 688*	976 527	1 134 109
IT expenditure (% of GDP)	1,8	1,7	1,6	1,9	1,8	n.d.
Communications expenditure (% of GDP)	4,7	4,3	4,2	4,5	4,1	n.d.
ICT market (in billion euro)	6,1	6,4	6,7	n.d	n.d	n.d
Population	10 076 581	10 066 158	10 045 401	10 030 975	10 014 324	9 985 722
Number of registered SMEs	1 183 046	1 232 804	1 560 493	1 591 612	1 643 604	1 650 648
Unemployment rate	7,5	7,4	7,8	10	11,2	10,9

*Only local notary's offices

n.d. No data is available

The state-organized methods play an important role in increasing of usage intensity. E-administration is gradually replacing the paper-based administration. This took effect on not only growth of digital literacy, but also working time save, simpler and cheaper administration services. Obviously the conversion is slow, but the results obtained so far are very important for individuals and enterprises equally. In 2,5 years the number of Client Gate registrations increased by 41% since the beginning of 2009. Currently more than 1 million person use the system (nyilvantarto.hu).

2.2 Broadband tenders in Hungary

A dense networking infrastructure to support digital communications is the obvious backbone of any information society. New broadband and wireless technologies are being funded and developed so that eventually all citizens and businesses in urban and the most rural areas (the last mile and the last inch) will be connected. Deployment of broadband will not happen overnight. Upgrading, replacing, and adding to communication infrastructure is not cheap. For service providers the turnover of investment is crucial. Service providers develop the infrastructure those cities where the demand for infocommunication services is appropriate for them. But such rural regions where the expected profit do not exceed a certain level from the investment, the development requires state support. State can influence the investment decision-process of local governments and enterprises in its interest by indirect devices, because they are independent entities and the final decision about an investment is them (Horváth, 2009). In Hungary the most effective device is the

investment capital grant. The most project based on it, so the telecommunication enterprises and local governments got substantial amount of support for NGN development. This could reach 90% of the total investment value.

Between 2004 and 2006 one of the most important tender related to broadband network development was ECOP-4.4.2 for local governments. The aim of the project was to develop those areas, which were less attractive in a business point of view. To attain these goals we spent 42,5 million Euro. Another tender for the same aim was the ECOP-4.4.1 for telecommunications companies, but this was not as popular construction as the 4.4.2. The support amount was more than 8 million Euro. Later, in 2007, the state invited another similar tender, that was the EDOP-3.3.1 and the overall amount of support was 12 million Euro. Currently firms and companies may submit tenders for EDOP-2011-3.1.2, which aim is to build up broadband backhaul network in those areas, which don't have optical network connect yet.
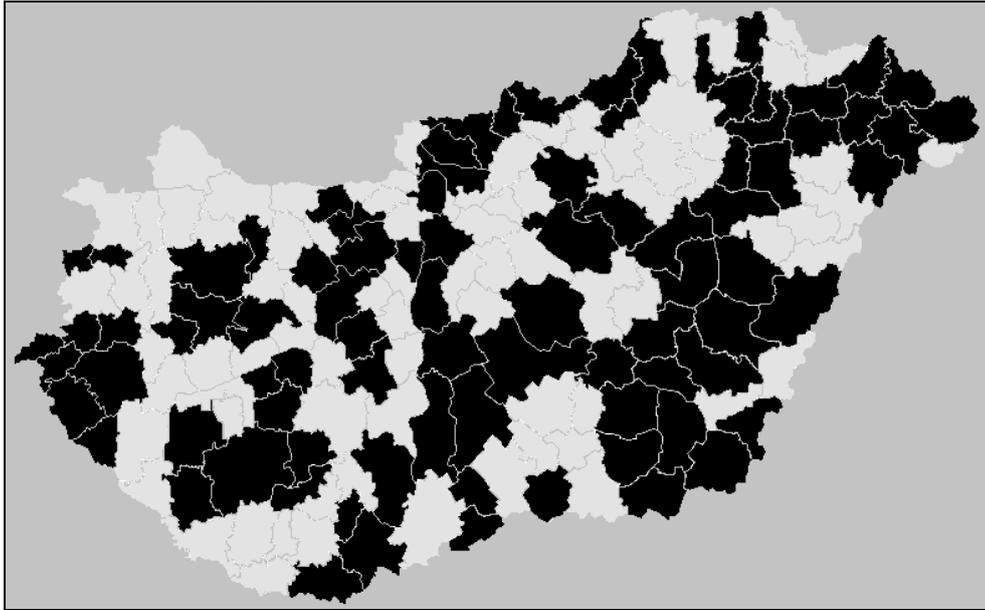
Figure 2. Micro-regions where one tender (ECOP-4.4.1 ECOP-4.4.2, EDOP-3.3.1) at least won. The grey parts show those regions from which no tenders were received or their tenders were not accepted. (Source: Own editing based on the data of www.nfü.hu)

Figure 2. shows those micro-regions where one tender at least won. In the eastern part of the country the 4.4.2 tender was popular, but in the west part mainly the 4.4.1. Thanks to these projects broadband infrastructure built up in those regions where it wouldn't have been possible without state intervention, on commercial basis.

There is backwardness also in usage of internet also. Since, EU has given financial sources to increase the usage intensity. This helps the return of investments and the most important was the eHungary Program. Our country has made significant progress towards information society by projects which linked to the Hungarian development plans and investments of service providers. New services and telecommunications business models showed up, the number of subscription for fast data connection is growing continuously, and the speed of access network is more and more fast thanks to the development of last mile part of network.

2.3 Evaluation of Hungarian SMEs' infocommunication situation

SMEs have special needs because of their limited resources in terms of personnel, finances, and knowledge pertaining to management, marketing, commercialization, or information technology. They often lack knowledge and expertise about international trade issues and foreign markets. SME sector is very important therefore the national and regional competitiveness is crucial. Thus, government initiatives aimed at increasing the e-readiness of SMEs.

In the field of IT usage the bottlenecks are households and small enterprises in rural areas and poor social strata (Struzak, 2010), however one of the range of factors that has been identified as impacting upon the level

of ICT adoption amongst SMEs is access to and confidence in external specialist advice (Morgan, 2006). With the help of different surveys and calculations, researchers made many advantages relating to fast data networks, which support their activities. But in practice they don't think that it may give them any chance or opportunity.

ICT also helps companies to increase their potential for competitive advantage by enabling them to perform primary and support activities either at less costs or in a way that leads to differentiation and a premium price. (Bayo-Moriones & Lera-López, 2007). ICT creates many new interrelationships among businesses, expands the scope of industries in which a company must compete to achieve competitive advantage. Information systems and technology allow companies to coordinate their activities in distant geographic locations (Fathian et al, 2008).

There are 2090 settlements that are linked to the carrier network with optical cables but in most locations this means only that there is one optical access to the local active instrument (GKIeNET, 2009) and within the settlement, NGA network still means bottleneck. But it should also be added that however in certain cities there are many FTTx connections on access level, the subscription rate for them is relatively low. For strategic planning it is important for SMEs to be aware of current and future developments in bandwidth, and market forecasts for communication and information infrastructure penetration, to deduce the timeline for stabilization. Bandwidth can have very direct implications on some SME business models.

The fast data network provides opportunities for firms, because they may use such new services, which can increase their regional competitiveness. But the SME sector has a huge problem with ICT readiness, but it also depends on the economic factors of that settlement where the firm is located. One of the most important factor is that a given company operates in urban or rural region.

The backwardness of SMEs means big problem for EU and Hungarian economy equally, because they play very important role. In Hungary there are more than 1,6 million enterprise now, and the vast majority of these (~99%) are micro, small and medium sized companies. In proportion to its share, they employ a great portion (~75%) of the overall employees. Furthermore they produce almost 50% of Hungarian GDP and they give one-third of export (www.ksh.hu). However the competitiveness of domestic SME sector is weak in international comparative terms (Szerb, 2008). Less than 48% of business start-ups survive the first five years, 90% of them couldn't developing and just 1% plan the market entry in abroad (www.vallalkozasvezeto.hu). The effective operation of these SMEs is very important about currently economic situation. ICT contribute to it, As regards the effects of new ICTs, e-commerce and e-business, their impact has been the multiplication of possible business configurations and thus choices to make for managers. In contrast to the traditional organization of a sector where business models looked alike, the range of possible new business models in the ICT era have grown strongly (Herdon et al., 2006). This is the reason why ICT development is so important, particularly for SMEs.

Popularity of new applications is growing both in business and private sector. A good example for it the development of e-commerce. In 2009 the trade of retail stores was almost 360 million Euro, which means 2% from the overall trade. For this added further 100-110 million Euro trade value from online auction markets (GKIeNET, 2011). But this rate is still much below the EU-27 average, where the percentage of enterprises' total turnover from e-commerce was 4,2% in 2007 (epp.eurostat.ec.europa.eu). In the regions of Hungary only 40-50% of enterprises have website (except Central-Hungary where this rate is about 70% thanks for the capital) (www.ksh.hu).

3. ICT ANALYSIS OF SMES – RESULTS OF QUESTIONNAIRE

My research focuses for rural micro and small to medium enterprises about their significant economic role. With my survey I would like to get answer that how firms use internet, which are the relevant ICT for them and what it depends on. I consider it important to know the "ICT attitudes" of companies how depends on the economic factors and what the tendency might be expect in this area.

For this I asked several SMEs from a settlement – which is a typical in the North-Hungarian region and its main profile is agriculture – to fill my survey. In the town operate approximately 2000 enterprises. The number of SMEs which I interviewed was 88. My aim was to find out:

- Are they find useful the network services, infrastructure and internet? And if so which extent it has contributed to their economic activity.
- Are they feel fast network connection and infocommunication necessary?
- The basis of these I try to determine which opportunities will expect in the future?
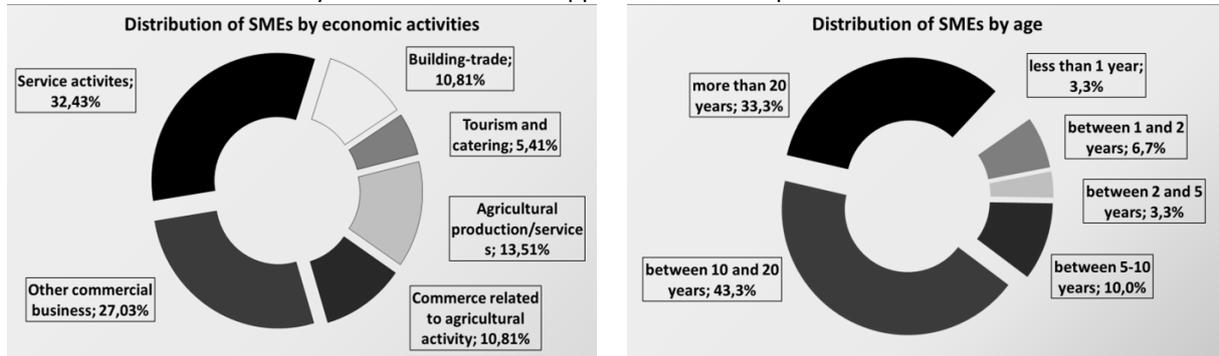
Figure 3 and Figure 4. Distribution of sample by main economic activities and age.

The sample represents well the enterprises of the town. Figure 3 shows, that the most part is the service and commercial businesses and those firms which related to the agriculture. Figure 4 shows that the age of 80% of them is more than 10 years and more than 85% employ less than 20 employees.

The three most important ICT tools used by companies to their activities: the fixed and mobile telephony and the computer. This is a fairly good result, but we can say that the IT devices can reach much more positive results if they connect to the internet or local network. The wired internet penetration among respondents over 90%, but in many cases the private usage is the typical.

The mobile Internet is becoming more popular, more than 33% is using from the companies questioned. They are mainly engaged in commerce and service activities. For them, mobility is very important, because most of them work outside of the main location of the organization. The most popular service provider is Hungarian Telecom, despite that the number of service providers is relatively lot in the town. The speed of wired Internet is less than 10 Mbit/s from the more than half of respondent companies and 20% could not tell what speed internet subscription they have.
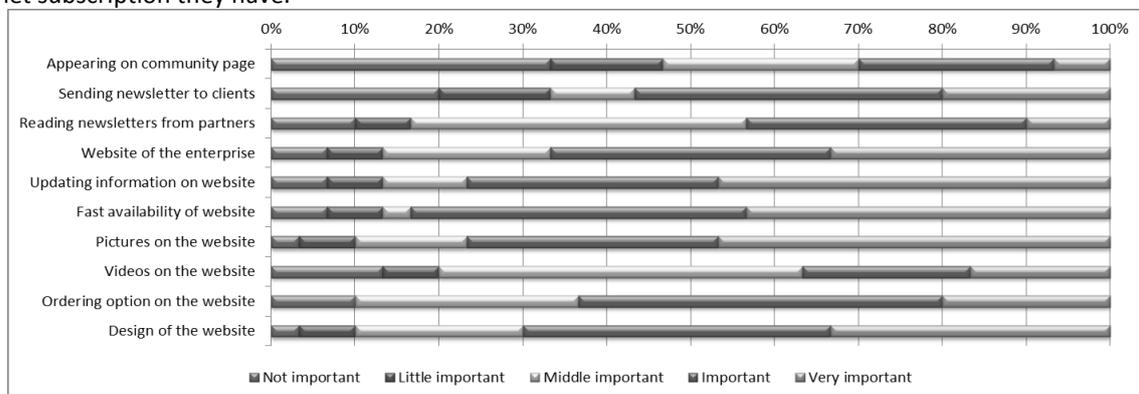
Figure 5. Result of the question: "How important these factors in your opinion?"

Figure 5 and 6 show the opinions in regard to the internet usefulness. But they admitted that it help to save time, communication with partners, customers, and the administration with public organizations. The sample showed that companies consider important the website and the contain of the website. E-commerce is not preferred among the SMEs, since they have local customers mainly.
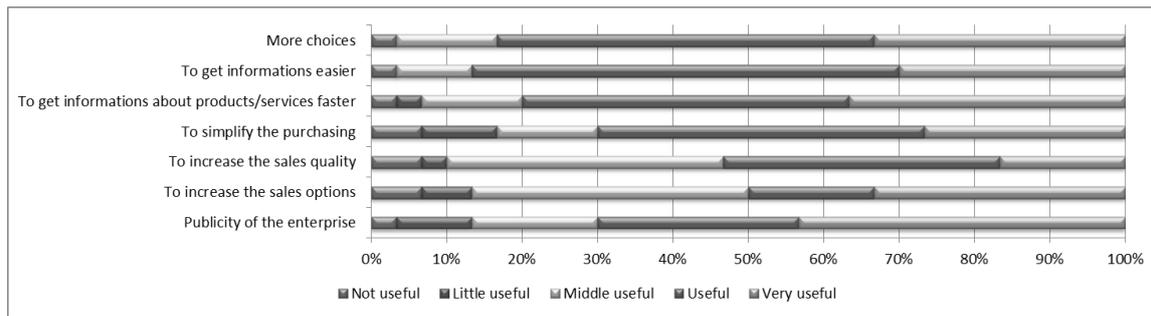
Figure 6. Result of the question: "How internet help these activities?"

The result was not surprising regarding to usage of internet services. The most dominants are sending e-mails and searching general information. Unfortunately, the micro-enterprises related to agriculture (individual and family farms) chose these two services in almost all cases. The larger companies use internet for relationship with partners and clients, and for marketing and innovation goals also. The e-commerce activity is very low, but in purchasing and sales it has effect reducing costs

It's hard to say forecast what will be the tendency for a decade later, since that is impossible in our rapidly changing world. But that's sure that the catching-up of SMEs will be slow process. An IT outsourcing service provider asked almost 9000 enterprises in Central-Hungarian region to find out the IT situation of them and whether they interested in the new IT solutions. It found out that SMEs have more than one decade backwardness in their IT systems (Navigator, 2012). If the situation such bad in the most development region of the country, the backwardness in my analyzed region is much larger.

The basis of answers of the survey, agro-enterprises use ICT at least of all. In their case, these services are not necessary for their activities because they communicate with partners and clients personally. Trust is very important factor for them. They sell the products and carry out the purchase just few places. A change in this situation is not expected in the foreseeable future. But eBusiness can do much to strengthen the vitality and sustainability of agricultural and related industries. New ICT approaches, however, offer solutions that will be as applicable to the small business as to the large (Herdon, 2009). Enterprises still do not interested in new IT solutions, such as Cloud Computing. They not trust about it and only 10% considering to take a remote software or data server.

4. CONCLUSION AND FUTURE AREAS OF RESEARCH

Probably the usage of the capacity of NGN network will be low level and it has an effect on economy also. This means that efficacy of enterprises lower, they reach smaller income and in the long run there is revenue forgone for the government. In order to achieve a better level of usage, ranking the development areas is important. Which projects a given region or settlement requires. The final result will be a regional indicator for easier determining the broadband situation of regions and settlements. By it we can ranking the regions or settlements in respect of factors related to network infrastructure. We can be identified those areas which show gaps before the building up of infrastructure. About the structure of the index the backwardness can be identified in two ways. On the one hand, which the stakeholder group (households, enterprises of public sector) shows the largest gap, can be exactly determined. On the basis of it the selection of target groups will be easier. On the other hand the objective areas also can be determined, namely, infrastructure, information technology assets or human resource development is necessary. The rank can help to realize targeted developing and improving of infrastructure, furthermore this enables to intervene on that place which is bottleneck. For calculating the index I wouldn't use only those data which measuring directly (e.g. number of accesses and their speed), but I also take account of actually use, capacity utilization, readiness of people, penetration of different e-services. And the characterizations of SMEs also can involve to the calculation.

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ASYMMETRY IN PRICE TRANSMISSION MECHANISM BETWEEN THE PRODUCER AND THE CONSUMER PRICES IN THE DAIRY SECTOR; THE CASE OF TRANSITION ECONOMIES

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ABSTRACT

The present paper studies the existence of asymmetry in the price transmission mechanism between the producer and the consumer prices in the sector of dairy products for transition economies, members of EU. In particular, the research is focused on the dairy products and the role of CAP regime. The empirical analysis of asymmetry was based on the Johansen cointegration technique (intermediate stage) and the estimation of two dynamic models; The Error Correction Model (ECM Model), and the LSE – Henry general to specific model (GETS model). With the assistance of the cointegration technique, the existence of a long – run relationship between the producers and the consumers in the transition dairy market is confirmed, while the application of the Granger causality test has indicated that the consumer price Granger causes the producer price whereas the reverse is not valid in most cases. Furthermore, the application of the both models confirmed the existence of asymmetry in the price transmission mechanism within the dairy market for the case of Poland, while symmetry was confirmed for the case of Bulgaria. Finally, the role of CAP in the determination of the producer prices is vital and is confirmed by the findings of the cointegration technique and the Granger causality test.

KEYWORDS

Transition economies, Asymmetry in the price transmission mechanism, CAP, Dairy sector

JEL CLASSIFICATION CODES

C01 - Econometrics, C52 - Model Evaluation, Validation, and Selection,

INTRODUCTION

The price is considered to be the principal mechanism connecting the different stages of market. The prices of dairy and generally of agricultural products have been extensively studied especially for European countries given the implementation of Common Agricultural Policy. Regarding the formation of the consumer prices, the theory of the Purchasing Power Parity is considered to be the dominant theory (Cassel, 1918; 1922; Taylor & Taylor, 2004; Zafeiriou et al., 2006). As far as the producer prices are concerned the profit maximization of the producer is considered to be their determinant mechanism, although the CAP tools are the major tools for the consumer price formation.

The asymmetric price transmission implies that a group is not benefiting from a price reduction (buyers), or increase (sellers) that would under conditions of symmetry have taken place sooner and / or have been of greater magnitude than observed (Meyer & Cramon – Taubadel, 2004). This of course affects the distribution of welfare, given that it alters timing or size of the welfare changes connected with price changes. Furthermore, Peltzman (2000), based on his empirical findings, argues that the asymmetry is the rule and not the exception in the markets, implying the existence of gaps in the economic theory.

In most cases the asymmetry in the price transmission (APT) mechanism is expected to be positive, thus any price movement that squeezes the margin is transmitted more rapidly and / or completely than the equivalent movement that stretches the margin (Meyer & Cramon – Taubadel, 2004). The negative ATP on the other hand implies that any price movement that stretches the margin is transmitted more rapidly and / or more quickly than a movement that squeezes it. This result has also been observed in real markets (Peltzman, 2000).

Studying the asymmetry in the price transmission mechanism, the function of the market can become predictable based on the rational behavior of the economic agents (Reziti & Panagopoulos, 2008). Aiming at the empirical study of the asymmetric price transmission, different empirical models have been used. In our study, the ECM – EG approach and the LSE – Hendry general – to – specific approach was applied. The GETS model has not been applied before in the sector of agricultural products with exception the survey of Reziti & Panagopoulos (2008). In the case of the agricultural products, the models mainly used are the Vector Error Correction Model (VECM), and the autoregression vectors (VAR models).

The GETS approach is not considered a popular methodology, and is less preferable than VAR and cointegrating VAR approaches (Rao & Rao, 2005). However, Hoover & Perez (1999, 2004), confirm with the assistance of the Monte Carlo test that GETS is a useful approach given its proper use.

The GETS model is being criticized quite often (Hendry, 1993) because the prices used are considered to be cointegrated under assumption, without having been tested before. Additionally, GETS is being subject to criticisms for mixing $I(0)$ to $I(1)$ variables. This argument is not valid given that GETS model accepts the existence of the relationship between the dependent and the explanatory variables in their levels. Due to this fact, the levels of the variables are regarded as cointegrated and consequently their linear combination is $I(0)$ (Hendry, 1993; Hendry & Krolzig, 2005).

The present paper involves the study of asymmetry in the price transmission mechanism between consumer and producer prices in the dairy sector of transition economies. One of the countries studied is Poland which along with Romania is one of the largest CEEC in the agricultural production implying a large share of employment and income for the domestic country. Furthermore agriculture in those countries is characterized by low productivity and hidden unemployment, indicating potentially serious social and economic problems with their accession in EU. The other country is Bulgaria a net exporter country of agri – food products. Finally given that the EU-15 and the CEEC-10 combined do produce over a third of the world output in the dairy sector illustrates the significance of the present study.

LITERATURE REVIEW

The asymmetry in the price transmission mechanism between the producers and the consumers has been surveyed with the application of different empirical models (Geweke, 2004; von Cramon – Taubadel & Meyer, 2004; Frey & Manera, 2007). The cointegration techniques have been used extensively in the study of asymmetry (v. Cramon-Taubadel & Fahlbusch, 1994; v. Cramon Taubadel, 1998; v.Cramon Taubadel & Loy, 1996; Scholnick, 1996; Balke et al, 1998; Frost & Bowden, 1999; Borenstein et al, 1997).

The cointegration technique is used to survey only the speed but not the magnitude of the price transmission. A modified cointegrating Dickey – Fuller test was developed by Enders & Granger (1998), and Enders & Siklos (2001). The objective of this test is to allow for asymmetric adjustment. This modified method was applied for the study of the Swiss pork markets by Abdulai (2000, 2002).

An important issue in the study of ATP is the possible non – linearity, which was initially surveyed by von Cramon – Taubadel (1996), with the use of higher order polynomials of ECT to enter into the ECM. The existence of non – linearities is related to high transaction costs and uncertainty which in turn leads to imperfect arbitrage and are observed when price differentials are higher than transaction costs.

A non-linear price response is considered to be symmetric when a shock to the consumer or to the producer price, causes the same response to the producer or to the consumer price respectively. Otherwise, this response is considered to be asymmetric. The existence of asymmetries may be related to special features of the market under preview.

An abundance of econometric techniques have been proposed to capture non-linear price relationships (Chavas & Metha, 2004). The most widely used models are the threshold autoregressive (TAR) models (Obstfeld & Taylor, 1997; Goodwin & Grennes, 1998; Goodwin & Harper, 2000; Goodwin & Piggott, 2001), and the threshold vector error correction (TVECM) models (Goodwin & Piggott, 2001; Lo & Zivot, 2001).

An important study regarding the asymmetry in the price transmission mechanism is the one developed by Rao & Rao (2005). In this study the asymmetry in price transmission mechanism is surveyed between the petroleum and the gasoline with the application of the LSE – Hendry general – to – specific approach. They confirmed empirically the existence of asymmetry in the price transmission mechanism, while at the same time they validated the GETS model.

The subject of APT in the different sectors of the Greek economy has not been thoroughly studied. The majority of the studies refer to the agricultural products. Important studies are those by Reziti & Panagopoulos (2008), who surveyed the existence of asymmetry in the price transmission mechanism between the producer and the consumer prices in the case of dairy products and fruits, while Reziti (2005), studied the price relationships and patterns of price transmission for the agricultural products of potato, tomato, orange and milk product in Greece. According to her findings there is a perfect price transmission between farm and retail levels for all products and a symmetric price transmission between farm and wholesale levels for all the products studied. The present paper studies market inefficiency by testing the existence of asymmetry price transmission mechanism between the producer and the consumer prices. GETS and ECM models are employed aiming at surveying the existence of asymmetry in the price transmission mechanism. These models have been used before in the survey of ATP in the dairy sector, while the innovation stands on the function of ex communist countries, recently entered to European Union. Furthermore, this study can give an insight in the operation of two transition dairy markets, Bulgaria and Poland.

DATA- METHODOLOGY

2.1 Data

The data used in the present study involve the producer and the consumer prices of dairy products. The markets used in our survey are Bulgaria and Poland. Both transition economies become a member of European Union very recently and confront greater assistance from the Union. The time period studied unfortunately is limited, a fact that may lead to robustness of our results. In particular, the time span extends from 1.2000-12.2007. No more data could be found while they were derived from the National Statistic Services. All the data are monthly, and given that they are indices the base time period is the January of the year 2000. All the data are expressed in logarithmic form.

2.2 Methodology

2.2.1 Unit Root Test

In order to apply the Johansen cointegration technique we examine the stationarity of the time series studied. A necessary process before the implementation of Johansen technique is the application of the unit root test. The unit root test employed in our data is Augmented Dickey Fuller (ADF) test (Dickey & Fuller, 1979). Alternatively, we employed a stationarity test, KPSS test. The ADF test has been widely used for testing the existence of a unit root in the time series studied.
This test is based on the following auxiliary regression of the general form;

$$\Delta p_t = \gamma_0 + \gamma_1 t + \gamma_2 p_{t-1} + \Xi(L)\Delta p_{t-1} + e_t \ (1)$$

where;

$$\Xi(L): p-th \ order \ polynomial \ in \ the \ lag \ operator \ L$$

$$e_t \sim N(0,\sigma^2)$$

This test aims at testing the null hypothesis that $\gamma_2 = 0$ which is tantamount for a single unit root in the data – generating process for any variable p_t. In order to determine the ADF form we used the Akaike and the Schwartz – Bayesian (SBC) criterion. For every time series we chose the model, for which the Akaike and SBC criterion have the lowest value. According to the results of this process we ended up to the final form of the auxiliary regression that includes a constant for the variables imp and cp, while for the variable pp, a time trend and a constant are included.

Regarding the stationarity KPSS test, it is based on the following statistic

$$KPSS = N^{-2}\sum_{t=1}^{N} S_t^2 \big/ \hat{\sigma}^2(p) \qquad\qquad (2)$$

Under the null hypothesis of level stationary,

$$KPSS \to \int_0^1 V_1(r)^2 dr , \qquad\qquad (3)$$

where $V_1(r)$ is a standard Brownian bridge: $V_1(r) = B(r) - rB(1)$ and $B(r)$ is a Brownian motion process on $r \in$ [0,1]. Under the null hypothesis of trend stationary,

$$KPSS \to \int_0^1 V_2(r)^2 dr , \qquad\qquad (4)$$

where $V_2(r)$ is the second level Brownian bridge, given by

$$V_2(r) = B(r)+(2r-3r^2)B(1)+(-6r+6r^2)\int_0^1 B(s)ds . \qquad\qquad (5)$$

2.2.2 Cointegration analysis with the Johansen technique

The cointegration analysis is based on Johansen's multivariate cointegration methodology. Regarding the estimation of the cointegration vectors, the treatment of the Johansen's maximum likelihood approach was used. According to Johansen & Juselius (1990), any p – dimensional vector autoregression can be written in the following "error correction" representation.

$$\Delta X_t = \sum_{i=1}^{k} \Gamma_i \Delta X_{t-i} + \Pi X_{t-k} + \mu + \varepsilon_t \qquad\qquad (6)$$

where;
    X_t: p – dimensional vector of I(1) processes,
    μ: a constant
    ε_t: a p – dimensional vector with zero mean ($\Delta$is the variance – covariance matrix)
    The Π matrix has a rank that is limited in the interval (0,r) and can be decomposed into components as follows;

$$\Pi = \alpha\beta' \ (7)$$

where;
α, β: p x r matrices
r: distinct cointegrating vectors.

The procedure of Johansen provides the maximum likelihood estimates of α, β, while Π and the two likelihood ratio test statistics determine the rank of the cointegration space. The trace and the maximum eigenvalue statistics are used to determine the rank of Π and to reach a conclusion on the number of cointegrating equations, r, in our VAR system. Given that the time series studied are I(1), according to the results of the ADF test we can use Johansen technique to examine whether there is a combination (linear relation) of the variables

that is stationary. In this case the variables studied are cointegrated and hence, there is a long – run relationship between them.

As it was already mentioned above, the cointegration technique can be applied since the time series are non – stationary in levels and stationary in first differences. The Johansen cointegration technique (1988), involves testing the null hypothesis that there is no cointegration against the alternative that there is cointegration. In order to apply the Johansen technique it is necessary to calculate the number of lags of the endogenous variables of the model since an autoregressive coefficient is used in modeling of each variable. The determination of the number of lags depended on the likelihood test statistic that was introduced by Sims (1980).

This test is given by the following formula;

$$LR = -2(l_o - l_1)$$ (8)

Where l_i is the likelihood given by the VAR test with the use of $p_{o,1}$ lags. According to the results taken be E - views 5.0 the number of lags was found equal to 3.

The LR trace statistic and the maximum eigenvalue LR test were employed for the determination of the number of the relations connecting the variables under preview (rank of r). In particular this statistic test the null hypothesis of r cointegrating relations against k cointegrating relations (r=0, 1, 2,…, k-1).

The LR trace statistic is calculated with the formula;

$$LR(r/k) = -T \sum_{i=r+1}^{k} \ln(1 - l_i)$$ (9)

The critical values are taken from Osterwald – Lenum (1992), which differ slightly from those reported in Johansen & Juselius (1990).

2.2.3 Asymmetric Price Transmission

The study of the asymmetry in the price transmission requires a particular methodology that is presented analytically in the following paragraphs. First of all the survey was completed in three stages that are the following;

1st Stage: Application of Johansen & Juselius (1990) cointegration technique.
2nd Stage: Application of two-step methodology introduced by Granger & Engle (1987) aiming at the determination of the direction of the causality.
3nd stage: Test of the symmetry of the two – variable relationship.

In the first stage the Johansen & Juselius (1990) cointegration technique, was used aiming at testing the existence of a long – run relationship between the consumer and the producer prices. In the second stage the dynamic error correction model of Granger – Engle was applied,that has the following form given by the following equations (10a) and (10b):

$$\Delta PP_t = \mu_1 + \sum_{t=1}^{n_1} \beta_{pp} \Delta PP_{t-1} + \sum_{t=0}^{n_2} \beta_{pc} \Delta PC_{t-1} - \pi_1 Z_{t1-1} + e_{t1}$$

$$\Delta PC_t = \mu_2 + \sum_{t=1}^{n_1} \beta_{pp} \Delta PP_{t-1} + \sum_{t=0}^{n_2} \beta_{pc} \Delta PC_{t-1} - \pi_2 Z_{t2-1} + e_{t2}$$ (10a)

The possible results of this method are the following;

a) $\pi_1 \neq 0, \pi_2 \neq 0$, there is a long – term two – way relationship between the two variables.

b) $\pi_1 = 0, \pi_2 \neq 0$ In the long run the producer price causes the consumer price.

c) $\pi_1 \neq 0, \pi_2 = 0$ In the long run the consumer price is the cause for the formation of the producer price.

Before we survey the three alternative versions, we used the Vector Error Correction Model that result from the Johansen & Juselius (1990) cointegration technique. The determination of the causality is followed by the third stage during which the asymmetry is estimated in the wood market under preview with the use of two models that have already been used for the wood products by Zafeiriou et al (2007), and by Reziti & Panagopoulos (2008), in different agricultural products (fruits, vegetables and other agricultural products). As it has already been mentioned before, as a proxy for the consumer price index, we used the industrial wood index.
The two different models are given by the following equations (11) and (12):

a) The ECM – EG model is solved with the least squares method and has the following form;

$$\Delta PC_t = \mu_1 + \sum_{t=0}^{n_2} \beta_{PC}^- \Delta PC^-_{t-1} + \sum_{t=1}^{n_1} \beta_{pp}^- \Delta PP^-_{t-1} - \pi_1^- Z_{t1-1} + \sum_{t=0}^{n_3} \beta_{PC}^+ \Delta PC^+_{t-1} + \sum_{t=1}^{n_4} \beta_{PP}^+ \Delta PP^+_{t-1}$$
$$- \pi^+_1 Z_{t1-1} + \varepsilon_t \tag{11}$$

After the estimation of the model we applied the Wald test. In particular, we examined the validity of the equality $\pi_1^+ = \pi_1^-$. In order to select the best dynamic model the adjusted coefficient determination was used.

b) The General to specific (GETS)model (Hendry&Krolzig, 2001, 2005) has the following form

$$\Delta PP_t = \sum_{t=0}^{j2} \beta_{PC}^- \Delta PC^-_{t-1} + \sum_{t=1}^{j1} \beta_{PP}^- \Delta PP^-_{t-1} + \theta^- (PP - \phi_0 - \phi_1 PC - \phi_2 T)_{t-1}$$

$$+ \sum_{t=0}^{j3} \beta_{PC}^+ \Delta PC^+_{t-1} + \sum_{t=0}^{j4} \beta_{PP}^+ \Delta PP^+_{t-1} + \theta^+ (PP - \phi_0 - \phi_1 PC - \phi_2 T)_{t-1} + \xi_1 \tag{12}$$

An alternative form is given by the following equation (13):

$$\Delta PP_t = \gamma_0 + \gamma_1 T + \sum_{t=0}^{j2} \beta_{PC}^- \Delta PC^-_{t-1} + \sum_{t=1}^{j1} \beta_{PP}^- \Delta PP^-_{t-1} + \theta^- (PP - \phi_0 - \phi_1 PC)_{t-1} +$$

$$+ \sum_{t=0}^{j3} \beta_{PC}^+ \Delta PC^+_{t-1} + \sum_{t=0}^{j4} \beta_{PP}^+ \Delta PP^+_{t-1} + \theta^+ (PP - \varphi_o - \phi_1 PC)_{t-1} + \xi_1 \tag{13}$$

where;

$$\gamma_0 = \left(\theta^+ + \theta^-\right) * \phi_0$$

$$\gamma_1 = \left(\theta^+ + \theta^-\right) * \phi_2$$

The next step included the application of the Wald test in order to examine the validity of the equality $\theta^+ = \theta^-$. In both cases the producer prices Granger cause the consumer prices a result that may be attributed to the implementation of CAP policy while it confirms a pass through effect

RESULTS

The implementation of the aforementioned methodology provided us with the results presented in the following tables. Initially the results of the unit root and stationarity test are presented in table 3.

Table3;Results of unit root and stationarity test (ADF Test and KPSS Test)

Variables	ADF statistic	KPSS statistic	Variables	ADF statistic	KPSS statistic
pc_{PO}	0.979579	0.742089	Dpc_{Po}	-11.81281	0.549568
pp_{Po}	-0.530775	0.742094	Dpp_{Po}	-12.36354	0.549436
pc_{Bu}	-1.952376	0.882128	Dpc_{Bu}	-8.038820	0.231135
pp_{Bu}	-0.479609	0.966980	Dpp_{Bu}	-6.554998	0.074027

The ADF critical values for 1, 5, 10% are -4.053392,-3.455842 and -3.153710 respectively when the model includes time trendand intercept, while the KPSS critical values for the same levels of significance are 0.216000, 0.146000, 0.119000

According to the results presented in table 2 all the time series employed in this survey are non stationary in levels and stationary in first differences and thus the time series studied are I(1). This result allows us to employ the Johansen cointegration technique in order to survey the interrelationship between the consumer and the producer prices in the dairy market of the two dairy markets.

Table 4; Results of Johansen cointegration technique

Null Hypothesis	Statistic Values		Bulgaria	Poland
$r = 0$	Trace Statistic		22.59523	18.325
$r \leq 1$			2.3352	6.2244
$r = 0$	Max	Eigenvalue	21.755	18.225
$r \leq 1$	Statistic		2.62334	7.0132

The 0.05 critical values are 15.49471 and 3.841466 respectively, for the trace statistic, while for the maximum eigenvalue statistic the critical values are 14.2646 and 3.841466 respectively, for Bulgaria, 25.87211 and 12.51798 are the trace statistic critical values and 19.38704 and 12.51798 are the maximum eigenvalue critical values for Poland.

According to the results of the Johansen cointegration technique we may conclude that there is a sole relationship between the producer and the consumer prices in the dairy markets studied.

Results of Weak Exogeneity Test

Within the survey of asymmetry in the price transmission mechanism is the estimation of the Vector Error Correction Models, for every market studied in order to determine the direction of causality between the producer and the consumer price indices for the two dairy markets. The results of the restrictions in the estimated VECM (that was estimated only for in order to determine the direction of causality is given in the following table;

The results of the restrictions for the VECM are given in the next table 8.

Table 8; Results of the restrictions in VECM in dairy Markets of the transition economies

European Dairy Markets	Weak Exogeneity		Results of Granger causality test (1987)
Bulgaria	$H_0 : \pi_1 = 0$ -0.44399	$H_0 : \pi_2 = 0$ 3.15074*	$Pc \Leftarrow Pp$
Poland	$H_0 : \pi_1 = 0$ -7.81766*	$H_0 : \pi_2 = 0$ 0.70964	$Pc \Leftarrow Pp$

The * indicates rejection of the null hypothesis at 5% significance level

According to the results given in table 8 in the dairy markets studied the producer price index Granger causes the consumer dairy price index.

The last but not least step in our study involves the estimation of the two models through which we survey the existence of asymmetry in the price transmission mechanism between the producer and the consumer prices of each market studied.

The market for which the model was estimated is the asymmetric ECM – EG model with the method of Ordinary Least Squares (OLS).

Table 9; Results of estimation of ECM – EG Model and GETS Model for Bulgaria

	Asymmetric ECM – EG Equation OLS		Asymmetric GETS Equation NLSS	
	Coefficient	t - statistic	Coefficient	t - statistic
Constant	-0.001480	-1.116033		
ΔPP^{+}_{t-1}	1.034409	3.394430		
ΔPP^{-}_{t-1}	0.193339	1.183109	0.193196 (3.369419)	
ΔPC^{+}_{t-1}	0.361637	3.378483		
ΔPC^{-}_{t-1}			0.463333 (3.964363)	
ΔPC^{+}_{t-2}	0.316633	3.674367		
ΔPP^{-}_{t-2}	0.338934	3.377133		
ΔPP^{+}_{t-2}	-0.009118	-0.018793		
π^{+}	-0.813918	-1.863013		
π^{-}	-0.713831	-3.347469		
θ^{+}			-0.089866	1.9803
θ^{-}			-0.743380	3.0130
	$R^2=0.54$		$R^2=0.42$	
	R^2adjusted=0.42		R^2adjusted=0.24	
Breusch-Godfrey Serial Correlation LM Test	0.631000		0.3255	
Heteroskedasticity Test: Breusch-Pagan-Godfrey	1.5655		1.487	

The estimated equation with the OLS method in the first stage of the method ECM - GETS

$$PC_t = -1,85 + 1,41 PP_t$$
$$(-5,47) \quad (20,63)$$

Test of symmetry with the Wald method

Hypothesis 1: $\pi^{+} = \pi^{-}$ $\chi^2(1)= 0.88445$

Hypothesis 2: $\theta^{+} = \theta^{-}$ $\chi^2(1)= 0.32576 \ (0.4352)$

Based on the results the statistical significance of the producer price in the formation of the consumer price in confirmed (for 10% level of significance), while asymmetry in the price transmission mechanism between the consumer and the producer prices is not confirmed for Bulgaria indicating efficiency in the function of the domestic market.

Table 9; Results of estimation of ECM – EG Model and GETS Model for Poland

	Asymmetric ECM – EG Equation OLS		Asymmetric GETS Equation NLSS	
	Coefficient	t - statistic	Coefficient	t - statistic
ΔPP^{+}_{t-1}	1.3233	6.470878		
ΔPC^{-}_{t-1}	1.4386	6.472846	0.371414	3.014278
ΔPC^{+}_{t-1}	2.1223	1.630660		
ΔPC^{+}_{t-2}				
ΔPP^{-}_{t-2}	-2.002433	-3.647336	-0.037076	-3.435770
ΔPP^{+}_{t-2}	-0.239862	-1.632.186		
ΔPC^{-}_{t-3}	1.744721	2.207027		
ΔPP^{+}_{t-3}				
π^{+}	-0.723279	-2.133016		
π^{-}	-2.907228	-6.633174		
θ^{+}			-0.041933	-1.894054
θ^{-}			-0.0613	-2.019941
ΔPC^{-}_{t-2}				
φ_1			0.020681	2.3254
	R^2=0.654235		R^2=0.543741	
	$R^2_{adjusted}$=0.62341		$R^2_{adjusted}$=0.3259	
Breusch-Godfrey Serial Correlation LM Test	0.43574		1. 251	
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.12553		0.427507	

The estimated equation with the OLS method in the first stage of the method ECM - GETS

$$PC_t=-1,225+1,321PP_t$$
$$(-3,22) \quad (18,42)$$

Test of symmetry with the Wald method

Hypothesis 1: $\pi^{+} = \pi^{-}$ $\chi^2(1)$= 3. 221

Hypothesis 2: $\theta^{+} = \theta^{-}$ $\chi^2(1)$= 4.7440(0.0432)

According to the estimation results presented in the aforementioned tables we confirm the statistical significance of the producer price in the formation of the consumer prices while asymmetry in the price transmission mechanism is confirmed for the case of Poland with both models employed.

CONCLUSIONS

The present paper studied the existence of asymmetry in the price transmission mechanism in the dairy sector for two transition economies Poland and Bulgaria.

The application of the maximum likelihood of Johansen & Juselius (1990) has indicated the existence of one long – run relationship between the producer and the consumer prices for the two dairy markets. With the application of the Granger causality test, is confirmed that the producer prices Granger cause the consumer prices. This result is compatible with the existing situation in the market.

The existence of asymmetry in the price transmission mechanism between the consumer and the producer prices is confirmed with the application of both models in Poland but not in Bulgaria. The findings confirm the existence of a positive ATP for the case of Poland. This result is usual and recorded in the past (Peltzman, 2000; Meyer & v. Cramon – Taubadel, 2004). According to this result a shock that may lead to an increase in the cost of production (or the intervention of a policy tool implemented by EU) to the domestic producers causes an increase in the consumer price but not in a symmetric way (to a quicker adaptation of the consumer prices). The main problem in the study of the asymmetry in the price transmission mechanism is related to the fact that the empirical methods used to detect this asymmetric transmission do not allow us to differentiate between different possible causes. This implies that we can only phrase speculations regarding the possible causes of the asymmetry confirmed (Taubadel & Meyer, 2001).

First of all, the producer prices are not determined according to the profit maximization conditions given the implementation of CAP as expressed by the following measures; intervention purchasing, aid for private storage (APS) for butter and cheese, import levies, tariff rate quotas, export refunds, together with a number of other subsidies designed to promote internal consumption such as subsidized butter sales to non-profit making organizations.

Additionally, the study of the issue of asymmetry in the price transmission mechanism is significant for the realization of a more effective policy regarding CAP implemented policy tools. As it is well known, until 1992 market price support and supply management policies were the major tools of the Common Agricultural Policy. This is not valid for the reform after 2003. The impacts of the reform are not immediate and that is why they do not become evident in our study.

To summarize, we can say that the empirical validity of the APT with the application of the methods mentioned above (despite the robustness of the data and the methods employed) provides us with a strong indication for the inefficiency in the dairy markets in the transition economies studied (asymmetry in the price transmission mechanism) allowing the policy makers to take measures aiming at the limitation of this problem.

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THE IMPACTS OF COMMON FISHERIES POLICY OF THE EU ON THE GREEK FISHERY SECTOR

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ABSTRACT

The last three decades, major changes have occurred in the objectives of the European Union's (EU) Common Fisheries Policy (CFP). These changes can be attributed mainly to the important environmental pressures caused by the intensive fishing activities. This article attempts to assess CFP impacts in order to better understand how the process of policy reform in CFP affects the Greek fishery sector.

The CFP is the EU's tool for fisheries' resource management, aimed at enhancing the sustainability of fish stocks and the economic competitiveness of the fishing industry. Since the early 1970s, the EU goal is to develop a CFP capable of effectively conserving fish stocks and ensuring the economic viability of the sector. Within the establishment of CFP in 1983, a*Conservation policy* was introduced. The main measures were the adoption of annual Total Allowable Catches (TACs) and quotas for single fish species. In particular, two types of measures are undertaken in order to provide a comprehensive conservation regime: TACs which set upper limits for the total amount of fish which can be landed from particular areas; and technical measures including gear regulations, restricted fishing periods and areas, and minimum allowable sizes for individual species.

CFP measures, enacted under the frame of this *Conservation policy,* have major impacts on the Greek fishery sector, which constitutes a vital economic activity for the country, providing income to several families at coastal areas. Furthermore, the GDP and employment rates in those areas are above the national average values, highlighting the impact of fisheries on both the economy and the environment for these marginal coastal areas.

A combination of exploratory factor analysis and cluster analysis are employed this study, in order to assess the potential CFP impacts on Greek fishery sector. The results reveal that CFP measures set entry barriers for the Greek fishery sector. Since 1995, the Greek fishing fleet has a reduction of almost 17%. However, CFP technical measures such as restricted fishing areas and periods could contribute to an operative fishery sector. The results clearly indicate that the adoption of dynamic and market-responsive fishery policies constitute key elements for an operative fishery sector. This seems to be particularly important for policy makers in the context of the future reform of the CFP of EU.

Therefore, the forthcoming CFP should continue the course taken towards policies initiatives aiming to tackle the balance between fishing effort and fisheries' resource management. The consistent implementation of the CFP measures could be a well confronting perspective against the challenges and threats of a global marketing environment. Consequently, an efficient implementation of CFP measures endorsed into a competitive advantage strategy will improve Greek fishery sector and will promote the sustainability of the whole supply chain. Thus, the impendent CFP reform should take into

consideration specific measures designed to enhance CFP awareness, promote a Common certification regime for fisheries products, and improve infrastructure in order to maintain a viable and competitive fishery sector.

KEYWORDS

Common Fisheries Policy, Greek fishery sector, factor analysis, policy assessment

JEL CLASSIFICATION CODES

Q18 - Agricultural Policy; Food Policy
Q22 - Fishery; Aquaculture
C38 - Classification Methods; Cluster Analysis; Factor Models

5. INTRODUCTION

The last three decades, major changes have occurred in the objectives of the European Union's (EU) Common Fisheries Policy (CFP). These changes can be attributed mainly to the important environmental pressures caused by the intensive fishing activities. Partly these changes have been affected by the application of environmental legislation and policy tools to fisheries issues (Princen, 2010). Today, the impediment of CFP reform faces the major challenge of enhancing the sustainability of fish stocks and at the same time of improving the competitiveness of the fishing sector.

The CFP is the EU's tool for fisheries' resource management, aimed at enhancing the sustainability of fish stocks and the economic competitiveness of the fishing industry (Khalilian et al, 2010). Since the early 1970s, the EU goal is to develop a CFP capable of effectively conserving fish stocks and ensuring the economic viability of the sector. Within the establishment of CFP in 1983, a *Conservation policy* was introduced. The main measures were the adoption of annual Total Allowable Catches (TACs) and quotas for single fish species (Princen, 2010). In particular, two types of measures are undertaken in order to provide a comprehensive conservation regime: TACs which set upper limits for the total amount of fish which can be landed from particular areas; and technical measures including gear regulations, restricted fishing periods and areas, and minimum allowable sizes for individual species (Daw & Gray, 2005).

CFP measures, enacted under the frame of this *Conservation policy,* have major impacts on the Greek fishery sector, which constitutes a vital economic activity for the country, providing income to several families at coastal areas. Furthermore, the GDP and employment rates in those areas are above the national average values, highlighting the impact of fisheries on both the economy and the environment for these marginal coastal areas. It is also worth mentioning that Greece has the third highest employment rate in the saltwater fishing sector, which together with Spain and Italy accounts for 60% of employment in the EU (European Commission, 2010). Since 1995, the Greek fishing fleet has a reduction of almost 17%.

Therefore, policy aid under the C.F.P. is widely acknowledged as an important driver of the development and performance of the whole sector and is considered pertinent to supportive policies across a range of economic, social and environmental issues. This article attempts to assess CFP impacts in order to better understand how the process of policy reform in CFP affects the Greek fishery sector and if CFP could contribute to innovation for the sector.

6. METHODOLOGY

Quantitative data were gathered through personal interviews with executives from 99 fishery firms that are responsible for the entire supply chain of fishery products in the major fish wharves in Greece. The reliability of the information source was assessed by identifying the appropriate person from whom we elicited the requisite

information concerning each firm, and his/her willingness to participate in the study. As reliable lists of potential respondents were absent, a snowballing procedure was chosen as the method of data collection (Patton, 1990). In snowball sampling, population elements are deliberately selected because (1) they can serve the research purpose, (2) they are representative of the population of interest, and (3) they can offer researchers the information they need. The respondents were asked to indicate to what extent they are aware of CFP and believe that the implementation of specific CFP measures affects the fishery sector. They were also asked to indicate, to what extent they perceive specific marketing strategies as potential strategies for the improvement of market performance.

A five-point Likert scale ranging from (1) "completely disagree" to (5) "completely agree" was used.The value of providing respondents with only five choice positions is that it tends to avoid responses converging on the middle response (i.e. three). On the other hand, too many scale positions (e.g. seven-point scales) tend to confuse respondents (Schroder & McEachern, 2005). Finally, the research instrument was extensively pretested and refined through personal interviews with respondents to establish content validity and clarity.

Factors were extracted by way of principal components analysis and were rotated orthogonally using the Varimax rotation. The eigenvalue criterion was used to determine the number of factors to extract, while the analysis exhibited a Measure of Sampling Adequacy (MSA) value well above the threshold value of 0.50 (Shirkey & Dziuban, 1976) and 0.60, which is required for a good factor analysis (Tabachnick & Fidell, 2007). The standardized factor loadings and the reliability of the explanatory factors are presented in Table 2. As can be seen, the majority of factor loadings are well above +.70 which is considered indicative of a well - defined structure and is the goal for any factor analysis (Hair et al, 2006). In addition, most of the scales have alpha values exceeding 0.80, which is considered "very good" for internal consistency reliability (Kline, 2005).

The next step consisted of applying cluster analyses to identify both similar groups of fishery firms underlying: 1) the dimensions of CFP and 2) by using the previously extracted factors underlying the dimensions of innovation.

To validate the results of the cluster analyses (Forsman, 2004), a discriminant analysis was performed for CFP and innovation clustering. Specifically, the small and significant value of Wilk's Lamda represented a high level of discriminating power for CFP and innovation clustering (Wilk's Lamda: 0.129 and 0.090, p< 0.001, respectively). Finally, a classification matrix was constructed to determine the predictive ability of the discriminating functions (Quazi *et al.* 2001). The hit-ratio (percentage correctly classified) was employed, which actually reveals how well the discriminant functions classified the objects. According to the hit-ratio, 94.9% and 100% of cases were correctly classified for CFP and innovation clustering respectively.

Table 1: Factor Analysis – factor loadings and measure reliabilities

Code	Name of construct – items tapping each construct [a]	Factor loading	Eigenvalue	Variance (%)	Reliability Cronbach-α
C1	*Quality assurance*		2.720	34.00	0.895
	Environmental protection	0.79			
	Production control	0.89			
	Health & safety	0.87			
C2	*CFP measures*		2.881	72.02	0.869
	Reduction of fishing fleet	0.88			
	Modernization of fishing fleet	0.80			
	Support of young fishermen	0.84			
	Restricted fishing areas and periods	0.86			
C3	*Product development*		2.822	40.31	0.868
	Standardization	0.84			
	Packaging	0.88			
	Processing Activities	0.84			
	Quality label	0.77			
C4	*Policy Intervention*		1.573	22.47	0.751
	Increase C.F.P measures	0.87			
	Intervention in first sale price	0.80			
C5	*Competitive price*		1.664	33.27	0.702
	Product quality	0.84			
	Price competition	0.79			
C6	*Market performance*		2.184	31.20	0.915
	Exports	0.78			
	New markets	0.88			
	New distribution channels	0.88			
	New promotion strategies	0.86			

[a] All measurement scales are 5-point Likert-type scales anchored (1) completely disagree to (5) completely agree

7. RESULTS

3.1 CFP clusters

The clustering was based on the perceptions of the respondents towards CFP awareness and its measures.

The first proposition to be tested in this context is as follows:

P1: There is a positive relationship between CFP profiles and CFP strategies.

In order to test the hypothesis, the group means of the dimensions of the CFP profiles were compared along the clusters. Several cluster solutions were tried. A three cluster solution was accepted as a final solution based on the homogeneity criteria and interpretative considerations. The results revealed that there are statistically significant differences in these profiles among the clusters. The resulting three clusters were named on the basis of the profile characteristics of the clusters along the CFP dimensions (Table 2).

Table 2. K-means cluster analysis results (three-cluster solution) (mean values)

Items	Cluster 1 (N = 57)	Cluster 2 (N = 27)	Cluster 3 (N = 15)	F value	Sig.*
CFP awareness	4	2	3	24.014	0.000
CFP measures awareness	4	2	4	32.955	0.000
CFP impact on firm's profitability	4	2	3	21.023	0.000
Reduction of fishing fleet	4	4	2	36.539	0.000
Modernization of fishing fleet	5	4	3	26.290	0.000
Support young fishermen	4	4	2	34.274	0.000
Restricted fishing areas & periods	5	4	2	115.138	0.000
Increase of CFP measures	4	3	3	7.542	0.000

* Statistically significant at $p<0.001$

Cluster 1: Positive towards CFP strategies

In this cluster the firms provide a 'positive' attitude towards CFP profiles. The firms are aware of CFP. They are informed about CFP measures and their firm's profitability is affected by CFP. The positive degree towards CFP measures is the highest if compared to other clusters. The firms in this group put more effort into the restrictions of fishing periods and areas as well the modernization of fishing fleet, as the main measures of CFP that have contributed to market performance. They are also positive towards the increase of CFP measures. The representation of retailers is considerable in this group. In addition, the numbers of small-sized firms' as well small-experienced firms are the largest in this cluster (Table 3).

Cluster 2: Neutral towards C.F.P strategies

In this cluster the firms provide quite a 'neutral' attitude towards CFP profiles. The firms are less aware of CFP and its measures. In addition, their firm's profitability is not affected by CFP. This group providing a less positive attitude towards CFP measures stands out in the middle from the other clusters. The firms in this group are neutral towards the increase of CFP measures. The representation of retailers and wholesalers is considerable in this group. In addition, the numbers of small-sized firms' as well medium-experienced firms are the largest in this cluster (Table 3).

Cluster 3: Negative towards CFP strategies

In this cluster the firms provide a 'negative' attitude towards CFP profiles. The firms in this group regarding CFP awareness and its impact on their firm's profitability, is considering as neutral. However, their information about CFP measures is considering adequate. The negative degree towards CFP measures is the highest if compared to other clusters. The firms in this group are negative regarding the technical measures of CFP: restrictions of fishing periods and areas. They are also negative towards structural measures of CFP: reduction of fishing fleet except of the modernization of fishing fleet, where they possess a neutral attitude. They are also neutral towards the increase of CFP measures. The representation of fishermen is considerable in this group. In addition, the numbers of large-sized firms' as well large-experienced firms are the largest in this cluster (Table 3).

Table 3: CFP Cluster characteristics

Cluster membership for three clusters	Firm experience (years in business)		
	Small experience (%) [a]	Medium experience (%) [b]	Large experience (%) [c]
1st cluster	23 (40.4%)	13 (22.8%)	21 (36.8%)
2nd cluster	2 (13.3%)	0 (0.0%)	13 (86.7%)
3rd cluster	8 (29.6%)	8 (29.6%)	11 (40.7%)
	Firm size (employees)		
	Small size (%) [d]	Medium size (%) [e]	Large size (%) [f]
1st cluster	35 (61.4%)	7 (12.3%)	15 (26.3%)
2nd cluster	16 (59.2%)	5 (18.5%)	6 (22.2%)
3rd cluster	3 (20%)	2 (13.3%)	10 (66.7%)
	Firm status		
	Fisherman (%)	Wholesaler (%)	Retailer (%)
1st cluster	10 (17.6%)	17 (29.8%)	30 (52.6%)
2nd cluster	3 (6%)	6 (22.2%)	18 (66.6%)
3rd cluster	9 (60%)	2 (13.3%)	4 (26.7%)

[a] Firms experience less than 10 years [b] firms experience between 11 and 20 years [c] firms experience more than 20 years

[d] Firms employing less than 3 personnel [e] Firms employing between 4-6 personnel [f] Firms employing more than 6 personnel

3.2 Innovation clusters

The clustering was based on specific marketing strategies regarding the improvement of market performance. Market performance and product development is positively related to innovativeness (Menon et al, 1999).

The second proposition to be tested in this context is as follows:

P2: There is a positive relationship between marketing strategies and innovation

In order to test the hypothesis, the group means of specific marketing strategies were compared along the clusters. Several cluster solutions were tried. A three cluster solution was accepted as a final solution based on the homogeneity criteria and interpretative considerations. The results revealed that there are statistically significant differences in these strategies among the clusters (Table 4).

Table 4. K-means cluster analysis results (three-cluster solution) (mean values)

Constructs	Cluster 1 (N = 39)	Cluster 2 (N = 37)	Cluster 3 (N = 23)	F value	Sig.*
Product development	4.76	3.42	3.84	56.337	0.000
Policy intervention	3.79	3.36	2.67	12.471	0.000
Market performance	4.88	4.21	3.78	31.837	0.000
Competitive price	4.56	3.37	3.14	47.719	0.000
Quality assurance	4.74	4.23	3.62	26.687	0.000
CFP measures	4.56	4.16	2.64	78.991	0.000

* Statistically significant at $p<0.001$

Cluster 1: Highly innovative

In this cluster the firms provide a 'highly' attitude towards innovation. The firms in this group are positive towards marketing strategies leading to innovation. The positive degree towards Product development, Market performance and Quality assurance is the highest if compared to other clusters. The firms in this group are also positive towards Policy intervention. The representation of retailers is considerable in this group. In addition, the numbers of small-sized firms' as well small-experienced firms are the largest in this cluster (Table 5).

Cluster 2: Averagely innovative

In this cluster the firms provide a 'medium' attitude towards innovation. The firms in this group are less positive towards marketing strategies leading to innovation. This group providing a less positive attitude towards Product development, Market performance and Quality assurance stands out in the middle from the other clusters. The firms in this group are neutral towards Policy intervention. The representation of retailers and wholesalers is considerable in this group. In addition, the numbers of small-sized firms' as well medium-experienced firms are the largest in this cluster (Table 5).

Cluster 3: Lowly innovative

In this cluster the firms provide a 'low' attitude towards innovation. The firms in this group are neutral towards marketing strategies leading to innovation. The neutral degree towards Product development, Market performance and Quality assurance is the lowest if compared to other clusters. The firms in this group are negative towards Policy intervention and C.F.P measures. The representation of fishermen is considerable in this group. In addition, the numbers of large-sized firms' as well large-experienced firms are the largest in this cluster (Table 5).

Table 5: Innovation Cluster characteristics

Cluster membership for three clusters	Firm experience (years in business)		
	Small experience (%)[a]	Medium experience (%)[b]	Large experience (%)[c]
1st cluster	8 (30.7%)	18 (46.2%)	9 (23.1%)
2nd cluster	19 (51.3%)	15 (40.5%)	3 (8.2%)
3rd cluster	2 (8.6%)	4 (17.3%)	17 (73.9%)
	Firm size (employees)		
	Small size (%)[d]	Medium size (%)[e]	Large size (%)[f]
1st cluster	21 (53.9%)	4 (10.2%)	14 (35.9%)
2nd cluster	30 (81.0%)	3 (8.2%)	4 (10.8%)
3rd cluster	3 (13%)	7 (30.4%)	13 (56.6%)
	Firm status		
	Fisherman (%)	Wholesaler (%)	Retailer (%)
1st cluster	11 (28.2%)	14 (35.9%)	14 (35.9%)
2nd cluster	0 (0%)	6 (16.2%)	31 (83.8%)
3rd cluster	11 (47.8%)	5 (21.7%)	7 (30.5%)

[a]Firms experience less than 10 years [b] firms experience between 11 and 20 years [c] firms experience more than 20 years

[d] Firms employing less than 3 personnel [e] Firms employing between 4-6 personnel [f] Firms employing more than 6 personnel

3.3 Linkage between CFP and Innovation clustering

In order to study if CFP strategies have the potential to lead to innovation, the relationship of innovation clustering and CFP clustering was analyzed by means of cross tabulation.

The third proposition to be tested in this context is as follows:

P3: There is a positive linkage between CFP strategies and innovation.

As shown by Table 4, chi-squared analysis revealed that the linkage is significant at the level of a = 0.001. This indicates that there is support for P3.

Table 4. Linkage between CFP clusters and innovation clusters.

	CFP clusters			
Innovation clusters	Cluster 1 (N = 57)	Cluster 2 (N = 27)	Cluster 3 (N = 15)	Total
Cluster 1 (N = 39)	84.6	12.8	2.6	100.0
Cluster 2 (N = 37)	62.2	37.8	0.0	100.0
Cluster 3 (N = 23)	4.3	34.8	60.9	100.0

χ^2 = 62.795 df = 4, P <0.001

CFP clusters: 1 = Positive towards CFP strategies, 2 = Neutral towards CFP strategies, 3 = Negative towards CFP strategies
Innovation clusters: 1 = Highly innovative, 2 = Averagely innovative, 3 = Lowly innovative

Eighty-five per cent of the firms characterized with High innovation belonged to the Positive towards CFP strategies firms. By contrast, only 2.6% of the firms characterized with high innovation belonged to the Negative towards CFP strategies firms. On the other hand, 60.9% of the firms characterized with Low innovation belonged to the Negative towards CFP strategies firms. In addition to, 62.2% of the firms characterized with average innovation also belonged to the Positive towards CFP strategies firms.

In conclusion, the findings presented in this section indicate that there are linkages between CFP strategies and innovation. These linkages are not necessarily so clear at the aggregate level of the data, but when investigating the data in smaller groups the linkages become more obvious. It would appear, therefore, that innovation in fisheries firms is connected not only to particular marketing strategies but also to underlying CFP strategies.

4. CONCLUSIONS

The results reveal that CFP measures set entry barriers for the Greek fishery sector. However, CFP technical measures such as restricted fishing areas and periods could contribute to an operative fishery sector. The results clearly indicate that the adoption of dynamic and market-responsive fishery policies constitute key elements for an operative fishery sector. This seems to be particularly important for policy makers in the context of the future reform of the CFP of EU.

Therefore, the forthcoming CFP should continue the course taken towards policies initiatives aiming to tackle the balance between fishing effort and fisheries' resource management. The consistent implementation of the CFP measures could be a well confronting perspective against the challenges and threats of a global marketing environment. Consequently, an efficient implementation of CFP measures endorsed into a competitive advantage strategy will improve Greek fishery sector and will promote the sustainability of the whole supply chain. Thus, the impendent CFP reform should take into consideration specific measures designed to enhance CFP awareness, promote a Common certification regime for fisheries products, and improve infrastructure in order to maintain a viable and competitive fishery sector.

Nevertheless, this study could be considered as an initial investigation regarding CFP impacts on fishery sector. Thus, the study's findings may be generalized with caution outside the specific context in which it was undertaken. However, it may provide an opportunity for further research regarding the proposed CFP impacts on fishery sector. Possible research avenues may pertain to a more detailed investigation of the fishery sector and how different measures of CFP may influence the viability and the competitiveness of fishery sector.

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TECHNICAL EFFICIENCY OF CHIOS SHEEP FARMS IN GREECE: AN APPLICATION OF STOCHASTIC FRONTIER ANALYSIS

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ABSTRACT

In this study the level of technical efficiency of 58 Chios sheep farms in Greece is measured through the application of the Stochastic Frontier Analysis method.A Translog stochastic frontier production function is estimated using farm accounting data of 58 Chios sheep farms and, moreover, the impact of various farm-specific socio-demographic and biophysical factors on the level of the estimated efficiency is evaluated.The 58 farms are classified into efficiency groups on the basis of the estimated level of technical efficiency and a technical and economic descriptive analysis is applied in order to illustrate an indicative picture of their structure and productivity. The results of the stochastic frontier model indicate that there are substantial production inefficiencies among the Chios sheep farms and that these farms could increase their production through the improvement of technical efficiency, while the results of the inefficiency effects model reveal that the farm-specific explanatory factors can partly explain the observed efficiency differentials. The measurement of technical inefficiency and the detection of its determinants can be used to form the basis of policy recommendations that will contribute to the development of the sector.

KEYWORDS

Chios sheep, technical efficiency, stochastic frontier analysis, determinants of inefficiency

JEL CLASSIFICATION CODES

Q12, D24

1. INTRODUCTION

Dairy sheep farming is considered as the most important livestock sector in Greece, accounting for 7.5% of the gross value of agricultural production in the country (Greek Ministry of Rural Development and Food 2007; de Rancourt et al., 2006; Zygoyiannis, 2006). It is a well-established agricultural activity concentrated mainly in mountainous and less-favored areas where rural economy is poorly diversified and employment opportunities are limited (Tzouramani et al., 2011; Kitsopanidis 2006; Zioganas 2001).The sheep farming sector in Greece experiences a major transition from an extensive into an intensive production system, which is characterized by high investments in machinery and buildings and in high-quality livestock (Gelasakis et al., 2010). This intensive production pattern creates new opportunities

for the development of the sector; however, the economic performance of sheep farms depends heavily on their management. The rational allocation of the available resources is essential for the amelioration of their profitability and consequently their competitiveness.

Greek farms that rearpure-bred Chios sheep, which are considered as the most productive indigenous Greek breed (Valergakis et al., 2008; Valergakis et al., 2010), operate under intensive production systems exhibiting major structural and economic advantages compared to the traditional labor-intensive production systems that prevail in the country. The economic performance and the productivity of Chios sheep farms, which participate in a recently introduced breeding program, depend heavily on the efficient utilization of the existing production technology and the management capacity of the farmers.

Management or entrepreneurial factor is an important production factor which is difficult to model because it is unobservable and it cannot be measured directly in physical terms. The concept of technical efficiency, which was initiated by Koopmans (1951), is related to producer's management capacity and it is assumed to express differences in the level of managerial skills. Koopmans (1951) defined technical efficiency as the ability to minimize input use in the production of a given output vector, or the ability to obtain maximum output from a given input vector. Farrell (1957) introduced a measure of technical efficiency, suggesting that inefficiency is the result of lack of managerial ability (Alvarez et al., 2004). Since then, several approaches have been developed for the estimation of technical efficiency, among them, Stochastic Frontier Analysis.

Stochastic Frontier Analysis is a parametric approach that has become increasingly popular in the measurement of technical efficiency. According to Kumbhakar and Lovell (2000) Stochastic Frontier Analysis models allow for technical inefficiency, but they also acknowledge the fact that random shocks outside the control of producers can affect output. Deterministic frontier models or non-parametric Data Envelopment Analysis attributes the deviation of an observation from the theoretical maximum or the observed best practice, respectively, solely to inefficiency. This is in contrast to the specification of the stochastic frontier in which the maximum output that a production unit can achieve is assumed to be determined by both the production frontier and random external factors (Greene, 2008). The unattractive feature of the deterministic frontier specifications which attribute all deviations from the frontier to inefficiencies are outweighed by the stochastic frontier approach, which comprises both inefficiencies and random error.

Thepurpose of the study is to estimate the technical efficiency of farms comprised purebred Chios breed sheep in Greece and to examine the effect of various farm-specific

variables on the level of the estimated efficiency using the Stochastic Frontier Analysis method. The study employs a Translog stochastic frontier production function, following the Battese and Coelli (1995) inefficiency effects approach, on farm accounting data of 58 Chios sheep farms. The farms are categorized using as a classification criterion the estimated level of technical efficiency and their main technical and economic characteristics are calculated and compared, providing an indicative description of their structure and productivity.

The paper is organized as follows: section 2 sets out the methodological approach, section 3 describes the data used within the analysis and section 4 presents the empirical results. Section 5 concludes the study.

2. METHODOLOGY

2.1 Stochastic Production Frontier

The stochastic frontier production function was simultaneously proposed by Aigner et al. (1977) and Meeusen and van den Broeck (1977) and can be expressed as:

$$y_i = f(x_i; \beta) \cdot \exp\{v_i - u_i\} \qquad i = 1, \ 2, ..., \ n \ (1)$$

where, y_i denotes the level of output for ith farm; χ_i is a $1 \times k$ vector of functions of inputs used by the ith farm; β is the $1 \times k$ vector of unknown parameters to be estimated; v_i is a symmetric random variable, independently and identically distributed (iid) with mean zero and variance σ_v^2, which is associated with random factors that are out of the control of the farmer (e.g., random external factors, weather, misspecification of the model, measurement error in output, etc.) and captures the effects of statistical noise and u_i is an one-sided non-negative random variable, independently and identically distributed truncations (at zero) with mean μ and variance σ_u^2, which captures the effects of technical efficiency component.

The technical efficiency of the ith farm, denoted by TE_i, is obtained from the ratio of the observed to the maximum attainable level of output and it can be estimated as:

$$TE_i = \exp(-u_i) \qquad\qquad\qquad (2)$$

The prediction of technical efficiencies is based on the conditional expectation of e^{-u_i} given the values of $v_i - u_i$ (Jondrow et al. (1982); Battese and Coelli (1988)). More details and further approaches can be obtained from books edited by Fried et al. (2008), Kumbhakar and Lovell (2000) and Coelli et al. (2005).

2.2 Empirical Translog Production Function

The specified empirical version of stochastic frontier used in this study assumes a Translog production function:

$$\ln y_i = \beta_0 + \sum_{j=1}^{3} \beta_j \ln x_j + \sum_{j \leq k=1}^{3}\sum \beta_{jk} \ln x_{ji} \ln x_{ki} + v_i - u_i \quad i=1,\ldots,n \qquad (3)$$

where y_i denotes the value of gross output (expressed in euros), χ_1 is the flock size(number of ewes), χ_2 represents labor (expressed in hours), and χ_3 represents the capital cost of the farms (measured in euros).

The inefficiency effects u_i are expressed as a function of explanatory factors (Kumbhakar et al., 1991; Reifschneider and Stevenson, 1991) and the parameters of the stochastic production frontier and inefficiency effects model are estimated simultaneously, following the approach proposed by Battese and Coelli (1995) that overcomes the limitation of the two-step approach, which involves a contradiction of assumptions. Here, u_i can be specified and defined as:

$$u_i = \delta_0 + \delta_1 z_{1i} + \delta_2 z_{2i} + \delta_3 z_{3i} + \delta_4 z_{4i} \delta_5 z_{5i} + \delta_6 z_{6i} \qquad (4)$$

where z's are explanatory factors, which affect inefficiency. In this study, inefficiency is assumed to be explained by two sets of variables: socio-demographic and herd-related biophysical variables. Specifically, z_{1i} is a binary variable to measure the influence of agricultural training on efficiency and it is equal to one if the farmer had any training and two otherwise; z_{2i} represents ewe's longevity and it is expressed in years of productive life; z_{3i} represents the rate of lamb mortality during the weaning age; z_{4i} is a binary variable for the marital status of the farmer, being equal to one if farmer is married and two otherwise; z_{5i} represents the number of the lambs used for ewes' replacement and z_{6i} represents the age of the farmer and it is expressed in years.

3. EMPIRICAL DATA

The farm accounting data for this empirical application were collected from the Regions of Macedonia and Thessaly, Greece, through a farm management survey of the 58 Chios sheep nucleus farms, which rear pure-bred animals and participate in the Chios sheep Breeding program. These 58 farms constitute the total population registered in the Greek herdbook of Chios sheep breed, also participating in the official milk recording program. The survey was carried out during the 2007-2008 period. The output and input variables as well as the explanatory socio-demographic and biophysical variables are described in Table 1.

Table 1. Summary Statistics for Survey Variables

Variables	Mean	Standard Deviation
Gross Output (€)	95252	73245
Flock size (heads)	233	164
Labor (hours)	4450	2506
Capital cost (€)	67657	58477
Literacy (binary)	1.79	0.41
Marital status (binary)	1.14	0.35
Age (years)	41.64	8.42
Ewe longevity (years)	3.66	0.34
Lamb mortality (%)	2.38	3.47
Replacement ewe lambs (heads)	58.41	42.73

Average gross output of the sheep farm, which has been selected as the dependent variable in this study, is 95252 € with a standard deviation of 73245, which indicates the large variability of output among Chios sheep farms. The average flock size of the farms is 233 ewes, while the average flock size of the sheep farms in Greece is 56.8 ewes per farm (data for 2006 provided by the Hellenic Statistical Authority).Human labor employed is 4450 hours per farm and capital cost, which is composed of variable and fixed capital cost, is 67657 € per farm, while total production cost is 94535 €, indicating that the existing production technology among Chios sheep farms is capital intensive. The variable capital cost includes the variable capital expenses in both crop and livestock production i.e. the value of the purchased feed, the expenses for the on-farm production of feeding stuffs, the value of fuel, drugs, irrigation, hired labor and other variable inputs, while the fixed capital cost consists of the annual expenses of the buildings and the machinery used in the production process.

The results regarding the socio-demographic characteristics indicate that the average farmer is middle-aged (approximately 42 years old), married and did not receive any agricultural training. Training, marital stability and an age profile, which implies combination of experience on sheep farming and reception for adoption of new technologies, could be considered as salient features of a successful farmer-manager; although in this study the former condition is not well-satisfied. The description of the herd-related biophysical variables, which have been selected in the model specification as determinants of the inefficiency, shows that, on average, ewe's longevity is 3.66 years. Longevity is normally defined as the length of its

productive life in the flock, which is the period when the ewe is efficiently used in reproduction and milk production. The average rate of lamb mortality at weaning is 2.38% and the farm retains, on average, 58.41 replacement ewe lambs. These results combined with the findings that the average Chios sheep farm rears 233 ewes, whose longevity is on average 3.66 years, implies that the flock is replaced almost every three years.

4. EMPIRICAL RESULTS

4.1 Estimation of Stochastic Frontier Model

The maximum likelihood estimates of the parameters in the stochastic production frontier and the inefficiency model for the 58 Chios sheep farms are presented in Table 2; they are obtained following the Battese and Coelli (1995) specification. Specifically, Table 2 reports the coefficients and the variance of the estimated variables, as well as their t-ratios. The variance parameters of the Stochastic Frontier model are expressed in terms of $\sigma^2 = \sigma_u^2 + \sigma_v^2$ and $\gamma = \sigma_u^2/\sigma^2$. Most of the coefficients were statistically significant at the 1% level. The estimated values of γ and σ^2 parameters in the stochastic frontier production function were significant at the 1% level, suggesting that technical inefficiencies were present in production having a significant effect on the level and the variability of the output of the sheep farms and that the conventional "average" production function is not an adequate representation of the data (Sharma et al., 1997).

The estimate of γ indicates that the portion of the one-sided error component in total variance is as high as 60.2%, indicating that 60.2% of the variation in data between farms can be attributed to inefficiency, while the remaining 38.8% is due to pure "noise". Hence, inefficiencies in production are the predominant source of random errors.

A number of statistical tests were carried out to identify the appropriate functional form of the empirical model as well as the presence of inefficiency and its trends (Puig-Junoy, 2001; Battese et al., 1996). Generalised Likelihood-Ratio (LR) tests were performed to test several composite hypotheses as presented in Table 3 (Kumbhakar et al., 1997).

Table 2. Maximum Likelihood Estimates of the Stochastic Frontier Model

Name of Variables	Parameters	Coefficient	Standard Error	t-ratio
Stochastic frontier				
Intercept	β_0	-22.301	1.723	-12.940***
Ln(Flock)	β_f	7.979	1.038	7.685***
Ln(Labor)	β_l	2.514	0.857	2.931***
Ln(Capital cost)	β_c	-0.487	0.694	-0.701**
LnFlock×LnFlock	$\beta_{f.f}$	1.188	0.232	5.114***
LnLabor ×LnLabor	$\beta_{l.l}$	0.221	0.150	1.478
Ln(Capital cost) × Ln(Capital cost)	$\beta_{c.c}$	0.455	0.158	2.881***
Ln(Flock) × Ln(Labor)	$\beta_{f.l}$	-0.623	0.329	-1.892*
Ln(Flock) ×Ln(Capital cost)	$\beta_{f.c}$	-1.135	0.309	-4.374***
Ln(Labor) × Ln(Capital cost)	$\beta_{l.c}$	-0.235	0.265	-0.886
Inefficiency model				
Training	$\delta_{training}$	0.942	0.367	2.562***
Longevity	$\delta_{longevity}$	-0.419	0.185	-2.257**
Lamb mortality	δ_{mortal}	0.037	0.020	1.745*
Marital status	$\delta_{marital}$	-0.039	0.261	-0.150
Replacement	$\delta_{replace}$	-0.007	-0.004	-1.750*
Age of farmers	δ_{age}	0.003	0.009	0.291
Variance parameters				
Sigma-squared	σ^2	0.097	0.035	2.758***
Gamma	γ	0.602	0.230	2.616***

Note: ***, **, * indicates statistical significance at the 1%, 5% and 10% level, respectively.

Table 3. Generalized Likelihood-Ratio (LR) tests of hypotheses for parameters of the Stochastic Frontier Production Function.

Test	Null Hypothesis	$L(H_0)$	Value of λ	Critical value	Decision (at 5% level)
1	H_0: $\beta_{jk}=0$, $j \leq k=1,2,3$	-20.720	15.6	12.59	Reject H_0
2	H_0: $\gamma=\delta_1=\ldots=\delta_6=0$	-11.766	19.97	13.40	Reject H_0
3	H_0: $\delta_1=\ldots=\delta_6=0$	-10.44	60.82	12.59	Reject H_0
4	H_0: $\delta_0=0$	-1.779	0.003	3.84	Accept H_0

Notes: λ: likelihood-ratio test statistic, $\lambda = -2[L(H_0)-L(H_1)]$, where $L(H_0)$ and $L(H_1)$ are the values of the likelihood function under null and alternative hypothesis, respectively. It has an approximate chi-square distribution with degrees of freedom equal to the number of independent constraints (Battese and Coelli, 1995). The asymptotic distribution of hypothesis tests involving a zero restriction on the parameter γ has a mixed chi-squared distribution; therefore, the critical value for this test is taken from Kodde and Palm (1986), Table 1, p. 1246.

The first LR-test was conducted to test whether or not Translog production function was the appropriate form of the production function estimated in this model. The null hypothesis that the production technology is described by the Cobb-Douglas production function is rejected confidently in favour of the Translog production function, which appears to provide an adequate specification of the Chios sheep farms. The second null hypothesis specifies that there are no inefficiency effects and that each farm is operating at the efficient frontier. If the null hypothesis were to be accepted, the frontier model would be equivalent to the average response function and it could be estimated by the Least Squares method (Battese and Broca, 1997; Sharma and Leung, 1999). The null hypothesis that γ is zero is rejected at the 5% level, emphasizing the finding that the traditional average production function is an inadequate representation for the data of Chios sheep farms. The third and fourth LR-tests consider the null hypothesis that the inefficiency effects are not a function of the explanatory variables. The null hypothesis of no-joint effects of the explanatory variables is strongly rejected, confirming that the joint effects of the factors on technical inefficiency are statistical significant, although the individual effects of one or more of the variables may not be statistically significant. The forth null hypothesis that the constant term δ_0 in the inefficiency effects model is zero is accepted, and therefore it is not included in the preferred model. In general, the likelihood-ratio tests indicate that the technical inefficiency effects are important in explaining the variation in economic performance of the Chios sheep farms and that the applied inefficiency stochastic frontier is a significant improvement over the corresponding stochastic

frontier which does not involve a model for the technical inefficiency effects (Battese and Coelli, 1995).

The estimated coefficients of the variables in the Translog production function do not have any direct interpretation; thus, the elasticity of output for each input has to be calculated as the first derivative of the output with respect to each input, using formula (3):

$$\varepsilon_j = \frac{\partial \ln y}{\partial \ln x_j} = \beta_j + 2\beta_{jj}\bar{x}_j + \sum_{j \neq k} \beta_{jk}\bar{x}_k \qquad (3)$$

The elasticity, ε_j, measures the responsiveness of output to a 1% change in the jth input. According to Battese and Broca (1997) this is referred to as the elasticity of frontier output or the elasticity of best practice production with respect to the input involved. Evaluated at the sample mean, the estimated output elasticities for all three inputs were positive, as expected, indicating that the estimated Translog frontier production function is a well-behaved production technology. The elasticity of output with respect to flock size is the highest (ε_{flock} = 0.56), among all output elasticities, a finding which is similar to that of Karagiannis and Tzouvelekas (2005) and Karagiannis et al. (2005). Flock size is followed by capital cost ($\varepsilon_{capital}$ =0.37) and labor (ε_{labor} =0.36). The sum of the output elasticities measures returns to scale, representing the percentage change in output due to a proportional change in the use of all inputs. The sum of the three output elasticities for the Chios sheep farms is estimated to be 1.29, indicating the presence of increasing returns to scale in the production and implying that the Chios sheep farms operate at a non-optimal scale.

4.2 Technical Efficiency

The frequency distribution of efficiency estimates obtained from the stochastic frontier model is presented in Table 4. Results indicate that there is substantial technical inefficiency in the utilization of the existing production technology and that there are considerable variations regarding the level of technical efficiency among the Chios sheep farms; technical efficiency scores range from a low of 0.421 to a high of 0.970. Table 4 shows that, according to estimations obtained from the application of the stochastic frontier analysis, the majority of the farms, that is 18 farms (31% of the total), are allocated in the highest efficiency group (90%-97%), 15 farms (25.9%) exhibit efficiency estimates between 80% to 90%, while only 3 farms (5.2% of the total) exhibit technical efficiency estimates less than 50%. The mean technical efficiency of the 58 farms is estimated to be 0.795 with a standard deviation of 0.149,

indicating that the average Chios sheep farm produces 79.5% of the maximum attainable output. This result illustrates that, given the level of inputs and the production technology, the average Chios sheep farm could increase its production value by 20.5%, provided that it operates at the efficient frontier.

Table 4. Frequency Distribution of Technical Efficiency Estimates from the Stochastic Frontier Model

TE score	Number offarms	% offarms	TE mean
< 50	3	5.2	0.453
50-60	5	8.6	0.547
60-70	7	12.1	0.655
70-80	10	17.2	0.770
80-90	15	25.9	0.854
90-97	18	31.0	0.940
Total	58	100	0.795

There are two available studies in the agricultural economics literature that applied stochastic frontier analysis on Greek sheep farming, and to our knowledge, the present study is the first dealing with the estimation of technical efficiency of Chios breed flocks. Karagiannis and Tzouvelekas (2005) and Melfou et al. (2009), who applied frontier analysis to conventional sheep farms in Greece based on panel data, found that the overall mean technical efficiency level was 0.679 and 0.768, respectively, with the latter result being similar to ours. However, in other studies the level of technical efficiency of Greek sheep farms was estimated by means of the alternative non-parametric Data Envelopment Analysis (DEA). Based on a sample of 101 sheep farms located in mountainous areas of Greece, Fousekis et al. (2001) reported a 0.893 mean technical efficiency, while Psychoudakis & Theodoridis (2006), using farm-level data from 108 sheep-goat farms in Western Macedonia, Greece, found that the DEA efficiency score was 0.694. Finally, in Theocharopoulos et al. (2007), the mean technical efficiency of 217 sheep farms was estimated to be 0.663.

4.3 Determinants of Inefficiency

The identification of the determinants of technical inefficiency is of great interest, since the detection of the sources of inefficiency may contribute to the formation of policy

recommendations concerning sheep farming. The factors that have an influence on efficiency are estimated simultaneously with the efficiency frontier in the stochastic frontier model, according to the Battese and Coelli (1995) specification.

The results of the inefficiency model (Table 2) reveal that the estimated coefficient of agricultural training is positive and statistically significant, implying, as expected that farmers who received agricultural training are more technical efficient in sheep farming.

The estimated coefficient on the ewe's productive longevity is negative and significant, indicating that farms which breed ewes with higher longevity tend to be more technically efficient in sheep farming, a result which was expected, since ewe's longevity is considered a trait of high economic importance in sheep farming (Abdelqadera et al, 2012; Kern et al., 2010 and Mekkawy et al., 2009).

The rate of lamb mortality proved to be statistical significant and positive, implying that a higher rate of lamb mortality during the weaning age is related to a lower level of technical efficiency. Lamb mortality rate has both economic and animal welfare implications in sheep production and our finding verifies its importance.

The coefficient of the replacement ewe lambs variable, which is the third herd-related variable used as an explanatory factor in the inefficiency model, proved to be significant and negative, although the result is relatively weak. This finding indicates that a higher number of replacement lambs in the herd is associated positively with a higher level of efficiency.

 The coefficient of marital status in the model is negative in the frontier model, but not statistical significant and, hence, not correlated with efficiency. The age of the farmer is positive, but also insignificant, a finding in line with the results of Suresh et al. (2008). A positive and statistically significant effect on efficiency, implying that older farmers are expected to be more experienced and, thus, more efficient, has been identified by Furesi et al. (2011), Shormo et al. (2010) and Karagiannis and Tzouvelekas (2005).

The inefficient effects analysis indicated that the herd-related biophysical variables, namely ewe's longevity, lamb mortality and ewes' replacement lambs have a significant effect on the variance of technical efficiency hence, they can partly determine the observed efficiency differentials. Regarding the socio-demographic variables used in the specification model, only the variable that measures agricultural training proved to be associated with efficiency level.

4.4 Comparative Technical and Economic Analysis of Farms

The 58 Chios sheep farms were divided into efficiency groups on the basis of the estimated level of technical efficiency and their main technical and economic characteristics are

computed and compared in order to provide an indicative picture of the structure and the productivity of the farms. The farms are categorized into three efficiency groups (low, medium and high) in order to provide a sufficient number of observations in each group which would allow a concrete and consistent application of the descriptive analysis in terms of technical efficiency. The main technical and economic data of the 58 Chios sheep farms are presented in Table 5.

Table 5. Technical and economic characteristics of the farms as a function of level of technical efficiency

Technical and Economic data	Efficiency Groups			Mean farm
	Low (TE<0.70)	Medium (0.70≤TE<0.90)	High (TE≥0.90)	
TECHNICAL				
Number of farms	15 (25.9%)	25 (43.1%)	18 (31%)	58 (100%)
Mean TE	0.578	0.821	0.940	0.795
Ewes per farm	151	206	243	233
Yield (Kg/ewe)	172	251	225	226
Land area (ha/ewe)	0.42	0.47	0.47	0.47
Labor (hours/ewe)	23	23	14	19
ECONOMIC				
Land rent (€/ewe)	26	36	30	32
Labor cost (€/ewe)	72	75	57	67
Variable Capital cost (€/ewe)	201	203	185	194
-Purchased feed (€/ewe)	*116*	*136*	*119*	*125*
-Crop production expenses (€/ewe)	*43*	*42*	*42*	*42*
-Miscellaneous[1] (€/ewe)	*42*	*25*	*24*	*27*
Fixed Capital cost (€/ewe)	104	100	128	113
-Buildings & Machinery (€/ewe)	*94*	*82*	*110*	*96*
-Livestock (€/ewe)	*10*	*18*	*18*	*17*
Production cost (€/ewe)	403	414	400	406
Gross output (€/ewe)	261	425	450	409
Gross margin (€/ewe)	60	222	265	215
Profit or Loss (€/ewe)	-142	11	50	3

[1]Miscellaneous include the expenses for drugs, electricity, water and fuel.

Results in Table 5 show that the 18 sheep farms, that exhibit the highest level of technical efficiency (mean TE = 0.940), comprised 243 ewes per farm, which is the highest among the efficiency groups. This finding implies that large size farms in terms of ewes are

positively associated with technical efficiency and that the farms could increase their production value and, consequently, their productivity by adjusting to an optimal size. The flock size constitutes one of the seminal factors that affect profitability of the livestock farms and a significant increase of the flock size ensures the reduction of the labor cost per sheep and, in some cases, of the annual expenses of fixed capital. However, the highest milk yield (251 kg/ewe annually) is achieved by ewes reared in the farms classified at the medium efficiency group (mean TE = 0.821), while the milk yield of the ewes in the high efficiency group approximates that of the mean farm (225 kg/ewe). The use of land for feedstuffs production does not vary significantly between the efficiency groups, although the farms with low technical efficiency cultivate 0.42 hectares per ewe, 0.05 less than the relatively more efficient farms. The farms of the high efficiency group appear to use on average 9 hours of labor less than the other efficiency groups, which could be attributed to their larger flock size, taking advantage of economies of scale.

Following the trend in the use of land and labor, the lowest land cost is 26 € per ewe in the case of the low-efficiency farms, while the lowest labor cost is 57 € per ewe in the case of the high-efficiency farms. In total, the variable capital cost is 185 € per ewe in the farms of the high efficiency group; that is 16 € and 18 € less than in the farms of the low and medium efficiency group, respectively. This result is attributed mainly to differences in expenses regarding purchased feed and other variable expenses in livestock production between the efficiency groups. Furthermore, Table 5 shows that the highest annual expenses of fixed capital occur in the case of the farms with the highest technical efficiency (128 € per ewe), revealing that the more efficient farms operate under intensive production pattern which depend heavily on high investments in buildings and machinery. The lowest production cost, that is 400 € per ewe, occurs in the case of the farms that exhibit the highest efficiency score, although total production cost does not differ considerably between efficiency groups. A finding that substantially discriminates the efficiency groups is the gross output level. In the case of the low-efficiency group, gross output is 261 € per ewe, in the case of the medium-efficiency farms it is 425 € per ewe, while in the case of the high-efficiency farms the gross output is 450 € per ewe, indicating that a higher level of technical efficiency is associated with a higher value of production.

The gross margin, (gross output less the variable cost), which is the economic result typically used in the modern agricultural production economic analysis, is increased from 60 € per ewe for the farms of the low efficiency group to 265 € per ewe for the farms of the high efficiency group. Consequently, the farms that exhibit the lowest efficiency scores present, on

average, losses of 142 € per ewe, while the farms that comprise the medium and the high efficiency group present profits of 11 € and 50 € per ewe, respectively, emphasizing that an efficient production system achieves higher economic performance.

5. CONCLUSIONS

This study was undertaken in order to estimate the importance of technical efficiency and, hence, management capacity on the economic performance and the productivity of purebred Chios dairy sheep farms, a well-promising sector of the Greek agricultural economy. Moreover, an attempt was made to identify farm-specific factors that affect the efficient allocation of the existing resources. This goal was achieved through the application of Stochastic Frontier Analysis on farm accounting data of the 58 Chios sheep farms in Greece.

The results of this empirical analysis indicated that the preferred stochastic frontier and inefficiency effects model was an adequate representation of the production technology of the farms. The mean efficiency level of technical efficiency was estimated to be 79.5%, although the majority of the farms exhibit relatively high efficiency scores. This finding reveals the presence of inefficiencies in the utilization of the current production technology and suggests that the Chios sheep farms, on average, could increase their gross output by 20.5% if all farms operate at full technical efficiency. The differences in the predicted efficiencies can be attributed to herd-related biophysical factors and to agricultural training, which proved to be significantly related to the inefficiencies of production.

The estimation of the output elasticities showed that livestock capital is the most important factor of production, a finding that was consistent with a priori expectations, since the Chios sheep farms rear high-quality animals of high milk production and prolificacy (Rogdakis, 2002), emphasizing the potential of indigenous breeds. Results also indicated increasing returns to scale, confirming the established fact that small farm size constitutes one the main structural disadvantages of the Greek farming (Kitsopanidis, 2006) and suggesting that Chios sheep farms could improve their economic performance by operating at a larger scale. This finding is reinforced by the result of the descriptive analysis that large farms in terms of flock size are positively associated with a higher level of technical efficiency. Further, the empirical analysis indicated that the efficient farms achieve higher economic results, highlighting the important role of managerial ability in production and the promising perspectives of the sheep sector in Greece.

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INTRAPRENEURIAL EFFORTS TO REJUVENATE A COMMERSIAL BRAND NAME, MOTIVES AND LIMITATIONS: THE CASE OF THE AMERICAN FARM SCHOOL – THESSALONIKI, GREECE

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ABSTRACT

The purpose of this study is to explore the effectiveness and limitations of intrapreneurial behaviour as a factor influencing the ability of a long established organisation to successfully undertake an expansion strategy of related diversification. The case study concerns the American Farm School (AFS), examined as a dairy producer with a long established niche brand name. The research undertaken consists of two parts: an evaluation first of the existing brand strength and its extension potential and secondly, of the process used to reach the decision of launching the new product. The overall findings lead to the conclusion that the AFS brand as a dairy producer would benefit from shifting its current image of a safe and ethical producer to that of an organization that offers nutritional/functional and/or gourmet value, and seek new market segments. Additionally the findings revealed that AFS as a food producing organization is technically competent, but suffers from market myopia. Finally, intrapreneurial (in distinction to entrepreneurial) behaviour was found to be useful in gradually rejuvenating the brand but at the same time potentially contributing to cultural confusion rather than to a paradigmatic refreezing along market orientation lines. The findings are relevant to established companies in the emerging economies of Eastern Europe who have to rejuvenate their brand and reposition themselves in order to compete in the European markets.

KEYWORDS

Intrapreneurship, Brand Rejuvenation, Market Orientation.

JEL CLASSIFICATION CODES

M14, M31

1.   INTRODUCTION

The AmericanFarmSchool is a private, non-profit educational institution, operating for more that 100 years, as an institution that was balancing two ideas, education and farming in one concept "educational farming". The focus of this research is the "educational farm", with the emphasis placed on the second part of it; the farm. This approach was primarily chosen because of the dairy sector. Even though the main products of AFS – milk, omega-3 eggs and turkey – have fast developed a loyal clientele, today their respective sectors of dairy, and poultry tend to be dominated by large nation-wide brands.

At present AFS, characterized by its traditional value proposition with a low market share, has positioned its dairy brands and the omega 3 eggs in the market under the term of "high quality – high price". Therefore, the

attractive market segments of the AFS involve customers that are seeking quality in a specific, rather narrow, way, and are willing to overlook the issue of price (Sarkar & Costa, 2008).

There is a strong perceived relationship that connects the existing AFS brands with each other. If the product brands gradually fade, this will negatively impact the overall AFS brand. Managing this inter-relationship and translating into operational objectives that can support the strategic vision, is proving to be a daunting task.

2. LITERATURE REVIEW

2.1 The meaning of brand and its significance for customers and companies

Competition, customer sophistication and technological developments are some of the factors enhancing the significance of branding (Heirstein & Zvilling, 2011).According to Jackson & Fulberg (2003, p. 54) branding is "A name, term, symbol or design, or a combination of them, intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of competitors".

Managers are required "to bridge the existing gaps between the manufacturer, the consumer and the distributor (Heirstein & Zvilling, 2011, p. 196). A successful brand name offers "legal protection" (Yeshin, 1998), increased future earnings (Horan, et al., 2011), as well as protection in difficult times (Thomas, 2011).

According to Davis (2009) and Gregory (2004), a brand can be considered strong when it has attained the power to persuade customers and control the market prices. From the customer's perspective, brands offer the benefits of information efficiency, reduced risk and identity expression (Riesenbeck & Perrey, 2009).

2.2 The affective and functional aspects of a branded product

The development of a new product requires certain processes such as market research, market potential forecasting and competitor intelligence (Kotler & Armstrong, 2010). These processes can be categorised as product and concept continuum, concerned with the positioning or selling concept (Moskowitz et al., 2005). Researchers divide customers' needs into three categories: functional, symbolic and experiential (Park et al., 1986). For Shimp (2008), brands which serve functional needs are created to offer a solution to the utilization problems of rational, cost-benefit calculating consumers.

Today marketers try to emotionally rather than functionally relate their brands with customers. Symbolic needs are described as needs for "self-enhancement, role position, group membership or ego-identification (…) and are designed to associate the individual with a desired group, role or self-image", whereas experiential needs are related to "sensory pleasure and variety" (Park et al., 1986, p. 139). As Hill (2008, p. 17) states, "Emotion drives reason more than reason drives emotion".

A symbolic brand is quite often the appropriate approach these days (Thompson et al., 2006). Gobe (2010) argues that traditional companies may not be able to survive just by giving emphasis to their history; instead they will need to call on peoples' feelings and continuously create an emotional connection with them. People choose consumer brands thatmatch with their personality, complete their being and enrich their life experiences. Furthermore, they are likely to recommend these brands to their community (Elliott & Percy, 2007).

2.3 Brand extension potential

Brand extension is the design and establishment of new products using the existing brand name (Sexton, 2008) and hopefully reducing the failure rate of new launches (Lehu, 2006) by obviating the need for a new product image in customer minds (Kapferer, 2008).

There are two basic forms of brand extension: horizontal and vertical (Chen & Liu, 2004; Knowles et al., 2004), both entailing a degree of danger since they involve the exposure of the company's prime asset (Zhang & Taylor, 2009) to new, non-loyal customers(Watson, 2010). Some researchers warn of negative effects, while others argue the opposite (Swaminathan et al., 2001). Zhang & Taylor (2009) take a slightly wider view and refer to the level of congruity between old and new products as an important factor in combination with ideational elements such as trustworthiness (Reast, 2005)

2.4 Product innovation and brand rejuvenation

A cumulative trend of a bundle of products nearing simultaneously the end of their lives is known under the term of "aging brands" or "tired brands" (Capon, 2008).

Creativity is considered to be one of the basic factors in the New Product Development process (NPD), and it depends to a great extent on the new innovative ideas of the company's team (Burroughs et.al, 2011). Loch & Kavadias (2007, p. 114), define "creativity as a process of developing and communicating novel ideas that are likely to be useful or influential, as long as the result is potentially valuable to someone".

Bunduchi (nd) argues that generating new ideas refers to creativity, whereas innovation is a process that, in order to be harnessed, must be undertaken and managed by the organization as a united body that will transform

ideas into real products. According to Andriopoulos (2001, p.836), the determinants of organizational creativity are: "organizational climate, leadership style, organizational culture, resources and skills and the structure and systems of an organization". This complexity raises the issue of manageability of organizational creativity, as a sub-category of the wider issue of manageability of culture (Martin, 2002).

Although innovation is considered the key to success (Cogliandro, 2007) often organizations cannot cope with discontinuous change due to strong bonds with specific practices. According to Tidd et al. (2005) organizations "build capabilities around a particular trajectory and those who may be strong in the later phase of an established trajectory often find it hard to move into a new one" (p.24).

2.5 Market orientation

In addition to creativity, innovation and a company's success are closely related to market orientation. Lambin (1996, p.63), states that "market orientation is a business philosophy involving all participants in the market and at all levels within the organization" around five components: end-customer orientation, distributor-customer orientation, competitor orientation, environment monitoring and interfunctional co-ordination.

Many researchers agree that orientation is the source of increased profitability and longevity (Kirca et al., 2005) Interestingly, the only element of the concept that was not empirically verified as correct was strategy, which has subsequently been dropped. Equally, literature gives ample evidence confirming the difficulties of perpetually aligning organizational structure and behaviour with external market forces (Yoon & Lee, 2005). Keeping the above in mind, we will utilise Lambin's list of market orientation indicators.

2.6 Intrapreneurship

The concept of intrapreneurship is invested with high expectations (Seshadri & Tripathy, 2006). Manimala et al. (2006, p.50) point out that "the ability to promote innovations originating from inside organisations is regarded (…) as a fundamental contributing factor to the survival and prosperity of firms". This ability involves an "intrapreneurship orientation" among employees, supported by organizational culture and systems. In bureaucratic organizations however, innovative employee behavior can be heretic in terms of established organizational routines (Chisholm, 1987).

The questions that arise from the concept of intrapreneurship, is the extent to which intrapreneurship is manageable, how are legitimate organizational interests defined in relation to the desired behavioral autonomy of employees, who has the right to define these interests, and finally, is intrapreneurship a sociological concept, best examined at national, sectoral, or organizational level, or a psychological concept, to be examined at an individual level?

At the organizational level Eesley &Longenecker (2006) proposed a list of Barriers and Gateways which facilitate or hind the growth of intrapreneuship in organizations. At an individual level, an employee can act as an intrapreneur if he has an understanding of herself (a reflective consciousness) in terms of wants and powers and an understanding of the organization's utility and feasibility (Papadopoulos, 2006).

In this paper, we will utilize the Lambin model, and by considering literature findings on brand extension and the intrapreneurship school of thought, we will examine the ability of AFS to rejuvenate its brand by introducing new products in a purposeful way.

3. METHODOLOGY

A prerequisite for quantitative research is the existence of a robust body of theory, which in our case exists (Edmonson & McManus, 2007). However, disadvantages such as limitations of the answers in precise dimensions can make the quantitative research a less than satisfactory method. The above gap is bridged by the qualitative method of research (Flick et al., 2007). Jones (1985) argues that the main reason of conducting qualitative research is to understand how individuals self-construct their situation utilizing their personal framework of beliefs and values; a framework that has been developed over time in order to help them explain and predict events in their world (McDaniels & Gates, 1998).

Two serious issues have to be dealt with, before the validity of a qualitative research is ensured. The first is centered on the researcher – subject relationship. The researcher needs to clarify his position: is he adopting an external stance relative to the subject, observing, and evaluating on the basis of his own chosen model, or is he accepting the subject's own explanatory schemata? If the first, "etic", stance is adopted, the researcher is in danger of being criticized for a procrustean approach that does not accept the "reality" of the subject but tries to confine it to one's own, arbitrary world-view. If the second, "emic" approach is adopted, the researcher is in danger of losing his impartiality (Schwandt, 2003).

In this paper, the researcher, is aware of the dangers and being a member of the AFS community, has the benefit of speaking the same cultural idiom as the research subjects. This cultural proximity allows her to make valid interpretations of the empirical evidence (Amaratunga, 2002).

A major instrument of qualitative research is the in-depth interview. The semi-structured type was chosen, in order to evaluate the organisation according to a specific model and its dimensions, and let the interviewees' freedom to develop their response in ways that would provide insights. Managing the tension between these two objectives was not easy; therefore the research consciously chose to follow an approach of suspended evaluation (Orr, 1986).

The questionnaires were made up of closed questions, whose strength is that they are quick to complete and weakness that the data obtained may be superficial. The results were supported by the sensory analysis which offered triggers for interview discourse and the personal interviews with the two farm managers.

The quantitative research was carried out in the week before Christmas, among customers buying their turkey from the campus-shop. These are not necessarily regular customers for other AFS products and were therefore judged to be a representative population for the needs of this research. The responses were analyzed, using mostly descriptive statistics.

Many ethical issues may be encountered especially in management research (Easterby-Smith et al., 2002). These are particularly pertinent in the case of interviewing because of the potential freedom within the interaction from exchanging information and interpretations. The researcher tried to mitigate participants' concerns by fully informing them in advance about the goals of the study and the type of questions that would be asked.

The research hypotheses are going to be answered by the following methods:

- H1: How strong is the extension potential of the AFS brand? (quantitative – survey)
- H2: To what extent was the introduction of traditional pasta products a well organized effort to rejuvenate the brand? (qualitative interview)
- H3: Can the organization build on its recent experience with product innovation to develop a coherent brand policy? (conclusion – based on the answers of the previous two)

4. ANALYSIS

4.1 The extension potential of the AFS Brand

The empirical research regarding the extension potential of the AFS product brand involved 105 existing customers.

Statistical analysis of residency reveals that the AFS retail shop trading area covers an ellipse with a long diameter of over forty kilometers. The majority, over 56% of retail trade originates from the middle and upper class residential areas of eastern Thessaloniki and suburbs, while the upper middle class center of the city represents another 13,6% of the clientele.

The respondents were asked how often they purchase milk and eggs, the mainstream AFS products, and were given an option of 5 responses (tables 1 and 2). Those, who reported scores of one or two for either product, are regarded as loyal to AFS products; as one can see, egg buying customers tend to be more loyal (46.6%) than milk buyers (28.5%).

Table 1: Consumption of AFS milk

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Systematic	14	13,3	13,6	13,6
	Often	16	15,2	15,5	29,1
	Occasional	27	25,7	26,2	55,3
	Seldom	20	19,0	19,4	74,8
	Never-almost never	26	24,8	25,2	100,0
	Total	103	98,1	100,0	
Missing	System	2	1,9		
Total		105	100,0		

Table 2: Consumption of AFS eggs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	systematic	26	24,8	25,2	25,2
	often	22	21,0	21,4	46,6
	occasionally	23	21,9	22,3	68,9
	seldom	15	14,3	14,6	83,5
	never-almost never	17	16,2	16,5	100,0
	Total	103	98,1	100,0	
Missing	System	2	1,9		
Total		105	100,0		

The respondents were asked to comment on a number of potential new products, which were proposed based on prevalent opinions of the farm team. Following standard practice, and keeping in mind the natural tendency of respondents for affirmation bias, (Archer 2003, p. 157) we will concentrate only on the "extremely interested" responses. The following table (table 3), provides the general picture.

Table 3: AFS Customers Preference in Trying New Products

Product type	Frequency	Percent
1. Fresh vegetables	53	50,5
2. Chicken cuts	42	40
3. Processed chicken	39	37,1
4. Traditional yogurt	37	35,2
5. Light milk	34	32,4
6. Freshly cut salads	34	32,4
7. Traditional pasta	30	28,6

In order to safeguard the external validity of this extension potential research, and given that respondents had no prior knowledge of the new product attributes nor did the researcher know they profiles as early or late adopters (Klink & Smith, 2001), a cutoff point of 60% highly interested respondents was set in advance (Kemp et al., 2009). The most salient aspect of the above table is that none of the proposed products reaches the benchmark figure of 60%, meaning that the general extension potential of AFS does not come close to that of strong brand names.

Another important point is that the top two product categories have no, or limited, feature similarities with the existing product range and as such, the result seems to defy established wisdom (Taylor, 2004). However, they are both closely related to the high health concerns of Greek consumers regarding vegetables - 91% reporting worried - and chicken meat - 87% reporting worried (EFSA 2010). Such fears make the population sympathetic towards any organisation that is viewed as ethical and thus safe (Reast, 2005).

The mediocre performance of the low-fat milk and traditional yogurt propositions is also interesting, as it would seem to be the most natural course for product diversification (Taylor, 2004). The explanation here could be complex, involving the interplay between the AFS image, customer attitudes and even the formulation of the question.

The loyal customers' preferences are presented in table 4.

Table 4: Loyal Customer Preference in Trying New Products

Product type	Frequency	Percent
1. Fresh vegetables	17	85
2. Traditional yogurt	14	70
3. Freshly cut salads	14	70
4. Legumes	10	66,7
5. Traditional pasta	12	60

Five items satisfy the 60%. Fresh vegetables continue to rank first; freshly cut salads rank a joint second with yogurt. This elevation could be explained in terms of increased degree of loyal customers' trust, but further research is required.

The closest to existing products entity is the traditional yogurt, which is very closely related to milk – the strong card in the AFS product range. This preference is reasonable at face value; loyal AFS customers tend to have a traditional profile, appreciating full fat milk, supporting a related brand extension and rejecting any move that might confuse the overall dairy product profile. Indirectly, the conservative dietary profile of this group is confirmed by their preference for legumes, a staple of traditional Greek cuisine (Wahlqvist et al., 1991).

Based on this interpretation AFS is faced with a dilemma; its loyal customer base is making demands contradictory to those of the general public of dairy products that tends to move towards low fat and long life milk (Elmadfa, 2005). The existing customer base of AFS is very small in terms of market share, thus it might be faced with a choice between intensifying the consumption of a narrow base or extending the latter, at the cost of alienating some of its existing customers. In short, there is a danger of marginalization of the brand, which could gradually loose its relevance (Lehu, 2004).

4.2. Market orientation of the AFS farm- Analysis of the Interview

The first entity of the Lambin construct is that of *End-Customer* and how this stakeholder group is viewed by the organization. The discussion was opened with a presentation by the researcher of the empirical findings on the brand strength of AFS. The interviewees were invited to comment on those findings. Despite repeated efforts by the researcher, the conversation remained at the level of impressions about the "ideal" AFS enthusiast and images of the past, rather than develop into a fact- informed discussion.

After a long conversation, the head of plant division entered into a monologue on the paradigm of an ideal farm that serves its own community, with little need for outside end-customers.

When asked what initiated the initial idea on the development of the new pasta products, the immediate response was that this was a departmental initiative designed as a response to a sudden and dramatic drop in wheat prices. Clearly, this is an instance of intrapreneurial behaviour (Lessem, 1998), not related to market orientation.

Later on in the discussion however, the farm manager came forth with an articulate understanding of the value that AFS products represents for its customers. The central element of that argument was that people appreciate the security that AFS represents in the food sector. This proposition was backed by factually based, longitudinal, arguments. All of the above were communicated in calm, manner, which indicates that they were the result of cognitive reflection on past experiences.

Overall, the qualitative evidence provided does not support the proposition that the farm is market oriented as far as the first entity is concerned.

The second entity of the Lambin model is Distributor-Customers. The conversation on this topic flowed well, with both respondents showing similar patterns of thought and reaching similar conclusions.

When probed to indicate the value that our products represent for the distributor, the farm manager was able to come up with a coherent proposal. Clearly, this was a statement thought out in advance of the interview. It was revealed that there were a number of discussions in the past between the two men on the topic but not with the top management.

Overall, the readiness of the interviewees to respond in a coherent and detailed fashion is strong evidence that even though there is a problem in this entity, the farm itself is market oriented.

The attitudes of the two men regarding the entity of Competitors were not formed in advance, but evolved during the discussion. As direct competitors they identified small enterprises, offering high added value products through networks of clients. A lot of emphasis was placed on companies operating through the internet, a point which triggered a number of complaints about the AFS site and the minor space given to the farm products. In fact, more time was consumed discussing internal complaint and criticism than analyzing the competition. The researcher believes that this is strong evidence of departmental silos at AFS, with corresponding loss of energy and growth of organizational introversion (Adizes, 1992).

The negative, emotion could be understood in terms of thwarted intrapreneurial aspirations; this however increases their sense-making significance in the sense that such market oriented behaviour is viewed as self-enacting rather than as a task (Oakeshott, 1991).

Again the issue is one of organizational culture, but if we combine this finding with the fuzzy attitudes regarding which market AFS really serves, one could argue that it goes deeper, to the level of organizational identity and it's underpinning basic assumptions (Schein, 2000).

This narrative was consistent with that of the next entity, Interfunctional Co-ordination. The main concern of the interviewees here was that the voice of the farm was not heard as often or as strongly as they would like by the top management, in contradistinction with an idealized past.

Overall, this persistent presence of the past in the conversation can be interpreted as a utopian vision that offers consolation, rather than direction for future action. If this interpretation is correct, then one should see the intrapreneurial behaviour of this department in a different light. If we were to categorise this conduct in an emic

fashion, we could say that it represents a romantic subversion of the present status quo in the name of an ideal community now replaced by a bureaucratic structure.

The discussion of the last Lambin entity that of Socio-economic Climate, resonates with the previous analysis. The two men were hesitant about identifying specific environmental threats to AFS, confirming an overall introversion.

Overall, based on the qualitative evidence of this interview, a clear picture emerges of a farm that is market oriented only in one Lambin entity, that of relations with distributors, with introversion being the rule and some considerable evidence of issues regarding organizational culture.

5. CONCLUSION

The first objective of this paper was to establish the extension potential of the AFS brand, in order to evaluate its soundness as a launching platform for further development. The numerical results were amenable to a straightforward interpretation, with ambiguous managerial implications. The brand extension potential among the segment of existing loyal customers is very strong, based on an AFS image as a safe and ethical food producer.

A question that emerges from this finding is the size of the existing loyal customer segment and its ability to form a satisfactory basis for further growth. The impressive trade area of the campus shop is a comforting find, but the concentration around the middle class residential areas of eastern Thessaloniki and the city centre should not be overlooked. One has to conclude that significant growth cannot result from intensification of the purchasing behaviour of existing customers; AFS must seek new market segments.

The dilemmatic character of this proposition might create issues of strategic direction. Existing customers tend to be conservative in their dietary values, a consistently traditionalist image of AFS might mobilize the converted, but it might make the brand irrelevant to the emerging ethnographic groups that shape the landscape of the Greek middle and upper-middle classes. Such changes might necessitate the migration of the AFS image from purely safe and traditional to nutritional/functional and/or gourmet. If the possibility of such developments is to be utilised, the low brand extension potential to non-loyal customers needs to be carefully examined.

The second research objective relates to the orthodoxy of the process used to develop the new pasta products at AFS, and by extension to the market orientation of the organisation. The answer that emerged from the interview with managers was unequivocal.

The above raise a final question with strategic implications: can the organisation overcome its problems and find a satisfactory strategic marketing solution? To answer this we utilised the "tame and "wicked" problem polarities.

In our case, the answer to the first research questions indicates that a structured problem formulation is possible, if difficult. So regarding this dimension our problem is tame. Regarding the relationship between problem and solution, there is evidence to suggest that there are fundamentally opposing conceptions of the nature of the AFS strategic issues, rooted in different perceptions of its identity. In this sense the problem is a wicked one.

In terms of Testability, given the strategic nature and the necessary time-lag between implementing solutions and receiving market feedback, the problem has elements of wickedness that can be magnified by internal disagreements and linkage politics. In terms of the Explanatory characteristics, given the current life-stage of the organisation, this is probably a wicket problem and will continue to be so until the present phase of cultural prismatic de-freezing gives place to a new paradigm. The same conclusion pertains to the dimension of levels of root cause analysis, which is closely related to the above. Regarding Responsibility, based on the interview responses presented in the analysis section, the AFS situation is, at least perceived as being, similar to a wicked problem.

The above evaluation of the situation pictures an organisation with a strategic marketing problem that is tame in some aspects but wicked in most. The most likely practical implication of this is that the organisation can undertake steps of a gradual, non-transformative, change of direction. Furthermore, the crucial role of leadership in changing the organisational culture becomes apparent, simultaneously showing the limitations of intrapreneurial change agents. Strong leadership can deal with the wicked dimensions of the strategic problem, starting with the people-issue of Responsibility, by providing answers in a consistent direction. The suitable leader profile and the change approach adopted should reflect the life-stage of the organization and the need to move it back to a stage of virile maturity.

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THE UTILIZATION OF PRIVATE LABEL PRODUCTS AS MEANS OF ENFORCING LOCAL PRODUCTS' BRAND IDENTITY IN GREECE.

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ABSTRACT

During the last few years, Greek supermarkets have been trying -by utilizing their access to consumers- to provide their customers with products whose marketing is controlled by them. This effort creates problems to conventional marketers, yet opportunities to some others. In the current phase of the economic cycle, where banks appear unwilling to finance supermarkets, they are increasingly examining the potential of co-operating with Greek producers. Simultaneously, the direct and indirect results of the recession, urge Greek consumers to choose Greek products and, thus, create new scenery in the Greek economy. The acceptance of Greek P.L. (Private Label) products from the Greek consumers does not ensure their establishment in the market as Local products. In order for this to happen, systematic and consistent effort on behalf of the producers and the distributors is required. P.L. products have increased their market share by utilizing the reduction of Greeks' available income, as well as Greek consumers' need for information. In this context, this paper addresses the situation in the market of Greek PL products, through a quantitative research carried out. Research was applied on a sample of 447 consumers, the results of which are encouraging for the recuperation of the lost market share of Greek producers' food products.

KEYWORDS

Private Labels, Marketing, Greece

JEL Classification Codes

 M31

1. INTRODUCTION

Private label (PL) products are developed under the retailer's brand name (plmainternational.com) and by utilizing their power retailers are essentially present in the production of consumer products (Bontemps et al., 2008).

   Private-label success behaves counter cyclically.   Lamey et al. (2007), state that there is an inverse association between the state of the economy and private-label performance, in terms of market success. From a business-cycle perspective; a country's private-label market share upsurges when the economy is in disadvantage and decreases when the economy is in prosperity. The same authors found that: a) business-cycle fluctuations induce asymmetries in both the extent and the speed of up- versus downward movements in private-label share and b) that part of the share gained during contractions is permanent. Thus, consumers are more likely to buy PL products during economic recessions, but some of them also keep buying store-brand alternatives when unfavourable economic times have gone over.

   PLMA (2011) in their annual report refer that Private Labels gained market share in 18 countries across Europe (Switzerland, Spain, UK, Portugal, Belgium, Austria, Germany, France, Finland, Hungary, Slovakia, Norway, Denmark, Sweden, Czech Republic, Poland, Greece, Italy, and Turkey). The largest market share (volume) for the year 2010 was held by Switzerland with 53% and secondly by Spain (49%), with Greece in the

16th position (22%), above Italy (19%) and Turkey (16%). According to PLMA (2011) reasons for the increase of the PL products' market share in Europe are the increased government debts, the high unemployment rates, the reduction of consumers' disposable incomes, and the rise in prices of food and fuel.

The decrease in Greek's purchasing power as a consequence of the debt crisis of the Greek economy has resulted in a shift towards private label products (Euromonitor, 2012; Lioukas, 2010). This situation is not unusual in economies which are in the recession stage of the economic cycle. It is therefore, not an unprecedented event, but rather an expected consequence of the limited available income of Greek households. Though, it is noted, that when the disposable income increases, consumers do not always return to the manufacturers brands, and when so, not with the same speed to the previous choices (Lamey et al., 2007; Ward et al, 2002). This observation suggests that the present situation creates the circumstances that will succeed in the market when the income of consumers increases.

The shift of consumers towards private products makes them evaluate products based on their characteristics thus reducing the importance of the brand name. Another result of the economic crisis in the Greek economy is the reduction of the retailers' financing from banks and the consequent difficulty in product imports. The result of the cash problems was the shift of businesses to domestic manufacturers (Vasileiou, 2012).

2. PRIVATE LABEL PRODUCTS IN GREECE

While private-label (PL) brands entered the Greek market at the end of the 1970s, they gained interest in late 1990s (Kamenidou et al., 2002).

According to Naftemporiki (1995) for the year 1995, PL products held a 5-7% share in the Greek market, which raised to 10-12% in the year 2000 (Self Service Review, 2000), continuously rising, with PL share (volume) holding 22% for the 2010 year (PLMA, 2011). The dynamic of PLs has attracted also the interest of Greek researchers whose findings are constantly measuring the progress of PL products the Greek market. A survey conducted by the Athens University of Economics under the supervision of Professor George Baltas gives us a complete picture of the progress of PL products in Greece. According to the results of the 2011 survey, with a sample of 1,928 households recording consumers' attitudes towards private label products in the Greek market the vast majority of the sample (89.2%) believes that private label products have better price; 54.5% that it is of the same quality, and 4.3% as better quality compared to manufacturers' brands. As to packaging 3.9% of the sample finds it better and 54.8% comparable to those of established brands, and regarding PL reputation, 51.9% considered them as the same reputation and 5.8% believes that they have a better reputation than the manufacturers brands. As to overall evaluation of the products, 59.5% of respondents believe that private labels are considered the same as manufactures' brands and 5.7% better. In measuring consumers' satisfaction, 52.7% were satisfied, and 36.7% neither satisfied nor dissatisfied. The consolidation of private label is reinforced by the economic crisis and the change it brings in the Greeks' consumer behaviour (Anonymous, 2011).

From the above it is clear that in this period where Greece undergoes the economic recession, private label food products are an important part of the Greek retailing status. Under this context, this paper focuses on consumers' attitudes and purchasing behaviour towards private-label brands. This research answers the following research questions:
1. Are Greeks more prone to purchase PL products due to the economic downturn?
2. Is price the main reason for purchasing PL food brands in the economic recession stage that Greece is in?
3. Why don't Greek consumers purchase PL food brands?
4. How do Greek consumers evaluate PL foods' quality?
5. What type of PL foods do Greek consumers purchase?
6. Can consumers be segmented upon category purchase and attitudes towards PL products?

The paper is organized as follows. In the next section the literature review is presented regarding PL products in Greece, followed by the research methodology and the research findings. This paper continues with the discussion and conclusions, and concludes with the limitations and directions for further research.

3. Literature Review

There is an abundant literature regarding private-label brands. Among other themes that were examined were their success from different point of views such as product quality, retailers' price, margins and market power, price or consumer's price consciousness, the role/impact of promotion or advertising for both national and private-label

brands, or the role of consumers' characteristics in purchasing, proneness and attitudes towards private label brands (e.g.Guerrero et al. 2000; Sethuraman and Cole, 1999; Krishnan and Soni, 1997; Parker and Kim 1997; Quelch and Harding, 1996).

Even though the market share of PL products is continuously growing in the country, yet there is little academic research regarding PL products in Greece. Herstein et al., (2012) investigated the association between three personality traits (individualism, materialism and the "need for cognition") and two characteristics of shoppers who buy private-label brands (their predisposition to do so, and the importance they attach to the "brand dimensions") across four member countries of the Union of the Mediterranean, amongst them and Greece. The research was undertaken with a questionnaire in the local language with 683 undergraduate students. They found that overall; the personality traits were significantly associated with behavioral characteristics. Specifically, materialism and the need for cognition were linked to inclination to purchase private brands, and materialism and individualism to the perceived importance of brand dimensions. Also, cross-cultural differences were found.

Konstandakis and Kourkoulos (2011) researched the BIO- PL brands under the name "AB-BIO" of the food retailer AB Vassilopoulos, by interviews in 12 AB Vassilopoulos supermarkets in Athens, as well as data from the managers of the supermarkets. They found that AB Vassilopoulos line AB Bio, enjoys the pioneer's benefits in the Greek organic private labels segment, attains high penetration, presents a large variety of organic products in a reasonable end price and compete directly to the manufacturers brands that offer organic products. Petrova and Malinova (2010) investigated consumers' loyalty patterns and how they are influenced by different product attributes (brand type, product type, price, promotion and placement) between store brands and manufacturer brands for soft-drinks and olive oil market in 41 stores in Greece. Observed loyalty measures were compared to predictions from the Dirichlet model. The results revealed that loyalty patterns differ between manufacturers' brands and private labels.

Chaniotakis et al (2010) explored the factors affecting consumers' intentions to buy a PL premium olive oil. Research was undertaken in the greater area of Athens, Greece by a means of a questionnaire with 799 consumers. Data analysis results, using structural equation modeling, showed that consumers' purchasing intention is straightly influenced by consumers' attitudes towards PL olive oil, which in turn are affected by consumers' perceived benefits, economic situation, brand loyalty and trust. Moreover, the level of income had a direct negative impact on both consumer attitudes and purchase intention.

Lymberopoulos et al (2010) analyzed the role of "trust" and "confidence/pessimism" in Influencing consumer attitudes and buying intentions regarding detergent PL brands and products. Research was conducted in Athens with of 581 households. SEM analysis reveled that the perceived by consumers' benefits (competitive price, efficiency and favorable price-to-quality ratio) and the attitudes they hold with impact to purchase intentions, was affected by their degree of confidence/pessimism regarding their general economic situation and their trust in PL brands. Chaniotakis et al (2009) identified the factors that affect consumers' intentions of buying PL frozen vegetables with a field research carried out in Athens on a sample of 286 consumers. Data analysis was performed using Structural Equation Modeling. The results revealed that consumers' intention of buying PL frozen vegetables is directly affected by consumers' attitudes toward this type of products and that consumers' attitudes toward PL frozen vegetables are influenced directly by the perceived benefits and indirectly by consumer trust and perceived economic situation.

Baltas and Argouslidis (2007) researched consumer characteristics that were associated with interpersonal differences in store brand demand, using computer-assisted telephone interviewing on 700 consumers in Athens, Greece. They found that spending per trip; monthly expenditure; gender; family size and age were not associated with the dependent variable. The "frequency" variable implied that consumers who shop more frequently are more store-brand prone. The "store loyalty" and the "brand sensitivity" variables had a negative effect on private label buying, while "price sensitivity" had a positive relationship with store brand proneness. Lastly, they found that favorable evaluations of store brands are positively associated with consumption rates.

Burt and Mavrommatis (2006) investigated through a case study of DIA supermarkets owned by Carrefour, whether a retail store brand can effectively standardize its image in a foreign market. Research which was undertaken in Spain (the home market) and Greece (a host market) measured the company's store brand image and that of local competitors. They found that although consumer perceptions of brand image differ in the host market from those found in the domestic market, when the local competitive context is taken into account, both stores were found to be perceptually distinct from the competition and occupy a similar market position.

Veloutsou et al. (2004) investigated the consumers' criteria considered important for choosing PL brands and manufacturers' brands in Greece and Scotland, with a sample of 104 and 224 consumers respectively. According to their results, Greek consumers were less familiar with PL products, were more influenced by communication

and impulse buying and were less willing to purchase them. Also, the selection criteria for PL products, the perceived product characteristics and their demographic characteristics influenced consumers' purchasing intentions.

Baltas and Papastathopoulou (2003) explored the relationships among consumer characteristics, brand choice criteria and store selection criteria, with 200 in-store, personal interviews. They concluded to that choice of PL products is found to be a store selection criterion of low importance for grocery shoppers, since the store brand concept is rather underdeveloped and not used as a means of store differentiation.

Tzimitra-Kalogianni et al., (2002a) in their research of PL brands in Thessaloniki, Greece, investigated awareness, source of awareness and age and gender effects on awareness for food related PL brands. They found that the majority of the consumers are aware of private- label brands, with main information sources being store shopping and the supermarkets' price advertising leaflets. Age and gender affects were tested for awareness, source of awareness and recall of supermarket offering food-related private-label brands, which revealed that gender effects brand awareness and source of awareness, while age effects recall of the supermarket selling the brands (and consequently the PL brand name).

Kamenidou et al., (2002) explored the buying behavior and consumer attitudes towards private label evaporated milk. The survey involved 262 consumers. The results showed that only 35.2% of the sample bought private label evaporated milk, while 66% of them repurchased the product. Tzimitra-Kalogianni et al., (2002b) investigated consumer purchasing behaviour and attitudes towards private label milk. The sample consisted of 206 households. The results showed that few households purchase private label milk. Main reasons for this, is the perception that they are inferior when compared with the milk of branded industries, purchasing routine and that consumers do not want to risk having to change the brand they buy. The main reason for purchasing is product's price.

4. RESEARCH DESCRIPTION

The research was conducted by means of a personal questionnaire especially formulated to measure consumer attitudes towards PL food products. The questionnaire included closed ended questions, multiple choice answers, as well as Likert and Likert type scales (impressions and total satisfaction from P.L. products).The questionnaire was completed by the interviewers during spring-summer 2011, in Thessaloniki, Greece. The mall intercept sampling method was used (Malhotra, 2012). The objective was attached to the questionnaire, which was the only primary data collection instrument used.

In total, 447 participants took part in the survey, from which the 56.5% was female and the rest 43.5%, males. The 30.5% of the sample was above 45 years of age, the 25.5% ranged from 35-44, the 27.0% between 25-34 and the rest 17% between 18 and 24 years old. Most of the respondents (45.5%) held a bachelor degree; 40% had a 6 year high-school graduates (lyceum); and 6% of the respondents were 3-year high school (gymnasium) graduates. The family net income per year was used to classify respondents in 4 groups: Those who had a family income below 15000 Euros (30.5% of the sample), those who had a family income ranging from 15001-30000 Euros (32.5% of the sample), those who had an income of 30001-45000 Euros (27% of the sample) and those who had a family net income above 45000 Euros per year (10% of the sample).

The data was analyzed using the SPSS ver.17 program and analysis included descriptive statistics (frequencies, percentages and means). Then, using the software programme M.A.D (Méthodes d'Analyses des Donées; Karapistolis, 2002) factorial correspondence analysis was applied.

5. RESEARCH FINDINGS

In general, the majority of the sample purchases PL products (78.5%), with products low price remaining the strongest motive for the consumers (Table 1). Regarding frequency of purchase of PL products, 34.6% of the sample purchase at least one per week; 39.0% once in two weeks; 19.5% once per month; and the rest 6.9% less than once per month.

Table 1: Reasons for purchasing P.L. Foods

Reason	N	Percent
Price	155	42.0
Trust (Retailer)	44	12.0
Quality (Taste)	40	11.0
Varieties	26	7.0
Habit	22	6.0
Reliabilty (Retailer)	22	6.0
Brand	15	4.0
Promotion	12	3.0
Merchandising	11	3.0
Reputation (Retailer)	11	3.0
Packaging	9	2.5
Total	367	100.0

Consumers who do not buy PL products, report that they do so, because they consider the quality of PL food products as being low, compared to manufacturers brands (table 2).

Table 2: Reasons for non-purchase of PL foods.

I don't buy PL foods because:	Responses	
(Statement)	N	Percent
Low Quality	29	36.3
Lack of trust	17	21.3
Loyalty towards a Brand	16	20.0
Not sufficient performance	11	13.8
Careless Packaging	6	7.5
Lack of advertising	1	1.3
Total	80	100.0

Regarding what types of PL foods customers usually purchase (table 4), the category of rice and pasta is first, followed by snacks and chocolate products, juice drinks and water, while the less common category is the one of alcoholic drinks, beers and wines.

Table 4: PL product categories purchased by consumers

Type of P.L. foods Greek consumers buy	Responses	
	N	Percent
Rice and pasta	78	12.7
Biscuits & Snacks	71	11.6
Soft drinks, table water, etc	62	10.1
Processed food in cans	52	8.5
Bread & bakeries	51	8.3
Milk & dairy	49	8.0
Cereals	43	7.0
Spices	42	6.9
Frozen vegetables	37	6.0
Coffee	37	6.0
Meat based delicatessen	27	4.4
Oil & vinegar	25	4.1
Wine and beer	19	3.1
Other foods	19	3.1

In reporting consumers attitudes towards the statement "PL have satisfactory quality". Regarding this statement, the sample responds are divided in three almost equal categories. Those that agree (agree and completely agree) representing 38.3% of the sample, those that neither agree nor disagree (30.2%), and those that disagree (disagree or completely disagree) representing 31.5% of the sample. Also, in reporting consumers perceptions regarding value for money, 40.9% of the sample consider prices normal compared to their quality; 47.8% consider them of lower price compared to their quality and only 11.3% consider them of high price products compared to their quality. Lastly, when asked if the PL food product brands had almost the same price as manufacturer's brands, what consumers would purchase, 56.1% of the sample answered that they would switch again to the national brands; 15.1% would keep on purchasing PL food brands, and 28.3% would purchase both national and PL brands.

Continuously, data was analyzed with correspondence factor analysis for the reasons for preference of food and for the basic criteria according to which PL foods are evaluated by respondents. From the 1x2 factorial levels (34% of the total inertia) 3 segments (trends) have emerged from the sample of respondents.

Figure 1: Combining product category intentions with attitudes towards PL
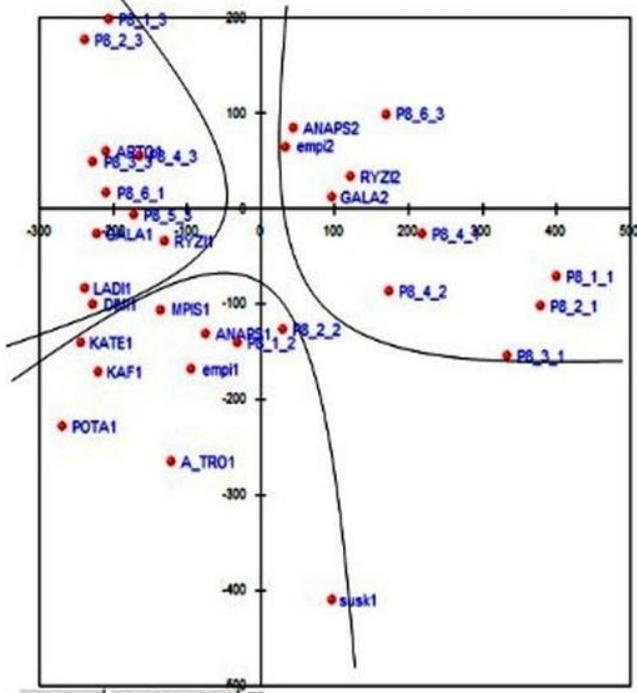
Segment 1: This segment purchase mostly the following PL products: frozen, coffee, beer / drinks, soft drinks and biscuits stated as reasons for their preference in the supermarket chain: Trust and reliability and size of the package (quantity of product). Consumers of this segment are also neutral in evaluating the quality and reliability of branded foods.

Segment 2: Those who buy mostly oil, cereals, milk, rice and bread. This segment purchases PL food products because they have good performance. They do not believe that manufacturers' brands have better quality, or are more reliable, and are not selecting food products according to their brand, packaging, and advertising.

Segment 3: This segment does not purchase PL food products and are those that do not trust the retailers, consider manufacturers branded products as with better quality and more reliable; also, this segment selects food products according to their brand and packaging.

The above analysis reveals that a significant portion of consumers accepts products, especially in certain food categories. This finding is consistent with past research and indicates the need for a deeper investigation of consumers' behaviour when they evaluate evaluating different product categories of consumers. Many consumers have not completely abandoned branded products, although they consider the PLs as an acceptable substitute. The reduction of consumers' disposable income and the difficulties that the Greek retailers face in financing their operations, creates conditions that allow the placement of PL products.

6.   DISCUSSION-CONCLUSIONS

This research had as objectives to answer to 6 questions, upon which the survey was built upon. First objective was to answer to the question if Greeks are more prone to purchase PL products due to the economic downturn that the country experiences. The research findings revealed that 78.5% of the sample purchases PL products. Previous research had shown that PL purchase was quite less. Kamenidou et al. (2002) in their study for PL milk found that only a 38.5% purchase it, while Lymperopoulos et al. (2010) in examining PL detergent purchase found that the purchase rate was 54% of the respondents. Also, in Veloutsou et al., (2004) study with 5 PL categories (coffee, biscuits, toothpaste, washing up liquid and shampoo) a significant proportion of the respondents purchased PL brands: 71%, but they did not define the percentage of PL food products that was purchased. Thus, as it seems, PL food products have a definite increase, especially in the economic situation the country is in. This is partially in disagreement with the findings of Chaniotakis et al. (2009) who research consumers intention of buying PL frozen vegetables and who found that the perceived economic situation had no direct effect onconsumer attitudes but it did effect directly the perceived benefits of the PL frozen vegetables. Thus, meaning that the more pessimist consumers are about the total economic situation, the more

persuaded they seem to be about the benefits of private label frozen vegetables, which influences intention of purchase.

Second objective was to explore if price is the main reason for purchasing PL food brands, especially now due to Greece's' economic downturn. Findings showed that 42% of the respondents that do purchase PL products are motivated from their price. PL products price seems to be the main reason compared to others, since the next reason –trust towards the retailor motivates only 12%, and product quality motivates only 11% of the sample. Baltas and Argouslidis (2007); Veloutsou et al (2004) and Tzimitra-Kalogianni et al. (2002b), in their studies found that price was the main motivator for purchasing PL products. This implies that Greek consumers due to salary cut or unemployment that they experience switch to substitute brands. Quelch and Harding, (1996), Ang, Leong, and Kotler (2000), Hoch and Banerji, (1993), showed that when economy downturns, the proportion of consumers who switch to PL products tends to increase, as households reduce their monthly expenditure on consumption for everyday life products. The result is that many of them, turn to lower price competitors, such as PL.

Third objective of this study was to investigate why Greek consumers do not purchase PL food brands. Our findings report that marketing communication techniques are not reasons for non-purchase. On the other hand perceived low quality, lack of trust towards the retailers and brand loyalty are the main reasons. This is in agreement with the findings of Tzimitra et al. (2002b) who found that the main reasons for not purchasing PL concentrated milk is the perception that it was inferior quality compared to the manufacturers brand, and to Kamenidou et al (2002) who found that reasons for non purchase of PL milk was brand loyalty.

Fourth objective of this research was to report consumers attitude towards the statement "PL have satisfactory quality". Regarding this statement, the sample responds are divided in three almost equal categories. Those that agree (agree and completely agree) representing 38.3% of the sample, those that neither agree nor disagree (30.2%), and those that disagree (disagree or completely disagree) representing 31.5% of the sample. Thus again this implies that most consumers are "forced" to purchase PL food products due to the economic condition that they are experiencing, and that if they obtain their previous income, that probably, they will again switch to the manufacturer's brand that they purchased before. This comes in agreement with Lamey et al. (2007), who suggests that a country's private-label market share upsurges when the economy is in disadvantage and decreases when the economy is in prosperity. This is documented with consumers' statements that if prices of PL brands tend to come close to national brands prices, then they will again switch to national brands (56.1% of the sample)

Fifth objective of this research was to report the PL food category products that Greek consumers purchase. Our findings record that consumers purchase mainly rice and pasta, and biscuits and snacks, while products that are considered as high involvement for Greeks, or important quality when used (e.g. olive oil, meat delicatessens, wine) is very low in consumers choices. This is in partial agreement with the findings of Chaniotakis et al., (2010) who concluded that olive oil is traditionally considered to be a premium product. He also found that the intention of purchasing Pl olive oil is positively influenced by consumer attitudes towards this product and trust in PL, while it is negatively influenced by brand loyalty and consumers' level of income.

Lastly the sixth objective of this research was to segment consumers based upon category purchase and attitudes towards PL products. The products revealed three segments. These segments can be taken into account from retailers marketing staff in order to strengthen the bond between retailers and customers.

7. LIMITATIONS –DIRECTIONS FOR FUTURE RESEARCH

Several limitations should be kept in mind when interpreting the results of this study. First of all the research took place in only one city, Thessaloniki, Greece. Also, a small sample was collected with a non-probability sampling method. In this context a larger research with an expansion of the research to other areas and cities and with a larger sample size with probability sampling would be needed to confirm the findings of this research. Many elements of PL product purchase could not be researched due to time and economic constraints, such as why do not consumers trust the retailers practicing PL products? Or why do they not purchase some categories of PL products (such as wine or olive oil or meat). Future research that focuses on specific food categories and draws on samples from different groups of buyers would strengthen the external validity of the results.

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VISITORS EXPECTATIONS FROM THE THERMAL SPRING BATHS OF SMOKOVO KARDITSA. A FACTOR ANALYTIC APPROACH

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ABSTRACT

Theaim of this study is to investigate what visitors perceive as important wellness facilities and services, as well as their expectations when visiting the thermal springs of Smokovo, Karditsa, Greece. Quantitative research was adapted for data collection, realized on the premises of Smokovo thermal springs. Research instrument was a questionnaire developed especially for this purpose based on the results of qualitative research and previous literature review.

Seventeen expectation–importance attributes were measured on a five point scale, with 240 spa visitor participants. Data analysis included descriptive statistics, reliability, and factor and cluster analysis. Five factors derived based on visitors' perceptions. Namely F1: High qualified staff (polite staff, discreet staff, and helpful staff); F2: Wellbeing (Being able to follow a balanced diet-have healthy food, to have the feeling of well-being, feeling that I am doing something beneficial for myself and my health); F3: Spa organization *(*program hours freedom, food quality, good general organization, low prices); F4: Spa hygiene and comfort (clean spaces, comfortable spaces, pleasant environment of stay); and F5: Relaxation(to rest, to relax). Cluster analysis exported two clusters: the customers with high demands- expectations and the ones with moderate demands-expectations. The results of this research could be a valuable input for thermal spring/spa managers, giving directions for satisfying the visitors and consequently maintaining market share. Thermal spring/spa managers through the dimensions' value and clusters should amend those that have room for improvement.

KEY WORDS

Wellness tourism, thermal springs, expectations, marketing, facilities, services.

JEL CLASSIFICATION CODES

M31 – Marketing

1. INTRODUCTION

Since ancient times thermal water springs are acknowledged to be valuable natural sources, due to their therapeutic and health- alleviating effects (Moss, 2010). Hippocrates (460 – 375 B.C.) reported the curative attributes of hydrotherapy and recommended balneology and drinking for curative and preventative reasons (Agelidis, 2002). Thus, health tourism in Greece goes back to the ancient times. Greeks were aware of the great healing properties of thermal springs, and Greek people would visit them for bathing and drinking. The fifth century BC, the Asclepieia were built near thermal springs (Talarovičová et al., 2010; Sebastiano, 2003). They were sacred places worshiping the healer god Asclepius, but in reality they were the first "hospitals" or health "building structures" not only for Greeks, but for the wider Western civilization offering their services from about the time of the Trojan War up to the 6th century AD (Chatzicocoli-Syrakou, 2001). The

Asklepieia functioned similarly with today's hospitals, but involved not only physical health but mental health care also (Manios, 2008).

Health tourism, a subcategory of tourism, in the last decades continuously gained grounds, due to today's people modern way of living, consumers being more health conscious, and a turn to a more nature and natural based alternative preventive and curing methods.

The WTO defines health tourism as "…. associated with travel to health spas or resort destinations where the primary purpose is to improve the traveler's physical well-being through a regimen of physical exercises and therapy, dietary control and medical services relevant to health maintenance." (Rulle, 2008: 20-21 in Breitrück & Nunn, 2011). In turn, Breitrück & Nunn (2011), state "Continually health tourism can be seen as a general term for cure tourism and spa or wellness tourism. Cure tourism and the less medical form of spa tourism are two overlapping types as both forms are unified in the same destinations, offering health oriented services, and attracting people for the same reasons, namely the regeneration of one's physical and psychological well-being as well as treating diseases".

Thermal bath visitation is acknowledged as a type of wellness tourism (Sheldon & Bushell, 2009; Smith & Puczkó, 2009; Georgiadis, 2005). Ikkos (2002) stated that in Greece health tourism is connected mainly with thermal tourism and balneology for curative purposes, while Kepinska (2003) states that this sector of recreation and therapy has a great economic potential. In the last decades, with the rising trend for a more "natural" way of life and "natural" therapy (Sheldon & Bushell, 2009), thermal baths gained special interest.

Greece has numerous thermal and mineral springs (Arvanitis, 2008). In recent years, competition even in the health tourism industry is very intense. So, it is of crucial importance for marketers to understand customers' expectations, to respond to them, in order to enjoy repeated visitation (White & Yu, 2005; Oliver, 1997).

Under this context, and having in mind that to our knowledge there are no published research focused on the thermal springs of Smokovo from the customer-perspective side, this research aims to explore visitors expectations of Smokovo spa as well as the perceived important facilities and services, and to segment visitors on this basis.

1.1.Smokovo baths

The natural thermal spring baths of Smokovo or Smokovo Spa is situated 35 kilometers northwest of Karditsa, Thessaly prefecture, central Greece, in 450 meter altitude, on the slopes of St. Elias hill on the Agrafa Mountains (loutrasmokovou.gr). The spa's thermal waters have a natural temperature of 37-40.2^{o}C channelled to the hydrotherapy facilities (Anonymous, 2010). Because the water is sulphurous alkaline, it heals chronic rheumatism, arthritic, rheumatic and endocrinological disorders, sciatica, neuralgia, muscle aches, respiratory and gynaecological problems and skin diseases. The method of treatment is bathing and inhalation. On April 19, 1983, the Hellenic Tourism Organization granted the exploitation of resources and facilities to the community of Loutropigi (Smokovou). Then after, the Community Enterprise of Smokovou Baths, which now became a Public Limited Company, proceeded to renovation. Regarding the hydrotherapeutic facilities, 43 individual spa baths function with hydro massage, 22 individual inhaler devices and 7 individual chamber devices for nasal rincing-showers chamber. Also in the new section, their is the Hot Tank swimming pool, sauna rooms (conventional and diathermal) and hamams (steam baths), massage rooms and a fully equipped gym (loutrasmokovou.gr). Today, it is a modern spa which offers its visitors relaxation, invigoration, and wellbeing since it has modern and fully equipped facilities.

Methodology - results

2.1 Procedure and sampling

The research was conducted by means of a questionnaire developed from literature review and qualitative research. Research was substantiated on the premises of the thermal spring/spa of Smokovo Karditsa on a sample of 240 visitors. Since, this research is considered as a first attempt to study visitors of the Smokovo spa, the sample size can be considered as satisfactory for the purposes of the research as well as the main statistical analysis utilized (Hair et al., 2005). Data analysis included descriptive statistics (frequencies, percentages and means), reliability, factor and K-means cluster analysis.

2.2 Consumers' profile

As to gender, 51% of the sample was males and 49% were females. The great majority of respondents (64%) were more than 65 years of age, married (71%), didn't finish elementary school (53%), were on pension (45%) and had a net family income up to 1200 Euros (64%). Only 12% of the sample was first time visitors, 68% had visited Smokovo thermal spring/ spa 2-4 times and 20% of the sample 5+ times. First time visitation occurred over 50 years of age (95%) and main reason for visitations was "I followed my friends, relatives, or spouse" (40%).

2.3 Expectations and perceived important facilities /services

Table 1 presents the 17 items measuring customers' expectations from their visit to the Smokovo's thermal spring spa, as well as the perceived important facilities /services. The three most important attributes -expectations with the higher Mean Score (MS) were: Good food quality (MS=4.58), helpful staff (MS=4.45) and discreet staff (MS=4.37). On the other hand, no item had MS<3.00, and the item with the lowest MS was to "relieve pain" (MS=3.47).

Table 1. Expectations and perceived important facilities /services from Smokovo Thermal Spa visitation (%)

Statements	Completely agree	Agree	Neither agree/ disagree	Disagree	Completely disagree	Mean score (St.D)
Good food quality	58.3	40.8	0.8	0.0	0.0	4.58 (0.51)
Helpful staff	49.2	46.7	4.2	0.0	0.0	4.45 (0.57)
Discreet staff	46.7	43.3	10.0	0.0	0.0	4.37 (0.65)
Get healthier	65.8	32.5	1.7	0.0	0.0	4.31 (0.49)
Qualified staff	41.7	47.5	10.8	0.0	0.0	4.31 (0.66)
Clean spaces	70.8	29.2	0.0	0.0	0.0	4.29 (0.45)
Pleasant environment of stay	35.0	53.5	11.7	0.0	0.0	4.23 (0.64)
To get rest	26.7	64.2	9.2	0.0	0.0	4.18 (0.57)
Freedom in the program	32.5	34.2	3.0	3.3	0.0	3.96 (0.82)
To relax	21.7	48.3	25.8	4.2	0.0	3.88 (0.79)
Comfortable spaces	15.0	58.3	25.0	1.7	0.0	3.87 (0.70)
To have the feeling that I am doing something good for my health	10.8	62.5	26.7	0.0	0.0	3.84 (0.59)
Low prices	20.0	44.2	33.3	2.5	0.0	3.82 (0.78)
Good general organization	3.3	71.7	25.0	0.0	0.0	3.78 (0.49)
Being able to follow a balanced diet-have healthy food	10.8	39.2	40.0	9.2	0.8	3.50 (0.83)
To have the feeling of well-being	4.2	40.0	54.2	1.7	0.0	3.47 (0.60)
Relieve pain	9.2	54.2	30.8	5.0	0.8	3.43 (0.76)

2.4 Factor analysis - Cluster analysis

The 17 expectation and perceived important facilities /services attributes were factor analyzed (PCA varimax rotation) for variable reduction (Table 2). Two items were dropped due to double loading (relieve pain, get healthier), and five dimensions arose (K.M.O. = 0.713; B.T.S=1095.760; df=105; p= 0.00) accounting for 69.6%

of the Total Variance (T.V.), with total reliability of the scale, a=0.831. Factor 1 was named *"High qualified staff"*,because it was associated with the three items regarding the staff, and with factor loadings ranging from 0.790-0.819. Factor 2 waslabelled *"Wellbeing"* since it includedthe items associated with wellbeing and self-reward, and with factor loadings ranging from 0.599-0.823. Factor *3 was named* "Spa organization", because it encompassed the three items referring to the spa organization and with factor loadings ranging from 0.605-0.720. In addition, Factor 4 was labelled *"Spa hygiene and comfort"* because itcontained the three items referring to cleanness and spa's environment with factor loadings ranging from 0.681-0.699. Lastly, Factor 5 was labelled as *"Relaxation"* since itcomprised the two items: rest and relax, with factor loadings ranging from 0.737-0.786.

Table 2: Factors extracted for visitors expectations –important facilities /services attributes from Smokovo Spa visitation

Factors	Satisfaction statements	Factor loading	Cronbach a/ factor
*Factor 1:***High qualified staff**	Discreet staff	0.819	
27.8% of T.V*. MS**=4.38 (0.54)	Qualified staff	0.796	0.9814
	Helpful staff	0.790	
*Factor 2:***Wellbeing**,	To have the feeling of well-being	0.823	
14.3% of T.V. MS=3.60 (0.54)	Feel that I do something good for my health myself	0.723	0.785
	Being able to follow a balanced diet-have healthy food	0.599	
*Factor 3:***Spa organization**	Low prices	0.713	
	Good general organization	0.720	
10.2% of T.V MS=4.11 (0.49)	Freedom in the program	0.685	0.734
	Good food quality	0.605	
*Factor 4:***Spa hygiene and comfort.**	Clean spaces	0.798	
9.2% of T.V. MS=4.13(0.47)	Pleasant environment of stay	0.699	0.781
	Comfortable spaces	0.681	
*Factor 5:***Relaxation**	To relax	0.786	
8.1% of T.V. MS=4.24 (0.0.42)			0.558
	To get rest	0.737	

T.V*.= Total Variance; MS**= Mean Score (StD)

In order to segment the sample based on the five factor dimensions of the expectation and perceived important facilities /services attributes, cluster analysis was employed. The analysis resulted in a two cluster solution. Multivariate statistics indicated statistical significances difference between the two clusters where all factors contributed to differentiate the two customer clusters. Each segment's Final Cluster Centers (FCC), the sample size, and ANOVA test results are presented in Table 3.

Table 3: Segments of the Smokovo thermal spring visitors based on expectation and perceived important facilities /services attributes

Expectation Factors	1st cluster, n=122	2nd cluster, n=118	Statistics
F1: **High qualified staff** (polite staff, discreet staff, and helpful staff)	**4.73**	4.01	F=187.975 (p=0.000)
F2: **Wellbeing** (Being able to follow a balanced diet-have healthy food, to have the feeling of well-being, feel that I do something good for the self and my health)	4.35	3.29	F=111.514 (p=0.000)
F3: **Spa organization** (program hours freedom, food quality, good general organization, low prices)	4.52	3.89	F=67.070 (p=0.000)
F4: **Spa hygiene and comfort** (clean spaces, comfortable spaces, pleasant environment of stay)	4.56	3.89	F=80.187 (p=0.000)
F5: **Relaxation**(to get rest, to remove stress).	4.44	**4.14**	F=13.232 (p=0.000)

The two segments obtained via K-means cluster analysis were:

Cluster I: *High demanding-expectation customers.* The first cluster represents 50.8% of the sample. It has the highest FCC's compared to the second cluster. This segment is called the high demanding customers because they have high expectations from all the factors. This segment may have high expectations because they are "rational consumers" wanting their value for money or because it was highly praised by friends or relatives (WOM).

Cluster II: *Moderate demanding – expectation customers*. The second cluster represents 49.2% of the total sample size, and tends to be the moderate demanding customers. This segment has high expectations (FCC>4.00) from 2 out of the 5 factors: high qualified staff and relaxation. This could be because they have previously visited Smokovo thermal spring and already had developed an opinion, or because they do not have an alternative thermal spring to go to nearby (they live in the area), or even because they came for a specific relaxation treatment so they don't care about the facilities that they do not use.

2. DISCUSSION- RECOMMENDATIONS

Pirnar & Içöz (2010) state that in health tourism, it is important that customers' expectations are met and in this context the knowledge of customers' expectations is very important for a thermal spring spa business to retain and expand its market share.

The findings of this study are consistent with previous studies. These findings are consistent with the findings of Yildirim (2005 in Pırnar & Içöz, 2010) who found that the basic expectations for health and wellness tourists was highly qualified staff, and with those of Alén et al. (2006) who found that spa visitors had high expectations for the following items: cleanliness and hygiene, employees with good training, food and drink, and competitive prices. Also, Priszinger et al., (2010) found that spa guest require more services related to the food and specifically to have healthier or green food. Lastly, Mak et al., (2009) found that important factors that motivate spa visitors is among others: relaxation and relief, escape, self-reward and indulgence and health and beauty. Hjalager et al., (2011) referred that according to a customer survey conducted at the Finnish Travel Fair 2010 in Helsinki, potential wellness tourists are predominantly expecting relaxation and comfort (4th factor), second most important element was healthy food (item in the 2nd factor) and the third was health promoting and enhancing services. They stated that their results support the fact that taking care of oneself and relaxation are activities that are valued highest during their wellbeing holiday. Also, Cooper et al., (1995) found that significant success components for a spa were among others: a pleasant, varied and well-organized stay and food and services (3rd factor); staff efficiency (1st factor); a relaxing venue (5th factor); and suitable diets (2nd factor). Lastly, in their survey of customer expectations of service quality of the hot springs tourism experience, Hsieh et al., (2008) found that customers' expectations were: a high standard of treatment from professional staff, suitable diets of good quality with many taste choices, a variety of programs, comfortable accommodation, and ancillary facilities.

In service industries, what is considered important by guests, depends also, on the nature of the service that the guests receive (Kamenidou et al., 2009). The same can be said for the spa industry. Hence, the results from this research may have some significant suggestions for the marketing manager of the Smokovo's spa.

The results of the cluster analysis based on the derived factors,regarding expectation and perceived important facilities /services attributes, guide the spa's industry marketing manager in directions to be given special attention to meet customers' expectations and perceived important attributes. The high demanding segment is obviously more difficult to satisfy, since it has high expectations from all items included in the survey, compared to the moderate demanding ones. In the tourism industry where competitiveness is very strong, merely satisfaction is not the point. The Smokovo Spa must exceed customers' expectation levels in order to delight its customers and receive loyalty, and positive word of mouth (WOM).

3. CONCLUSIONS -LIMITATIONS

This research has contributed to the practical improvement of the Smokovo spa industry performance in Karditsa Greece, by investigating customers' expectations and perceived important facilities /services attributes, from the thermal springs attributes provided. The results of the analysis reveal variations in the level of visitors' expectations. These results can be used as basis for improvement in order to retain and increase their market share. Even though, there was an attempt to minimize limitations when designing this research, still some exist and need to be mentioned. First of all, the outcomes of this study may not have represented all spa-goers in Smokovo Karditsa, since a non-probability sampling process was used to gather the data. Furthermore, the study was conducted in one out of 82 operating thermal springs in Greece. Thus a study that would include more thermal springs could be performed to validate the findings. Lastly, there are more items that could have been included in the questionnaire, but these were the ones most mentioned in the qualitative research. Thus, a research that includes more variables and in other thermal spring spas is needed to confirm the findings of this research.

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DO STUDENTS CONSIDER NETWORK MARKETING (MULTI-LEVEL) MARKETING AS A BUSINESS OPPORTUNITY?

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Abstract

This paper aims to explore the students' attitudes in Greece towards the development of network (multi-level) marketing as a business opportunity. More specifically this study aims to identify the main students' beliefs towards the development of the network marketing as a business opportunity and the main factors that influence them in using network marketing enterprises as a marketing outlet. Field interviews conducted in a random selected sample consisted of 100 students in November and December of 2011 in the Kavala Institute of Technogy. Principal Components Analysis

(PCA) performed to identify the students' attitudes in Greece towards the development of network (multi-level) marketing as a business opportunity that are: (a) it consists of a marketing opportunity, (b) it consists of a job opportunity, (c) it needs and based on teamwork and (d) it is a profitable enterprise. PCA also indicated that students mainly use a network marketing enterprise as a marketing outlet due to (1) the reliability and (2) the convenience issues. In the next stage hierarchical and non hierarchical cluster techniques employed to classify student with similar attitudes and identified 3 groups of students: (a) those who believe that network marketing is a reliable marketing method characterised by a good teamwork, (b) those who consider it as a marketing and job opportunity, (c) those who believe it consists of a profitable business opportunity. Discriminant analysis was performed to assess how the identified main beliefs regarding the development of the network marketing, derived from PCA, could predict cluster membership. Non parametric statistical tests were performed to profile the identified group of students regarding their personal characteristics.

1 Introduction

The definitionNetworkMarketingorMultiLevelMarketing (MLM) means that multiple levels of people, businessmen trade and sell products to consumers. According to World Federation of Direct Sales Association (WFDSA) (2002) NetworkMarketingorMultiLevelMarketing (MLM) is a subset of direct marketing has a compensation plan which enables salepersons or distributors to earn compensation from sales group or distributors being recruited into the distributor's network.

In MLM products are selling through a network of partners – members that market them. Typical examples of such MLM enterprises are Amway, Oriflamme, Avon, Tupperware. MLM organizations compensation plans structure can have a profound effect on how

distributors gain time and speed and therefore play a critical role in company's growth and success (Coughlan and Grayson, 1998).

A distinction between MLM and internet marketing should take place as many people confuse these two meaning. In MLM each person since becomes member of the network comprises an enterprise that buys and sells goods to clients, develop team and network.

On the other hand, people who use internet as a marketing method, mainly make purchases through e-markets without having the opportunity to become a participant – member in such enterprises.

In network marketing, distributors are involved not only in selling, but also in recruiting and training other distributors, since they can also receive compensation through sales generated from their "downlines" which are the individuals they recruit (Peterson and Wotruba 1996). The focus is likely to be on recruiting or sponsoring rather than on retailing, as these two activities will entail two types of benefits to MLM organizations (Peterson and Wotruba 1996).

According to Wotruba and Tyagi (1992) some entrepreneurs who participates as partners in MLM enterprises might view the business as a means of building self-esteem, making friends, proving one's entrepreneurial skills, or simply learning about the business world, whilst others could focus differently in terms of job effort, sales productivity and ultimately achieving the goals and objectives of the business organization. On the other hand, there some distributors who may use the banner of network marketing to promote the concept of providing good business opportunities to earn override commissions or benefits on behalf of their friends' friends (Block, 1996).

The main difference between mutli-level marketing and traditional marketing is that producers who adopt the latter, market their product through intermediaries. Hence the cost of their products increases radically in comparison with their value and quality (Tzanetakis, 2010).

Network Marketing, can be briefly described as the management of interdependencies between business actors. There the tasks and challenges of management involve broader and deeper interaction with external partners, both customers and other stakeholders (Moller and Hainen, 2000).

According to Moller and Hainen (2000) interdependence based on resource heterogeneity forces the actors to cooperate; network environments emerge. Relationships are embedded in networks and the channel system. Mutuality and history are essential in understanding episodes, relationships and the network context There are several 'levels' in network relationships (supplier, supplier's supplier, buyer, buyer's buyer). Competition and cooperation are the primary forces shaping relationships and networks. Relationships are important in coordinating and creating resources; not only in allocation. Relationships shape networks, network dynamism is relevant.

As Fogg (2011) arguesthe recent development of MLM occurred due to the fact that people change jobs many times until their retirement, insurance funds are much weaker than in the past, unemployment rises, competition among firms is much stronger, income reduce, and therefore more people seek for alternative sources of income. Many people in the past examined the idea of MLM but due to the good financial condition they rejected. Moreover, the rapid development of internet consists of another motive for the establishment of MLM enterprises.

Steenkamp (1996) identified that biological, psychological and socio - demographical consumer's characteristics, marketing of the product, economic and cultural environment affect consumers' purchasing decisions. Kotler (1994) identified that consumers' buying behaviour is influenced by cultural, social, personal and psychological factors

More particular, Greek consumers seem to be conscious towards the use of internet for their purchases but the convenience it provides and the better prices can be achieved are the main factors which are responsible for the increase of the number of consumers who prefer it recently (Anon 2010). Generally, most of the products are sold through internet markets are: computers, electronics, airtickets, hotel booking and books.

MLM enterprises in order to work through internet only need a computer and internet connection. World wide broadband provides a lot of opportunities to the entrepreneurs who operate internationally in order to develop his own network. Moreover, internet applications included e-mail, skype, windows live, web browsers speed the development of MLM, saving time and money to the members of such business units.

In periods of economic development most of the people are not interested for alternative sources of income as they easily can afford their consumption needs. On the other hand, when there are economic recession periods they seek for business opportunities and alternative source of income.

Nowadays, there is a global worry about the economic depression as the psychology of fear deteriorates the fiscal crises, underemployment and unemployment rises. Many people are forced to work for less money that their qualifications worth. Hence, there is a need for extra income.

Network marketing satisfied this need. Thenumberof MLM enterprise hasincreasedfortworeasons: (a) fear forces people to find new alternative sources of income and (b) insecure caused by the economic recession act as a side effect and in post economic recession periods, making MLM enterprises to increase their partners, training them and having in that way exponential development. Another factor that is responsible for the expansion of MLM enterprises in economic recession periods is that many people have invested their money to the stock market and face the reduction of their value. Therefore, they seek for alternative ways to create a new income

Although some studies took place concerning the examination of the purchasing behaviour of products from MLM enterprises, there is no study that aimed to identify the motives that affect the young peoples' buying behaviour and attitudes towards MLM enterprises in Greece mainly within an economic recession period. Hence, this study examines which of the factors presented in the literature review affect the attitudes of the students to buy products from MLM enterprises in Greece and how do they look it as an alternative business opportunity.

This study after the introductory section presents next the conceptual model of the study, the research hypotheses, the survey and statistical methodology as well as the results of the analysis and the concluding remarks.

2 Methods

2.1 The Conceptual Model

A conceptual model was developed to place key concepts outlined in the literature into an identifiable framework (Figure 1). In particular it tries to investigate the relationships betweenthe factors that affect students' attitudes towards the use of MLM as a business opportunity and as an alternative marketing method, and the factors that affect them in purchasing products from MLM enterprises. Furthermore it will examine the association between the consumers' attitudes towards the development of MLM, their personal characteristics and the adoption of particular attitudinal behaviour.
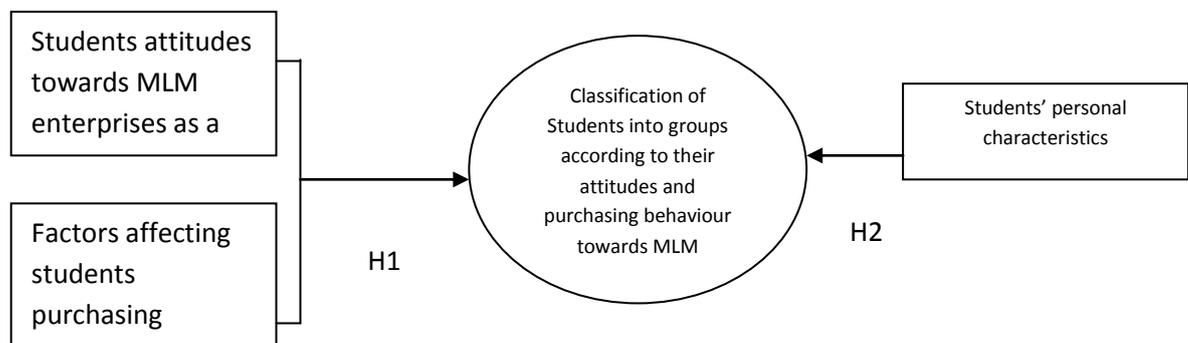
Figure.1: The Conceptual Model

Operationalising the conceptual model (Oppenheim 2000) gave rise to the following research hypotheses:

- **H1:** Students in Greece can be classified into groups according to their attitudes towards MLM and the factors that influence them to buy products from MLM enterprises.

- **H2:** Student's personal characteristics are significant related to particular attitude towards MLM

2.2 Survey Procedure

The researchers undertook a survey to a sample of students in order to gather data necessary to identify students' attitudes towards the use of MLM as a business opportunity, the factors that affect their buying behaviour in Greecetowards products are selling from MLM enterprises and profiling them according to their attitudes towards MLM enterprises and their personal characteristics. Hence, the research focuses on a sample of Greek students and more particularly to the Kavala Institute of Technology. Information were gathered through an interview survey as students in Greece are familiar with this kind of research and their educational level is suitable for the use of this kind of survey method (Moser 1958; Errington 1985; Barnett 1991; Oppenheim 2000). Moreover this is a widely used method for examining consumers buying behaviour by many researchers (Fotopoulos and Krystallis 2002 ; Arvanitoyiannis and Krystallis 2005). Additionally, the cost of conducting large postal or telephone survey to develop a typology was considered prohibitive. Furthermore, as many students do not have an internet access, the electronic survey method was not suitable for surveying a representative to a general population sample.

Data were collected in locations frequented by students such University' cafe, restaurants library from students of different scientific orientation including accountants, engineers, computer scientists, foresters.

In this survey, as systematic stratified sampling method was chosen to form the sample due to the fact that the authors wished to generalize their findings beyond the sample of consumers covered by the survey. As Errington (1985) argued the only way in which this can be achieved is to ensure that the units for survey are selected at random from the larger population about which generalization are to be made. Therefore, consumers were selected randomly, with the criterion that the interviewer was to solicit every sixth customer who came into the survey area (McCluskey *et. al.*, 2003). The sample that was selected consists of

100 students that would be reasonably representative of some larger population about which useful generalization could be made.

In order to establish the representatives of the surveyed sample, demographic information from the questionnaire is compared with census information of the total population following the methodology that Errington (1985), Tsourgiannis *et. al.* (2006), Tsourgiannis (2008), Chen (2007) and Tsourgiannis *et. al.* (2008) used in their studies. All the characteristics of the sample do not differ from those of the students population in Greece based on Census data and therefore can be assumed that the sample is representative of the total population.

2.3 Questionnaire design

Factors that affect the students' attitudes and consumption behaviour towards MLM were identified by the researchers after searching the literature. Furthermore they designed a questionnaire in order to meet the research objectives and pre-tested it in academics, food marketing experts and consumers. In the next stage the questionnaire was piloted in November of 2011 to 20students. The pilot survey indicated that no modification needed to the questionnaire and therefore the main survey was conducted in November – December 2011 and January 2012 to 100 students of the Department of Accountancy, Department of Electrical Engineering, Department of Technology Oil and Gas, Department of Industrial Informatics and Department of Landscape Architecture of Kavala Institute of Technology.

The questionnaires were designed in four parts:

Part 1 – This part consists of 3 questions regarding students knowledge and attitudes towards MLMs.

Part 2 – This part consists of 10 attitudinal statements on a 5 point Likert scale relating to their buying behaviour towards products sold through MLM.

Part 3 - This part consists of 18 attitudinal statements on a 5 pointLikert scale relating to their opinion about MLM as an entrepreneurial opportunity.

Part 4 – This part consists of 8 questions regarding students' personal information including sex, scientific orientation, marital status, number of children, occupation, income

2.4 Statistical Methodology

Multivariate analysis techniques were used to the 100 students that buy local food to reveal the key information contained in the responses, and these analyses were applied in three stages. First, principal component analysis (PCA) was used to identify the variables that accounted for the maximum amount of variance within the data in terms of the smallest number of uncorrelated variables (components)[3].

In this study, PCA reduced the 9key attitude variables, which relate to students attitudes towards the use MLM as a business opportunity and the 7 variables describing their behaviour towards products are sold through MLM enterprises, to a smaller set of underlying factors (or consumption dimensions)[4].These factor scores were then subjected to cluster analysis to group students with similar patterns of scores into similar clusters based on their buying behaviour.[5,6]

Quadratic discriminant analysis was performed to assess how accurately the identified key students attitudes and consumption dimensions that were derived from the factor analysis could predict and discriminate cluster membership .

Statistical tests based on the outcomes of the multivariate statistical techniques presented above (factor, cluster and discriminant analysis) were used to test the two hypotheses presented in previous section*.*

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[3]The anti-image correlation matrix was used as well as Bartlett's test of sphericity and measure of sampling adequacy (MSA) in order to check the appropriateness of the data for subsequent factor analysis. The variables that had a high proportion of large absolute values of anti –image correlations as well as MSA less than 0.5 were removed before analysis.

[4]An orthogonal rotation (varimax method) was conducted and the standard criteria of eigenvalue = 1, scree test and percentage of variance were used in order to determine the factors in the first rotation (Hair *et al.* 1998). Different trial rotations followed where factor interpretability was compared.

[5]In this study, both hierarchical and non-hierarchical methods were used according to the recommendations of Hair *et al.* (1998) and Punj and Stewart (1983)in order to develop a typology of the consumers' buying behaviour.

[6]A non-parametric Kruskal–Wallis one way ANOVA was conducted to validate the cluster solutions by examining if variables not used in cluster analysis differ significantly among the identified clusters

3 Results

3.1 Students buying behaviour and attitudes towards MLM.

Principal components and factor analyses (through a varimax rotation) were conducted to identify the key attitudes variables, and the latent root criterion (eigenvalue =1), the scree plot test and the percentage of variance were used to determine the number of factors[7].

PCA identified four factors that affect students' attitudes towards MLM (Table 1) and two factors that affect consumers behaviour (Table 2).

Main Attitudes of students towards MLM	Factor Loadings
Opportunities for Development	
Consumers do not have a direct view of the product	0.780
Global Development	0,728
Possibility of a home-based job	0,679
Professional Settlement	
Everybody can become an entrepreneur	0,809
Possibility of unemployment reduction	0,762
Team work	

Factors affecting students purchasing products from MLM enterprises	Factor Loadings
Participating in a business company having high turnover	0.797
Development of relationships among colleagues and teamwork	0.745
Performance	
MLM enterprise is more effective than a conventional	0,827
Products derived from MLM enterprise are better that those derived from conventional firms	0,558

KMO MSA = 0,583

Bartlett test of Sphericity = 148.269 P<0.001

[7]Several different trial rotations were conducted to compare factor interpretability as suggested by Tabachnick and Fiddell 1989and Hair *et al* 1998.

Reliability	
Return of deficient products	0.804
Guarantee for money back	0.793
Reliable systems of payment	0.792
Quality	0.784
Convenience issues	
Order from home	0,883
Order 24hours a day	0,854
Product variety	0,721

KMO MSA = 0.757 Bartlett test of Sphericity = 237.592 P <0.001

Table 2 Key Consuption Dimensions Derived from Principal Component Analysis.

In the next stage, hierarchical and non-hierarchical clustering methods were usedto develop a typology of the students' behaviourtowards MLM (Harrigan 1985; Helsen and Green 1991; Hair *et al.* 1998; and Siardos 1999). Cluster analysis was conducted on the 100 observations, as there were no outliers.

It identified three groups of students that were named according to their attitudes and buying behaviour patterns towards MLM (Table 3). These are: (a) those who believe that network marketing is a reliable marketing method characterised by a good teamwork, (b) those who consider it as a marketing and job opportunity and (c) those who believe that MLM consists of a profitable business opportunity.

Students' main attitudes and factors affecting purchases from MLM enterprises	Group Clasification			
	Those who believe that network marketing is a reliable marketing method characterised by a good teamwork	Those who consider it as a marketing and job opportunity	Those who believe it consists of a profitable business opportunity	P
Reliability	0,48362	0,37231	-1,28167	0.001
Convenience issues	-0,1276	0,19792	-0,11199	0,303
Opportunities for Development	-0,62153	0,64749	-0,06431	0.001
Professional Settlement	-0,53369	0,55033	-0,31304	0.001
Team work	0,45605	-0,29511	-0,2264	0,002
Performance	-0,23949	-0,29335	0,80034	0.001
Number of students (n=100)	37	38	25	

Table 4 Characteristics of the Three Students' Groups

The "students who believe that network marketing is a reliable marketing method characterised by a good teamwork"comprise 37% of the sample.They are influenced in their buying decisions by the fact that can return the product if it is deficient, the ability to receive

their money back, reliable payment systems , quality of the product. They think positive on MLM enterprises due to the team working spirit exists in such enterprises

Those "who consider it as a marketing and job opportunity" consist ofthe 38% of the sample.They are influenced in their buying decisions by the fact that can return the product if it is deficient and receive their money back as well asthe reliable payment systems. -They think positive on MLM enterprises due to the opportunities for development it hides and the fact that it considered as a professional settlement.

Moreover, the 25% of the sample are the students " who believe it consists of a profitable business opportunity". They believe that an MLM enterprise is more effective than a conventional one and that the products derived from it are better that those are marketed from conventional firms. On the other hand, most of them are not influenced by any factor in order to buy things through internet.

Furthermore,quadratic discriminant analysis was conducted to evaluate the prediction of group membership by the predictors derived from the factor analysis. The summary of the cross validation classification derived by the quadratic discriminant analysis is shown in Table 5.

Actual Classification	Predicted Classification		
	Those who believe that network marketing is a reliable marketing method characterised by a good teamwork	Those who consider it as a marketing and job opportunity	Those who believe it consists of a profitable business opportunity
Those who believe that network marketing is a reliable marketing method characterised by a good teamwork	37	1	1
Those who consider it as a marketing and job opportunity	0	37	5
Those who believe it consists of a profitable business opportunity	0	0	19

Total N	37	38	25
N Correct	37	37	19
Proportion of Correct Classification	100%	97.4%	76%
N=100	**N correct = 93**	**Proportion Correct = 93%**	

Table 5 Summary of Classification with Cross - validation

Thus, the sixattitudinal and consumption dimensions could accurately predict and discriminate consumers' group membership.

Therefore, the hypothesis **H1:***Students in Greece can be classified into groups according to their attitudes towards MLM and the factors that influence them to buy products from MLM enterprise.*may be accepted.

3.2 Students Attitudes and Behaviour Towards MLM enterprises and their products

Theone way chi-square analysis employed to identify students' attitudes and behaviour towards MLM enterprises and their products.The statistical analysis (Table 6) indicated that all the three groups of students are familiar with the definition of MLM and use internet in order to make purchases. On the other hand most of them do not prefer to buy nutrition supplements, fixed goods and consumables goods for the house through internet. Moreover the majority of the first two groups of students do not buy clothes or shoes from internet markets. The vast majority of the students who believe that network marketing is a reliable marketing method characterised by a good teamwork do prefer internet shops to buy cosmetics or mobile phones. Besides, most of the consumers who believe that MLM consists of a profitable business opportunity do not purchase cosmetics through internet.

Consumers attitudes towards MLM		Those who believe that network marketing is a reliable marketing method characterised by a good teamwork		Those who consider it as a marketing and job opportunity		Those who believe it consists of a pr business opportunity	
		x^2	% consumers	x^2	% consumers	x^2	% consumer
Familiarity with the definition MLM	NO	$x^2=14.297$ df=1 P<0.001	18,92%	$x^2=17.789$ df=1 P<0.001	15,79%	$x^2=14.440$ df=1 P<0.001	
	YES		81,08%		84,21%		
Use of internet marketing	NO	n.s	54,05%	n.s	36,84%	$x^2=4.840$ df=1 P<0.05	
	YES		45,95%		63,16%		
Purchases from internet (e-markets)	NO	$x^2=4.568$ df=1 P<0.05	32,43%	$x^2=8.526$ df=1 P<0.01	26,32%	$x^2=11.560$ df=1 P<0.001	
	YES		67,57%		73,68%		
Buying books from internet (e-markets)	NO	$x^2=9.757$ df=1 P<0.001	75,68%	$x^2=15.158$ df=1 P<0.05	81,58%	$x^2=4.840$ df=1 P<0.05	
	YES		24,32%		18,42%		
Buying clothes from internet (e-markets)	NO	$x^2=6.081$ df=1 P<0.05	70,27%	$x^2=5.158$ df=1 P<0.05	68,42%	n.s	
	YES		29,73%		31,58%		
Buying shoes from internet (e-markets)	NO	$x^2=9.757$ df=1 P<0.01	75,68%	$x^2=12.737$ df=1 P<0.001	78,95%	n.s	
	YES		24,32%		21,05%		
Buying cosmetics from internet (e-markets)	NO	$x^2=9.757$ df=1 P<0.01	75,68%	n.s	65,79%	$x^2=9.000$ df=1 P<0.01	
	YES		24,32%		34,21%		
Buying nutrition supplements (e-markets)	NO	$x^2=29.432$ df=1 P<0.001	94,59%	$x^2=30.421$ df=1 P<0.001	94,74%	$x^2=21.160$ df=1 P<0.001	
	YES		5,41%		5,26%		
Buying fixed goods (e-markets	NO	$x^2=16.892$ df=1 P<0.001	83,78%	$x^2=26.947$ df=1 P<0.001	92,11%	$x^2=17.640$ df=1 P<0.001	
	YES		16,22%		7,89%		
Buying consumable goods for the house (e-markets)	NO	$x^2=16.892$ df=1 P<0.001	83,78%	$x^2=26.947$ df=1 P<0.001	92,11%	$x^2=9.000$ df=1 P<0.01	
	YES		16,22%		7,89%		
Buying mobile phones (e-markets)	NO	$x^2=6.081$ df=1 P<0.05	70,27%	n.s	65,79%	n.s	
	YES		29,73%		34,21%		

Table 6. Consumers' attitudes regarding MLM

Consumers attitudes towards MLM	Those who believe that network marketing is a reliable marketing method characterised by a good teamwork	Those who consider it as a marketing and job opportunity	Those who believe it consists of a pr... business opportunity

3.3 Profiling each consumer group according to consumers' characteristics.

One way chi-square analysis was performed for each student's group in order to develop the profile of the students who have a particular behaviour towards MLM enterprises regarding their personal characteristics.

As Table 7 indicates, most of the consumers of the three groups do not have children and have low family income. Moreover the majority of the students who believe that network marketing is a reliable marketing method characterised by a good teamwork and those who consider it as a marketing and job opportunity have technical scientific orientation whilst most of the students of the first group are female.

Therefore the hypothesis *H2: Consumers' personal characteristics and attitudes towards MLM are significant related to particular purchasing behaviour* maybe accepted.

		x^2	% consumers	x^2	% consumers	x^2	% consumers
Sex	Male	x^2=4.568	32,43%	n.s	44,74%	n.s	
	Female	df=1 P<0.05	67,57%		55,26%		
Scientific orientation	Technical	x^2=11.730	59,46%	x^2=21.211	68,42%	n.s	
	Economic	df=2	16,22%	df=2	18,42%		
	Other	P<0.01	24,32%	P<0.001	13,16%		
Existence of children	NO	x^2=25.973	91,89%	x^2=34.105	97,37%	x^2=21.160	
	YES	df=1 P<0.001	8,11%	df=1 P<0.001	2,63%	df=1 P<0.001	
Family income	<15.000€	x^2=14.568	48,65%	x^2=18.842	52,63%	x^2=11,960	
	15.001€-30.000€	df=3 P<0.01	29,73%	df=3 P<0.001	26,32%	df=3 P<0.001	
	30.001.-45.000€		10,81%		15,79%		
	>45.000€		10,81%		2,63%		

Table 7. Consumers' personal characteristics regarding MLM

4 Discussion -Conclusions

This study indicated that there was a significant association between the adoption of a buying behaviour and the factors, attitudes, opinions and personal characteristics that influence them to buy products from MLM enterprises.

It identified that there are three groups of students regarding their attitudes towards MLM enterprises. Some students consider it as a marketing method that should be based on teamwork in order to be success. There are some other students who see MLM as a business opportunity especially in the current economic recession period and finally there are the students who face it a profitable business opportunity as they mainly motivated by the

financial performance of these enterprises. Moreover, they buy things from MLM enterprises mainly due to convenience and reliability methods.

It also found that the students are familiar with the concept of MLM. Most of them buy things through internet, mainly clothes and shoes. Most of them are females and have low family income. Students in Greece believe that MLM comprises a new type of business as it does not requires any major capita commitment and it will be developed through the use of computer technology. They also think that it consists of a safe source of income and an equal opportunity for everybody.

Therefore, this study supports the findings of other studies (Anon, 2010;Block, 1996; Coughlan and Grayson, 1998; Frog, 2011; Peterson and Wotruba, 1996; Tzanetakis, 2010; Wotruba and Tyagi, 1992) according to which people mainly in economic depression periods search for alternative sources of income and hence orientate to the establishment of MLM enterprises

A number of limitations can be identified in this survey with the most important being the followings:

(a) Some answers in the questionnaire may not represent the true beliefs and attitudes ofstudents due to the fact that they are asked in the place and at the time where and when their time to answer the questionnaire is sometimes limited. Of course this limitation exists in most of consumers preferences surveys.

(b) The samples in such surveys can not be quite large due to financial constrains.

Nevertheless, the value of the current study is incontestable. It is the first study (to the knowledge of the authors) that explores students' attitudes towards network marketing in Greece and how the view it as a business opportunity, especially within economic recession period when the unemployment rates of young people are extremely high.

According to the results of this study MLM enterprises operated in Greece should focus on attracting young people participating in their networks. Furthermore, they should structure their marketing and promotion mix and focus on the factors and students characteristics presented above. In particular they should target to young people who are interested in their convenience and the transaction's reliability and guarantees.

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WEB SITE QUALITY AND SATISFACTION: A SOCIAL NETWORKERS' PERSPECTIVE

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ABSTRACT

The rapidly changing digital landscape in Greece, shaped particularly by the explosion of social networkers, has directly affected business strategies and consumer/user behavioural models.Web sites have become a critical strategy component as they have replaced business units. The manner in which users perceive and evaluate web-sitequality influences their perceptions about organizations; these specific perceptions are disseminated via social networks. The purpose of this study is to investigate the keycharacteristics of web-site quality, from the Greek social network user's perspective, and their impact on user satisfaction and on-line purchase intention. Based on the Web-qual scale, an online survey was conducted to collect web-site quality perceptions, from a Greek facebook user's perspective. Factor analysis produced five key web-site quality dimensions: ease of use, competency, information accuracy, security, and on-line completeness. Regression analysis indicated that, on-line completeness, ease of use and security mostly affect user satisfaction; it has however, become apparent that the most critical dimension that affects user intentions for online purchase is security. Important managerial implications and study limitations, as well as directions for future research are also presented

KEYWORDS

Web- site quality, social network, facebook, measurement, user satisfaction, purchase intention

JEL CLASSIFICATION CODES

M31, M15, C52

1. INTRODUCTION

The use of the new Information and Communication Technologies (ICT) and the growth of the Internet have acquired a fundamental value both for enterprises and individuals worldwide. Websites are used by millions of people on a daily basis and web social networks not only have enhanced communication, but also introduced new ways of communication and information dissemination.

The development of the World Wide Web and the transition from WEB 1.0 to WEB 2.0 has changed the relationship between enterprises and consumers. Modern technology has gradually transformed interactions among business units and its customers (Mayer, 2009), and formed a new background for the design, development and delivery of services. In this context, for the enterprises which have adopted the new technologies and use the web for their transactions, the views and preferences of on-line customers/users are essential to strategy forming and product promotion. Needless to say, enterprises must focus on e-service quality issues because of their potential influence on on-line customer attitudes and intentions, such as attractiveness, customer retention, positive word-of-mouth, and also on maximizing competitive advantage (Santos 2003).

The intensive use of WEB 2.0 technologies has also enhanced interaction. Keng et al. (2007) state that 'in the web environment, the way that customers/users interact with firms through websites and the perceived usability of the websites from users can influence service quality'. Research has demonstrated that quality plays a critical role in affecting users' attitudes and intentions towards the e- business (vendor) (Cyr, 2008; Ganguly, Dash, & Cyr, 2009). Notably, the specific considerations make websites a critical strategy component for enterprises.

Apart from the various factors involved in the process of developing and maintaining user-perceived quality websites, enterprises should form a clear picture about how customers perceive and evaluate their website functionality. In other words, they should identifythe attributes that customers use when evaluating a specific website. In effect, a significant amount of research work has focused on themeasurement and evaluation of website quality. Among these, Lociacono et al. (2000), Barnes and Vidgen (2002), Madu and Madu (2002), Yoo and Dontu (2001), Zeithaml, Parasuraman and Malhotra (2002), Zeithaml (2002), identified a variety of factors

related to website quality, such as ease of use, usefulness, navigation, serviceability, security/ privacy, aesthetics.However, many studies have emphasized that technology readiness and stage of e-service adoption may have an impact on the service experience and influence perceptions of e-service quality and users' satisfaction (Zeithaml et al., 2002; Nilsson-Witel and Fundin, 2005; Yen, 2005).

The applications and special features of WEB 2.0 have already had a crucial impact on Greek enterprises as 'digital illiteracy' has been declining in time. In effect, special emphasis is placed on the potential of social network sites, such as Facebook, which is the most popular social network in Greece. Within this framework, our exploratory research, based oncore qualities of theWebQual model (Barnes and Vidgen, 2002),aims to investigate, from the Greek Facebook user's perspective, the key characteristics of website quality, and their impact on user satisfaction and on-line purchase intention. The rest of the paper is organized as follows: First, it provides an overview of the background literature regarding website quality, customer satisfaction and intention to purchase. Then, it describes the objectivesof the research and the methodology employed in the study, and, subsequently, it reports the empirical research results. Finally,it concludes by identifying study limitations and proposing future research directions.

2. BACKGROUND LITERATURE

2.1 Traditional service quality

Overall, the perceived quality of service may be determined by the difference between customers' prior expectations about the service and their perceptions after actual experience of service performance (Asubonteng et al., 1996; Parasuraman et al., 1985, Zeithaml 1998). Howcroft (1991) holds that a high quality service is consistently able to anticipate and satisfy customers' needs and expectations.

Researchers have placeda great emphasis on service quality,which is claimed tobeassociatedwith its impact on the financial performance of the organization (Rust and Zahorik, 1993; Rust et al., 1995), consumer satisfaction (Spreng et al., 1996), customer retention (Reichheld and Sasser, 1990), andpositive word of mouth. However, the number and nature of service quality dimensions are country- and culture-specific since they are highly dependent on customers' values and beliefs that might differ from one culture to another (Jabnoun and Khalifa, 2005; Furer et al., 2002).Moreover, customers could define quality in a slightly different way depending upon their age, education, income, etc. (Howcroft, 1991).

The conceptualization and measurement of the service quality construct has been subject to continuous debate. The reviewof the extant literature has demonstrated thatthe relevant literature has been dominated mostly by the use of the disconfirmation-based SERVQUAL scale introduced by Parasuraman et al. (1988) and the performance-only SERVPERF instrument (Cronin and Taylor, 1992), incorporating a number of dimensions which have been modified and refined depending on the nature of services and the countries in which they are delivered. The dimensions which constitute the base of a measurement for service quality, SERVQUAL, are:

- *Tangibles*: The appearance of physical facilities, equipment, personnel and communication materials
- *Reliability*: The ability to perform the promised service dependably and accurately
- *Responsiveness*: The willingness to help customer and provide prompt services
- *Assurance*: The knowledge and courtesy of employees and their ability to convey trust and confidence
- *Empathy*: Care and individualized attention provided to customers.

2.2 E-service quality

The development of new technologies and the use of the Internet has enabled the transition of business and consumer transactions and communications from the marketplace to themarketspace. As a consequence, enterprises are able to use the delivered on-line services (e-services) as a new competitive tool, provided that, in the new webenvironment, they focus both on their customers'/users' preferences and expectations and on their interactive relationship. The recognition of the important role of e-service quality in business success has led academics and practitioners to focus on the definition and measurement of e-service quality.

E-service quality can be defined as overall customer evaluations and judgments regarding the excellence and quality of e-service delivery (Santos, 2003). Zeithaml (2002, p. 135)formulated a more profound and comprehensive definition, which encompasses all phases of a customer's interactions with a website and defined e-SQas "the extent to which a website facilitates the efficient and effective shopping, purchasing and delivery".Review of the relevant literature demonstrates that there is nogeneral consensus on the dimensionality of perceived on-line service quality and reveals two dominant alternative approaches regarding e-quality

measurement. Researchers either focus on service quality of retailing-oriented websites (e.g. Wolfinbarger and Gilly, 2002; Zeithaml et al., 2002), or on the technical quality of website itself (e.g. Yoo and Donthu, 2001; Loiacono et al., 2002).

2.2.1 Measurement of e-service quality

To operationalize and measure the perceived quality of on-line purchase,researchers in several studies have exploreda number of new issues and attributes related to e-service quality. Madu and Madu (2002),focusing on literature review, suggest 15 dimensions of on-line service quality: performance,features, structure, aesthetics, reliability, storage capacity, serviceability, security andsystem integrity, trust, responsiveness, product/service differentiation andcustomization, web store policies, reputation, assurance, and empathy. Wolfinbarger and Gilly (2002), based on focus group interviews and an on-line survey,developed an e-service quality scale, the eTailQ, with the following four dimensions: website design, reliability, security and customer service. Zeithaml et al. (2002), through a critical review of extant e-service quality literature, identified 7 dimensions for e-service quality: efficiency, reliability, fulfilment, privacy, responsiveness, compensation, and contact, arguing that these dimensions form two scales: the core e-SQ scale (efficiency, reliability, fulfilment, privacy) and a recovery scale (responsiveness, compensation, contact). Parasuraman et al. (2005) developed a multi-item scale for assessment of electronic service quality, which they named E-S-QUAL. The four dimensions of E-S-QUAL are efficiency, fulfilment, system availability and privacy. Service recovery is also an important factor affecting service quality perception of customers in technology-based services.

However, it is worth pointing out that, since all consumers are not equally predisposed and eager to use and adapt to the new technologies, which may affect their perceptions of service quality, unique scales, such as technology anxiety (Meuter et al., 2003) and technology readiness index (Parasuraman, 2000), are also used for the measurement of service quality in technology-enabledservices.

2.2.2 Measurement of website quality

From the website technical quality perspective, research in web-based services hasalso been undertaken to identify quality dimensions. Yoo and Donthu (2001) developed an instrument for measuring on-line retailers' websites, SITEQUAL, with 4 dimensions: ease of use, aesthetic design, processing speed, and security. Another highly cited instrument, WebQual™ (Web quality), developed byLoiacono et al. (2002) proposesfour main components, that is,usefulness, ease of use, entertainment and complimentary relationship, which consist of 12 dimensions: informational fit-to-task, tailored communications, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, emotional appeal, consistent image, on-line completeness, relative advantage.

Barnes and Vidgen (2002), based on quality function deployment (QFD) and using multiple studies in different business domains, proposed the WebQual instrument with three underlying quality dimensions of a site: information quality,usability and service interaction quality. In order to comprise more aspects of user relationships and human web-interaction, the specific scale provides an index of a site's quality with five factors: usability,design, information, trust, and empathy. However, the authors suggest that perceived e-service quality is context-dependent.

2.3 Customersatisfactionand Intention to purchase (Behavioural responses)

In conjunction with the conceptualization and measurement or service quality, researchers have also examined the relationship of customer satisfaction and customer behavioural responses with service quality (Cronin and Taylor, 1992; Spreng and Mackoy, 1996; Dabholkar et al., 2000; Zeithaml et al., 1996). Customer satisfaction has been investigated as a 'perceptual, evaluative and psychological process' taking place during service delivery (Vavra, 1997). Service quality dimensions found to have a positive effect on overall customer satisfaction (Anderson and Sullivan, 1993), as well as on favourable customer behavioural responses, such as attitudinal loyalty and purchase intentions (Carrillat et al., 2009). Research has also identified further factors, such as customer specific and situational factors, which seem to have an impact on total satisfaction (ZeithmalandBinter, 2000). The e-service quality literature reviewindicates that e-service quality (e- SQ) is a core factor that can significantly determine customer satisfaction, purchase, loyalty and retention through a website (e.g., Loiacono, Watson, & Goodhue, (2002); Voss, (2000); Zeithaml, (2000).

However, the relevant studies related to website quality dimensions have identified specific variations in the measurement scale and the attributes which have a significant impact on consumer satisfaction and behavioural intentions. Alpar (2001), focusing onthe satisfaction with websites, emphasizes the factors: ease of use; info content; entertainment; interactivity, as predictors of consumer satisfaction. Loiacono et al. (2002) identify the dimensions: ease of understanding; intuitive operation; information quality; interactivity; trust; response time; visual appeal; innovativeness; flow,and state that they have a significant impact on customer intention to

purchaseand intention to revisit. Yoo and Donthu (2001) argue that the attributes: ease of use; design; speed; security, are strongly predictive of overall site quality; attitude toward site; on-line purchase intention; site loyalty; site equity, whereas Wolfnbarger and Gilly(2003) demonstrated that the most significant predictors are:website design; fulfilment/reliability; privacy/security and customer service.

2.4.The Internet and social networks in Greece

Greece has not yet embraced the Internet as fully as most other European countries, with just 49% of Greeks using the Internet and only 12% of them purchasing on-line. Furthermore, almost half of Greek SMEs have low presence or even no Internet presence at all. In 2010, the Internet directly contributed an estimated €2.7 billion to the Greek economy, or 1.2% of total Greek GDP; without any policy incentives, this is expected to reach €3.6B by 2015.

The digital landscapeinGreecehaschangedduring the last decade.Despite the gradual acceleration of the Internet use penetration in Greece, the use of the Internet has not been adopted in Greece as fully as other countries worldwide. According to the Observatory for Digital Greece in 2010, only 46% of Greek households had access to the Internet. The use of the Internet is very intense among men, young people aged 16-24, individuals of a higher educational status and urban residents (www.observatory.gr). In 2010, the Internet contributed an estimated €2.7 million to the Greek economy, or 1.2% of total Greek GDP, lower than the respective EU27 average of 3.8%. E-commerce is estimated at only 20% user penetration, which is possibly explained by the rather delayed access of Greek enterprises to the Internet. During the same period, Greece imported e-commerce goods and services of €1.8 million, whereas the equivalent amount spent on exported goods and services was only €0.7 million. It is worth pointing out that, particularly in transactional services, low adoption is mainly due to security and personal data safety issues, which seem to concern consumers/users. Greeks tend to prefer doing their shopping in real, 'physical' shops. In effect, the amount spent on goods and services, which were first surveyed on-line, but finally purchased off-line (ROPO-Researched On-line Purchased Off-line) was approximately €7.5 million (www.paragoninternet.eu).

Significantly, as Greek consumers become more familiar with the new technologies and start getting used to e-shopping, websites pose unique challenges on business and customers. Websites, with their complexities, have a considerable impact on users' perceivedquality; thus, measuringandmonitoringwebquality is essential to business success and profit maximizing.

The rapidly changing digital landscape in Greecewas particularly shaped by the explosion of social networkers. The transition from WEB 1.0 to WEB 2.0. seems to have enhanced the appeal of social networking websites, such as YouTube, Facebook, Twitter, Hi5, MySpace, etc., the significance of whichishighlighted for informationtransmission (Mayer 2009). A social network is characterised as "a social structure made up of a set of actors (such as individuals or organizations) and the dyadic ties between these actors (such as relationships, connections, or interactions)" (http://en.wikipedia.org). The most popular Web-based social networking service in Greece is Facebook, launched in February 2004, with 33.93% penetration compared to the country's population and 73.38% in relation to the number of Internet users. With 55% male users and 45% female users in Greece, the Internet use is currently very intense in the age group of 25 – 34, with total of 1,144,762 users, followed by the users in the age of 18–24 (www.socialbakers.com).

Owing toFacebook'sgreatestpopularityamong networkers in Greece and the fact that corporate Facebook Pages enabled the emergence of social f-commerce (SocialNetwork + eCommerce) in the country,it is vital for e-commerce operation users to be aware of the Facebook networkers' views concerning, first, the factors affecting the received quality of websites and, second, whether the specific factors are likely to affect their satisfaction or their on-line transactions and purchases.

Based on the key findings of the aforementioned studies, this paper intends to explore:

RQ1. What are the key characteristics (factors) of website quality as perceived by Greek Facebook networkers/users?

RQ2. What are the webquality key characteristics that significantly determine overall customer satisfaction as perceived by Greek Facebook networkers/users?

RQ3. What are the web-quality dimensions that significantly affectthe Greek Facebook networkers/users' intention to purchase through the Internet/on-line?

3. METHODOLOGY

Sample and data collection
The corpus of data was collected by means of an on-line survey which was conducted in January 2012. The sample is comprised of 165 subjects who answered an on-line constructed questionnaire, which consists of

24items and was posted in Facebook. An analysis of the respondents' demographic characteristics is presented in Table 1.

Table 1. Demographiccharacteristics of the sample (n = 165)

Demographic variable	percent
Gender	
Male	35
Female	65
Age of respondent	
Up to 24 years	53
25-34 years	38
35-44 years	8
45-54 years	1
55-64 years	0
65 years and older	0
Education	
Up to high school	4
College	44
University	53
Occupation	
Entrepreneur	8
Professional/specialist	8
Private sector employee	28
Public servant	7
Student/	32
Unemployed	14
Pensioner	0
Other	2

Resear ch instrum ent Due to the expandi ngrole of WEB 2.0 sites and applicat ions inservic edeliver y to custome rs/users and enterpri ses in Greece, the present research is primarily focused on website quality. The type of measurement was similar to that of Barnes and Vidgen's (2002), whoseWebQual 0.4 instrument items were adopted (Table 2). The rationale behind this approach lies in the fact, first, that WebQual is not industry specific as SERVQUAL (Asubonteng et al., 1996) and, second, that by employing WebQual we were enabled to elicit the respondents' answers without necessarily having to wait for the purchase procedures to be completed.

Apart from the 22 items comprising the WebQual 0.4 instrument, we added 2 extra items:

a. The website's image matches that of the company
b. All my business with the company can be completed via the website

These extra items were derived from the main component,"complimentary relationship", in Loiacono's et al. (2002) WebQual™ instrument.

Inorderto identify the meaning of each keycharacteristic (construct) ofwebsitequality,the research was based on the conceptualizations made by previous relevant research, and, in particular, on WebQual™introduced byLoiacono's et al. (2002) and also on WebQual 4.0 (Barnes and Vidgen, 2002). Zeithaml et al. (2002) posit that the criteria ensuing from academic researchprincipally involve(1) information availability and content, (2) ease of use or usability, (3) privacy/security, (4) graphic style, and (5) fulfilment.

The dimensions which were used by Facebookusers in order to evaluate website quality are: Ease of use,Competency,Information accuracy, Security and On-line completeness. In detail,

- "*Ease of use*" involves user friendly interface.
- "*Competency*" covers site design quality aspects and considerations.
- "*Informationaccuracy*" refers to the level at which information covers pre-established and generally accepted levels accurately.
- "*Security*" encompasses the ability of website to convey a sense of privacy and confidence.
- "*On-linecompleteness*" deals with   service interaction and encapsulates issues associated with the provision for all necessary transactions to be completed on-line,which are similar to those completed in physicalstores.

A seven-item battery was developed to measure Facebook users' perceptions about website quality issues (1 *absolutely disagree* – 7 *absolutely agree*). Overall satisfaction was measured on the basis of on a 7-point Likert-type scale (1 *completely dissatisfied* – 7 *completely satisfied*) whereas intention to purchase was measured on the basis of on a 5-point Likert-type scale (1 *I am not going to makepurchase* – 5 *I will surely make purchase*).

Table 2. WebQual Scale

Category		WebQual 4.0 Questions
Usability		
	1	I find the site easy to learn to operate
	2	My interaction with the site is clear and understandable
	3	I find the site easy to navigate
	4	I find the site easy to use
	5	The site has an attractive appearance
	6	The design is appropriate to the type of site
	7	The site conveys a sense of competency
	8	The site creates a positive experience for me
Information		
	9	Provides accurate information
	10	Provides believable information
	11	Provides timely information
	12	Provides relevant information
	13	Provides easy-to-understand information
	14	Provides information at the right level of detail
	15	Presents the information in an appropriate format
ServiceInteraction		
	16	Has a good reputation
	17	It feels safe to complete transactions
	18	My personal information feels secure
	19	Creates a sense of personalization
	20	Conveys a sense of community
	21	Makes it easy to communicate with the organization
	22	I feel confident that goods/services will be delivered as promised

Source: Based on The provenance of WebQual 4.0 (Barnes and Vidgen, 2002)

4. ANALYSIS AND RESULTS

In order to examine the dimensionality of website quality attributes, the corpus of data was analyzed on the basis of factor analysis.In the pre-analysis testing, Kaiser-Meyer-Olkin was 0.873 and Bartlet was significant $p<0.01$, demonstrating the adequate representation of the sample. In evaluating Communalities and decidewhether each variable fits well with the factor solution, the communality value of 3 variables (*I find the site easy to learn to operate,The site has an attractive appearance and The Website's image matches that of the company*) was less than 0.50 and droppedfrom the analysis. The analysis of communalities for the remaining variables, ranging from 0.561 to 0.805 with mean level of communality to be .763, is considered satisfactory and confirms an acceptable level of interpretation (MacCallum, et al., 1999).

   Principal Component Analysis was used with Equamax rotation method (Vavra, 1997). In the analysis, the factors with eigenvalue greater than 1.0 and factor loadings equal or greater than 0.60 were retained (Dimitriades, 2006). The analysis derived five factors (Table 3), which include the 16 variables that account for 66.394 of the total variance. The scales were assessed for reliability. Scale reliability for the factors ranges from Cronbach alpha of 0.600 up to 0.884. One scale seems weak and unstable since it is below 0.70, which is usually acceptable (Nunnally, 1978), it is not excluded from the analysis since our approach is rather exploratory.

Table 3: Factor Analysis results

Items	Factor Loadings				
	F1	F2	F3	F4	F5
Ease of use					
My interaction with the site is clear and understandable		.829			
I find the site easy to navigate		.852			
I find the site easy to use		.849			
Competency The design is appropriate to the type of site					
The site conveys a sense of competency					.649
The site creates a positive experience for me**Information Accuracy**					.724
Provides accurate information	.612				
Provides believable information	.734				
Providestimely information	.736				
Provides relevant information					
Provides easy to understand information	.600				
Provides information at the right level of detail	.601				
Presents the information in an appropriate format					
Security Has a good reputation					
It feels safe to complete transactions				.705	
My personal information feels secure**On-line completeness**				.742	
Creates a sense of personalization					
Conveys a sense of community			.619		
Makes it easy to communicate with the organization All my			.723		
business with the company can be completed via the website			.795		
			.696		
Alpha coefficient	.866	.884	.788	.837	.600

Based on five dimensions derived from the factor analysis, a multiple regression analysis was used to determine the relative importance of website quality dimensions in predicting the overall customer satisfaction. The regression model is as follows:

OVERALL = f (ease of use, competency, information accuracy, security, and on-line completeness)

Table 4. Predicting customers' overall satisfaction: multiple regression analysis

Model	Beta	t	Sig.level
1 (constant)	1.430	3.811	.000
on-line completeness	0.358	5.741	.000
ease of use	0.273	4.087	.000
security	0.170	3.511	.001
Notes: adjusted R square $= 0.472$, F $= 49.784$, p < 0.05			

The results indicate (Table 4) that, forFacebook users, overall customer satisfaction is influenced by three of the five website quality dimensions: on-line completeness, ease of use and security.The R2 value of 0.472 in the model indicates that these independent variables explain 47.1 percent of the variations in overall customer/ user satisfaction.

Furthermore,the researchtested the significance of the five website quality dimensions in predicting the users' intention to purchase on-line (Table 5).

Table 5.Predicting customers' intention to purchase: multiple regression analysis

Model	Beta	t	Sig.level
1 (constant)	2.300	9.981	.000
security	0.353	6.434	.000
Notes: adjusted R square $= 0.198$, F $= 41.402$, p < 0.05			

As shown in Table 5, for the Greek Facebook users, the dimension of website security is the only fundamental criterion that motivates on-line purchase. The security criterion explains 19.8 percent of the variations in intention to purchase, as indicated by the R2 value of 0.198.

In addition, the analysis produced a number of other considerations in relation to the Facebook users' perspective:

- *on-line completeness* is the dominant dimension for website users who wish their on-linetransactions tobecompletedaccording to the desirable level of off-line transactions.The on-line completenessqualitycriterion,which is related to the ease of communication between business units and customerswith a view to completing transactions according to the terms concerning the delivery of goods/services and by means of encouraging a sense of physicalsociality in on-line environments, is virtually identified with the sense of transactions fulfilment in the off-line context. This is proved tobeakeyfactortowardusers' satisfaction.

- *easeofuse*is a fundamental prerequisite for website users since websites haveintroduced a new and rather intricate way of interactions between business units and its customers. Despite the fact that digital illiteracy in Greece seems to decline and Greek users have become familiarized with the new technologies, website ease of use, navigation and interaction have significant effects on their overall satisfaction.

- *security* seems to be a driving force of customers' attitudes and intentions. Customers need to feel secure when they decide to use a website to carry out a transaction. According to customers, websites must have a good reputation and ensure personal data safety so that customers feel safe tocomplete their transactions. The degree of security ensured by the security web qualitydimension has a direct effect upon their intention to use the Internet in order to purchase goods/services. The level of security and privacy in the on-line shopping experience can also be seen as a customer satisfaction factor. Thus,although on-line security is not the primary predictor of e-satisfaction among Facebook users,it plays an important role in their satisfaction.

5. DISCUSSION

Thenewwebenvironmenthas had asubstantialimpactbothonthebackground of servicedesign, developmentanddelivery and also on users' expectations and requirements. In Greece, the adoption of the new technologies and the Internet, despite being below European standards, seems to possess a significant potential, which is mainly associated with individual social network users, a high percentage of whom are Facebook users. Since in web environments websites are replacing conventional forms of business units as physical entities, the users' views about the quality attributes of websites should be the fundamental criterion both for Greek managers and also for webdevelopersanddesigners.

Based on the assumption thatthe users'background may influence their expectations and perceptions regarding website interface quality (Tsikriktsis, 2002), the contribution of our study lies in the fact that it targets the social networkers in Greece, in contrast to previous web quality research which concentrates on the perspectives of web users in general terms.FocusingonFacebookusers, the majority of whom were young people aged up to 34 and of a high educational status, andalso utilizing a series of studies (e.g. Barnes and Vidgen, 2002; Loiacono et al., 2002), the results of our researchhighlighted five dimensions of perceived web quality (Ease of use,Competency,Information accuracy, Security and On-line completeness).

Significantly, the research demonstrated that web security seems to be a crucial criterion which concerns Greek social networkers participating in the present survey and affects both their satisfaction and intention to purchase on-line. The marketers' focus on publicizing security and privacy issues and users' information could be a substantial aid against any possible underlying threats and towards trust building with websites. The apparent conclusion to be drawn is that Greeks, having embraced the Internet and social networks, consider that the key issues for user satisfaction are user friendly websites and completeness of on-line transactions.

Additionally, in view of the fact that Facebook has attracted the greatest part of web users, it is essential that, in order to affect user attitudes and intentions and enhance on-line purchase, marketers should focus on websiteinterface from the Facebook users' perspective, by means of ensuring security and on-line completeness. Thus, it is vital that, in the new environment, enterprises be aware of users' perceptions about the key characteristics of website quality and also attempt to meet customer requirements.

To conclude, in the framework of the present study, it is necessary to recognize the potential limitations of the researchand, thus, emphasize the need for further work.To elaborate on the underlying drawbacks, it is worth pointing out that, since the survey was conducted on-line with a non-random sample of Facebook users, the results cannot be generalized, but can rather be used as the basis of further research. In addition, based on WebQual instrument, the present study attempted to investigate only specific web quality issues; thus, it is suggested that future research include further issues, such as the respondents' culture and also technology anxiety and technology readiness, which seem to affect website adoption and use. Finally, as far as behavioural responses are concerned, the survey explored only the consumers' intention to use the Internet for their purchases; in effect, it is essential that further research include additional consumers' actualbehaviouralaspects, such as site loyalty, site equity and Word-of-mouth communication.

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CONSUMERS' ATTITUDES TOWARS PRODUCTS DERIVED FROM TRANSGENIC FOREST TREES: THE CASE OF GREECE

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Abstract

This paper aims to explore the consumers' attitudes in Greece towards the use of biotechnology in forest trees and more particularly for the development of transgenic forest trees. More specifically this study aims to identify the main consumers beliefs towards the use of biotechnology for this purpose, to classify them into groups with similar attitudes and to examine the main factors that influence them in their potential purchases of products could derive from transgenic trees (GM Trees). Field interviews conducted in a random selected sample consisted of 158 consumers in November and December of 2011. Multivariate statistical analysis performed to identify consumers' behaviour regarding the use of biotechnology in forest trees and the purchases of products derived from transgenic forest trees and particularly for (a) paper products, (b) wood products such as furniture, doors etc, and (c) biomass. Principal components analysis (PCA) was conducted in order to identify the main consumers' beliefs towards the use of biotechnology for this purpose that are: (a) Economic performance, (b) Impact on climate change, (c) Impact on environment and biodiversity conservation and (d) Impact of biomass production methods. In the next stage hierarchical and non hierarchical

cluster techniques employed to classify consumers with similar attitudes and identified 3 groups of consumers: (a) those who are interested in the environmental impact of the biotechnology, (b) those who are interested in the economic issues related with the biotechnology and (c) those who are interested in climate impact. Discriminant analysis was performed to assess how the identified main beliefs regarding the use of biotechnology, derived from PCA, could predict cluster membership. PCA also used to identify consumers buying behaviour towards potential products derived from transgenic forest trees. These factors are for (a): wood products: (1) environment and health protection, (2) Economic efficient production methods,

(b) biomass: (1) health protection, (2) brand name and economic efficient production methods, (3) quality, (4) environmental impact, (5) curiosity and advertisement,

(c) paper products: (1) quality, (2) labelled as Genetic Modified Products and advertisement, (3) brand name.

Keywords: Consumer behaviour, Genetic Modified Trees,.

JEL CLASSIFICATION CODES: M (Business Administration and Business Economics, Marketing, Accounting), Q (Agriculture and Natural Resource Economics; Environmental and Ecological Economics)

1. Introduction

In recent years millions of hectares of natural forests and wetlands world wide have been converted to industrial tree plantations igniting concern among rural families, hunters, scientists, conservation groups and even large business. The rapid development of these plantations has negative impact to the conservation of the biodiversity and socioeconomic effects related to flooding, spraying of toxic chemical fertilizers and herbicides in communities, poverty, land ownership and human rights (Carman et al. 2006).

The spread of plantations has been driven by large producers of paper and wood products. Industrial tree plantations are managed intensively with chemical herbicides and fertilizers to accelerate growth rates for maximum production efficiency. To further this process research and development of Genetical Engineered (GE) trees is underway and despite uncertainties regarding the impacts industry appears to be gearing up for widespread, industrial scale development of GE tree plantation. While these practices may perhaps increase profits for

wood and paper products firms, the high economic, ecological and social costs associated with industrial tree plantations are paid by those living in and around large scale plantations and by society at large (Carman et al 2006).

Theindustrialconsumersofwoodproducts – thoseforwhomwoodisaninputtoproduction, suchaspulpmills – aregenerallyenthusiastics about transgenic trees with certain characteristics that improve the economics of production and /or improve ensuing products. Treeswithmorefiber, lessjuvenilewoos (whichislowcellulose), and less or more easily removable lignin will reduce processing costs and are therefore, in principle desirable. (Serdjo, 2004). According to the same researcher, the attitudes of consumers of final products (paper, lumber, panels) made from transgenic wood are problematic.

Although transgenic wood products are unlikely to be in the market for another 10-15 years, the anticipated attitudes of consumers is extremely important for developers as without the expectation of viable market the developments and investments are unlikely to be forthcoming (Serdjo 2004). As with food crops, in many cases GM products could be better in quality or lower in costs, or both. (Serdjo 2004).

Lignin makes up 15 and 35 per cent of the dry weight of trees and removing this lignin is a costly process (Pena and Seguin 2001). By reducing the lignin content in wood an increase in pulp efficiency will be achieved as fewer chemical and less energy would be required for this process (Halpin et al 2007, van Frankenhuyzen and Beardmore 2004). Furthermore, engineering trees to have desired physical characteristics, such as increased timber uniformity, could increase the overall market value of genetically modified timber (Mathews and Campbell 2000). On the other hand, Mathews and Campbell (2000) argued that attempts to manipulate tree lignin may have adverse impacts on tree health leading to productivity losses.

With regards to pest resistance, the use of genetically modified trees may provide several economic advantages. For example, apple, poplar, spruce and larch engineered to express Bt toxin, experiences according to Pena and Seguin (2001) fewer larval feedings. Aside from increasing the viability of trees and reducing losses to folivores, fungi and bacteria, these types of modifications could also decrease the need for pesticides and consequently reduce

the input costs associated with tree production (Mathews and Campbell 2000). The use of herbicide –resistance trees will allow producers to apply broad –spectrum herbicides to control weeds and therefore to reduce the need for traditional and costly methods of weed control (Mathews and Campbell 2000). Increased resistance of genetically modified trees to abiotic stress could mean a more efficient growth, consequently improving productivity (Johnson and Kirby 2001). Another positive economic impact regarding the genetically modified trees is the reduced amount of time required to develop improved phenotypes (Mathews and Campbell 2000; Pena and Seguin 2001).

On the other hand, Haynes (2001) suggests that the use of high productivity plantations could lead to a decrease in the perceived social and economic value of non-modified trees or natural forest as the economic gains from these types of forests would not be as large as those received from genetically modified forest plantations. A further economic concern relates to the fact that poor wood producers will not be able to have access to genetically modified trees given their relatively high cost (Thomas 2001). Therefore, producers who lack economic resources will be denied access to new tree species and markets. Thomas (2001) argued that genetically modified trees might generate profit for certain actors in the private sector while poorer communities will be further marginalized.

With wood products as generally no food safety issues are involved (although cellulose is sometimes used a filler in foods) the extent to which retail consumers might resist transgenic wood products would appear to depend largely on their environmental and philosophical concerns (Serdjo 2004). The experience with certified and eco-labeled wood products offers some insights: although there is little evidence that consumers are willing to pay a price premium for certified wood, some firms find that certification imparts a competitive advantage, even if not a price advantage (Serdjo and Swallow 2001).

Furthermore, the application of GM technologies to trees has raised a number of potential public concerns. Many of these concerns, although not all, are the same raised for GM annual crop plants, including the potential for spread of antibiotic or herbicide resistance genes to other nontarget species from GM trees; the potential for long – distance pollen spread over many years from long – lived trees, the potential for adverse effects on biodiversity from forests of GM trees; and any unexpected effects (Gartland et al 2003).

Concerningthesocio-economicimpactofthedevelopmentoftransgenicforesttreesforindustrialuseincluding: (a) woodproduction, (b) biomass - biofuelproduction (c) pulpproduction, limited research conducted globally and very few studies took place within E.U. Regarding the examination of the public awareness and consumers attitudes towards the acceptance of this kind of biotechnology are still in embryonic stage.

Hence, this paper aims to explore the consumers' attitudes in Greece towards the use of biotechnology in forest trees and more particularly for the development of transgenic forest trees. More specifically this study aims to identify the main consumers beliefs towards the use of biotechnology for this purpose, to classify them into groups with similar attitudes and to examine the main factors that influence them in their potential purchases of products could derive from transgenic trees (GM Trees).

2. Methods

2.1 The Conceptual Model

A conceptual model was developed to place key concepts outlined in the literature into an identifiable framework (Figure 1). In particular it tries to investigate the relationships betweenthe factors that affect the consumers' attitudes towards the purchase of use of biotechnology in Forest Trees Sector and the development of key strategic dimensions that may influence consumers to adopt a specific buying behaviour. Furthermore it will examine the main factors that influence them in their potential purchases of products could derive from transgenic trees (GM Trees) and the association between the consumers' attitudes towards the use of biotechnology in Forest Trees and their intention to buy products derived from GM Trees as well as their personal characteristics.
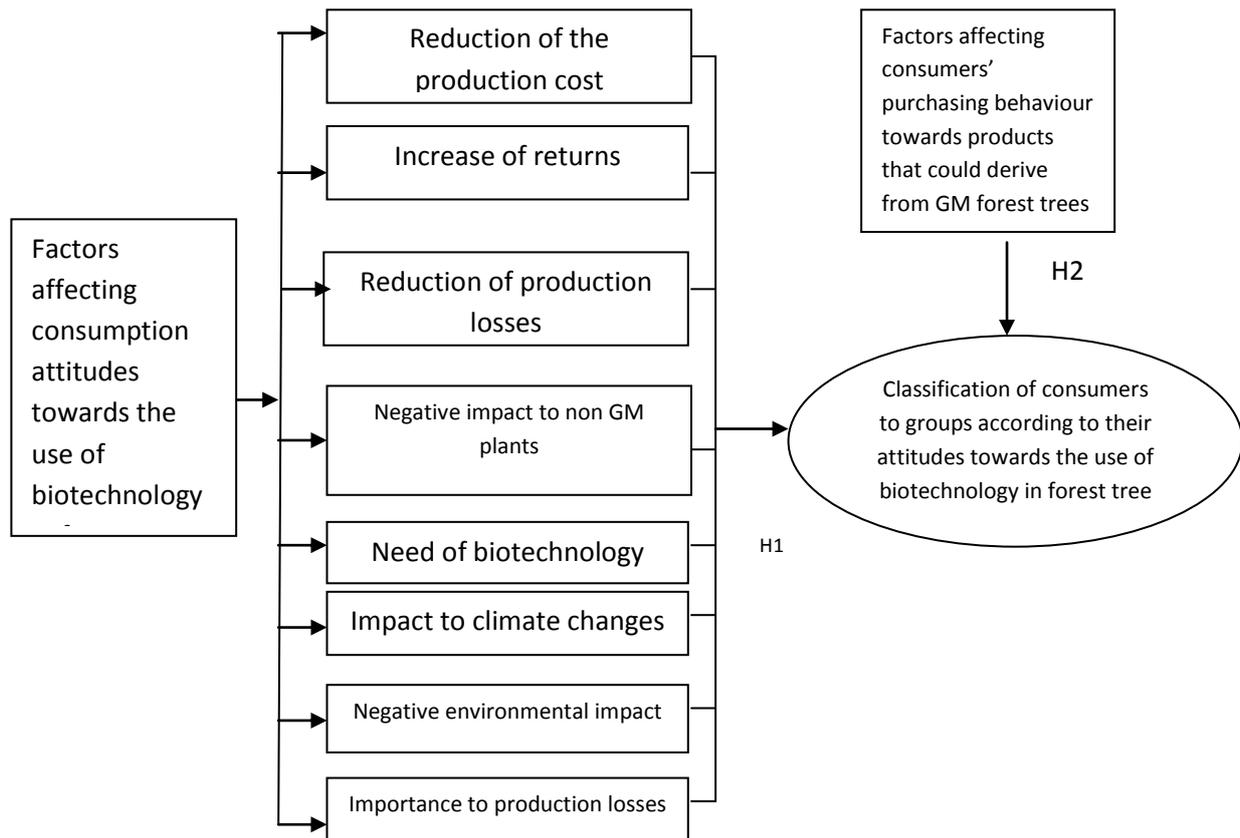
Figure.1: The Conceptual Model

Operationalising the conceptual model (Oppenheim 2000) gave rise to the following research hypotheses:

- **H1:** Consumers in Greece can be classified into groups according to their attitudes towards the use of biotechnology in Forest Trees.

- **H2:** The factors affect consumers to buy products derived from GM Forest trees are significant related to particular attitude towards the use of biotechnology in Forest Trees.

2.2 Survey Procedure

The researchers undertook a survey to a sample of consumers in order to gather data necessary to identify the main attitudes of Greek consumers towards Transgenic Forest Trees as well as the main factors that affect their buying behaviour in Greecetowards products that could be derived from GM Trees.Information were gathered through an telephonic survey as the consumers are familiar with this

kind of research and their educational level is suitable for the use of this kind of survey method (Moser 1958; Errington 1985; Barnett 1991; Oppenheim 2000).

In this survey, a systematic stratified sampling method was chosen to form the sample due to the fact that the authors wished to generalize their findings beyond the sample of consumers covered by the survey. As Errington (1985) argued the only way in which this can be achieved is to ensure that the units for survey are selected at random from the larger population about which generalization are to be made. Therefore, consumers telephone numbers were selected randomly from Whitepages, comprising a sample of consumers from all the Prefectures consists the country. The proportion of the consumers of each Prefecture participated in the sample was the same with that of the total population according to Census data. The sample that was selected consists of 376 consumers having a productive response rate of 42%. Hence the productive sample consisted of 158 consumers and should be reasonably representative of some larger population about which useful generalization could be made. The size of the sample is considered reasonable regarding the total population of the area as this size of samples were mostly used by other researchers in Greece regarding consumer behaviour towards food purchases (Tzavaras *et al* 2005; Vlachos and Fotoloulos 2005).

In order to establish the representatives of the surveyed sample, demographic information from the questionnaire is compared with census information of the total population following the methodology that Errington (1985), Tsourgiannis *et. al.* (2006), Tsourgiannis (2008), Chen (2007) and Tsourgiannis *et. al.* (2008) used in their studies. All the characteristics of the sample do not differ from those of the total population based on Census data and therefore can be assumed that the sample is representative of the total population.

2.3 Questionnaire design

Factors that affect the consumers' behaviour towards products that could derive from GM forest trees and consumers' attitudes towards the development of transgenic trees were identified by the researchers after searching the literature. Furthermore they designed a questionnaire in order to meet the research objectives and pre-tested it in academics,

marketing experts and consumers. In the next stage the questionnaire was piloted in October of 2011 to 30 consumers. The pilot survey indicated that no modification needed to the questionnaire and therefore the main survey was conducted in November and December of 2011 as mentioned above.

The questionnaires were designed in four parts:

Part 1 –This part consists of 4 questions regarding consumers' knowledge about GM forest trees and their products and their intention to buy those products.

Part 2 – This part consists of 14 attitudinal statements on a 5 point Likert scale relating to their buying behaviour. These questions covered areas such as price, quality, health protection, environmental impact; advertisement.

Part 3 –This part consists of 12 attitudinal statements on a 5 point Likert scale relating to attitudes towards the use of biotechnology in forest tree sector.

Part 4 –This part consists of 7 questions regarding consumers' personal information including age, education, marital status, number of children, occupation, income.

2.4 Statistical Methodology

Multivariate analysis techniques were used to the 158 consumers to reveal the key information contained in the responses, and these analyses were applied in three stages. Firstly, principal component analysis (PCA) was used to identify the variables that accounted for the maximum amount of variance within the data in terms of the smallest number of uncorrelated variables (components)[3].

In this study, PCA reduced the 12key attitude variables, which relate to consumers opinion about the use of biotechnology in forest trees to a smaller set of underlying factors [4].These factor scores were then subjected to cluster analysis to group consumers with similar patterns of scores into similar clusters based on their buying behaviour.[5,6]

Quadratic discriminant analysis was performed to assess how accurately the identified key attitudes dimensions that were derived from the factor analysis could predict and discriminate cluster membership .

Furthermore, PCA employed to reduce the 14 issues relatedto consumers' behaviour towards products derived from GM forest trees into a smaller set of key factors (consumption dimensions).

Statistical tests based on the outcomes of the multivariate statistical techniques presented above (factor, cluster and discriminant analysis) were used to test three hypotheses presented in previous section

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3 Results

3.1 Consumers' attitudes towards the use of biotechnology in forest tree sector.

Principal components and factor analyses (through a varimax rotation) were conducted to identify the key consumers' attitudes towards the use of biotechnology in forest tree sector, and the latent root criterion (eigenvalue =1), the scree plot test and the percentage of variance were used to determine the number of factors.

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[3]The anti-image correlation matrix was used as well as Bartlett's test of sphericity and measure of sampling adequacy (MSA) in order to check the appropriateness of the data for subsequent factor analysis. The variables that had a high proportion of large absolute values of anti –image correlations as well as MSA less than 0.5 were removed before analysis.

[4]An orthogonal rotation (varimax method) was conducted and the standard criteria of eigenvalue = 1, scree test and percentage of variance were used in order to determine the factors in the first rotation (Hair *et al.* 1998). Different trial rotations followed where factor interpretability was compared.

[5]In this study, both hierarchical and non-hierarchical methods were used according to the recommendations of Hair *et al.* (1998) and Punj and Stewart (1983)in order to develop a typology of the consumers' buying behaviour.

[6]A non-parametric Kruskal–Wallis one way ANOVA was conducted to validate the cluster solutions by examining if variables not used in cluster analysis differ significantly among the identified clusters

PCA identified four factors that affect consumers attitudes towards the use of biotechnology in forest trees sector (Table 1).

KEY ATTITUDE DIMENSIONS	Factor Loading
Economic performance	
Cost reduction	0.804
Increase of return	0.770
Impact on climate change	
Impact on climate change	0.817
Biotechnology is not needed	0.815
Impact on environment and biodiversity conservation	
Negative impact on the environment	0.826
Negative impact to non GM plants	0.767
Impact of biomass production methods	
Biotechnology is important for biomass production	0.719
Reduction of production losses	0.700

KMO MSA = 0.548

Bartlett test of Sphericity = 144.815, P <0.001

Table 1 Key Attitudes Dimensions Derived from Principal Component Analysis.

In the next stage, hierarchical and non-hierarchical clustering methods were usedto develop a typology of the buying behaviour of the Greek consumers (Harrigan 1985; Helsen and Green 1991; Hair *et al.* 1998; and Siardos 1999). Cluster analysis was conducted on the 158 observations, as there were no outliers.

It identified three groups of consumers that were named according to their attitude patterns towards the use of biotechnology in forest tree sector (Table 2). These are: (a) those who are interested in the environmental impact of the biotechnology, (b) those who are interested in

the economic issues related to the use of biotechnology and (c) those who are interested in climate impact.

Factors	Groups of Consumers			P
	Interested in the environmental impact of the biotechnology	Interested in the economic issues related to the use of biotechnology	Interested in climate impact	
Economic performance	-0.68189	0.50182	0.52919	0.001
Impact on climate change	-0.14776	-0.77314	1.03664	0.001
Impact on environment and biodiversity conservation	0.50965	-0.75329	-0.00011	0.001
Impact of biomass production methods	0.02900	0.42065	-0.48458	0.001
Number of Consumers (Total N =158)	68	46	44	

NB: Means are reported in standard text and standard deviations

In particular, **consumers who are interested in the environmental impact of the biotechnology**comprise 43% of the sample. These consumers are very conscious about the impact that the use of biotechnology in forest trees might have to the environment and to the other non GM plants and trees. On the other hand, they are not interested in the economic issues and the impact on climate change it might have.

The consumers **who are interested in the economic issues related to the use of biotechnology**comprise the 29% of the sample. These consumers are very interested in the reduction of production cost and the increase in returns of the tree plantation enterprises that the use of biotechnology can cause. They also believe that biotechnology is quite important for the production methods of biomass and for the reduction of production losses.

On the other hand, they do not pay attention to the impact the development of transgenic trees might have to the environment and climate change.

Finally, consumers **who are interested in climate impact** consist of the 28% of the sample. They are conscious about the possible negative impact transgenic forest trees might have to climate, they do not consider that biotechnology is necessary to be employed in forest tree sector but on the other hand, they are quite interested in the economic issues that are linked with the development of GM forest trees. On the other hand, they do not pay attention neither to the possible environmental impact nor to the impact it might has to the biomass production.

Moreover discriminant analysis was conducted to evaluate the prediction of group membership by the predictors derived from the factor analysis. Initially the normality of the key strategic dimensions was checked. The summary of the cross validation classification derived by the quadratic discriminant analysis is shown in Table 3.

Actual Classification	Predicted Classification		
	Interested in the environmental impact of the biotechnology	Interested in the economic issues related to the use of biotechnology	Interested in climate impact
Interested in the environmental impact of the biotechnology	64	0	0
Interested in the economic issues related to the use of biotechnology	2	46	0
Interested in climate impact	2	0	44
Total N	68	46	44
N Correct	64	46	44
Proportion of Correct Classification	94.1%	100%	100%
N=158	**N correct = 154**	**Proportion Correct = 0.975**	

Table 3 Summary of Classification with Cross - validation

Thus, the four attitude dimensions could accurately predict and discriminate consumers' group membership.

Therefore, the hypothesis *H1:Consumers in Greece can be classified into groups according to their attitudes towards the use of biotechnology in Forest Trees* may be accepted.

3.2 Factors affecting consumers purchasing behaviour towards paper products, wood products and biomass that could be derived from GM forest trees.

Principal components and factor analyses (through a varimax rotation) were conducted to identify the key factors that affect consumers' buying behaviour towards the use of biotechnology in forest tree sector, and the latent root criterion (eigenvalue =1), the scree plot test and the percentage of variance were used to determine the number of factors.

PCA identified three factors that affect consumers' purchasing behaviour towards paper products that could be derived from GM forest trees. (Table 4).

KEY CONSUMERS' DIMENSIONS	Factor Loading
Quality	
Curiosity	0.748
Quality	0.731
Possible negative environmental impact	0.613
Labelled as Genetic Modified Products and advertisement	
Labelled as product derived from GMO's	0.799
Advertisement	0.776
Brand name	
Brand name	0.898

KMO MSA = 0.531

Bartlett test of Sphericity = 54.264, P <0.001

Table 4 Key Consumers' Dimensions on Paper Products Derived from Principal Component Analysis.

It also identified two factors that affect consumers' purchasing behaviour towards wood products that could be derived from GM forest trees. (Table 5).

KEY CONSUMERS' DIMENSIONS	Factor Loading
Environment and health protection	
Potential negative environmental impact	0.815
Certification of origin	-0.808
Health safety	0.771
Economic efficient production methods	
Curiosity	0.843
Production Methods	0.839

KMO MSA = 0.602

Bartlett test of Sphericity = 131.800, P <0.001

Table 5 Key Consumers' Dimensions on Wood Products Derived from Principal Component Analysis.

Moreover, PCA identified five factors that affect consumers' purchasing behaviour towards biomass-biofuels that could be derived from GM forest trees. (Table 6).

KEY CONSUMERS' DIMENSIONS	Factor Loading
Health protection	
Health safety issues	0.780
Labelled as GM product	0.744
Special characteristics of the product	-0.649
Brand name and economic efficient production methods	
Production Methods	-0.807
Brand name	0.642
Quality	
Attractive and convenient packing	0.746
Quality	-0.745
Environmental impact	
Potential negative environmental impact	-0.701
Low price	0.679
Curiosity and advertisement	
Curiosity	0.800
Advertisement	0.636

KMO MSA = 0.536

Bartlett test of Sphericity = 136.823, P <0.001

Table 4 Key Consumers' Dimensions on Paper Products Derived from Principal Component Analysis.

Thus hypothesis**, *H2:*** *The factors affect consumers to buy products derived from GM Forest trees are significant related to particular attitude towards the use of biotechnology in Forest Trees* maybe accepted.

4 Discussion -Conclusions

This study indicated that there was a significant association between the adoption of a specific attitude towards the development of transgenic trees and their products and their buying behaviour towards those products.

It identified that there are three groups of consumers with different attitudes towards the development of transgenic forest trees and their products: (a) Interested in the environmental impact of the biotechnology", (b) "Interested in the economic issues related to the use of biotechnology" and (c) "Interested in climate impact". The economic performance of the enterprises, that will develop this kind of tree plantations as well as the impact this kind of technology it might has on the environment, climate change and biomass production methods, influence consumers perceptions on the development of such trees and their products.

Furthermore, environment and health protection issues, economic efficient production methods, marketing issues including labelling, advertisement, brand name, product's quality and curiosity affect consumers in their potential purchasing behaviour towards the products that could derive from GM forest trees.

Consumers who are interested in the environmental impact of the biotechnology and in climate impact have similar behaviour regarding their willingness to buy paper and wood products derived from GM trees. On the other hand consumers who are Interested in the economic wood products that could derive from transgenic trees.

This study supports the findings of other studies according to which consumers are mainly affected in their preferences towards transgenic trees and their potential products, from their environmental and philosophical concerns.

A number of limitations can be identified in this survey with the most important being the followings:

(a) Some answers in the questionnaire may not represent the true beliefs and attitudes of consumers due to the fact that they are asked through a telephone interview, their time to answer the questionnaire is sometimes limited. Of course this limitation exists in most of consumers preferences surveys.

(b) The samples in such surveys can not be quite large due to financial constrains.

(c) The adopted statistical methodology even it explore the factors that affect consumers' buying behaviour and create a taxonomy of consumers with similar buying behaviour (which is the purpose of the current study) useful for marketing analysis and strategy development can not measure the demand of a product or determine the importance of the characteristics of a product that affect consumers' behaviour. These measurements can be made with the use of other statistical techniques such as conjoint analysis and contingent valuation.

Nevertheless, the value of the current study is incontestable. It is the first study (to the knowledge of the authors) that explores consumers' attitudes towards the development of transgenic trees and their products as well the factors that affect their purchasing behaviour towards such potential products.

According to the results of this study the potential developers of such forest tree plantations and paper, wood and biomass-biofuel products should structure their marketing and promotion mix and focus on health and environment protection, climate protection, quality of the product and economic efficient production methods.

Moreover the scientific community and policymakers before launch those products to the market should be ensure the public that there in zero risk for the, climate change, environment and the biodiversity.

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RELIABILITY AND VALIDITY TESTING OF A NEW SCALE FOR MESURING ATTITUDES TOWARD CHENESE PRODUCTS

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ABSTRACT

The aims of this paper are to determine the validity and reliability of ATCPc scale (Attitudes toward Chenese Product) as an instrument to measure students' attitudes that monitors affective components relevant to consuption behavior towards the new Chinese market in a Greek sample came from Western Macedonia in Greece. Initially, it was consisted of 35 items concerning 7 conceptual subscales which measure students' attitudes concerning Intention to buy, Trust in buying Chinese products, Risk of buying Chinese products, Product price, Perceived quality, Satisfaction, and finally Loyalty in Chinese products. In particular, the paper reports the responses of 150 Greek students from the departments of Pre-school Education of the Western Macedonia Universityand the department of Educational and Social Policy of Macedonia University in Greece. The results of the present study provide the final scale, which is consisted of the all the 35 items of the initial ATCPc Scale and for which strong evidence was ascertained.

KEYWORDS

Validity, reliability, attitudes, Chinese products, Greece

JEL CLASSIFICATION CODES

C52 - model evaluation, validation, and selection, D12 - consumer economics: empirical analysis

1.THEORETICAL FRAMEWORK

In Europe, there is a trend of illegal street merchants of Chinese products and this strongly influences the local markets. In Greece, these Chinese merchants have a bad impact on the local economy, especially in recent economic crisis period, because they sell their products for extremely cheap prices and hence, they create problems for Greek merchants who cannot overcome this kind of competition.

Daily are imported in very big quantities products from China with doubtful quality and in which the control is almost non-existent. The branch of clothing, games, electric appliances are damaged by the Chinese competition, that with the tolerance of state affects negatively in the Greek manufacture and with this way is decreased also the turnover of enterprises and is realised continuously redundancies as has been stressed by the Craft-based Chamber Piraeus in 2011 (Craft-based Chamber Piraeus. What attracts the consumers is the low prices, in which they can find him in the market, without however giving particular importance in their quality. For this reason are continuously marked incidents with regard to the negative repercussions of Chinese products. Many Chinese products from games, up to foods domestic, have been proved dangerous for the health of consumers as was also the deadly milk.

Consumer behavior is influenced by various factors, as it is cultural factors that include the culture and subculture, social factors that include the social order, the social roles, teams of report and the instructors of opinion, demographic factors that include age and the phase of circle of life of an individual, the educational level, the profession and economic situation and finally psychological factors that include the personality, self-concept, the way of life, the encouragement, the perception, the learning and the beliefs and also the attitudes (Mpaltas & Papastathopoulou, 2003).

It is of a major importance the examination of attitudes, beliefs and opinions as far as the consuption of Chinese products concerns. For this reson a Attitudes toward Chenese Product scale (ATCPc) was developed. Thus the aims of this paper are to determine the validity and reliability of ATCPc scale (Attitudes toward Chenese Product) as an instrument to measure students' attitudes that monitors affective components relevant to consuption behavior towards the new Chinese market in a Greek sample came from Western Macedonia in Greece.

2. RESEARCH GOALS

Consumers community pays attention to the impact that new are of products, such as chinise products, appear in the market. Therefore, it is of great interest to investigate the attitudes that monitors affective components relevant to consuption behavior towards the new Chinese market. For this reason, the present study aims to create a reliable and valid tool capable to measure the students concumers' attitudes concerning Intention to buy, Trust in buying Chinese products, Risk of buying Chinese products, Product price, Perceived quality, Satisfaction, and finally Loyalty in Chinese products.This specific tool is under investigation for its reliability and validity as there are no other relative instruments for this type of measurement.

3. THE INSTRUMENT

The instrument, which intended to measure students' attitudes towards statistics, is Attitudestoward Chineese Product Scale *(*ATCPc). This tool consisted of 35 items referring to five different attitude subscales, as follows: (a) Intention to buy -positive and negative attitudes concerning a student's intention to buy Chinese products (In1, In2, In3, In4, In5) (b) Trust in buying Chinese -positive and negative attitudes concerning a student's trust to buy Chinese products (Tr1, Tr2, Tr3, Tr4, Tr5); (c) Risk of buying Chinese products -positive and negative attitudes concerning a student's attitudes the risks of buying Chinese products(Ri1, Ri2, Ri3, Ri4, Ri5); (d) Product price-positive and negative attitudes the price of Chinese products (Pr1, Pr2, Pr3, Pr4, Pr5); (e) Perceived quality-positive and negative emotions concerning the quality of of Chinese products (Pq1, Pq2, Pq3, Pq4, Pq5); (f), Satisfaction-positive and negative attitudes concerning a student's satisfaction of buying Chinese products (Sa1, Sa2, Sa3, Sa4, Sa5) and finally (g) Loyalty in Chinese products- positive and negative attitudes decrides their loyalty to Chinese market (Lo1, Lo2, Lo3, Lo4, Lo5).

Each item of the instrument used a 5-point Likert scale that ranged from 1- Strongly Disagree to 5-Strongly Agree. The value of the Cronbach's α coefficient for this instrument in this study's sample was 0.882

4. SAMPLE

The sample consists of 150 Greek students from the departments of Pre-school Education of the Western Macedonia Universityand the department of Educational and Social Policy of Macedonia University in Greece.150 valid questionnaires were collected in the beginningof the second semester of the academic year 2011-12.

5. METHODOLOGY

The aim of this research study is to determine the validity and reliability of the ATCPc Scale which was designed as an instrument to measure students' attitudes that monitors affective components relevant to consuption behavior towards the new Chinese market in a Greek sample. The evaluation of questionnaire reliability- internal consistency is possible by Cronbach's α (Cronbach, 1984), which is considered to be the most important reliability index and is based on the number of the variables/items of the questionnaire, as well as on the correlations between the variables (Nunnally, 1978). The reliability of the instrument means that its results are characterized by repeativenes and these results are not connected with measurement errors, was evaluated by Cronbach alpha coefficient. The index alpha (a) is the most important index of internal consistency and is attributed as the mean of correlations of all the variables, and it does not depend on their arrangement (Anastasiadou, 2006).

ThenaPrincipalcomponentsanalysiswithVarimaxRotationproducesthedimensionofdifferentiationwas used in order to confirm or not the scale construct validity. To define if the sub-scales were suitable for factor analysis, two statistical tests were used. The first is the Bartlet Test of Sphericity, in which it is examined if the subscales of the scale are inter-independent, and the latter is the criterion KMO (Kaiser-Meyer Olkin Measure of Sampling Adequacy, KMO) (Kaiser, 1974), which examines sample sufficiency. The main method of extracting factors is the analysis on main components with right-angled rotation of varimax type (Right-angled Rotation of Maximum Fluctuation), so that the variance between variable loads be maximized, on a specific factor, having as a final result little loads become less and big loads become bigger, and finally, those with in between values are minimized (Hair et al., 2005).

This means that the factors (components) that were extracted are linearly irrelevant (Anastasiadou, 2006). The criterion of eigenvalue or characteristic root (Eigenvalue) ≥1 was used for defining the number of the factors that were kept (Kaiser, 1960, Sharma, 1996, Hair et al., 1995). Model acceptance was based on two criteria: a) each

variable, in order to be included in the variable cluster of a factor, must load to it more than 0.45 and b) less than 0.45 to the rest of the factors) (Schene, et al., 1998). Moreover, each factor must have more than two variables. In addition, it was considered, on the basis of common variable Communalities, that the variables with high Communality (h^2) imply great contribution to the factorial model (Hair et al., 2005). For the statistical data elaboration and check of the questionnaire factorial structure the software S.P.S.S., edition 16 was used.

6. RELIABILITY

ThefollowingtableofReliabilityStatistics (Table 1) informusaboutthevalueofthe coefficient a of Cronbach for the research scale is0.882=88,2%. This getsoverthepercentof 80%, whichisanextragood value for the internal consequence of the conceptual construction of the investigated scale (Anastasiadou, 2010; Nouris, 2006). If we continue with the releaseofunits, in other words with the standardized value of the variables, then the coefficient Cronbach a will slightly increase the value of α=0,886. This means that whether we increase the number of the items, then Cronbach a will take the value of 0,886.

Table 1: Reliability Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,882	,886	35

ThetableScale Statistics (Table 2) givesthescoresthatarerelatedtothescale'sentirety, whichpresentsameanofthe class of 88,85and a standard deviation of the class of 15,582 units.

Table 2: Scale Statistics

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
88,85	242,788	15,582	35

The table Item-Total Statistics (Table 3) gives the following important information in particular.

Table 3: Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
	Item-Total Statistics			
In1	86,04	226,213	,488	,877
In2	85,99	224,396	,564	,876
In3	86,90	226,507	,596	,876
In4	87,05	227,017	,630	,876
In5	86,84	228,176	,537	,877
Tr1	86,61	226,306	,519	,877
Tr2	86,69	228,445	,494	,877
Tr3	86,67	225,338	,612	,875
Tr4	86,81	222,976	,643	,874
Tr5	86,22	225,663	,517	,877
Ri1	85,91	240,005	,551	,886
Ri2	85,84	244,860	-,598	,888
Ri3	85,45	241,309	,507	,887
Rs4	85,52	245,016	-,502	,889
Ri5	85,62	242,841	-,535	,888
Pr1	84,81	243,781	-,564	,887
Pr2	85,06	251,788	-,328	,892
Pr3	84,93	244,458	-,586	,888
Pr4	85,63	232,960	,271	,882
Pr5	85,53	234,613	,208	,883
Pq1	86,67	224,358	,575	,876
Pq2	86,75	224,791	,605	,875
Pq3	86,67	221,389	,689	,873
Pq4	86,51	227,580	,528	,877
Pq5	86,79	227,252	,551	,876
Sa1	86,65	225,948	,559	,876
Sa2	86,73	225,083	,593	,875
Sa3	86,42	222,983	,640	,874
Sa4	86,51	223,795	,634	,875
Sa5	86,73	222,160	,671	,874
Lo1	86,99	223,443	,619	,875
Lo2	86,89	225,269	,468	,878
Lo3	86,85	224,627	,502	,877
Lo4	86,82	222,726	,548	,876
Lo5	86,71	222,665	,559	,876

Especially, inthesecondcolumnoftheabovetabletheparticularscaleofmeasurement ATCPc givesmeanvalue86.04, 85.99, 86.90, 87.05, 86.84, 86.61, 86.69, 86.67, 86.81, 86.22, 85.91, 85.84, 85.45, 85.52, 85.62, 84.81, 85.06, 84.93,85.63, 85.53, 86.67, 86.75, 86.67, 86.51, 86.79, 86.65, 86.73, 86.42, 86.51, 86.73, 86.99, 86.89, 86.85,

86.82, 86.71units, which means that it presents a decrease of 2.81, 2.86,1.95, 1.80, 2.01, 2.24, 2.16, 2.22, 2.04, 2.63, 2.94, 3.01, 3.40, 3.33, 3.23, 4.04, 3.79, 3.92, 3.22, 3.32, 4.04, 3.79, 3.92, 3.22, 3.32, 2.18, 2.10, 2.18, 2.34, 2.06, 2.20, 2.12, 2.43, 2.34, 2.12, 1.86, 1.96, 2, 2.03, 2.14 are omitted from (taken off) the scale. In the fourth column the number 0.488, 0.564, 0.596, 0.63, 0.537, 0.519, 0.494, 0.612, 0.517, 0.551, -0.598, 0.507, -0.502, -0.535, -0.565, -0.328, -0.586, 0.271, 0.208, 0.575, 0.605, 0.689, 0.528, 0.551, 0.559, 0.593, 0.64, 0.634, 0.671, 0.619, 0.468, 0.502, 0.548, 0.559 means that the specific items In1, In2, In3, In4, In5, Tr1, Tr2, Tr3, Tr4, Tr5, Ri1, Ri2 Ri3, Ri4, Ri5, Pr1, Pr2, Pr3, Pr4, Pr5, Pq1 Pq2, Pq3, Pq4, Pq5, Sa1, Sa2, Sa3, Sa14, Sa5 Lo1, Lo2, Lo3, Lo4, Lo5 appear the Pearson coefficient of correlation of the class 48.8%, 56.4%, 59.6%, 63%, 53.7%, 51.9%, 49.4%, 61.2%, 51.7%, 57.5%, 60.5%, 68.9%, 52.8%, 55.1%, 55.9%, 59.3%, 64%, 63.4%, 67.1%, 61.9%, 46.8%, 50.2%, 54.8%, 55.9% with the sum of the rest variables that remain in the scale when these items In1, In2, In3, In4, In5, Tr1, Tr2, Tr3, Tr4, Tr5, Ri1, Ri2 Ri3, Ri4, Ri5, Pr1, Pr2, Pr3, Pr4, Pr5, Pq1 Pq2, Pq3, Pq4, Pq5, Sa1, Sa2, Sa3, Sa14, Sa5 Lo1, Lo2, Lo3, Lo4, Lo5vanish each one separately.All the itemsappearfromgooduptohighcorrelation coefficients and they will not omit from the scale.

7. SAMPLE SUFFIENCY TEST AND SPHERICITY TEST

The following table 4 (Table 4)gives information about two hypotheses of factor analysis.From the following table, we find out that sample sufficiency index KMO by Kaiser-Meyer-Olkin, which compares the sizes of the observed correlation coefficients to the sizes of the partial correlation coefficients for the sum of analysis variables is 86.4%, and it is reliable because it overcomes 70% by far. In addition, supposition test of sphericity by the Bartletttest (Ho: All correlation coefficients are not quite far from zero) is rejected on a level of statistical significance p<0.0005 for Approx. Chi-Square=3541.844. Consequently, thecoefficientsarenotallzero, sothat the second acceptance of factor analysis is satisfied. As a result, both acceptances for the conduct of factor analysis are satisfied and we can proceed to it.

Table 4: KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,864
Bartlett's Test of Sphericity	Approx. Chi-Square	3541,844
	df	595
	Sig.	,000

8. THE SCREE PLOT GRAPH

The scree test (Figure 1) produces the following graph, which proceeds to a graphic representation of eigenvalues and guides us to the determination of the number of the essential factorial axes.

Figure 1: Scree Plot

Theabovegraph (Graph 1) presentsadistinguishedbreakuptotheeighthfactor, whereasaftertheeighthfactoranalmostlinearpartoftheeigenvaluecurvefollows. Thus, we can take under consideration the eigenvalues, which are over 1 for all the 7 factors (6.507, 4.059, 3.035, 3.020, 2,955, 2,060 and

1,891 for the 1st, 2nd, 3rd, 4th,5th, 6th and 7th respectively) (Table 5), and decide whether they interpret data in a satisfactory way.

Table 5:Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11,621	33,203	33,203	11,621	33,203	33,203	6,507	18,591	18,591
2	3,269	9,339	42,542	3,269	9,339	42,542	4,059	11,597	30,188
3	2,826	8,074	50,616	2,826	8,074	50,616	3,035	8,671	38,859
4	1,912	5,462	56,078	1,912	5,462	56,078	3,020	8,630	47,489
5	1,429	4,082	60,160	1,429	4,082	60,160	2,955	8,442	55,931
6	1,251	3,574	63,734	1,251	3,574	63,734	2,060	5,886	61,817
7	1,220	3,484	67,219	1,220	3,484	67,219	1,891	5,402	67,219
8	1,042	2,978	70,196						
9	1,002	2,862	73,059						
10	,890	2,544	75,602						
11	,757	2,162	77,764						
12	,691	1,975	79,739						
13	,649	1,853	81,592						
14	,638	1,823	83,415						

15	,590	1,685	85,100								
16	,518	1,481	86,582								
17	,499	1,425	88,006								
18	,468	1,337	89,343								
19	,382	1,090	90,434								
20	,373	1,065	91,499								
21	,343	,981	92,480								
22	,320	,913	93,393								
23	,292	,835	94,228								
24	,268	,765	94,993								
25	,261	,745	95,737								
26	,234	,670	96,407								
27	,204	,583	96,990								
28	,191	,546	97,536								
29	,179	,513	98,049								
30	,159	,453	98,502								
31	,135	,385	98,887								
32	,124	,354	99,241								
33	,118	,338	99,579								
34	,091	,260	99,839								

35	,056	,161	100,000						

Extraction Method: Principal Component Analysis.

9. RESULTS

The 150 valid questionnaires were collected with the aim of carrying on a pilot study. It concerns the validity and reliability of the questionnaire which was designed for the working out of a doctoral writing work. We chose to base our estimate on the Principal component analysis with the variance-covariance matrix, because the 35 variables were obtained on a 5-point scale of Likert. The adequacy indicator of the sample KMO=0.864>0.70 indicated that the sample data are suitable for the undergoing of factor analysis. The control of sphericity (Bartlett'ssign<0.001) proved that the principal component analysis has a sense. Through this analysis, data grouping was based on the inter-correlation with the aim of imprinting those factors which describe completely and with clarity the participants' attitudes towards the research subject.

Accordingtotheanalysis (Table 7), arise 7 uncorrelatedfactors, which explain the 67.219% percentage of the whole inertia of data and are described separately afterwards. The coefficient of internal consistency (reliability) Crobach's a is statistically significant and equals to 88.2% for the total number of questions. Thatiswhythescaleof 35 questionswasconsideredasreliablein terms of internal consistency of the conceptual construction that was composed for the attitudes toward learning statistics with technology.

The reliability coefficient (Crobach'sa) is statistically significant and equals to 84.9%, 85.9%, 80.9%, 63.9%, 87.8%, 87.9% and 91.7% for the 1st, 2nd,3rd, 4th, 5th, 6th and 7th factorial axis correspondingly. Eventually, fromthevaluesofthecommoncommunality (Table 6) we ascertain for each question that the majority of them have a value higher than 0.50 which represents satisfactory quality of the measurements from the model of 7 factors or components.

Table 6: Commuality Table

Communalities

	Initial	Extraction
In1	1,000	,685
In2	1,000	,665
It3	1,000	,782
In4	1,000	,771
In5	1,000	,619
Tr1	1,000	,547
Tr2	1,000	,624
Tr3	1,000	,717
Tr4	1,000	,650
Tr5	1,000	,559
Ri1	1,000	,736
Ri2	1,000	,715
Ri3	1,000	,603
Rs4	1,000	,535
Ri5	1,000	,592
Pr1	1,000	,591
Pr2	1,000	,665
Pr3	1,000	,681
Pr4	1,000	,427

Pr5	1,000	,531
Pq1	1,000	,735
Pq2	1,000	,773
Pq3	1,000	,839
Pq4	1,000	,646
Pq5	1,000	,568
Sa1	1,000	,645
Sa2	1,000	,594
Sa3	1,000	,715
Sa4	1,000	,699
Sa5	1,000	,610
Lo1	1,000	,612
Lo2	1,000	,840
Lo3	1,000	,908
Lo4	1,000	,883
Lo5	1,000	,762

Extraction Method: Principal

Component Analysis.

Table 7 presents the components and the factor loadings produced after Principal Components Analysis. More specifically, based on student attitudes as presented by the factor analysis, questions Sa4, Sa3, Sa1, Sa5, and Sa2 particularly with high loadings (0.777, 0.740, 0.728, 0.711, 0.607) load mainly on the first axis-factor F1, with eigenvalue 6,507, which explains, following Varimax rotation, 18.591% of the total dispersion. The first factor consists of the statements of students who may think that they are happy with the quality of Chinese products and generally thay are happy with the Chinese products because the buying of Chinese products corresponds in my expectations and the aesthetics of Chinese products makes them fell beautifully and the use of Chinese products suits in their life style. Factor F1 represents students' degree of Satisfaction to buy Chinese products. It is important to mention that all the above items Sa4, Sa3, Sa1, Sa5, and Sa2withoutexception appear with highloadingsonthefactor axis-factor, they also have mostlymediocre Pearson correlation coefficient this result to problem non existence in reliability.Reliability of the first factor is *a*=0.849, which is particularly satisfactory.

Questions Tr3, Tr2, Tr4,Tr5 and Tr1, particularly with high loadings (0.728, 0.672, 0.640, 0.608, 0.576) on the second factor (F2), with eigenvalue4.059, which explains 11.597% of the total dispersion. The second factor consists of the statements of students who may think they entrust the market of Chinese products because Chinese products are certified and their use suits them, thus they will not hesitate to buy Chinese products due to the fact that they are reliable. All the items Tr3, Tr2, Tr4,Tr5 and Tr1, withoutexception appear to have highloadingsonthesecondaxis-factor, they have mostlymediocre Pearson correlation coefficient and this result to problem non existence in reliability.The reliability of the second factor is *a*=0.859, which is satisfactory.

QuestionsLo3, Lo2, Lo4, Lo5 and Lo1 particularly with high loadings (0.924, 0.896, 0.888, 0.822, 0.525) on the third factor (F3) with eigenvalue 3.035, which explains 8.671% of the total dispersion. The third factor (F3) consists of the statements of Loyalty in Chinese products- positive attitudes- decrides their loyalty to Chinese market. Students who may think that they do not change the Chinese products neither with Europeanones, Greekones, Americannor with products of other countries because they consider that they have faith in the market of Chinese products. All the items Lo3, Lo2, Lo4, Lo5 and Lo1,withoutexception appear to have eitherhighorlowloadingsonthethirdaxis-factor andthey also have mostlymediocre Pearson correlation coefficient and this results to problem non existence in reliability.The reliability of the third factor, Risk of buying Chinese products, is *a*=0.804, which is satisfactory.

Questions Ri1, Ri2, Ri4, Ri5 and Ri3 particularly with high loadings (0.831, 0.821, 0.664, 0.647, 0.647) are on the fourth factor (F4) with eigenvalue 3.020, which explains 8.630% of the total dispersion. The fourth factor (F4) consists of the statements of students who may think that the decision of buying Chinese products is dangerous and more generally the buying Chinese products is dangerous and they are not sure that buying of Chinese products is good choice and consequantly it is not worth to risk of buying Chinese products because they are are of doubtful quality. All the items Ri1, Ri2, Ri4, Ri5 and Ri3, withoutexception appear to have

highloadingsonthefourth axis-factor, and they have mostlymediocre Pearson correlation coefficient and this result to problem non existence in reliability.

Questions Pq3, Pq2, Pq1, Pq4 and Pq5particularly with high loadings (0.729, 0.723, 0.712, 0.669, 0.635) are on the fifth factor (F5) with eigenvalue 2,955, which explains 8.442% of the total dispersion. The fifth factor (F5) consists of the statements of students who may think that quality of Chinese products is equal to American, European, Greek and of other countries. Finally, last on the significance scale for this factor lays the belief that the Chinese products of are high quality. The fifth factor (F5)highlights the Perceived qualityof Chinese products. All the items Pq3, Pq2, Pq1, Pq4 and Pq5, withoutexception appear to have highloadingsonthe fifth axis-factor, they have mostlymediocre Pearson correlation coefficient and this result to problem non existence in reliability. The reliability of the fifth factor is a=0.878, which is satisfactory.

Questions Pr3, Pr1, Pr2, Pr4 and Pr5, particularly with high loadings (0.768, 0.708, 0.569, 0.513, 0.509) are on the sixth factor (F6) with eigenvalue 2.060, which explains 5.886% of the total dispersion. The sixth factor (F6) consists of the statements of students who may think that the exclusive reason of buying Chinese products is their low price or the main reason of buying Chinese products is the low price, even though the low price of Chinese products is proportional of their quality but they suit with theit economic possibility. Finally, last on the significance scale for this factor lays the belief that the price of Chinese products is exceptionally competitive. The sixth factor (F6),highlights the role of Pricein buying Chinese products. All the items Pr3, Pr1, Pr2, Pr4 and Pr5, withoutexception appear to have highloadingsonthe sixth fi axis-factor, they have mostlyfrom relatine low tomediocre Pearson correlation coefficient and this result to problem non existence in reliability. The reliability of the sixth factor is a=0.879, which is satisfactory.

Table 7: Rotated Component Matrix

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
Sa4:I am happy with the quality of Chinese products	,775						
Sa3: I am happy with the Chinese products	,740						
Sa1:The buying of Chinese products corresponds in my expectations	,728						
Sa5:The aesthetics of Chinese products makes me fell beautifully	,711						
Sa2:The use of Chinese products suits in my life style	,607						
Tr3:I entrust the market of Chinese products		,728					
Tr2: The Chinese products are certified		,672					
Tr4: The use of Chinese products suits me		,640					
Tr5: I will not hesitate to buy Chinese products		,608					
Tr1: The Chinese products are reliable		,576					
Lo3: I do not change the Chinese products with European			,924				
Lo2: I do not change the Chinese products with Greek ones			,896				
Lo4: I do not change the Chinese products with American ones			,888				
Lo5: I do not change the Chinese products with products of other countries			,822				
Lo1: I consider that I am faith in the market of Chinese products			,523				
Ri: The decision of market of Chinese products is dangerous				,831			

Ri2: More generally I believe that the buying of Chinese products is dangerous				,821			
Rs4: I am not sure that the buying of Chinese products is good choice				,664			
Ri5: It is not worth to risk of buyinf Chinese products				,647			
Ri3: The Chinese products of are of doubtful quality				,647			
Pq3: I believe that the quality of Chinese products is same American					,729		
Pq2: 2.I believe that the quality of Chinese products is same European					,723		
Pq1: I believe that the quality of Chinese products is same Greek					,712		
Pq4: I believe that the quality of Chinese products of is same products of other countries					,669		
Pq5: I believe that the Chinese products of are high quality					,635		
Pr3:The exclusive reason of buying Chinese products is their low price						,768	
Pr1:The reason of buying Chinese products is the low price						,708	
Pr2:The low price of Chinese products of is proportional of their quality						,569	
Pr4: The price of Chinese products suits with my economic possibility						,513	
Pr5: The price of Chinese products is exceptionally competitive						,509	
In3:In the future I will buy exclusive Chinese products							,751
In4:In the future my first choice will be Chinese products							,737
In5:In the future I intend to increase the buying of Chinese products							,668
In1:I will buy Chinese products							,608
In2:In the future I will not hesitate to buy Chinese products							,565
Eigenvalue	6.507	4.059	3.035	3.020	2.955	2.060	1.891
Variance Explained (%)							
Cronbach's a (%)	84.9%	85.9%	80.9%	63.9%	87.8%	87.9%	91.7%
Total Variance Explained (%)	67.219%						
Total Reliability Cronbach's α (%)	88.2%						

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.864

Bartlett's Test of Sphericity: x^2=3541.844, df=595, p=0.000

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

The seventh and final factor (F7) with eigenvalue 1.891, with quite high loadings (0.751, 0.737, 0.668, 0.608, 0.565) which explains 5.402 % of the total data inactivity, is constructed and interpreted by questions In3, In4, In5, In1 and In2. The seventh factor consists of variables that concern the intention of buying Chinese products. More spesificantly students who may in the future buy exclusive Chinese products, their first choice will be Chinese products, and they intend to increase the buying of Chinese products and they certainly will buy without any hesitation. It is important to give emphasis that the itemsIn3, In4, In5, In1 and In2 appear high loading on the seventh factor-axis and they have mostlymediocre correlation coefficient Pearson with the sum of the rest variables that remain in the scale, and this ascertains their remains in the scale. The reliability of the fourth factor is a=0.917, which is satisfactory.

Finally, theprincipalfactoranalysistotallyarisesevenfactor-compositevariables, whicharenamed: Satisfaction, Trust in buying Chinese products, Loyalty, Perceived quality, Risk of buying Chinese products, Product price, and finally Intention to buy. Therefore, a model of seven factors is created. Furthermore, itisessentialtoinvestigatewhetherthereisaproblemintheadaptability of this model.

10. TEST OF GOOD ADAPTABILITY

Thecontrolofgoodadaptabilityaswellasthesphericity control prerequisite multidimensional normality. The test of good fit of the seven model was based on the method of Generalized Weighted Least Squares.By this test the null hypothesis Ho assumes that there is no problem with the good fit of the model to the examined data.

From the table 8 (Table 8) further down we ascertain that the observatory level of statistical significance sign.=0.053>0.05 is over of the cutoff point 5% and therefore we accept the null hypothesis Ho, or in other words, we accept that the estimated five factor model has good fit.

Table 8: Goodness-of-fit Test

Goodness-of-fit Test

Chi-Square	df	Sig.
368,084	316	,053

11. CONCLUSIONS

Therefore, amodelof seven factors has created after the examination of the validity and reliability of the initial Attitudestoward Chineese Product Scale(ATCPc). TheATCPc Scale constitutes of a 35 item questionnaire and is an instrument useful for measuring students' attitudes concerning Satisfaction, Trust in buying Chinese products, Loyalty, Perceived quality, Risk of buying Chinese products, Product price, and finally Intention to buy Chinese products. Principal component analysis made evident seven subscales, named as:Satisfaction, Trust in buying Chinese products, Loyalty, Perceived quality, Risk of buying Chinese products, Product price, and finally Intention to Chinese products.

It is worth mentioning that Attitudestoward Chineese Product Scale(ATCPc) was developed based on student input and was designed as either a pretest or a posttest measure; it appeared to hold considerable promise as a research instrument for identifying the structure of attitudes toward buying chinese products. Although this study has provided new insights into the dimensions of chenese market in Thessaloniki, Greece as these are outlined in a technology learning world according to new challenges and demands, future research will be needed to more fully understand these dimensions to cotemporary tade demands for achieving high echivements. A qualitative research

can complement and enrich this quantitative research study as the comparison of two seems to have huge interest and create new discussions and implications.

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ETHICS TRAINING IN THE ACCOUNTING PROFESSION

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ABSTRACT

Over the last few decades, the role of the accounting profession and its impact on financial reporting has received a lot of publicity. Accounting fraud and corporate scandals have raised issues of greater emphasis on ethics, transparency and increased adoption of ethical practices.

The purpose of this paper is to provide an explanation of the impact of ethics courses on the way accountants cope with ethical dilemmas. It examines the ability of individuals to enhance their moral perspective through ethics courses. The paper also explores ethical models and approaches that were set in the past. To investigate further the issue of moral development, 170 accountants based in the Eastern Greece region were surveyed to ascertain whether ethics training has an impact on their ability to identify ethical dilemmas, their ethical judgment and their intention to act ethically.

The findings suggest that good knowledge of ethics explains significantly higher moral reasoning abilities and ethical standards.

KEYWORDS

Ethics training, ethical judgment, accounting scandals

jel CLASSIFICATION codes

M41

1. INTRODUCTION

In our society it is considered a fact that a long academic education has behavioral effects on graduates (Marnburg, 2003). Accounting also undoubtedly plays a key role in the social and economical progress of a country.

As education can influence and shape one's behavior, it was one of the first factors blamed for poor ethical standards among accountants and significant effects on corporate governance and ethical sustainable business practices. It has been stated that poor and outdated university curricula, as well as non-existent training of professionals in the field of ethics and morality, acted like dominoes in the collapse of some firms (Amernic et al., 2004).

A lot of researchers have tried to find answers to how to minimize, as much as possible, accounting scandals emerging from poor ethics education. The majority of them have used accounting students as their research population (Haywood et al., 2009). As theory differs from real practice, students with little, or in some cases no, work experience could understand little of what they were asked and so their answers were basically based on imagination; in other words, everything tended to be either black or white (Boyce, 2008).

This paper aims to identify the kind of effects, if any, ethics courses taken by accountants have on their moral behavior. Effects such as abilities of reasoning, awareness or attitudes and ethical judgment are examined. Also discussed in this paper are the ethical standards accountants have, and their opinion on the topic discussed in relation to their colleagues.

2. LITERATURE REVIEW

Increased evidence of economic scandals and manipulations has led to the need for research as far as the decision-making process is concerned. Since a couple of decades ago, the accounting profession has been implicated in a number of economic scandals (Enron, WorldCom, Xerox, Parmalat). Research has been conducted in order to trace the main reason why accountants manipulate (Keller et al., 2007; Bernardi and Bean, 2006), as well as to conclude whether ethics can or cannot be taught (Bernardi and Bean, 2006; Karaibrahimoglu et al., 2009).

Most of the empirical research concerning accounting ethics aims to understand the ways in which the cognitive moral capability of accountants can be enhanced, using either students or professionals. According to Kohlberg (1958), cognitive moral capability is the level at which moral structures can be introduced into the moral decision-making process. Extensive research conducted previously by Piaget in 1970 was based on lifelong cognitive moral development. He presented three levels of moral reasoning or stages of a person's behavior that can be observed when there is the intention to act ethically: the pre-conventional, the conventional and the post-conventional (Thorne, 2001).

At the pre-conventional level, an individual acts according to self-interest and punishments that may be confronted in relation to the choices that are made. Conventional conditions are specified by the social group and its rules. The third and last presented level is the post-conventional level, where individuals have such high levels of conscience that they act

according to universal fairness and prosperity. Kohlberg insists that an individual's moral development is usually up to the conventional level (LaGrone et al., 1996).

Based on Kohlberg's moral reasoning, Rest (1986) conducted research in order to rank the latter theory. He introduced a four-component model according to which, when an individual is to follow moral behavior, the four steps should probably be presented. These are: identification of an ethical dilemma, ethical judgment, intention to act ethically and ethical action (Sweeney et al., 2007).

His intention was to answer the following question: 'When a person is behaving morally, what must we suppose has happened psychologically to produce that behavior?' (Wittmer, 2001). According to the elements of the model that was developed, the following assumptions can be made: during the first stage, the person involved has, for the first time, the awareness that their current action may influence other people's lives. A dilemma about whether he/she should continue to act, or not, must occur. As soon as the dilemma is identified, an ethical judgment of the consequences comes and it is then that the individual has to make a decision about the actions they are going to follow. Therefore, he/she should formulate whether there should be an ethical or unethical action. This stage is perhaps the most significant of all, as according to the individual's intentions, the final behavior is going to be adjusted. Rest claimed that each stage of the model is separate from the others. So a success in one stage does not necessarily mean a success in the other stages of the model. It is noteworthy that the second stage of the model, 'moral judgment', is based on Kohlberg's model (Cohen et al., 2005).

In 1991, Thomas Jones made a significant note in relation to ethical decision making. He added moral intensity as one of the characteristics of the process and defined it as *"a construct that captures the extent of issue-related moral imperative in a situation"*. He moreover claimed that *"moral intensity is likely to vary imperative in a situation substantially from issue to issue, with a few issues achieving high levels and many issues achieving low levels"*(Sweeney et al., 2007).

He based his research on Rest's model and recognized the following six characteristics which, according to him, influence the ethical decision-making process:

- Magnitude of consequences: refers to the amount of either harm or benefits an action may result in. For instance, as far as financial reporting is concerned, an error, whether it is unconscious or not, may lead to a variety of circumstances. It is more likely to have greater moral intensity when the action may result in a greater magnitude of consequences.
- Social consensus: is the rate that calculates the social degree to which an action is generally accepted to be right or wrong. When there is the possibility of violation of standards, professional or legal for example, the social consensus is higher.
- Probability of effect: refers to the possibility that the action discussed will have negative results. The greater the probability of possible harm, the greater the moral intensity.

- Temporal immediacy: refers to the period of time which exists between the action and its consequences. Temporal immediacy and moral intensity are inversely proportional terms. The longer the period of time needed, the lower the moral intensity of the issue.
- Proximity: refers to the closeness the individual feels between him/herself and the people who are going to deal with the consequences of the action. The closer the affinity between the individual and the 'victim', the higher the moral intensity.
- Concentration of effect: according to this last characteristic set by Jones, an individual thinks that actions with concentrated effects lead to high moral intensity (Brandon et al., 2007).

Based on Kohlberg's research as well, Ponemon (1993) suggested a connecting link between moral development and an accountant's respect for and compliance with the professional standards. They achieved this by using the levels of moral reasoning Kohlberg had introduced. Particularly, they stated that when an accountant's moral reasoning is at the pre-conventional level, the intention to follow professional standards has to do with personal interest. At the conventional level, the significance of societal rules instead of punishment is the element that makes an accountant behaves according to the professional standards. Finally, at the post-conventional level, an accountant is mature enough to decide by himself about the moral principles and rules which need to be used so as to follow the profession's code of ethics (Jeffrey et al., 2004).

In 2001, Thorne integrated Rest's model into another, which said that moral development in accordance with virtues is required to produce ethical behavior. As shown in figure 4, moral development consists of sensitivity in order to identify a dilemma and prescriptive reasoning in order to be able to ethically judge a dilemma. Likewise, virtue consists of ethical motivation, which is of vital importance and is when an individual intends to leave aside his/her personal welfare and claim that others' benefits are of greater significance. According to Thorne, "*the integrative perspective suggests that an individual's ethical character is a reflection of his or her instrumental virtue*" (Armstrong et al., 2003).

2.1 ACADEMIC AND WORKPLACE ETHICAL TRAINING

After years of research, the academic community has concluded that it is indeed possible to teach ethics effectively. No human being is born with an innate desire and intention to act ethically. The first social groups that an individual joins –normally family and school – teach him/her how to endorse ethical behavior. In accounting, choosing between two options where one is supposed to be the most ethical is not always an easy process. For this, business men and women are expected to act according to a code of conduct that enables them to include public interest in their services (Smith, 2003).

Business ethics education was first applied in the USA in 1974, while in Australia the first conversations about the subject came later. In the late 1980s, some unexpected events shook the Australian community and it was then that ethics education was first introduced. The UK's educational system followed Australia's steps a couple of years later, while on the other hand,

Sweden incorporated ethics courses into its universities just when the new millennium began (Svensson et al., 2008).

Education can influence ethical behavior. Needless to say, it would be meaningless if the opposite happened, as the role of an educational system is to influence and shape students' values (Boyce, 2008). However, a lot of different opinions on the topic exist. According to Haywood (2009), it is quite difficult and 'dangerous' to teach University students ethical theories, as they may misunderstand them and be left with the false impression that what was once judged unethical would always be justifiable. This is because students often lack professional experience and knowledge of professional responsibilities (Haywood et al., 2009). However, Armstrong (2003) insists that "*exposing students to ethical theories might help them recognize those theories when they encounter them, often as underlying assumptions, in their coursework*" (Armstrong et al., 2003).

On the other hand, in 2008 Low claimed that ethics education has the power to play such a crucial role in financial scandals and ethical dilemmas in the workplace that unless there is a substantial change in education, the business world will continue to face danger. Moreover, it is explained that accounting education should achieve not only an instillation of what is claimed to be ethical, but also a thorough examination of the character an accountant requires in order to behave ethically (Low et al., 2008).

According to Bernardi (2006), students do not treat ethics in-class courses as they should. Whether the programme is effective or not relies on the students' intention to develop their own personal code of conduct. Based on a survey conducted in a private business school in New York, students tend to think of ethics courses as a mere guide, which in most cases is ignored (Bernardi, 2006).

Furthermore, McPhail and Gray (1996) stated that accounting students tend to display lower ethical levels of maturity than students of other disciplines. According to them, accounting curricula that do not pay adequate attention to ethics and moral issues contribute to this and usually contribute to the dehumanization of accountants.

Bowden (2008) insists that even though an ethics course cannot guarantee the success that was set at the beginning, it is proved that students who have attended a course at least once were found to have gained the following:

- Improved self-knowledge
- Improved moral cognition
- Knowledge of their legal, ethical and professional responsibilities
- Capability to understand the existence of multiple pathways to address a single ethical dilemma (Bowden, 2008).

What is described above is not a singularly presented incident. It has already been mentioned that while students at university are ready to and should come across ethics issues, they are not usually capable of totally understanding how they would apply theory to a real business

environment. For this reason, ethics training should be addressed both in academia and in the workplace (Boyce, 2008).

Research suggests that formal ethics courses in the workplace can have a positive impact on employees' behavior. A formal ethics programme includes written standards of conduct that are communicated to all employees, ethics training, ethics advice lines and systems for anonymous reporting of fraud and other unethical activities. According to research conducted in organizations that had applied formal ethics programmes, 78% of their employees said they would report misconduct to management. On the contrary, only 50% of the employees who worked in organizations that did not apply ethics courses answered that they would report misconduct to management (Trevino et al., 2004).

Training employees offers the privilege of anticipating fraud. It is more usual to discover fraud through internal controls – when it is already late enough. Well-trained employees are receptive to protecting their company. They are ready to communicate suspicious activities and reduce fraud (Strand et al., 2002).

Abdolmohammadi (2009) clarifies that according to studies of ethical reasoning, accountants, both students and professionals, were found to have lower levels of ethical reasoning than others who participated in the same survey. Taking into consideration Rest's conclusions that ethical reasoning varies according to age and educational level, it could be assumed that ethical training is indeed crucial. It obviously has a catalytic effect on employees' ethical reasoning and on the profession's survival.

In 2000, Warth interviewed 17 CPA (Certified Public Accountants) firms in order to examine what they thought about ethics, education and training. All meetings were conducted with management-level executives. He asserted that even though executives agreed that ethics is essential for the welfare of every business, they did not manage to incorporate training. What is more, they all, apart from one, claimed that ethics education gained in college was the only kind on which they relied. Finally, it was disappointing to realize that even though there was dissatisfaction from the clients' side with the level of ethics, firms still did not think of incorporating relevant courses.

Comparing Warth's research with Clement's, it could be said that the need to incorporate ethics training in companies is obvious. In particular, when top management seems to endorse and applaud ethics programmes, their effectiveness increases rapidly. Rewarding ethical behavior and emphasizing its importance can make the adoption of ethics an easier process than it is considered to be (Clement, 2006).

The current research aimed to explore the importance of ethics training in the accounting profession and the way ethical dilemmas are treated. The four factors identified in order to examine the importance of ethics education are analyzed below: moral intensity, identification of an ethical dilemma, ethics education and moral intention (Sweeney et al.,2007).

Based on the literature review presented above and on prior research the following hypotheses were developed:

H1. Accountants who have taken a course in ethics at least once will have more knowledge in the field than those who have never taken such a course.

H2. Accountants who have taken a course in ethics will have better moral reasoning ability than accountants with poor knowledge of ethics.

H3. Accountants who have taken a course in ethics at least once will have, due to moral recognition abilities, awareness and emotional engagement, stronger ethical attitudes and will make more correct decisions than accountants with a poor knowledge of ethics. The figure below depicts the conceptual model of this research.
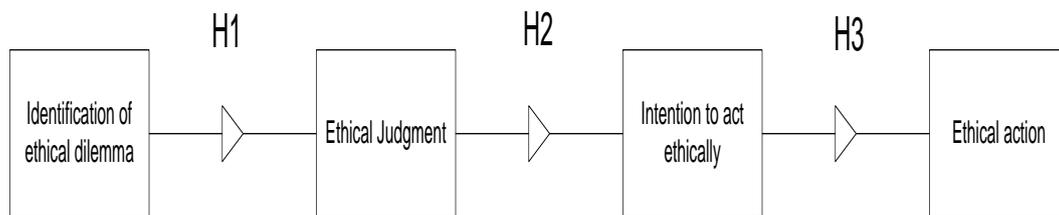
3. Fig. 7: Research model

According to Rest (1986), an individual proceeds through four steps before he/she finally decides to act ethically or not. In the first stage, the individual recognizes that the actions he/she intends to take affect the welfare of others. As soon as the dilemma is identified, the individual has to judge the future results and, based on the alternatives that have occurred during the previous stage, he/she formulates the intention to act ethically. When all these stages are completed the individual is ready to carry out the ethical action (Sweeney et al., 2007).

4. METHODOLOGY

The study population was defined by the list of members of the Economic Chamber of the Eastern Greece region, i.e. 1603 active members. The survey was executed in the summer of 2011, the questionnaire being sent out in June with one follow-up reminder. The questionnaire was uploaded onto the internet and the link emailed to the population, accompanied by a cover letter which explained the purpose of the research. Completion of the survey was on a totally anonymous basis and did not use any form of explicit incentives. This resulted in 170 completed questionnaires – a response rate of 10.6%.

The five-part questionnaire was designed to identify whether accountants perceived ethics education to be important and to what extent education could influence their behaviour in an ethical dilemma. The first two parts contained demographical data and educational data.

The third part of the questionnaire contained questions designed to identify respondents' perception of ethical dilemmas. Four ethical case statements were designed and the

respondents' were asked to choose among some given answers, based on how they perceived themselves acting in a situation. As ethics is an issue which needs a specific treatment, the third part of the questionnaire consisted of two scales. In the second scale, the accountants were asked to give answers regarding how their colleagues would act. This part of the questionnaire was designed in such a way to check both the respondents' intentions to act ethically and their beliefs according to their peers' intentions.

The fourth part of the questionnaire examined accountants' ethical judgment. The participants assessed their rate of agreement for each of the four ethical issues. Finally, in the fifth part of the questionnaire, the variable of 'moral intention' was examined using three issues. As in the previous section, participants were asked to assess their rate of agreement using a 5-point Likert scale, anchored from 'strongly agree' to 'strongly disagree'.

5. RESULTS

Table 1 shows the descriptive results concerning level of knowledge of ethics. It was hypothesized (in H1) that accountants who had taken a course in ethics during their graduate studies or even as a seminar/workshop after having completed their studies, should have a better perspective as far as ethics is concerned. An ANOVA test gave F(805.886) and Sig.=.000. Taking those outcomes into consideration, the Ho was rejected.

Table 1: Ethics perspective

	F.	Sig.
Ethical approach of dilemmas * Ethics educated or not	805.886	.000

It was also hypothesized (in H2) that accountants who have taken at least one course in ethics will have better moral reasoning ability than accountants with poor knowledge of ethics. An ANOVA test was conducted for all the vignettes presented in the questionnaire, related to this hypothesis. The findings accrued showed that ethics educated accountants have indeed a better moral reasoning ability. The testing gave Sig.=.000, apart for one of the four vignettes examined. As far as the statement that asked accountants about their perspective on the relation between accounting and truthfulness is concerned, the ANOVA test showed that no difference exists between the ethics- and non-ethics-educated accountants.

Table 2: Moral reasoning

	F	Sig.
I take into account the impact the decision will have on the people affected, and choose what seems to be right for most of them. * Ethics educated or not	117.464	.000
Accounting and ethics are not related. * Ethics educated or not	15.719	.000
As an accountant I derive to rarely if ever be confronted with ethical questions. Accounting is about truth not ethics. * Ethics educated or not	.613	.435
What is best for the greatest number of people is ethical. * Ethics educated or not	188.443	.000

H3 hypothesized that accountants who have taken a course in ethics at least once will have stronger ethical attitudes and make more correct decisions than accountants with a poor knowledge of ethics. Two vignettes were given. According to the ANOVA analysis, the Ho was rejected as both statements gave Sig. equal to .000.

Table 3: Ethical attitude

	F	Sig.
My ethical judgment is based on what is good for me. * Ethics educated or not	162.946	.000
What is best for me is what I always choose. * Ethics educated or not	337.877	.000

Apart from examining the significance of the hypothesis set out above, this paper aimed to identify any possible difference among the answers given in the third section of the questionnaire. This section consisted of four questionable propositions which were developed in order to test accountants' responses on how they thought they would behave in ethically challenging situations. What is quite interesting is that apart from their personal response, they

were asked to provide an answer about their peers' behavior in a similar situation. Table 4 provides the results obtained by the survey.

The first question looked at the lure of money i.e. 63.5% of the accountants answered that they would not take advantage of any information they had concerning stock price rises. However, the accountants had a much lower perception of their colleagues, responding that only 8.8% of them would ignore the information.

The second question examined accountants' moral barriers. On the contrary, accountants' perceptions of how their peers would behave compare less favorably to how they perceive their own behavior. 47.1% of the accountants answered that they would definitely disagree with a client of theirs in a case where they were asked to act unethically, while at the same time, only 15.9% of them answered that their peers would do so.

The third question is interesting in terms of accountants' ethical standards. It presented a situation where the respondent owned stocks of a firm which would become a client of theirs in the near future, and they were asked to answer whether they would keep the stocks or sell them instead. The results indicate that 55.9% of accountants would immediately sell the stocks on the open market, while 24.1% of them claimed that they would keep them. Only 7.1% of them expected their peers to sell the stocks, while the vast majority of the accountants, i.e. 52.4%, expected that their peers would do nothing and keep the stocks.

The fourth question illustrated issues with respect to privacy and tactfulness. It explored whether accountants could accept a colleague of theirs who confessed that he/she occasionally smokes marijuana. 60% of them indicated that they would have no problem if this happened out of working hours and thus, have no impact on their work performance. As far as their perception about their peers is concerned, there is a slight difference between those who believed that their colleagues were ready to accept such a situation (32.4%) and those who claimed that they would ask for authority's intervention (38.8%).

If you had in-house information that the stock price of the X firm, which is a client of yours is going to rise for 100%, what would you do?		A client of yours has bought a 120.000 euro pleasure boat and asks you to treat the purchase so that they can claim a depreciation allowances. Would you disagree and be prepared to lose that client's business?		During the last 2 years you own stocks of of the firm X, which is going to be your client from the new financial year. What do you do?		One of your colleagues confesses that he rarely smokes marijuana. What do you do?	
	Personal	Peers'		Personal	Peers'		Personal	Peers'		Personal	Peers'
I would do nothing; it is illegal to take advantage of such situation.	63.5	8.8	Definetely yes	47.1	15.9	Nothing. I owned the stocks before the collaboration.	24.1	52.4	Nothing. If it is out of the working hours it does not bother me.	60.0	32.4
I would take a loan in order to buy as many shares as possible.	11.2	33.5	I am not sure	34.7	54.1	I am transferring the stocks to one of my family members.	20.0	40.6	I try to persuade him that it is a dangerous and unhealthy habit.	24.7	28.8
I would inform all my close friends and relatives.	20.6	37.1	Definetely no	18.3	30.0	I decide to sell the stocks at the open, even if this would mean that I would lose money.	55.9	7.1	I immediately call the police.	15.3	38.8
I would spread news that the firm is insolvent and ready to go bankrupt.	4.7	20.6									

6. CONCLUSION

This paper explores the issue of the ethical standards of accountants based in the Eastern Greece region. The identification of ethical dilemmas, ethical judgment and the accountants' ethical intentions were also explored, in an attempt to give explanations regarding accounting scandals.

The results of the statistical testing implied that those accountants who have taken at least one course in ethics have a significantly higher level of ethical perception. If this indication gives an accurate picture of the population, it indicates that even short courses teach knowledge that 'lasts a lifetime'. This is a remarkable result considering that apart from the differences presented by educational background, the population covers an age range between 24 and 60. No matter what working experiences and stimuli accountants have, ethics courses seem to significantly influence their attitudes.

It was also hypothesized that accountants who had taken a course in ethics would have better moral reasoning ability than those with poor ethics knowledge. While the moral reasoning of each person is shaped by various stimuli, i.e. lifestyle, family, genuine inclinations etc. this paper showed that ethics courses play a crucial role as well.

Additionally, this study indicated that accountants who had taken a course in ethics present stronger ethical attitudes and reach more correct decisions than those who have poor ethical education.

Good knowledge of ethics seems to explain significantly higher moral reasoning abilities and ethical attitudes. However, it should be noted that the results from the third part of the questionnaire showed some kind of hypocrisy. No matter what ethics background the

accountants come from, a clear difference among the responses given is presented. While the vast majority of the sample insists that they would act ethically, even though this would controvert their interests, they claim that their colleagues would not be ready to do so. This may imply a hesitation or even a prejudice as far as the possible effects their responses may have on their image are concerned.

Overall, it is encouraging to observe that ethics courses do actually have an impact on knowledge and consequently on morality. As already mentioned the role of the accounting profession within society is vital and is inevitably related to the economic progress of a country. What is important is that accountants have a clear and holistic view of their profession and their role in society. Open-mindedness, moral reasoning abilities and strong ethical attitudes are some of the characteristics accountants should bear in mind as virtues of their profession.

This study had some limitations: firstly, the survey population selected was composed only of active members of the Economic Chamber of Eastern Greece. Research using all the accountants registered in the Greek Economic Chamber would give useful results for the profession. What is more, a comparison of the findings with those of other European countries may be interesting. Secondly, perceptions and ethical behaviors are variables that may change over time. It would be interesting to schedule a second round of the same survey so as to compare the results. Finally, more variables could be added in future research.

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ACCOUNTING INFORMATION AND DECISION MAKING : THE CASE OF SERRES REGION COMPANIES

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Abstract

This article examines the role of accounting information in industrial enterprises of Serres region and examines the way, the economics aspects of decision making by senior executives and managers, as well as the problems they faced. The aim is to show how accounting information is influenced by various factors including the economic environment, and most importantly is to show how senior management and the Board of directors use accounting information in their strategic decisions. We use the case study method because demonstrates better the uniqueness of decision making. Finally, the article indicate accounting procedures and practices to make decisions that will benefit day to day operations.

Key Words: Management Accounting, Decision-making, Case study.

JEL : M4, G3, L2

1. Introduction

The issue of accounting information is of great significance, and is compelling evidence to make decisions for various businesses and organizations, different departments or any other activity associated with decision making. The rational decisions based on accurate information (Kartalis N. 2009). The global economic environment characterized by continuous structural changes and increased competition, also accounting information plays a very important role. The accounting information is the driving force behind business expansion, development, innovation and competitiveness.

Several studies have examined the influence of factors on the role and use of accounting information in decision making. According to existing data, the importance of accounting as an information source for owners and managers of business and various stakeholders are obvious. Accounting information is defined as data that are meaningful to the receiver and can make some conclusions (Bushman R. et al 2001). Thus the two qualities of information should be the relevance and reliability.

Nowadays there are various threats to the viability of an enterprise. Competitiveness, internationalization, globalization etc. are the main factors in decision making and has become a controversial topic in the international accounting literature. For this reason, some consider it imperative to adopt similar accounting systems (Courtney F. 2001). However, this focus on

global integration of forms management often called into question by figures showing significant differences between countries (Helliwell 1998).

Decision-making is one of the basic pertinence. Decision making is a difficult task, because someone has to choose among many alternatives. The decision is an important factor in business management because it improves the usefulness of accounting data, several studies have shown that managers are quite dissatisfied with the accounting data received .

2. The role of accounting information

The use of accounting data is an effort to facilitate organizational decision making, and to exert greater control over the executives of a company. In addition, they serve as a tool for minimizing the complexity and uncertainty in decision making. The use of accounting information comes before decision making, where in some cases is not used as a tool for decision-making (Baxter, J. et al., 2003).

It should be understood that accounting and accounting information do not constitute the cornerstone in decision-making. They should not necessarily go together, which is even more important in identifying the role of accounting information.

Statutory requirements and procedures play a key role in organizations such as businesses, retain a strong hold on raft organizational action (Collier 2003). At this point, it should be noted that accounting information play a role and serve in making decisions. Below we identify distinctive roles of accounting information (Cohen S. et al 2009).

In particular, accounting information can be identified initially as a technique that has rational role, accounting information must be used effectively to strengthen the decision making process. The rational use of accounting information by managers of enterprises, improve decision-making executives, reducing the uncertainty faced as well as the effectiveness of their actions. So firms will provide efficient and effective information that will be useful for the needs of external users. (Collier 2003).

Second issue is the fact that information is identified as a sociopolitical role, where the accounts are used for the rationality of business actions. Sociopolitical role indicates the extent to which managers use accounting data and justify their actions members (Cohen S. et al 2009).

3. Research Methodology

This research was carried out in enterprises of the Serres region, focusing on export business. The main object of this research is the extroverted industrial enterprises, which study was done on how firms make decisions and what obstacles they face.

The case study was chosen to examine the current role and use of accounting information in decision making in industrial enterprises in the Serres region and provide information on how this role and use of accounting information is influenced by contextual factors such as business structure, strategic objectives and the market.

The research is based on case study of industrial enterprises in the Serres region, which was conducted by questionnaire in April-May 2011. The case study employed the coherence of the objectives of this research. Indeed, this study aims to extend those existing literature on

accounting management. Also, case studies are useful when relationships between actors are complex and dynamic. This study highlights the factors that affect and influence the role and use of accounting information in decision making and strategies.

This methodology is suitable because of the number, diversity of factors that affect it. Moreover, the case studies provide valuable insights when the effects of factors are difficult to quantify (Yin, 1994).

This criterion is certainly coupled with the various factors that influence such as characteristics of the industries, and most importantly, the preferences of managers and their views on intuition and emotion in decision-making strategies. The themes chosen for discussion is the decision-making, the number of factors affected, as the focus on economic targets, the use of qualitative and quantitative data, the role of intuition, globalization etc.

3.1 Data Collection

By collecting data we focus on opinions, knowledge, attitudes, personal characteristics and other descriptive attributes. The famous instrument for collecting data is the questionnaire (Yin 1994). There are different methods of collecting data that may be taken into account in an investigation. These methods of data collection can be summarized in personal interview, telephone interview, postal and e-conference interview (Yin 1994).

For this research we excuded the initial phone interview due to time constraints, since administrators, managers and general managers, are busy and can not allow the phone interview lasting about half an hour. We excluded also the postal survey because such a form of research is unable to provide details, there may be delays in data collection, and a small degree of responsiveness on the part of respondents.

Also, the electronic form of an interview was excluded as well as because the main disadvantage is the necessary infrastructure. Noting the above must be mentioned that in this empirical study we used the method of the questionnaire. In addition, the questionnaire is the most common method for data collection.

As stated earlier telephone interviews were excluded. Only telephone survey was employed to identify exports industries. Therefore, the case study approach was chosen to be done by using questionnaires and some additional questions primarily to senior business executives. Acknowledged that one drawback of this approach is that returns will not be expected and there may be generalization of the conclusions of the study. Deliberately, interviews and questionnaires were structured to explore the influencing factors on the role and use of accounting information in decision-making Serres region industries. All interviews were recorded in order to avoid inaccuracies (Winston T., 1997). The duration of interviews ranged between 5 and 10 minutes, as we mentioned because of workload interviewees did not devote more time.

In this research the questionnaire was not sent in the form of e-mail but personally delivered to decision-makers. This was because the executives, owners, members of a company, when they see such an email is likely to ignore and not read at all. Apart from this, we can not be sure if they right person answered the questionnaire. For these reasons and because we wanted to conduct a personal interview with selected respondents to the questionnaires personally deliver and expect to complete them. Thus the data gathered from various sources, including on short

interviews with senior managers and directors of companies. This data collection was supported by the literature on decision making strategies and preferences, and the impact of globalization on the convergence of accounting practices. This use of multiple sources to evaluate a broader range of issues and factors, which is consistent with our objective to provide a complete evaluation. In addition improves research by the most reliable and most convincing (Kaplan B. et al 1988).

3.2 The case study sample

In the Serres region there are 115 export firms. A significant role in the extraction of this information played the Chamber of Serres who willingly gave us a list of Serres export enterprises. The researchers contacted by telephone with 115 businesses, of which a significant proportion of around 52% do not export now. Thus, nine of these companies have agreed to our willingness to accept and respond and to help in our research, although they said that there is a large workload. In addition, several participants called for privacy and confidentiality by the researcher on the answers provided. Thus, initially the questionnaire indicated that the questions are anonymous and confidential. Moreover, to preserve anonymity as originally promised renamed the business in an 'A' company 'B' company 'C' etc.

For this research were selected 30 industrial companies in Serres in order to gather data. The respondents were mainly managers, consultants, accountants and business owners. Moreover, the adequacy of respondents and the questions depend on the amount of new information can be retrieved (Wouters et al 2002). In conclusion, in our case the number of 30 respondents composed of people who represent the main entities to process accounting information and decision-making. Therefore, the number of participants of our research is sufficient and, most importantly, it provides comprehensive knowledge on the subject of research.

3.3 The case study questionnaire

The topic which was primarily chosen for analysis was the decision-making and strategies through factors that influence decision making. The questionnaire should be consist of short, readable and pertinent questions in order not to overwhelm the reader. Intentionally, the questionnaire included questions with which we could explore all the factors which influence the role and use of accounting information in decision-making industries of the Serres region . Examines what decisions are taken, by whom, by what are affected the decisions, and finally, what is the most common problems in decision making.

The questionnaire that we distributed to enterprises was accompanied by an introductory letter. Also, the questionnaire includes two sections. For the smoother introduction of respondents the most common way to prepare a questionnaire are demographic questions (Brace 2008). Thus the investigator separated the questionnaire into two sections.

 At this point, to understand the following needs to be said that the ordinary, nominal and proportional level are the key levels of the variables, used for research analysis. The headline used when each member of the sample belongs to a category, or a man or woman is, most common example is the person's sex, where men give the No. 0 and No. 1 for the women. The tactical level measurement is used when possible rating in all categories of a variable with a criterion. Finally, the proportional level measurement is used when possible rating categories of a variable, and is equal to the distance between the intervals.

Thus, initially in the first part presents the demographic data referred to the company as, turnover, etc., as well as some personal information for interviewee including gender, age, education level, etc. The record shall be to assist in research analysis. The first part is included by multiple choice questions that measured in ordinary, nominal and proportionate level.

The second section consists of questions related to making business decisions such as who makes decisions, what decisions are made, affected by the decisions and what the problems in decision making are. Also, the second part of the questionnaire questions include regular measurements, nominal and proportional level.

For the questionnaire were mainly chosen closed questions where respondents choose according to their view the best. There are open questions in the questionnaire, where respondents can deepen their thoughts or even to identify the causes of some their views. Unfortunately there was no immediate response to these questions, thus we had to record what respondents said. But some do not answer completed. In conclusion, it must be said that the closed questions are appropriate for an empirical research as a direct response from the public, but the treatment is easier and allow conclusions to emerge with greater accuracy.

The questionnaire was designed to be small and the questions to be coherent. The duration for completing the questionnaires ranged between 10 and 15 minutes. All completed questionnaires were used to conduct findings to avoid inaccuracies. The questionnaires are analyzed with the statistical program Spss.

4. Analysis of the Data

Industrial companies of Serres were chosen in this research to evaluate the role and use of accounting information in decision making are also the largest export companies in the Serres region, according to information given from the Chamber of Serres. The role and use of accounting information is the result of a process which can be termed complementary and contradictory.

The paragraphs below present the most important factors that influence and show the multiple rationales that exist in relation to the role and use of accounting information in decision making and preferences of managers. Despite its international orientation, and the state of the economy a significant proportion of turnover of business of Serres continue to export. From the following table 1 shows that the export activity of firms analyzed the percentage reaches 20% and 30% of their production activities.

From Table 2, which determine the sex of the respondents in the study understand that the majority of interviewees consists of men with a frequency of 20, while women with an frequency of 10. It should also be noted that 19 of the 30 executives, managers and owners who participated in the study are the percentage of 63.3% are employed in corporations, that we can confirm from Table 3.

Table 1: The export business of industrial enterprises in Serres

	Frequency	Percent	Valid Percent	Cumulative Percent
0-10%	5	16,7	16,7	16,7
10%-20%	6	20,0	20,0	36,7
20%-30%	9	30,0	30,0	66,7
30%-50%	6	20,0	20,0	86,7
50%-70%	1	3,3	3,3	90,0
70%	3	10,0	10,0	100,0
Total	30	100,0	100,0	

Table 2: Number of people per group sheet

	Frequency	Percent	Valid Percent	Cumulative Percent
MALE	19	63,3	63,3	63,3
WOMAN	11	36,7	36,7	100,0
Total	30	100,0	100,0	

Table 3: Separation of enterprises by legal form

	Frequency	Percent	Valid Percent	Cumulative Percent
SA.	19	63,3	63,3	63,3
GP.	11	36,7	36,7	100,0
Total	30	100,0	100,0	

Furthermore, as shown in Table 4 a remarkable rate of about 36.7% are permanent employees and 30% sample are business owners. The businesses are organized according to Greek corporate law and some with international law, and therefore has the necessary committees as a board consisting of executive and honorary members. The paragraphs below present the most important factors that influence and show the multiple rationales that exist in relation to the role and use of accounting information in decision making and preferences of managers.

Table 4: Position of staff in firms

	Frequency	Percent	Valid Percent	Cumulative Percent
MASTER	11	36,7	36,7	36,7
SEASONAL	4	13,3	13,3	50,0
OWNER	9	30,0	30,0	80,0
UPPER STEM	5	16,7	16,7	96,7
OTHER	1	3,3	3,3	100,0
Total	30	100,0	100,0	

4.2 Group decision making

Decision process involve more than one person. Especially the important decisions require group decision making, 80% of persons surveyed say that the decisions taken collectively. Also, a significant percentage of 43.3% in groups receiving 70% of decisions (Table 6). In our study a rate of about 63.3% (Table 3) shows that respondents working in companies with a legal form of limited liability companies, while only 36.7% of respondents consists of the legal form of the general partner. Therefore the format of the companies in question requires that team is taking decisions, it is because according to the organization of the company should be a board to be convened at regular intervals.

The significant percentage of 70% (Table 7) responded that the decision-making does not involve additional cost to the company because the meetings of the Board and designed to this end.

Table 5: Taking group decisions

	Frequency	Percent	Valid Percent	Cumulative Percent
YES	24	80,0	80,0	80,0
NO	6	20,0	20,0	100,0
Total	30	100,0	100,0	

Table 6: Percentage of decisions taken collectively

	Frequency	Percent	Valid Percent	Cumulative Percent
0-10%	7	23,3	23,3	23,3
20%-30%	2	6,7	6,7	30,0
30%-50%	1	3,3	3,3	33,3
50%-70%	7	23,3	23,3	56,7
MORE 70%	13	43,3	43,3	100,0
Total	30	100,0	100,0	

Table 7: Additional cost for decision making

	Frequency	Percent	Valid Percent	Cumulative Percent
YES	9	30,0	30,0	30,0
NO	21	70,0	70,0	100,0
Total	30	100,0	100,0	

Here are the views of two members from businesses that have the highest turnover. Specifically, a senior member of "A" technological education institution and a member of Company "B" with university education reported the following:

"Takes time, but of course, taken collectively, are more effective decisions because a person does not possess the knowledge, experience, skills, crisis and creativity bringing together all the people together and sixth of them, shared and non- expected results "

"Identified problems or opportunities, the alternatives are more and group evaluation is objective and realistic option. Furthermore sharing the risk of failure of Decision "

From the views already mentioned, and from the questionnaires, we can conclude that their views coincide, regardless of their different educational backgrounds, but also the position in the underlying business decision (as indicated by the questionnaires). These two business executives have a similar opinion on the group decision making. From the above we can conclude that it is very rare not to use committees in decision-making. Undoubtedly a lot of

time is devoted to identify the decisions they want to take, to identify problems and generally those involved in making a decision. On the one hand, collective decisions require years, but on the other side an advantage because they combine views and experiences of different people, there are more alternatives and allocate the risk of failure. So, the above views show that collective decisions are more effective and more accurate than the decisions taken by one person.

4.3 Get short or long term decisions

A significant percentage of respondents corresponding to the present research suggest that a major influence in decision making about the role and use of accounting information is short or long term decisions. This distinction is of great concern to making the strategic decisions on investments.

Table 8: Take long-term or short-term decision

	Frequency	Percent	Valid Percent	Cumulative Percent
LONG	1	3,3	3,3	3,3
SHORT	15	50,0	50,0	53,3
DESPITE ALL OVER	14	46,7	46,7	100,0
Total	30	100,0	100,0	

Respondents in interviews said that they have a strong preference for short-term positive results, rather than on strategic objectives that will provide long term benefits. Particular manager of company 'C' said:

"People we work with want to be informed about the price of products, the most common question is whether increasing the price of product A. And they want to know today, not tomorrow, to have interest in the outcome. And of course it involves what should be the business decision to release how much we can beat a price increase and what further steps you allow us to become? Is sure what the prevailing assumption that firms tend to do things causing immediate profit. Nowadays it is increasingly difficult for a company to participate in activities to restore long-term results. We are a company that invests too much on short-term prospects, generate immediate profit."

The focus on short-term outlook affect the use of accounting data. Thus, it is more likely to be accepted by its members an investment that provides greater efficiency in the short period. However, each enterprise should set targets in relation to ROI. Moreover, firms often face the dilemma between members who prefer short-term benefits and the members say they will be

more satisfactory benefits from a long-term strategic planning because they ensure the future stability, as well as the success and growth targets . The contrast is emphasized by the leaders in making a decision are the 3.3% of respondents.

As already said, it is very important that the conflict among the members welcomed the decision making and long-term members who strongly support the benefits of short-term decisions (Table 8). According to what we have learned more than the above conflict affects the role and use of accounting information in making strategic decisions. But the board wanted to focus on ensuring the stability and future development should be considered a duty and responsibility of balancing the goals of its members.

 Contrary to these conflicts between members, a strong influence on the role and use of accounting information in decision making is to be a combination of some data. It is important to support the decisions in various informative sections which include reviews, such as calculating ratios, investment and other relevant qualitative and quantitative information. Must be collective decision-making not only in terms of Board members, and between departments. As mentioned above a significant proportion of 80% made use of group decision making.

Furthermore, the extent to which accounting data and other qualitative information is used significantly affect the decisions. It also said that new investment decisions are usually evaluated under consideration of the various factors affecting them, as the competitive situation. Smaller investment decisions are deemed to require less stringent evaluations. However, the limited evaluations are not considered sufficient. Instead, an accountant said that all decisions significant should be assessed satisfactorily and the information should be clear to be able to decide for sure.

4.4 Financial statements and decisions

 It should be noted that there are differences in the use and interpretation of accounting information between the managers of financial information, showing heterogeneity rather than homogeneity, even in the same company. The financial statements are necessary to obtain information because in large companies decisions are based on these accounting information. On the one hand, a small proportion (36.7% Table 9) takes account of the use of financial statements in making decisions or strategic objectives of the company, this figure probably lies in the fact that respondents do not trust us enough to answer honestly.

Table 9: Using Financial Statements

	Frequency	Percent	Valid Percent	Cumulative Percent
YES	11	36,7	36,7	36,7
NO	19	63,3	63,3	100,0
Total	30	100,0	100,0	

On the other hand there are cases where the company is the manipulation of figures in the financial statements, or want to experience reduced profits or gains or losses. So, justifiably the accountant disclose financial information in which there is a significant deviation or distortion of the facts. From table 9 we conclude that the number of respondents (frequency 19) shows that the majority does not trust the financial statements of the company, because most are unaware of the penalties laid down by applicable laws and falsifying financial information.

4.5 Intuition-Education-Experience of decision making

The educational background of decision makers should be considered as a factor influencing the use of accounting information, particularly in relation to the specialization of financial information. The strategic decision-making processes involve many people. This large group of decision makers is characterized by a variety of educational and other personal preferences. As is already known, disparities arise not only among individuals high and low educational level in decision making, but it is obvious and within the respective groups at the same level of educational attainment. Indeed, training, work experience, age group and personal preferences seem to be particularly critical to the use of accounting information in decision making.

Conducting, that accounting data are used to make decisions, but rather to justify its decisions to members. However, this does not set specific requirements in relation to the use of accounting data. Instead, the requirements of administrations and personal preferences seem to have greater influence on complexity and number of current approaches.

The development of this theme in the research, said that the choice of accounting decisions depends on the intuition of managers and the educational background. The intuition seems to be a cornerstone for taking any decision.

Table 10: Educational background

	Frequency	Percent	Valid Percent	Cumulative Percent
	1	3,3	3,3	3,3
ELEMENTARY SCHOOL	6	20,0	20,0	23,3
HIGHER EDUCATION	11	36,7	36,7	60,0
UNIVERSITY EDUCATION	9	30,0	30,0	90,0
MASTER	3	10,0	10,0	100,0
Total	30	100,0	100,0	

Table 11: Intuition and Decision Making

	Frequency	Percent	Valid Percent	Cumulative Percent
LESS	4	13,3	13,3	13,3
SUFFICIENTLY	3	10,0	10,0	23,3
MUCH	18	60,0	60,0	83,3
VERY MUCH	5	16,7	16,7	100,0
Total	30	100,0	100,0	

In this study the educational background of decision makers is quite high, a rate of about 86.6% attended a college. However, managers of firms reported characteristics that intuition is a component directly related to decision making. This is evidenced by the occurrence of 18 of Table 11, which is over the 50% of the survey sample. Also on interpersonal interviews with senior executives had noted that a number of senior executives from a technical educational background and gained the necessary business knowledge to work and not in formal education. However, following the declaration referred to an experienced person and successful businessman of the company "A":

"*In earlier times, the worker, with rubber boots, started a job and later became the boss. This is no longer feasible. The data in our time have evolved and it is not so anymore.* "

Here it must be emphasized that the manager, who has many years experience in business, wants to emphasize that in our time with the rapid developments, one can not be evolved without knowledge. Previously, when there was a trend that exists today, a worker with intelligence and with a combination of circumstances could be master in his own business. Nowadays, however, things are changed. Knowledge is always required in combination with the experience to run a business.

Considering the pace of our era, we must apply some of those strategies for making business decisions. The 66.7% of companies responded that the decision-making trust people to combine education and work experience, while a rate of about 33.3% said they only take into account the experience. From the table we conclude that higher education itself is not a reliable asset for decision making.

Table 12: Decision making with professional experience and educational background

	Frequency	Percent	Valid Percent	Cumulative Percent
PROFESSIONAL EXPERIENCE	10	33,3	33,3	33,3
COMBINATION OF MORE THAN	20	66,7	66,7	100,0
Total	30	100,0	100,0	

Closing the development of the subject of education, we come to the fact that the education level combined with experience and intuition significantly affects the extent to which accounting information used in decision making. The training experience and intuition are factors, which complement one another. Therefore the proper decisions in order to avoid significant deviations from the expected results should the above factors to be taken seriously.

4.6 External consultants for major decisions

The majority of the sample, acquired higher education however there is little difference between those who turn to important decisions in search of external consulting than those who answered negatively. So from the table below a relatively high frequency (44) claims that they do not need an expert in major decisions for the company.

Table 13: Use of external consultants

	Frequency	Percent	Valid Percent	Cumulative Percent
YES	11	36,7	36,7	36,7
NO	19	63,3	63,3	100,0
Total	30	100,0	100,0	

In contrast, there is higher frequency of positive responses. This probably stems from the fact that nowadays there is a risk to market confidence, and businesses need support to achieve the targets as an extension to funding grants for investment projects. More specifically, members of businesses seeking advice from someone who is specialized in certain topics and know more. Members seeking information on their economic environment and business development.

4.7 Globalization and decisions

Globalization has now become a priority the business minds of most entrepreneurs, this can be seen from Table 14, since 86.7% of respondents stated that globalization have influenced their decisions.

Also, they said that globalization has strongly influenced the industry and in particular that has caused severe structural changes in the last two decades. The following two comments are indicative of the responses:

"A totally different world. 1974 and now 2011, are two entirely different worlds. So, you can not compare Serres products industry twenty years ago and today."

It is important to note that the move toward global integration, that globalization has caused and is accompanied by changes such as reducing protectionism and support national industries (Salamonet al. 2007). This protected structure and the economic crisis has reduced the need for decision making because the decisions were of a different nature and often focuses on reinvestment or expansion investment.

Table 14 : Problems and limitations in decision making.

	Frequency	Percent	Valid Percent	Cumulative Percent
YES	26	86,7	86,7	86,7
NO	4	13,3	13,3	100,0
Total	30	100,0	100,0	

At this point it should be mentioned the most common problems faced by members when making decisions. The problems faced by institutions of decision making is enough and vary between companies which participated out the study. Many respondents argued that the most common problems facing today is mainly related to the weak economic environment in Greece and its competitors. Moreover, funding and proper display of accounting data without tampering is still one of the problems encountered by members in decision making. Characteristics of some business executives stated:

"The problems associated with economic problems. There are also problems in cooperation and normal relations between boss and staff, but these problems are associated with the cost of business. "

"We belong to the category where a decision is causing extra costs to business. Also, the life period of the operation, how long will last over time, competitiveness and crisis. "

"The unstable economic environment in Greece and the influence of international events on the economy"

"Gathering information relevant to the environment of competitors'

"Correct accounting treatment, objective criteria for funding"

"The effect of the consumer, that is not adversely affected consumers'

It should be noted that the views on this question vary. A common problem faced by managers, owners, general business environment is the economic crisis in general. Nevertheless there are different opinions among the respondents. The economic crisis creates uncertainty for making a decision, fear of affecting the behavior of consumers, for example, a decision that will bring changes in price or quality of products. Also, competition is considered as a problem for decision making. To enhance competitiveness must be strengthened and utilize appropriate mechanisms to improve the factors that comprise it.

4.8 How decisions are influenced by external factors

Compelling evidence of external factors is the economic crisis there. In this question there is 100% accordance that the economic crisis is a factor that has influenced the decisions taken by firms. Other problems are legal and ecological nature. Others argued that were affected negatively or positively depending on the economic situation of the company. It should be noted that this study was directed primarily to export companies, which are strongly influenced by the international market. Documenting all of the above will be presented following the views of some executives who agreed to answer:

"Positively or negatively affected by the economic performance of the company in conjunction with the general economic environment"

"Negatively in the past two years, due to the economic crisis and low activity on the market ''

"If conditions are favorable, low competition, low prices and cheap labor then decisions are negatively affected. If there is no liquidity, market movement, buyers and lending banks, then decisions are negatively affected. "

«Influenced either positively or negatively depending on the factors that arise during the time of the decision"

"Depending on international circumstances are affected positively or negatively"

"Like exporting company influenced by the international market. International events affecting the economic environment and therefore the decision making "

Commenting on the above we see that the economic crisis affect significantly the enterprises. National or international market, may negatively affect the economy also been suggested that it may all be affect them positively. We can say that the respondents stated specific factors that influence decisions, but the identification of factors should not suffice to understand the factors influencing the decision.

4.9 Checking the results of decisions

Trying to explain the control of the results for decision making, apart from the question that we have in the questionnaire, an extra question was placed «which decision have more control .

Table 15: Test results of decisions

	Frequency	Percent	Valid Percent	Cumulative Percent
LESS	1	3,3	3,3	3,3
SUFFICINTLY	9	30,0	30,0	33,3
MUCH	11	36,7	36,7	70,0
VERY MUCH	9	30,0	30,0	100,0
TOTAL	30	100,0	100,0	

All respondents combined this question with their budgets because it is the compass of the company. The budget defines the objectives which are a factor which measures the performance of the company, as well as the cost of expenditure.

From the table 15 the percentages of respondents did not have significant differences. In 36,7% of the sample there is much control, in 30% there is very much control, and 30% of the sample there is enough control.

4.10 Economic crisis and decision making

Nowadays, the cornerstone in decision making is the economic crisis affecting our country. With the current economic crisis many firms face difficulties, which means that have to make difficult decisions. A significant percentage of around 53.3% responded that the decision making process has been very much affected by the economic crisis, just 33.3% affected most, a fairly small percentage.

Table 16: Economic crisis and decision making

	Frequency	Percent	Valid Percent	Cumulative Percent
SUFFICINTLY	5	16,7	16,7	16,7
MUCH	10	33,3	33,3	50,0
VERY MUCH	15	50,0	50,0	100,0
TOTAL	30	100,0	100,0	

Here it should be stated that no company which participated in the survey did not answer "no" or "little". Even the most organized businesses, those with the highest turnover and high rates of exports, which are in the food industry responded that were much affected, if not much or very much from the economic crisis.

5. Conclusions

After examining and analyzing the use of accounting information in decision making, and factors which affected the executives to make decisions, as well as the difficulties of making a decision on industrial-manufacturing firms the prefecture of Serres, and the gathering of international and domestic literature, in this section we will provide results relating about the objectives have set.

As already noted, this work provides in-depth knowledge about the role and use of accounting information in decision making in industrial enterprises in the Serres region. The research focused on understanding the major influences on accounting decisions. For this research used a case study, to illustrate that its senior executives, owners and general managers use accounting information in the most useful way. In this research, we use export companies, which consist mainly of general partnerships and limited liability companies. The sample consists mainly of people who attended higher education.

 Indeed, given the economic environment in this case study shows that contextual factors such as the preferences of managers significantly affect the use and interpretation of accounting information in decision making. In addition, information on accounting information as well as the decision making process.

The evaluation of the role and use of accounting information in decision making has talked about the impact of various factors affecting it, such as the preferences of managers, the economic crisis, external factors affecting decision making, intuition, educational background, etc. The effects of these factors are evaluated taking into account the wider environment of Serres industry. It should be also noted that we have demonstrated the role and use of accounting information in decision making is the result of a complex interplay of endogenous and exogenous factors that have direct effects on the role and use of accounting data. For example, they show that the preferences of executives affect the role and use of accounting information. Moreover, there is manipulation of accounting data which do not allow to carry out objective decisions and thereby enhance the complexity of decision making.

In addition, the rates and questionnaires are evidence that the industrial enterprises of the Serres region tend to take short term decisions. Thus, Serres industrial companies follow mainly short-term decisions rather than long term strategic goals. Indeed, this focus on long term goals seem to be rather limited, short-term pressures arising from globalization and increasing pressures on the market. Nevertheless, the main strategic goal formulated by the use of accounting information still applies to long-term decisions.

Furthermore, although a good proportion of staff have welfare undertakings, significant level of educational knowledge and offer a lot, nevertheless refrain from participating in decisions to invest more and thus receive assistance from outside consultants to enhance robustness in decision making. Although there are indications that the role and use of accounting information varies depending on the significance of the decision, nevertheless noted that the accounting data are of great importance.

Documenting the relationship between the role and use of accounting information identified the following key elements that the interpretation of accounting data differ not only in different educational backgrounds, and between the same educational level. For decisions making both education and experience are important each manager. Each decision-maker understands some things from his perspective. Experience of is very important each , and the general perception and the knowledge for each subject.

Apart from the above, a factor that was analyzed for decision making is intuition. Intuition is an agent with different views in relation to its influence in decision making and the use of accounting data. Through we concluded interviews that business users use intuition as a substitute for the use of accounting data. Statements about the influence of the forces of globalization, has revealed a contradictory situation in which globalization can be extended, but also restrict the use of accounting information in decision making processes. While increased competition and globalization leads to increased use of accounting data.

Yet inseparable element for making the right decisions is the economic data-elements of the business. Observed that there is a significant degree falsifying financial statements which prevents an objective decision. Last but not least, is the economic crisis which has affected significantly the decision making.

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RELIABILITY AND VALIDITY TESTING OF A NEW SCALE FOR MESURING ATTITUDES TOWARD CHENESE PRODUCTS

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ABSTRACT

The aims of this paper are to determine the validity and reliability of ATCPc scale (Attitudes toward Chenese Product) as an instrument to measure students' attitudes that monitors affective components relevant to consuption behavior towards the new Chinese market in a Greek sample came from Western Macedonia in Greece. Initially, it was consisted of 35 items concerning 7 conceptual subscales which measure students' attitudes concerning Intention to buy, Trust in buying Chinese products, Risk of buying Chinese products, Product price, Perceived quality, Satisfaction, and finally Loyalty in Chinese products. In particular, the paper reports the responses of 150 Greek students from the departments of Pre-school Education of the Western Macedonia Universityand the department of Educational and Social Policy of Macedonia University in Greece. The results of the present study provide the final scale, which is consisted of the all the 35 items of the initial ATCPc Scale and for which strong evidence was ascertained.

KEYWORDS

Validity, reliability, attitudes, Chinese products, Greece

JEL CLASSIFICATION CODES

C52 - model evaluation, validation, and selection, D12 - consumer economics: empirical analysis

1.THEORETICAL FRAMEWORK

In Europe, there is a trend of illegal street merchants of Chinese products and this strongly influences the local markets. In Greece, these Chinese merchants have a bad impact on the local economy, especially in recent economic crisis period, because they sell their products for extremely cheap prices and hence, they create problems for Greek merchants who cannot overcome this kind of competition.

Daily are imported in very big quantities products from China with doubtful quality and in which the control is almost non-existent. The branch of clothing, games, electric appliances are damaged by the Chinese competition, that with the tolerance of state affects negatively in the Greek manufacture and with this way is decreased also the turnover of enterprises and is realised continuously redundancies as has been stressed by the Craft-based Chamber Piraeus in 2011 (Craft-based Chamber Piraeus. What attracts the consumers is the low prices, in which they can find him in the market, without however giving particular importance in their quality. For this reason are continuously marked incidents with regard to the negative repercussions of Chinese products. Many Chinese products from games, up to foods domestic, have been proved dangerous for the health of consumers as was also the deadly milk.

Consumer behavior is influenced by various factors, as it is cultural factors that include the culture and subculture, social factors that include the social order, the social roles, teams of report and the instructors of opinion, demographic factors that include age and the phase of circle of life of an individual, the educational level, the profession and economic situation and finally psychological factors that include the personality, self-concept, the way of life, the encouragement, the perception, the learning and the beliefs and also the attitudes (Mpaltas & Papastathopoulou, 2003).

It is of a major importance the examination of attitudes, beliefs and opinions as far as the consuption of Chinese products concerns. For this reson a Attitudes toward Chenese Product scale (ATCPc) was developed. Thus the aims of this paper are to determine the validity and reliability of ATCPc scale (Attitudes toward Chenese Product) as an instrument to measure students' attitudes that monitors affective components relevant to consuption behavior towards the new Chinese market in a Greek sample came from Western Macedonia in Greece.

2. RESEARCH GOALS

Consumers community pays attention to the impact that new are of products, such as chinise products, appear in the market. Therefore, it is of great interest to investigate the attitudes that monitors affective components relevant to consuption behavior towards the new Chinese market. For this reason, the present study aims to create a reliable and valid tool capable to measure the students concumers' attitudes concerning Intention to buy, Trust in buying Chinese products, Risk of buying Chinese products, Product price, Perceived quality, Satisfaction, and finally Loyalty in Chinese products.This specific tool is under investigation for its reliability and validity as there are no other relative instruments for this type of measurement.

3. THE INSTRUMENT

The instrument, which intended to measure students' attitudes towards statistics, is Attitudestoward Chineese Product Scale *(*ATCPc). This tool consisted of 35 items referring to five different attitude subscales, as follows: (a) Intention to buy -positive and negative attitudes concerning a student's intention to buy Chinese products (In1, In2, In3, In4, In5) (b) Trust in buying Chinese -positive and negative attitudes concerning a student's trust to buy Chinese products (Tr1, Tr2, Tr3, Tr4, Tr5); (c) Risk of buying Chinese products -positive and negative attitudes concerning a student's attitudes the risks of buying Chinese products(Ri1, Ri2, Ri3, Ri4, Ri5); (d) Product price-positive and negative attitudes the price of Chinese products (Pr1, Pr2, Pr3, Pr4, Pr5); (e) Perceived quality-positive and negative emotions concerning the quality of of Chinese products (Pq1, Pq2, Pq3, Pq4, Pq5); (f), Satisfaction-positive and negative attitudes concerning a student's satisfaction of buying Chinese products (Sa1, Sa2, Sa3, Sa4, Sa5) and finally (g) Loyalty in Chinese products- positive and negative attitudes decrides their loyalty to Chinese market (Lo1, Lo2, Lo3, Lo4, Lo5).

Each item of the instrument used a 5-point Likert scale that ranged from 1- Strongly Disagree to 5-Strongly Agree. The value of the Cronbach's α coefficient for this instrument in this study's sample was 0.882

4. SAMPLE

The sample consists of 150 Greek students from the departments of Pre-school Education of the Western Macedonia Universityand the department of Educational and Social Policy of Macedonia University in Greece.150 valid questionnaires were collected in the beginningof the second semester of the academic year 2011-12.

5. METHODOLOGY

The aim of this research study is to determine the validity and reliability of the ATCPc Scale which was designed as an instrument to measure students' attitudes that monitors affective components relevant to consuption behavior towards the new Chinese market in a Greek sample. The evaluation of questionnaire reliability- internal consistency is possible by Cronbach's α (Cronbach, 1984), which is considered to be the most important reliability index and is based on the number of the variables/items of the questionnaire, as well as on the correlations between the variables (Nunnally, 1978). The reliability of the instrument means that its results are characterized by repeativenes and these results are not connected with measurement errors, was evaluated by Cronbach alpha coefficient. The index alpha (a) is the most important index of internal consistency and is attributed as the mean of correlations of all the variables, and it does not depend on their arrangement (Anastasiadou, 2006).

ThenaPrincipalcomponentsanalysiswithVarimaxRotationproducesthedimensionofdifferentiationwas used in order to confirm or not the scale construct validity. To define if the sub-scales were suitable for factor analysis, two statistical tests were used. The first is the Bartlet Test of Sphericity, in which it is examined if the subscales of the scale are inter-independent, and the latter is the criterion KMO (Kaiser-Meyer Olkin Measure of Sampling Adequacy, KMO) (Kaiser, 1974), which examines sample sufficiency. The main method of extracting factors is the analysis on main components with right-angled rotation of varimax type (Right-angled Rotation of Maximum Fluctuation), so that the variance between variable loads be maximized, on a specific factor, having as a final result little loads become less and big loads become bigger, and finally, those with in between values are minimized (Hair et al., 2005).

This means that the factors (components) that were extracted are linearly irrelevant (Anastasiadou, 2006). The criterion of eigenvalue or characteristic root (Eigenvalue) ≥1 was used for defining the number of the factors that were kept (Kaiser, 1960, Sharma, 1996, Hair et al., 1995). Model acceptance was based on two criteria: a) each

variable, in order to be included in the variable cluster of a factor, must load to it more than 0.45 and b) less than 0.45 to the rest of the factors) (Schene, et al., 1998). Moreover, each factor must have more than two variables. In addition, it was considered, on the basis of common variable Communalities, that the variables with high Communality (h^2) imply great contribution to the factorial model (Hair et al., 2005). For the statistical data elaboration and check of the questionnaire factorial structure the software S.P.S.S., edition 16 was used.

6. RELIABILITY

ThefollowingtableofReliabilityStatistics (Table 1) informusaboutthevalueofthe coefficient a of Cronbach for the research scale is0.882=88,2%. This getsoverthepercentof 80%, whichisanextragood value for the internal consequence of the conceptual construction of the investigated scale (Anastasiadou, 2010; Nouris, 2006). If we continue with the releaseofunits, in other words with the standardized value of the variables, then the coefficient Cronbach a will slightly increase the value of α=0,886. This means that whether we increase the number of the items, then Cronbach a will take the value of 0,886.

Table 1: Reliability Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,882	,886	35

ThetableScale Statistics (Table 2) givesthescoresthatarerelatedtothescale'sentirety, whichpresentsameanofthe class of 88,85and a standard deviation of the class of 15,582 units.

Table 2: Scale Statistics

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
88,85	242,788	15,582	35

The table Item-Total Statistics (Table 3) gives the following important information in particular.

Table 3: Item-Total Statistics

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
In1	86,04	226,213	,488	,877
In2	85,99	224,396	,564	,876
In3	86,90	226,507	,596	,876
In4	87,05	227,017	,630	,876
In5	86,84	228,176	,537	,877
Tr1	86,61	226,306	,519	,877
Tr2	86,69	228,445	,494	,877
Tr3	86,67	225,338	,612	,875
Tr4	86,81	222,976	,643	,874

Tr5	86,22	225,663	,517	,877
Ri1	85,91	240,005	,551	,886
Ri2	85,84	244,860	-,598	,888
Ri3	85,45	241,309	,507	,887
Rs4	85,52	245,016	-,502	,889
Ri5	85,62	242,841	-,535	,888
Pr1	84,81	243,781	-,564	,887
Pr2	85,06	251,788	-,328	,892
Pr3	84,93	244,458	-,586	,888
Pr4	85,63	232,960	,271	,882
Pr5	85,53	234,613	,208	,883
Pq1	86,67	224,358	,575	,876
Pq2	86,75	224,791	,605	,875
Pq3	86,67	221,389	,689	,873
Pq4	86,51	227,580	,528	,877
Pq5	86,79	227,252	,551	,876
Sa1	86,65	225,948	,559	,876
Sa2	86,73	225,083	,593	,875
Sa3	86,42	222,983	,640	,874
Sa4	86,51	223,795	,634	,875
Sa5	86,73	222,160	,671	,874
Lo1	86,99	223,443	,619	,875
Lo2	86,89	225,269	,468	,878
Lo3	86,85	224,627	,502	,877
Lo4	86,82	222,726	,548	,876
Lo5	86,71	222,665	,559	,876

Especially, inthesecondcolumnoftheabovetabletheparticularscaleofmeasurement ATCPc givesmeanvalue86.04, 85.99, 86.90, 87.05, 86.84, 86.61, 86.69, 86.67, 86.81, 86.22, 85.91, 85.84, 85.45, 85.52, 85.62, 84.81, 85.06, 84.93,85.63, 85.53, 86.67, 86.75, 86.67, 86.51, 86.79, 86.65, 86.73, 86.42, 86.51, 86.73, 86.99, 86.89, 86.85, 86.82, 86.71units, which means that it presents a decrease of 2.81, 2.86,1.95, 1.80, 2.01, 2.24, 2.16, 2.22, 2.04, 2.63, 2.94, 3.01, 3.40, 3.33, 3.23, 4.04, 3.79, 3.92, 3.22, 3.32, 4.04, 3.79, 3.92, 3.22, 3.32, 2.18, 2.10, 2.18, 2.34, 2.06, 2.20, 2.12, 2.43, 2.34, 2.12, 1.86, 1.96, 2, 2.03, 2.14 are omitted from (taken off) the scale. In the fourth column the number 0.488, 0.564, 0.596, 0.63, 0.537, 0.519, 0.494, 0.612, 0.517, 0.551, -0.598, 0.507, -0.502, - 0.535, -0.565, -0.328, -0.586, 0.271, 0.208, 0.575, 0.605, 0.689, 0.528, 0.551, 0.559, 0.593, 0.64, 0.634, 0.671, 0.619, 0.468, 0.502, 0.548, 0.559 means that the specific items In1, In2, In3, In4, In5, Tr1, Tr2, Tr3, Tr4, Tr5, Ri1, Ri2 Ri3, Ri4, Ri5, Pr1, Pr2, Pr3, Pr4, Pr5, Pq1 Pq2, Pq3, Pq4, Pq5, Sa1, Sa2, Sa3, Sa14, Sa5 Lo1, Lo2, Lo3, Lo4, Lo5 appear the Pearson coefficient of correlation of the class 48.8%, 56.4%, 59.6%, 63%, 53.7%, 51.9%, 49.4%, 61.2%, 51.7%, 57.5%, 60.5%, 68.9%, 52.8%, 55.1%, 55.9%, 59.3%, 64%, 63.4%, 67.1%, 61.9%, 46.8%, 50.2%, 54.8%, 55.9% with the sum of the rest variables that remain in the scale when these items In1, In2, In3, In4, In5, Tr1, Tr2, Tr3, Tr4, Tr5, Ri1, Ri2 Ri3, Ri4, Ri5, Pr1, Pr2, Pr3, Pr4, Pr5, Pq1 Pq2, Pq3, Pq4, Pq5, Sa1, Sa2, Sa3,   Sa14, Sa5 Lo1, Lo2, Lo3, Lo4, Lo5vanish each one separately.All the itemsappearfromgooduptohighcorrelation coefficients and they will not omit from the scale.

7. SAMPLE SUFFIENCY TEST AND SPHERICITY TEST

The following table 4 (Table 4)gives information about two hypotheses of factor analysis.From the following table, we find out that sample sufficiency index KMO by Kaiser-Meyer-Olkin, which compares the sizes of the observed correlation coefficients to the sizes of the partial correlation coefficients for the sum of analysis variables is 86.4%, and it is reliable because it overcomes 70% by far. In addition, supposition test of sphericity by the

Bartletttest (Ho: All correlation coefficients are not quite far from zero) is rejected on a level of statistical significance p<0.0005 for Approx. Chi-Square=3541.844. Consequently, thecoefficientsarenotallzero, sothat the second acceptance of factor analysis is satisfied. As a result, both acceptances for the conduct of factor analysis are satisfied and we can proceed to it.

Table 4: KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,864
Bartlett's Test of Sphericity	Approx. Chi-Square	3541,844
	df	595
	Sig.	,000

8. THE SCREE PLOT GRAPH

The scree test (Figure 1) produces the following graph, which proceeds to a graphic representation of eigenvalues and guides us to the determination of the number of the essential factorial axes.


Figure 1: Scree Plot

Theabovegraph (Graph 1) presentsadistinguishedbreakuptotheeighthfactor, whereasaftertheeighthfactoranalmostlinearpartoftheeigenvaluecurvefollows. Thus, we can take under consideration the eigenvalues, which are over 1 for all the 7 factors (6.507, 4.059, 3.035, 3.020, 2,955, 2,060 and 1,891 for the 1st, 2nd, 3rd, 4th,5th, 6th and 7th respectively) (Table 5), and decide whether they interpret data in a satisfactory way.

Table 5: Total Variance Explained

Total Variance Explained

Compo nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulativ e %	Total	% of Variance	Cumulativ e %	Total	% of Variance	Cumulativ e %
1	11,621	33,203	33,203	11,621	33,203	33,203	6,507	18,591	18,591

2	3,269	9,339	42,542	3,269	9,339	42,542	4,059	11,597	30,188
3	2,826	8,074	50,616	2,826	8,074	50,616	3,035	8,671	38,859
4	1,912	5,462	56,078	1,912	5,462	56,078	3,020	8,630	47,489
5	1,429	4,082	60,160	1,429	4,082	60,160	2,955	8,442	55,931
6	1,251	3,574	63,734	1,251	3,574	63,734	2,060	5,886	61,817
7	1,220	3,484	67,219	1,220	3,484	67,219	1,891	5,402	67,219
8	1,042	2,978	70,196						
9	1,002	2,862	73,059						
10	,890	2,544	75,602						
11	,757	2,162	77,764						
12	,691	1,975	79,739						
13	,649	1,853	81,592						
14	,638	1,823	83,415						
15	,590	1,685	85,100						
16	,518	1,481	86,582						
17	,499	1,425	88,006						
18	,468	1,337	89,343						
19	,382	1,090	90,434						
20	,373	1,065	91,499						
21	,343	,981	92,480						

22	,320	,913	93,393							
23	,292	,835	94,228							
24	,268	,765	94,993							
25	,261	,745	95,737							
26	,234	,670	96,407							
27	,204	,583	96,990							
28	,191	,546	97,536							
29	,179	,513	98,049							
30	,159	,453	98,502							
31	,135	,385	98,887							
32	,124	,354	99,241							
33	,118	,338	99,579							
34	,091	,260	99,839							
35	,056	,161	100,000							

Extraction Method: Principal Component Analysis.

9. RESULTS

The 150 valid questionnaires were collected with the aim of carrying on a pilot study. It concerns the validity and reliability of the questionnaire which was designed for the working out of a doctoral writing work. We chose to base our estimate on the Principal component analysis with the variance-covariance matrix, because the 35 variables were obtained on a 5-point scale of Likert. The adequacy indicator of the sample KMO=0.864>0.70 indicated that the sample data are suitable for the undergoing of factor analysis. The control of sphericity (Bartlett'ssign<0.001) proved that the principal component analysis has a sense. Through this analysis, data grouping was based on the inter-correlation with the aim of imprinting those factors which describe completely and with clarity the participants' attitudes towards the research subject.

Accordingtotheanalysis (Table 7), arise 7 uncorrelatedfactors, which explain the 67.219% percentage of the whole inertia of data and are described separately afterwards. The coefficient of internal consistency (reliability) Crobach's a is statistically significant and equals to 88.2% for the total number of questions.

Thatiswhythescaleof35 questionswasconsideredasreliablein terms of internal consistency of the conceptual construction that was composed for the attitudes toward learning statistics with technology.

The reliability coefficient (Crobach'sa) is statistically significant and equals to 84.9%, 85.9%, 80.9%, 63.9%, 87.8%, 87.9% and 91.7% for the 1st, 2nd, 3rd, 4th, 5th, 6th and 7th factorial axis correspondingly. Eventually, fromthevaluesofthecommoncommunality (Table 6) we ascertain for each question that the majority of them have a value higher than 0.50 which represents satisfactory quality of the measurements from the model of 7 factors or components.

Table 6: Commuality Table

Communalities

	Initial	Extraction
In1	1,000	,685
In2	1,000	,665
It3	1,000	,782
In4	1,000	,771
In5	1,000	,619
Tr1	1,000	,547
Tr2	1,000	,624
Tr3	1,000	,717
Tr4	1,000	,650
Tr5	1,000	,559
Ri1	1,000	,736
Ri2	1,000	,715
Ri3	1,000	,603
Rs4	1,000	,535
Ri5	1,000	,592
Pr1	1,000	,591
Pr2	1,000	,665
Pr3	1,000	,681
Pr4	1,000	,427
Pr5	1,000	,531
Pq1	1,000	,735
Pq2	1,000	,773
Pq3	1,000	,839
Pq4	1,000	,646
Pq5	1,000	,568
Sa1	1,000	,645
Sa2	1,000	,594
Sa3	1,000	,715
Sa4	1,000	,699
Sa5	1,000	,610
Lo1	1,000	,612
Lo2	1,000	,840
Lo3	1,000	,908
Lo4	1,000	,883

Lo5	1,000	,762

Extraction Method: Principal

Component Analysis.

Table 7 presents the components and the factor loadings produced after Principal Components Analysis. More specifically, based on student attitudes as presented by the factor analysis, questions Sa4, Sa3, Sa1, Sa5, and Sa2 particularly with high loadings (0.777, 0.740, 0.728, 0.711, 0.607) load mainly on the first axis-factor F1, with eigenvalue 6,507, which explains, following Varimax rotation, 18.591% of the total dispersion. The first factor consists of the statements of students who may think that they are happy with the quality of Chinese products and generally thay are happy with the Chinese products because the buying of Chinese products corresponds in my expectations and the aesthetics of Chinese products makes them fell beautifully and the use of Chinese products suits in their life style. Factor F1 represents students' degree of Satisfaction to buy Chinese products. It is important to mention that all the above items Sa4, Sa3, Sa1, Sa5, and Sa2withoutexception appear with highloadingsonthefactor axis-factor, they also have mostlymediocre Pearson correlation coefficient this result to problem non existence in reliability.Reliability of the first factor is *a*=0.849, which is particularly satisfactory.

Questions Tr3, Tr2, Tr4,Tr5 and Tr1, particularly with high loadings (0.728, 0.672, 0.640, 0.608, 0.576) on the second factor (F2), with eigenvalue4.059, which explains 11.597% of the total dispersion. The second factor consists of the statements of students who may think they entrust the market of Chinese products because Chinese products are certified and their use suits them, thus they will not hesitate to buy Chinese products due to the fact that they are reliable. All the items Tr3, Tr2, Tr4,Tr5 and Tr1, withoutexception appear to have highloadingsonthesecondaxis-factor, they have mostlymediocre Pearson correlation coefficient and this result to problem non existence in reliability.The reliability of the second factor is *a*=0.859, which is satisfactory.

QuestionsLo3, Lo2, Lo4, Lo5 and Lo1 particularly with high loadings (0.924, 0.896, 0.888, 0.822, 0.525) on the third factor (F3) with eigenvalue 3.035, which explains 8.671% of the total dispersion. The third factor (F3) consists of the statements of Loyalty in Chinese products- positive attitudes- decrides their loyalty to Chinese market. Students who may think that they do not change the Chinese products neither with Europeanones, Greekones, Americannor with products of other countries because they consider that they have faith in the market of Chinese products. All the items Lo3, Lo2, Lo4, Lo5 and Lo1,withoutexception appear to have eitherhighorlowloadingsonthethirdaxis-factor andthey also have mostlymediocre Pearson correlation coefficient and this results to problem non existence in reliability.The reliability of the third factor, Risk of buying Chinese products, is *a*=0.804, which is satisfactory.

Questions Ri1, Ri2, Ri4, Ri5 and Ri3 particularly with high loadings (0.831, 0.821, 0.664, 0.647, 0.647) are on the fourth factor (F4) with eigenvalue 3.020, which explains 8.630% of the total dispersion. The fourth factor (F4) consists of the statements of students who may think that the decision of buying Chinese products is dangerous and more generally the buying Chinese products is dangerous and they are not sure that buying of Chinese products is good choice and consequantly it is not worth to risk of buying Chinese products because they are are of doubtful quality. All the items Ri1, Ri2, Ri4, Ri5 and Ri3, withoutexception appear to have highloadingsonthe fourth axis-factor, and they have mostlymediocre Pearson correlation coefficient and this result to problem non existence in reliability.

Questions Pq3, Pq2, Pq1, Pq4 and Pq5particularly with high loadings (0.729, 0.723, 0.712, 0.669, 0.635) are on the fifth factor (F5) with eigenvalue 2,955, which explains 8.442% of the total dispersion. The fifth factor (F5) consists of the statements of students who may think that quality of Chinese products is equal to American, European, Greek and of other countries. Finally, last on the significance scale for this factor lays the belief that the Chinese products of are high quality. The fifth factor (F5)highlights the Perceived qualityof Chinese products. All the items Pq3, Pq2, Pq1, Pq4 and Pq5, withoutexception appear to have highloadingsonthe fifth axis-factor, they have mostlymediocre Pearson correlation coefficient and this result to problem non existence in reliability. The reliability of the fifth factor is *a*=0.878, which is satisfactory.

Questions Pr3, Pr1, Pr2, Pr4 and Pr5, particularly with high loadings (0.768, 0.708, 0.569, 0.513, 0.509) are on the sixth factor (F6) with eigenvalue 2.060, which explains 5.886% of the total dispersion. The sixth factor (F6) consists of the statements of students who may think that the exclusive reason of buying Chinese products is their low price or the main reason of buying Chinese products is the low price, even though the low price of Chinese products is proportional of their quality but they suit with theit economic possibility. Finally, last on the significance scale for this factor lays the belief that the price of Chinese products is exceptionally competitive. The sixth factor (F6),highlights the role of Pricein buying Chinese products. All the items Pr3, Pr1, Pr2, Pr4 and Pr5, withoutexception appear to have highloadingsonthe sixth fi axis-factor, they have mostlyfrom relatine low tomediocre Pearson correlation coefficient and this result to problem non existence in reliability. The reliability of the sixth factor is *a*=0.879, which is satisfactory.

Table 7: Rotated Component Matrix

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
Sa4:I am happy with the quality of Chinese products	,775						
Sa3: I am happy with the Chinese products	,740						
Sa1:The buying of Chinese products corresponds in my expectations	,728						
Sa5:The aesthetics of Chinese products makes me fell beautifully	,711						
Sa2:The use of Chinese products suits in my life style	,607						
Tr3:I entrust the market of Chinese products		,728					
Tr2: The Chinese products are certified		,672					
Tr4: The use of Chinese products suits me		,640					
Tr5: I will not hesitate to buy Chinese products		,608					
Tr1: The Chinese products are reliable		,576					
Lo3: I do not change the Chinese products with European			,924				
Lo2: I do not change the Chinese products with Greek ones			,896				
Lo4: I do not change the Chinese products with American ones			,888				
Lo5: I do not change the Chinese products with products of other countries			,822				
Lo1: I consider that I am faith in the market of Chinese products			,523				
Ri: The decision of market of Chinese products is dangerous				,831			
Ri2: More generally I believe that the buying of Chinese products is dangerous				,821			
Rs4: I am not sure that the buying of Chinese products is good choice				,664			
Ri5: It is not worth to risk of buyinf Chinese products				,647			
Ri3: The Chinese products of are of doubtful quality				,647			
Pq3: I believe that the quality of Chinese products is same American					,729		

Pq2: 2.I believe that the quality of Chinese products is same European					,723		
Pq1: I believe that the quality of Chinese products is same Greek					,712		
Pq4: I believe that the quality of Chinese products of is same products of other countries					,669		
Pq5: I believe that the Chinese products of are high quality					,635		
Pr3:The exclusive reason of buying Chinese products is their low price						,768	
Pr1:The reason of buying Chinese products is the low price						,708	
Pr2:The low price of Chinese products of is proportional of their quality						,569	
Pr4: The price of Chinese products suits with my economic possibility						,513	
Pr5: The price of Chinese products is exceptionally competitive						,509	
In3:In the future I will buy exclusive Chinese products							,751
In4:In the future my first choice will be Chinese products							,737
In5:In the future I intend to increase the buying of Chinese products							,668
In1:I will buy Chinese products							,608
In2:In the future I will not hesitate to buy Chinese products							,565
Eigenvalue	6.507	4.059	3.035	3.020	2.955	2.060	1.891
Variance Explained (%)							
Cronbach's a (%)	84.9%	85.9%	80.9%	63.9%	87.8%	87.9%	91.7%
Total Variance Explained (%)	67.219%						
Total Reliability Cronbach's α (%)	88.2%						

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.864

Bartlett's Test of Sphericity: x^2=3541.844, df=595, p=0.000

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

The seventh and final factor (F7) with eigenvalue 1.891, with quite high loadings (0.751, 0.737, 0.668, 0.608, 0.565) which explains 5.402 % of the total data inactivity, is constructed and interpreted by questions In3, In4, In5, In1 and In2. The seventh factor consists of variables that concern the intention of buying Chinese products. More spesificantly students who may in the future buy exclusive Chinese products, their first choice will be Chinese products, and they intend to increase the buying of Chinese products and they certainly will buy without any hesitation. It is important to give emphasis that the itemsIn3, In4, In5, In1 and In2 appear high loading on the seventh factor-axis and they have mostlymediocre correlation coefficient Pearson with the sum of the rest

variables that remain in the scale, and this ascertains their remains in the scale. The reliability of the fourth factor is a=0.917, which is satisfactory.

Finally, theprincipalfactoranalysistotallyarisesevenfactor-compositevariables, whicharenamed: Satisfaction, Trust in buying Chinese products, Loyalty, Perceived quality, Risk of buying Chinese products, Product price, and finally Intention to buy. Therefore, a model of seven factors is created. Furthermore, itisessentialtoinvestigatewhetherthereisaproblemintheadaptability of this model.

10. TEST OF GOOD ADAPTABILITY

Thecontrolofgoodadaptabilityaswellasthesphericity control prerequisite multidimensional normality. The test of good fit of the seven model was based on the method of Generalized Weighted Least Squares.By this test the null hypothesis Ho assumes that there is no problem with the good fit of the model to the examined data.

From the table 8 (Table 8) further down we ascertain that the observatory level of statistical significance sign.=0.053>0.05 is over of the cutoff point 5% and therefore we accept the null hypothesis Ho, or in other words, we accept that the estimated five factor model has good fit.

Table 8: Goodness-of-fit Test

Goodness-of-fit Test

Chi-Square	df	Sig.
368,084	316	,053

11. CONCLUSIONS

Therefore, amodelof seven factors has created after the examination of the validity and reliability of the initial Attitudestoward Chineese Product Scale(ATCPc). TheATCPc Scale constitutes of a 35 item questionnaire and is an instrument useful for measuring students' attitudes concerning Satisfaction, Trust in buying Chinese products, Loyalty, Perceived quality, Risk of buying Chinese products, Product price, and finally Intention to buy Chinese products. Principal component analysis made evident seven subscales, named as:Satisfaction, Trust in buying Chinese products, Loyalty, Perceived quality, Risk of buying Chinese products, Product price, and finally Intention to Chinese products.

It is worth mentioning that Attitudestoward Chineese Product Scale(ATCPc) was developed based on student input and was designed as either a pretest or a posttest measure; it appeared to hold considerable promise as a research instrument for identifying the structure of attitudes toward buying chinese products. Although this study has provided new insights into the dimensions of chenese market in Thessaloniki, Greece as these are outlined in a technology learning world according to new challenges and demands, future research will be needed to more fully understand these dimensions to cotemporary tade demands for achieving high echivements. A qualitative research can complement and enrich this quantitative research study as the comparison of two seems to have huge interest and create new discussions and implications.

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HOW FAMILIARITY, REPUTATION AND USABILITY AFFECT LOYALTY IN ELECTRONIC JOURNALISTIC SERVICES

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ABSTRACT

The revolution of the Internet and its widespread use has influenced significantly the newspaper industry. The majority of the traditional newspapers have already introduced an online version and as a result the competition in this field has increased. The increasing competition makes necessary the establishment of loyalty of the Internet users. Through the literature three factors are mentioned to be significant for enhance of online loyalty: familiarity, usability and reputation. Additionally, according to the literature it is found that user experience influences the relationships between familiarity, usability and online loyalty. The present study tries to examine via a questionnaire the factors that affect the loyalty of the online newspaper readers in Greece. The hypotheses thatare pointed out in the study have as a basis the literature review including the factors that are examined which are familiarity, usability and reputation. The results of the study show that usability and reputation affectpositively loyalty, while familiarity does not affect significantly on loyalty

KEYWORDS

Online newspapers, loyalty, usability, familiarity, reputation

JEL CLASSIFICATION CODES

C8

INTRODUCTION

The industry of newspapers is an important sector that contributes on the distribution of information and also on the national economy of every country worldwide (Molina, 1997). In the late 1800s, newspapers' development was a fact until the great recession that hurt newspapers as well. In the next decades, the newspaper's industry has been developed and has faced its peak during the decades of 70s and 80s (Kirchhoff, 2010). In 1991, the value of the newspaper industry was estimated to be the half of the value of the entire print sector (Molina, 1997).

In 1993, the newspaper industry had to deal with a new reality that was the evolution of the Internet. The most famous brand names in the newspaper industry saw this new medium as a new opportunity and went online. The first complete online newspaper went online in 1994 and after that the majority of the American press followed the new trend and introduced an online version (Chyi and Sylvie, 2001). Li (1998) defines the digital newspapers as the web version of the published newspapers and states that the online readers have access to the online newspapers via their personal computers and the Internet. Since their creation, many online newspapers have faced economic losses but at the same time had access to new markets and gained new readers (Chyi and Larosa, 1999).

Bucy (2004) defines three phases of the development of the online press. The first phase in the early 90s is characterized from lack of inspiration and innovation. The online versions of the newspapers were just a copy of the printed text. The second stage of the online press is defined from the introduction of the first videos, hyperlinks and audios. Moreover, the second generation is defined from the introduction of the element of interactivity through the discussion forums and chats. In 2000, the more developed version of the online newspapers appeared and enabled readers to come closer to the latest news through directness, high technology and manageability.

The benefits of the online press are numerous for both the online readers and the newspapers business. Readers have the potential to be informed about the latest news at anytime, anywhere and without cost. For these reasons online newspapers have become a favorable source for the users that seek for up to dated news (Flavian et al., 2006; Peng et al., 1999). On the other hand, newspaper executives can introduce themselves to young readers or to

people that aren't included in the audience of the printed editions (Peng et al., 1999). Both sides can also take advantage of the interactivity that is offered through the online press. The benefit of the interactivity is usually achieved through online messages, participation in surveys and forums of online discussion (Chung, 2009). Moberg et al. (2010) also claims that another important benefit of the online press is that the environmental consequences of the e-newspapers are not so important in comparison to the impact on the environment from the printed press.

Today online newspapers are approximately 4.200 (Flavian et al., 2006). The average reader is male, of average income and highly educated. Most of the readers use the online newspapers on a daily basis and the majority of them have made an online purchase the last 6 months (Thurman, 2007).In 2009, 10% of the online incomes come from the online newspapers and this number increased to 12% in 2010 (Kirchhoff, 2010). The online newspapers are considered to be an integral part of the journalism and a promising field to invest in for the newspaper industry (Ihlstrom and Hendfrisson, 2005).

In Greece, the mass media were interested in adopting the digital technology because of the need to follow the international trends (Giannakoulopoulos and Kodellas, 2005; Spyridou and Veglis, 2008). In 1981, a contract between the Journalists' Union of Athens daily newspapers and owners' Union of daily Athens newspapers has been the basis for the establishment of a series of regulations with regard to the performance of the online media. Both parts of the contract agreed to protect the employees from losing their jobs and the owners agreed to incur the training costs. However, the training or the educational skills of the Greek experts has been inadequate until the 90s (Giannakoulopoulos and Kodellas, 2005).

The initial Greek newspaper that went online was Makedonia in 1995. In our days, about 80 % of the newspapers have already introduced an online version. In Greece the use of the Internet and the digital media is not satisfactory in comparison to other European countries. In 2002, only a 14 percent of households had access to the Internet according to Eurostat (Giannakoulopoulos and Kodellas, 2005). In a recent survey in 2006, this percent has slightly changed to 22%. However, the 92% of the businesses in Greece has access to the Internet (Spyridou and Veglis, 2008).

2. LITERATURE REVIEW

Owing to the critical role of loyalty in trade there exists an increasing interest in the factors that form consumers' loyalty. Literature has recognized among other variables that familiarity, usability and users' experience may be the keys for the establishment of loyalty (Flavian et al., 2006). Furthermore, reputation has been suggested as another crucial factor that affects loyalty (Casalo et al., 2008; Gurrea and Flavian, 2007). Despite of the important role of loyalty, few researches have been conducted on online loyalty because most of the studies focus on the traditional trade (Arora and Stoner, 1996; Chang and Chen, 2009). However, the development of the Internet and the rapid expansion of it to numerous sections such as the digital newspapers have led to the appearance of some important studies that focus on online consumers' loyalty. According to the literature, the same factors mentioned above have an impact on online loyalty (Shrinivasan et al., 2002) and especially in the field of online press (Flavian et al., 2006).

2.1 Loyalty

According to Oliver (1999), loyalty can be defined as *"a deeply held commitment to rebury or repatronize a preferred product/service consistently in the future, thereby causing repetitive same brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior"*.

Caruana and Ewing (2010) have focused on a theory which claims that there are four stages of loyalty. In the initial stage, loyalty is characterized as cognitive and only after a repeating purchasing a consumer can establish affective loyalty. The second stage (affective loyalty) is also characterized by consumers' trend to keep the same behavior because they enjoy the product. The third level of loyalty is more intense and is developed through years of repeating behavior. The fourth and last stage is the strongest and includes the type of loyalty that makes costumers to overcome everything that obstacles them from purchasing the same product.

Chang and Cheng (2009) also realize the difference between true loyalty and the spurious consumer loyalty. In other words, they distinguish between the true loyal consumers and the clients that use a product or services because they have no other choice or they are motivated by temporal privileges. Moreover, Kumar and Shash (2004) state that true loyalty is related to the attitude as well as to the behavior of the consumers towards a brand name. Similarly, Chang and Chen (2008) suggest that loyalty is consisted of two dimensions which concern both the attitude as well as the behavior of a person. Loyalty is also a critical factor that contributes to the success of online stores or websites in general. (Kim et al., 2009; Shankar et al., 2003; Chang and Chen, 2008). Online loyal consumers tend to consume more frequently than new costumers and the costs for their operation are limited.

Apart from that, loyal customers are less sensitive to price changes especially on the Internet and more committed to brand names (Kim et al., 2003).

Digital newspapers is a field that includes many competitors that seek for new consumers so loyalty plays a key role in this area. (Flavian and Gurrea, 2007; Flavian et al., 2006).

Gurrea and Flavian (2007) have also focused on the factors that affect loyalty in the sector of online press and suggest that online newspapers should develop a strategy in order to enhance consumers' loyalty. Saaksjarvi and Santonen (2003) also claim that the development of a strategy for the built of the online loyalty is important because the online newspapers mainly don't take into account the diversity of their customers.

2.2 Familiarity

An important factor that concentrates a lot of attention especially in the field of marketing is familiarity (Arora and Stoner, 1996). Familiarity is the knowledge of a product or services that is gained by previous consumption or use (Maenpaa et al., 2008; Lee and Kwon, 2010). Moreover, familiarity can be a result of positive recommendations among customers (Casalo et al., 2008).

Familiarity offers many benefits to the companies that invest in its development. First and foremost, familiarity plays an important role throughout the process of decision making (Betman and Park, 1980; Jimenez, 2010; Arora and Stoner, 1996). Costumers usually prefer products that are already known and familiar to them. Apart from that, consumers choose familiar products in order to save time (Arora and Stoner, 1996). Moreover, familiarity provides a feeling of assurance eliminates consumers' doubts (Gefen, 2000) and enables customers to understand and to keep in mind the information that is related to the product (Maenpaa et al., 2008)

Regarding to familiarity on the Internet, few researches have been conducted because of the absence of tangibility of the products that make consumers usually to associate e-commerce just with services (Casalo et al., 2008). Although familiarity on the Internet hasn't been analyzed exhaustively, it has been proved that this variable enforces customers trust in online services (Gefen, 2000). In recent years, familiarity with regard to Internet has been associated to users' experience. High levels of experience in using the Internet usually increase the feeling of familiarity with a site or a vendor. Online customers, who feel confident enough to use a particular website, feel familiar with it and stop searching other relevant sites. Familiarity with a vendor often eliminates any concern of online deceptions and enhances the feeling of loyalty to a particular website (Maenpaa et al., 2008).

2.3 Usability

The last decade the establishment of Internet has led to the analysis of new factors that have an impact on the online customers' choices. In this new virtual environment, usability has been recognized to be an important variable that affects the preferences of the users of the Internet (Benbunan and Fitch, 2001; Lee and Kubeck, 2010).Usability is the level of attempt is needed in order to use a system. It is also defined as "*the perceived ease of navigating the site or making purchases through the Internet*" (Davis, 1989). In other words, usability is a variable that reflects how easy a user can learn to control and to memorize the basic workings of a system, the effectiveness of utilization as well as the capacity to prevent users' mistakes and to keep them satisfied (Juristo et al., 2007).

More specifically, website usability includes the rapidity is required to find what the users are searching for as well as the easiness is needed to understand the design of a website. In particular, website design includes the interface, its functionality and all the parts of the website that are noticed by the users. Usability also contains the capacity of a user to manage the system at every stage (Flavian et al., 2006; Casalo et al., 2008).

Massey et al. (2007) also suggest that usability is connected to the design of a website which demonstrates the users' expectations and needs. Usability might also be depended on the kind of assistance the interface is planned to provide as well as on the method of accessibility. The literature suggests that practice (Nielsen, 1999) as well as psychology should be combined in order to improve and develop the usability of a website (Massey et al., 2007).

Juristo et al. (2007), claim that the development of usability is a valuable asset for every business. It increases the productiveness, develops team confidence and reduces the cost that is required to train the employees as well as the costs with regard to documentation. Another important benefit of usability is the fact that it enables every user to be more productive and with regard to e-commerce it increases the possibility of a potential purchase. Additionally, according to Donahue (2001) it is a fact that a dollar that is invested in usability gives back $30.25.

Brady et al. (2008), state that the development of usability affects positively the perceptions of people that interact with organizations through the Internet. Similarly, Lee and Koubeck (2010) argue that among many factors that influence online preferences such as aesthetics or information inferiority, usability is the most important. Flavian and Gurrea (2007) have also studied the influence of many factors on the choices of online readers. Usability has the highest impact on readers' choices.

Hofstetter (1998) similarly mentions that website usability is essential for online newspapers because of the following reasons: Digital newspapers should be handled easily by every reader, everything is necessary to be understood for example buttons or links and the users need to know at first all the potentials that are provided by the website. Massey et al. (2007) also claims that usability is the key in order to keep online users satisfied when they visit a traditional website such as online newspapers and suggests that usability may be improved via the deep knowing of the demographic characteristics and the requirements of the users.

2.4 Reputation

Reputation is "*an expectation of quality*" (Shapiro, 1982) and a valuable element to invest in that concerns not only individuals but firms as well (Toms and Taves, 2004). From a firm's viewpoint, reputation is essential because consumers often are hesitant to buy unknown products for which they haven't been informed (Caruana and Ewing, 2010). Reputation is a result of the previous actions of a company and the outcome of previous experiences and of the perceived knowledge (Kotha et al., 2001).

Moreover, reputation is the outcome of the communication of firms with their consumers. This contact provides customers with essential knowledge that enables them to assess the quality of services or products (Yoon et al., 1993). Additionally, reputation is established from the past performance of a firm that includes not only its financial presence in the market but its honesty and other social actions such as environmental awareness (Doney and Canon, 1997). In parallel, recommendations of products among potential consumers as well as the repute of the directors of a firm can form reputation (Toms and Taves, 2004).

Kotha et al. (2001), claim that reputation is a strategic benefit for a firm that can be built by advertising or generally via mass media. It is significant for a firm to invest in reputation especially on the Internet. Every firm that performs on the Internet and interacts with its consumers through this channel should focus on repute because of the intangibility of the sector that increases the feeling of uncertainty among costumers.

Similarly, Toms and Taves (2004) argue that reputation is noteworthy in the area of the web sites because customers usually feel uncertain on the Internet in comparison to a print environment. Users are often not able to assess the quality of a website because of the absence of standard criteria that on the contrary exist in the print sector such as the validity of a publisher. As a result, users' preferences are affected by other elements such as reputation.

Many researches have been conducted regarding to the factors that establish the reputation of a website or aspects of reputation of a website (Toms and Taves, 2004). Jarvenpaa et al. (2000) examined the factors that affect reputation by asking the participants of a case study to fulfill some tasks on the Internet that included the consuming of books, tickets and other purchases through websites of high design. The study showed the positive impact of trust on the reputation of a website. Moreover, Tom and Taves (2004) state that the believability of a website can contribute to the establishment of a good reputation.

3. FORMULATION AND JUSTIFICATION OF HYPOTHESES

According to Flavian et al. (2006) consumer familiarity with a service or product is an area that has gained great attention among the marketing researchers at various circumstances the last years. Luhmann (2000) suggests that familiarity is the knowledge that costumers have about a service or a product, according to their previous experience with the service or product. Gefen and Straub (2004) recommend that the familiarity as a variable is not very common and very scientific among researchers who study the customer purchasing behaviour in internet. Gefen (2000) supports that, familiarity may act as a tool that simplifies relationships and reduces ambiguities of the user, because of the fact that enhances the level of the user's trust in the website that he visits. Paswan and Ganesh (2003) mention the necessity for enterprises at the newspaper industry, to analyze and take into account the impact of familiarity of the user of a website, on the company's balance sheet and on the company's strategy. Because of the fact that the behaviour of electronic newspaper readers is at a high degree opportunistic, the users have the opportunity to compare different options that offered from the electronic environment. As a result, it is critical for the researchers to analyze familiarity as a factor that influences the intention of the costumers to consume or buy a product or a service. The fact that familiarity has a positive impact on the user's loyalty is stated also by Flavian et al. (2006). According to them, costumers that are highly familiarized with a brand are usually more loyal to a company. Thus when a user is more familiar with a website it is probable to be and more loyal. Murray and Haubl (2002) suggest also familiarity of the consumers decrease the perceived risks and contributes to the customer loyalty and to the increase of website attraction. Maenpaa et al. (2008) recommend that a big number of analysts, in recent years have focused their attention on familiarity as far as the area of internet is concerned. Similarly, Mosconi et al.(2008) state that in the field of online newspapers the factor of familiarity is as important as users' preferences in order to maintain loyal readers. Flavian et al. (2006) argue that in the area of online

newspapers the readers that feel familiar to a digital newspaper usually prefer this particular site and stop searching for alternatives and also that familiarity has a positive impact on loyalty. After all mentioned above, the first hypothesis could be stated as it follows:

H1: The level of familiarity with a website influences positively the levels of loyalty depicted to it.

Because of the fact that the options and the services that offered by the internet are growing in number day by day plenty of researches have focus on investigating how to improve the purchasing intention and the loyalty levels of the consumers. Furthermore, it is generally accepted the fact that plenty of services (financial services for example) are very complex in nature and there is a growing need for the procedures and the tasks of these services to be simplified (Flavian et al., 2006). This need explains the fact that a lot of companies, following market leaders such as Amazon and Google, simplify and change (redesign) the interfaces of their websites, making the procedures and the tasks simpler. The goal behind this redesign is to reduce the uncertainty of consumers and users in several aspects of the usage of internet services (for example if an internet banking transaction has been carried out correctly or if the transactions through internet are secure), to increase the rate of user's retention and to make them to spend more. Thus the user's perception about the ease of use of a website consist the basis for user's loyalty to a website (Flavian et al., (2006). As it mentioned by Flavian et al. (2006) there are few theoretical studies that show the importance of usability as a variable for the balance sheet and the strategy of a company. These studies support that it is very important for newspaper companies to have websites with high level of usability. According to Davis (1989) usability can be defined as the level of attempt that is necessary in order to use a computer system. More specifically, usability can be defined as the ease of guidance or consuming through the internet.

According to the above analysis the second hypothesis could be stated as it follows:

H2: The level of usability in a website influences positively the levels of loyalty depicted to it.

Many researches have also proved that an excellent reputation raises the sales of a company and enforces the consumer loyalty. Reputation is very important in the field of online services. Websites with an excellent repute tend to maintain their clients (Casalo et al., 2008). According to Casalo et al. (2008) reputation of a firm or a brand is possible to lead in positive results as far as the market share and the sales of the firm, increasing simultaneously the loyalty of the firm among the consumers and the customers. The influence that reputation has on the distribution of the online services may also be significant. Moreover, many researchers recommend that activities that enhance reputation of the internet firms consist of a critical determinant for the success of the online firms. Furthermore, Resnick and Zeckhauser (2002) mention that internet companies like Google and eBay that have gained a good reputation and are well known among the internet users are enjoying high profits and have obtained loyal clients. Additionally, Kotha et al. (2001) suggest that companies should exploit reputation as competitive advantage in the world of e-commerce. Online firms should continue to invest large amounts of money to enhance their reputation as a path to obtain a loyal customer base. Srinivasan et al. (2002) support that websites should be designed with a creative way, as to help the firms to obtain a good reputation among the consumers and the customers, that contributes to the loyalty of the customers. According to Casalo et al. (2008) there is a positive relationship between online readers' loyalty and reputation. Moreover, Park and Lee (2007) state that reputation is important for the online newspapers and in order to maintain a good reputation and to avoid the impacts of negative comments it might be necessary for the digital newspapers to focus on the online negative posts throughout the discussion forums. Based on these, the third hypothesis could be stated as

H3: A more positive website reputation will result in a higher level of loyalty.

4. RESEARCH METHODOLOGY

4.1 Sample and Data collection

For testing the proposed hypotheses of this study a survey was realized during the period of January 2011-June 2011. The research concerns Greece, for this reason, it was included only Greek people. The questionnaire was published on a blog at the internet, exclusively for the purposes of the research. To be known the blog, was sent via e-mail to totally 156 people the electronic address of the website that was hosted. Finally, through this method 84 questionnaires were answered. Furthermore, 58 questionnaires were sent via post and 45 were answered through personal interviews. From the 58 questionnaires that were sent via post, 25 were sent back completed. Finally, there were 153 questionnaires for data analysis. The demographic characteristics of the survey participants on the table 1 are presented.

Table 1. Demographic Characteristics

Gender		%
	Male	36%
	Female	64%
Age		
	<20	1%
	20-24	10%
	25-34	81%
	24-44	5%
	>44	3%
Educational Level		
	Elementary	8%
	University /Tech. Institutions	50%
	M.Sc/ Ph.D	42%
Computer experience		10%
	<=5 years	90%
	>5 years	
Internet experience		
	<=5 years	13%
	>5 years	87%

The most familiar category of electronic newspaper of the respondents is the political (50%), and follows by the sports (24%), tabloids (19%) and classified advertisements (7%).

4.2 Questionnaire's Description

The design of the questionnaire on extensive literature review, on previous studies and on previous validated instruments was based. Consist of 18 questions, divided into two parts. The first part is an introduction to the main body of the questionnaire and refers to the demographic data such as the gender, the age, the educational level of the respondents and the category of the most familiar electronic newspaper (according to which they completed the questionnaire).

The second part of the questionnaire that is divided into four sub parts was designed to investigate customer loyalty to online journalistic services in Greece. The first sub part was designed to examine the independent variable familiarity and consists of three items adopted by the works of Flavian et al. (2006) and Casalo et al. (2008). The second sub part refers to the independent variable usability and consists of five items adopted by the works of Flavian et al. (2006), Casalo et al. (2008) and Roy et al. (2001). The third sub part includes four items and was designed to examine the independent variable reputation. The items used are adopted by the works of Flavian et al. (2006), Casalo et al. (2008). Finally, the fourth sub part refers to the dependent variable loyalty and consists of three items adopted by the works of Yoon and Kim (2000), Flavian et al. (2006) and Casalo et al. (2008).

All used items were measured, using a 5-point Likert scale in which 1 means "Strongly Disagree", 2 "Disagree", 3 "Undecided", 4 "Agree" and 5 "Strongly Agree". Zikmund (2003) suggests that, Likert Scale is a measure of attitudes that allow respondents to point out the range from very positive to very negative toward an attitudinal object.

4.3 Research Instrument Validation

To ensure the appropriateness of the questionnaire it was tested for: (1) Content Validity, (2) Unidimentionality and (3) Reliability.

According to Zikmund (2003), content validity is the most basic type of validity. Content validity should include among the others, the review of the literature for the subject that researched, a pilot test from professionals and academics and a sample of people that is different in number from the sample that was used in the pilot test. At the present study the content validity of the questionnaire was ensured by the fact that the variables included in the instrument from previous researchers were used at various studies. Furthermore, the intensive review of the literature and the discussion with professionals and academics ensure the validity of the contents and made the meanings more understandable.

Unidimentionality was tested by performing factor analysis. In the present study two factor analyses were performed. The first includes all the items which constitute the independent variables (familiarity, usability, reputation) and the second includes the items of the dependent variable (loyalty).

For the extraction of the factors Principal Component method was used. The Varimax rotation method of the axis which is one of the most popular methods of Orthogonal rotation according to Sharma (1996) and Haier *et*

al.(2009) was employed. For testing the appropriateness of the data for factor analysis, Bartlett's test of sphericity was performed. Moreover, the Measure of Sampling Adequacy (M.S.A) of Kaiser-Mayer-Olkin (K.M.O) was used, which is the most popular diagnostic measure and it estimates the extent to which some items belong to the same factor (Sharma, 1996). According to Sharma (1996) K.M.O should be greater than 0.8. However, degrees over 0.6 are acceptable. For the determination of the number of the factors the criterion of Eigenvalue was used. Factors whose Eigenvalue exceeds one are selected. Finally, as far as the test of significance of items is concerned the factor loadings were checked. In a sample of 150 individuals, a loading of more than 0.45 is considered as significant (Haier et al., 2009).

In Table 2 is presented the factor analysis for the independent Variables of the proposed model. Three factors were recognized as it was initially hypothesized, and all the items belonged to the factors that were initially selected. As we can see on the table all the loadings are at very satisfactory levels and above the value of 0.5. Furthermore, the value of KMO is equal to 0,780 and considered generally accepted value, while the total variance explained has a value of 73,874% and it is at very satisfactory.

Table 2. Factor and Reliability Analysis for Independent Variables

Items	Loadings	Factors	Cronbach's *a*	Variance Explained
Fam1	0,914			
Fam2	0,834	**Familiarity**	0,849	19,462%
Fam3	0,868			
Usab1	0,896			
Usab2	0,851			
Usab3	0,829	**Usability**	0,880	28,430%
Usab4	0,927			
Usab5	0,563			
Rep1	0,879			
Rep2	0,871			
Rep3	0,875	**Reputation**	0,903	25,983%
Rep4	0,900			
K.M.O = 0,780				
Bartlett's test of sphericity	Chi square: 1102,457			
	df: 66			
	Sig.: 0,000			

In Table 3 is presented the factor analysis for the dependent variable of the proposed model. All the indices are very satisfactory and the three items constitute one factor.

Table 3. Factor and Reliability Analysis for dependent Variable

Items	Loadings	Factors	Cronbach's *a*	Variance Explained
Loyualty1	0,958			
Loyualty2	0,915	**Loyalty**	0,967	93,83%
Loyualty3	0,942			
K.M.O = 0,761				
Bartlett's test of sphericity	Chi square: 583,822			
	df: 3			
	Sig.: 0,000			

The reliability of the factors was examined using Cronbach's *a* index. The value of Cronbach's *a* in order to be considered acceptable must exceed the value of 0.7 or marginally the value of 0,6 (Hair et al., 2009). In our study, as it is presented on tables 1 and 2, *a* index ranges between 0,849 and 0,967.

5. DATA ANALYSIS AND RESULTS

In the table 4, the basic statistics of the factors that were used for the construction of the proposed model are presented. As you can see, the mean of each factor is near to 4, which means that the participants are enough familiar with the website, they believe that it is ease to use and the reputation of it is high. For all these reasons the participants are very loyal on the selected website.

Table 4. Basic Statistics Measures

	Mean	St. Deviation
Familiarity	3,81	0,87
Usability	4,12	0,65
Reputation	4,13	0,74
Loyalty	4,14	0,79

In order to testing the hypotheses, that were formulated, a regression analysis was performed. The dependent variable in the regression analysis is the loyalty to online journalistic services and the independent variables are the familiarity of the costumers /users with the website, the usability of the website and finally the reputation of the website.

The results indicated that the data are appropriate for Regression Analysis as F-Statistic (F= 152,855) is significant (Sig. = 0,000). Moreover, the data were tested for autoregression and collinearity, using the Durbin – Watson statistic and the V.I.F index respectively. Values of Durbin- Watson near to 2 and V.I.F less than 5 indicate that autoregression and collinearity none cause problems in the regression analysis. In our case all V.I.F indices are near to 1 and the D.W is about 2 (D.W=1,964).

The R^2 is equal to 0,755 and that means that the three independent variables can explain the sufficient percentage of 75,5% of the total variance of the dependent variable.

Finally, at the table 5 the regression coefficients are presented and more specifically the Beta values, the t-values and the levels of Significance. The regression coefficients for all the independent variables (Familiarity, Usability and Reputation) have a positive value that means that the more the familiarity, the usability and the reputation of a website, the more the loyalty of the users to the particular website. The factor that affects more positively to the loyalty of the user seems to be the usability that has the greatest Beta value (B=0,855) which is also significant (sig.=0,000). Thus, the H1 is full accepted. The Beta coefficient of familiarity (B=0,056) is significant at the level of 0,174 and thus H1 is rejected. Finally, the Beta coefficient of reputation (B= 0,073) is significant at the level of 0,074 and this means that we can accept the H3 at the significance level of 10%.

Table 5. Regression Coefficients

	Beta	t- values	Sig.
Familiarity	0,056	1,265	0,174
Usability	0,855	20,864	0,000
Reputation	0,073	1,791	0,074

CONCLUSIONS

The introduction of the Internet induced changes in the sector of newspapers. The fact that publishers adopted the new technology and introduced many sites on the World Wide Web, changes at a great degree the industry of the newspaper while the users of the internet were capable of obtaining plenty of information without any cost and without to spend time. The aim of this study was to investigate some important factors that define customer loyalty to online journalistic services in Greece. According to literature the three most important factors that affect to the loyalty on the selected website are the familiarity that the costumer has with the online newspaper, the usability that the electronic newspaper can offer to the users and finally the reputation that the website/electronic newspaper has. The results of our analysis indicate that the factor that affects more to the loyalty is the usability of the website, while familiarity and reputation are not so important factors for Greek users. However, there were several limitations in this study which could probably have influenced the results. A next research could include more factors and could be based on biggest and more representative sample.

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COULD THE AUDIT COMMITEES ENHANCE ACCOUNTABILITY IN THE PUBLIC SECTOR IN ALBANIA?

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ABSTRACT

The main question around which this paper is based is whether the public sector in Albania needs to establish the Audit Committees as a demand for enhanced quality of services and accountability over the use of public funds is increasing.

This paper analyzes the role of public sector Audit Committees in common law practices established to advise management on the adequacy of structures and processes that ensure the integrity of the accounting, auditing, risk management internal controls and financial reporting.

This paper founds out that Audit Committees are not best practices established in every country considering the fact that this practice is appropriate to the private sector corporate governance. However, it reveals that lack of such committees put into question the achievement of good governance objectives to address any concerns of auditors that go beyond management responsibilities; to assess and evaluate the internal controls aimed to managing risks; to assess the adequacy of information supplied to management affecting the decision-making process; to appraise the performance of internal audit and external audit and professionalism of auditors.

Therefore, this document recommends establishing the Audit Committees across the public sector as a practice strongly recommended in the central government bodies within United Kingdom. Such Committees will advise the head of public organizations on risk exposure, corporate governance and control issues; will enhance and improve the professionalism of internal auditors who still in Albania are adopting and relying on a traditional financial internal audit approach notwithstanding the changes in legal and normative framework. Moreover, they could play e key role in preserving the auditor independence, thus increasing the accountability of top managers by enhancing third line of organizational defense, the additional assurance process.

KEYWORDS:

Public Sector, Audit, Corporate Governance, Accountability, Internal Controls, Risk Management

JEL CLASSIFICATION CODES:

M41 - Accounting; M48 - Government Policy and Regulation

INTRODUCTION

This paper focuses upon the development of audit committees worldwide with the main purpose to assess the need for the establishment of such consulting function within Albania, public sector aiming to enhance the accountability of high ranking public officials.

This paper analyzes the practices in different countries with regard to the feasibility and the role of audit committees established to advise the management and the governing bodies on the adequacy of the structures that ensure the accountability over the use of public funds. This is a practice strongly recommended in the government organizations within countries applying common-law corporate governance regime; it is composed mostly by non-executive members to preserve independence and, enhance the objectivity of the advices. The remit of audit committees within government organizations includes the assessment of financial information provided to the governing bodies and the taxpayers and, advices with regard to improve risk management and internal controls.

The audit committees practices and models identified through the literature review are compared with audit committee approach adopted within Albania, public sector and after assessing the factors and circumstances such

as the size and the politicized processes of the Albanian public sector, considerations are made to establish the audit committees. This document recommends the Anglo-Saxon model to be adopted within Albania, public sector, with audit committees placed in large government entities focusing on assessment of reliability of public funds' expenditures and revenues and, on improvement of risk management practices and internal controls and, on monitoring of anti-fraud and anti-bribery culture and ethical concerns.

Summary of Methodology

In order to complete this paper, semi – structured interviews are utilized to gather data. The purpose of questions asked in the interviews undertaken with representatives of General Directory of Internal Auditing, representatives from High State Control, Head of Internal Audit departments within Albanian, public is to explore in more detail the information gathered from secondary source of data.

The secondary data used in this paper are time series of data provided by SIGMA 2008/2009/2011 in a project undertaken by European Union (EU) to independently assess the progress of Albania in adopting and implementing the principles for a financial management of the public funds, the fulfillment of which is a precondition for Balkan countries to be EU member (SIGMA, 2008). This information is supplemented by data gathered from the document Public Internal Financial Control Policy Paper published by the Government in June 2009, which describes the steps undertaken by Albania Government to update and improve internal control system. Subsequently, the information gathered is cross-checked with data obtained from Internal Audit Manual and Internal Audit Law.

1.   GLOBAL PRACTICES

1.1   Accountability in Public Sector

"The public sector has always been at the forefront of governance and accountability. By their very nature, governments have always had to respond to the demands of their constituencies. In this process, governing bodies more frequently challenge the effectiveness of their governance process". (Deloitte 2005:2)

Deloitte (2005) reinforces the idea of UK Cadbury Report (1992) that governance refers the way the organizations are directed and controlled. It builds the mechanism to achieve the accountability among key stakeholders, management, and governing body.

Furthermore, the European Commission (2012) emphasizes that accountability arrangements differ from country to country because of the differences on the overall constitutional governance arrangements. Therefore, different countries have different views with regard to internal control policies. While, countries that derive from the legal regime of the Napoleon Code such as Luxemburg and Spain, have a centralized internal control system with control structures independent from the authority they control, others give the responsibility of maintaining, monitoring and reporting on the well-functioning of internal control system to the entities' managers. In the so-called decentralized system, public managers are responsible for regularity and property as well as economy, efficiency in the use of public funds. Moreover, there are countries such as Portugal and France nowadays have shifted to a decentralized internal control systemand thus, have increased the responsibility and accountability of public managers.

  "The more discretion the countries give to the public managers in the use of resources entity the more those countries focus on the proper functioning of the internal control system".(p:12)

According to Deloitte (2005) in the light of improving accountability and transparency of top managers the audit committees play a vital role to promote a sound of good governance by ensuring the public sector that governing bodies and public managers discharge their oversight role and responsibilities.

The COSO of the Treadway Commission in its Internal Control Integrated Framework presents the idea that everyone in the organization has responsibilities in internal control structures. While, management is directly responsible for the entity's financial statements, internal controls, and compliance with laws and regulations, the audit committee oversees and monitors how management carries out these functions thus, by ensuring the organization and the governing body that components of the Control Framework such as control environment, risk assessment, control activities, dissemination of information and monitoring are operating effectively.

Additionally, ANAO (2012) presents the idea that audit committees do not displace the management responsibility or change the management accountability arrangements, but they enhance the governance framework with regard to risk management practices, and control environment, by providing independent assurance and advice on the organization's operations.

1.2   Audit Committee Remit and Role

"Audit Committee refers to the governance body that is charged with oversight of the organization's audit and control functions". (Practice Advisory, Standard 2060)

According to Picket (2003), IIA has prepared a position statement called Audit Committee in Public Sector which considers the establishment of Audit Committees as an advisory body to the governing board, a valuable contribution in improving the governance, risk management and control practices. Such committee can play an important role in examining organization's policies, processes, systems, and controls due to the fact that governing board members usually possess neither the expertise nor the time to function as an effective alternative to an audit committee. While the management has the responsibility to ensure the accuracy of the financial statements and compliance with laws, regulations and agreements, it is the audit committee's function to evaluate information from the chief financial officer, the internal auditor, and the external auditors and to draw conclusions.

Meanwhile, the European Commission (2012) reveals two different categories of audit committees. While, there are countries such as Hungary and Finland with advisory type of audit committee, centrally placed, that provides guidance to central government on improving Public Internal Control System, others have established audit committees, Poland, Latvia, in line ministries as the bodies concerned with the management and operations of existing internal audit functions and covers parts of the governance.

Furthermore, NAO (2012) in the booklet "Helping your Audit Committee to add Value", explains that the core of the Audit Committee role is to scrutinize and advise on finance and corporate governance issues.

However, Picket (2003) presents the opposite opinion of some commentators regarding the establishment and the contribution of the Audit Committee in enhancing accountability and the quality of services in public sector considering the fact that this is a practice appropriate to the private sector corporate governance concept. Notwithstanding that, the developments of audit committees in the private sector have been adopted by government organizations in the United Kingdom since 2001, with the obligatory requirement for the Accounting Officer to prepare a statement of the internal control which accompanies the annual accounts.

"There are some commentators that have suggested that term Corporate Governance is not appropriate for public sector since "corporate" is associated with commercial enterprises and "governance" is primary what governance is about. Notwithstanding these differences, the Treasury UK view is that aspiration to adopt best practice in managing corporate in Britain and has value in all sectors of society". (p:54)

Furthermore, Miekatrien (2006) describes that Audit Committees are not the best practices established in every country. The government organizations in the Netherlands are not obliged to have an audit committee. However, there are guidelines with regard to the scope, responsibilities, and tasks of the audit committee, in case the organizations choose to have one. Meanwhile, in the Swedish central government, there are no audit committees.

Additionally, according to the European Commission (2012) in some countries that have established decentralized approach of internal audit such as Bulgaria and Czech Republic, managers have put into question the relevance of audit committees, the function that strengthen internal controls and increase the quality of value of audit activities, as the internal audit is perceived as an economic burden that does not create further values to the public sector.

Furthermore, (Picket, 2003) explains that it has been a long debate to get Audit Committee accepted by all concerned parties because of the interventions made by the non–executives who may have poor understanding of the business into the executives' responsibilities. The absence of good non-executive is another reason behind the slow growth of this trend in different countries. Therefore, HM Treasury in UK has developed practice guidance with general principles that suits to the variety of organizations.

According to HM Treasury (2007) in UK the Audit Committee Handbook is a guidance that supports the Audit Committees in achieving principles and provisions in corporate governance in central governance department. A document "Audit Committee Handbook" is prepared based on IIA principles and includes the role of audit

committee as a body that gives advice to the Chief Executive Officer (Accounting Officer) in risk management and internal control through reviewing the mechanism of assessing the risks, internal audit and external audit activities, adequacy of management responses, and assurance for the corporate governance.

"The Audit Committee should support the Board and Accounting Officer by reviewing the comprehensiveness of assurances in meeting the Board and Accounting Officer's assurance needs and reviewing the reliability and integrity of these assurances". (p:9)

This document focuses also on the audit committee's role as a facilitator among senior management, internal auditors, central agencies, and the external auditor. Additionally, it presents the role of the Audit Committee in relation to internal audit which includes the advices to the board on the audit strategy and audit plans, the results of internal audit work, management responses and resources of internal audit enabling the Head of Internal Audit to provide an opinion on the overall adequacy and effectiveness of risk management, control and governance processes.

Additionally, ANAO (2011) presents the idea that the main responsibility of audit committees is to provide assurance and advice with regard to risk management system, internal control, compliance, financial management, external and internal auditors and other functions relevant to the governance arrangements.

Furthermore, Deloitte (2005) provides the engagement of Audit Committees with regard to the selection of independent auditors due to the auditor's mandatory rotation requirement in the USA established to ensure independence from management. However, the report from Deloitte emphasizes *"that an active, diligent audit committee does far more to ensure auditor independence than a policy of mandatory rotation".* (p:22) Audit Committees are also engaged with the assessment and approval of external auditors' scope of work and revision of the annual financial statements and audit report.

Moreover, King III Governance Report issued by South African Institute of Chartered Accountants (SAICA, 2009) states the provision for an additional public sector audit committee's responsibility with regard to the oversight of management work and the adequacy of monthly/quarterly reports submitted from management in adherence with Public Finance and Municipal Finance and Management Act. Consequently, the King III Report requires from the Chairman of Audit Committee to report to the Auditor General and the appropriate governing bodies should the most senior public officer be involved in fraudulent activities and corruption acts.

Finally, the scope of work for Audit Committee is defined in its Terms of Reference, because its role differs in organizations that have, for example, a Risk Committee. While, this is a committee having an executive role in the management of risk, the Audit Committee is having no executive functions but is providing advice to the Accounting Officer for the executive decision. Stronger challenges for board risk committee are presented by Walker in the revised report for the governance standards. The new Walker recommendations 2009 seek to overhaul the boards of big financial institutions by strengthening the role of non-executives and giving them new responsibilities to monitor risk separately from Audit Committee. Although, these changes concern to the financial firms corporate governance, they could be adopted by the public sector, too.

"Changes to the Combined Code have always tended to trickle down into the governance practices of the public sector". (p:20)

This report suggests that the organization should create board-level risk committee which is chaired by a non-executive director and separated from the audit committee. The main role of such committee will be to advise the board on risk exposure, appetite tolerance and strategy by making the boardroom environment more challenging. Additionally, the scope and role of audit and risk committees need to be well defined to avoid duplication of efforts. (Baker, 2010).

1.3   Independence and Objectivity of Audit Committees

Independence and objectivity of audit committee's members are some other essential principles in fulfilling its role to advise the board with regard to risk management, governance and internal control. It has been argued whether the audit committee should be chaired by the Accounting Officer or by an independent non-executive. While, in the UK, Corporate Governance in Central Government Departments, Principle 5, recommends the appointment of a non executive member to chair the audit committee, as a means of increasing the audit committee's objectivity, *"an effective Audit Committee must have members who are both independent and*

objective. It is good practice, so far as possible, for audit committee members to be independent non-executive Board members", (HM Treasury, 2007:11) in Australia, Canada and Netherlands, the Accounting Officer chairs the audit committee (Miekatrien, 2006).

However, Australian Public Sector Audit Committees Guide provides additional arrangements that reduce the risk of a lack of independence in cases when the Accounting Officer chairs the audit committee. These arrangements include the existence of an audit committee charter and, the appointment of at least one external non-executive member who should attend the audit committees meeting thus, to form a quorum (ANAO, 2009).

Moreover, ANAO (2009) does not exclude the case when an external member may act as a chair of the audit committee as it reinforces the independence. As such, the Public Sector Audit Committee Guide recommends that is appropriate for the external member to be appointed as a member thus, to gain the necessary knowledge and the respect of the Chief Executive Officer and other audit committee member before assuming the Chair's role.

Furthermore, the King III Report (2009) emphasizes the mandatory requirement for the chairman of the audit committee to be an independent non-executive director and for the audit committee to exclude the chairman of the board.

Because the audit committee is charged with ensuring that Accounting Officer or the Board gain the assurance they need on the risk management, governance and internal controls, a range of competencies and skills to allow such committee to be effective, is needed. These competencies include understanding of the government environment and accountability structures; understanding of the functions of the organization; financial / accountancy skills; management skills (HM Treasury, 2007).

*"The audit committee should corporately own an appropriate skills mix to allow it to carry out its overall function".(*p:13)

Furthermore, King III Report (2009) provides the requirements for the independent non-executive members of the public sector to have knowledge and financial qualification specified in the Public Finance and Management Act.

Finally, the Australian National Audit Office provides the requirement for continuous professional education of the audit committees' members. The opportunities include various forms of education such as participation in workshops/ seminars; presentations made by Chief Financial Officer, Chief Information Officer, Head of Internal Audit and other senior managers in the area of governance arrangements, business initiatives and risk, policy and program initiatives; discussion and presentations made by internal and external audit (ANAO, 2009).

2.   PRACTICES IN ALBANIA

2.1   Accountability Arrangements

According to SIGMA (2010), the Organic Budget Law (2009) has introduced a new organization's administration structure, similar to the Anglo-Saxon model with separation of ministerial leadership of policy development and therefore, the appointment of general secretaries as authorizing officers, Accounting Officers, who are accountant for financial management and Finance Directors as executive officers that are responsible to implement the financial management arrangements, duties that are delegated from Accounting Officers to the Executive Officers.

In other words, the Accounting Officers are recognized as responsible for improving public resources management by establishing a system of internal financial controls which in turn will contribute to the improvement of management process in public sector. Public Internal Financial Control Policy Paper (2009) has highlighted the fact that all users of budgetary funds have the obligation to manage funds in a proper, ethical, efficient, economical manner; its business must be aligned with laws, regulations, policies, plans, protection of policy losses caused by poor management. Therefore, the Accounting Officers have responsibility for maintaining a system of internal controls that manage risks and support the achievements of the objectives. Similarly, the internal audit units established in central and local government organizations have adopted the decentralized approach of common-law internal audit organizational structure, *"however,it remains to be seen whether these changes will fit with Albania's more politicized processes".* (SIGMA 2010:4)

2.2   Audit Committee Functions and Responsibilities

As it was observed in the above section, the audit committees are advisory bodies to the management and the board with regard to risk management, corporate governance and internal control issues. The main discussion nowadays is whether these committees can be appropriately skilled, independent and competent to understand business strategy and its underlying risks, whether the information they get from internal audit and other part of the business is accurate and provides enough details based on which they can assess the risk properly and therefore can evaluate the internal controls. The United Kingdom is mentioned as a country that mostly recognizes the value of advises provided by advisory committees. The audit committees are appreciated for their contribution in ensuring the management of government's finances, the parliament and the citizens for the appropriateness and accuracy of the public funds expenditures.

The audit committee in Albania has adopted completely different features in terms of role and responsibilities compared with audit committees set up in the Anglo-Saxon model. There is only one Audit Committee within Albania, public sector and it is composed by nine members who have mix of skills as a team and the main role is to advise the Government for the strategy of the audit function, *"the task and duties of the audit committee have not been regulated in detail in an implementing regulation. Thus, the rules for the frequency of meetings, voting, reporting documentation have not been developed"*. (SIGMA, 2009:10)

Furthermore, Public Internal Financial Control Policy Paper (2009) has emphasized the value of audit committees operating as the advisory body in line ministries but, still Albania Government is assessing the benefits versus costs for such establishment in order to determine the format that best suits the government needs considering the culture and the size of public sector.

It is the opinion of the authors that the real role and scope of audit committees and its contribution in corporate governance and risk management as a best practice established in common law practices of decentralized system, is not properly understood throughout the public sector, in Albania. Therefore, the internal audit units and other quality assurance departments report directly to the head of public entities or the Accounting Officer, who perform the duties that are allocated to the audit committees, a specialist forum in the UK practice. Such role incorporates some of the following components:

- to consider the adequacy of internal controls;
- to ensure the effectiveness of the risk management through which this system supports the controls;
- to ensure that oversight system is in place to ensure compliance with laws and regulations and safeguard issues.
- to consider the adequacy of finances in terms of existence of good financial reporting system and budgeting system, and concerns from High State Control are addressed and resolved;
- to be involved in the appointment of internal auditors ensuring the audit function operates according to professional standards and discharge its responsibilities under the audit plan;
- to ensure the optimization between internal and external auditors coordination and minimizing the duplication of efforts;

Then, with the lack of advisory committees the main questions public sector in Albania is facing, are as below:

- are top managers capable to understand all aspects of the business and the risks involved,
- are top managers capable to evaluate risk management and internal control,
- how the work of internal audit is assessed,
- are top managers skilled to measure the audit performance,
- who guarantees the stakeholders that the external audit (High Control State) findings are properly addressed and corrective actions are taken,
- how the information is provided to top managers and governing bodies and how such information is used to form a public entity strategy.

Indeed, one the services the audit committee has to carry out, is the responsibility to correct the data provided to top management in case it is not thorough. Often, top managers are furnished with a lot of raw and bureaucratic data given the nature of public sector instead of those data containing key information. The failure of Enron is a good example of this, *"Enron's board was given all information about what company was doing, but the essential details were often buried under pages of very technical and irrelevant details"* (Internal Auditing 1:34-27). Therefore, the role of audit committees with members of different background providing expertise is to evaluate

the information provided to the top level of management hence, driving a reliable and accurate decision making process on a well informed basis.

Notwithstanding that, the public sector in Albania is begging the questions - how easily is to find independent audit committee members, financially literate in Albania. Similarly, are the audit committees a feasible approach given the small size of the public sector and the political nominations of top managers in Albanian, public sector?

"*Political circumstances in Albania might not create a sustainable environment in which financial management and control activities might further develop and improve due to the political nominations of top managers within Albania, public sector*". SIGMA (2009:7)

Moreover, the audit committee is the Anglo-Saxon concept that is widely accepted and adopted by both, countries with common-law corporate governance model and those with continental corporate governance models. However, there is a view that might be adjustments at the margins of different corporate governance models, rather than a transformation to a dominant Anglo-Saxon corporate governance model. Notwithstanding that, nowadays there are moves toward a convergence in national codes and in principles of corporate governance but, according to the European Commission (2003) each country should tailor the corporate governance codes, including the formation of audit committees, to its culture and business tradition. (Collier, Zaman, 2004)

Therefore, could it be that the audit committees in Albanian public sector would not play its role as intended in the common law system such as, the body that guarantees the integrity and the transparencies of the financial reporting due to the civil legal regime the Albanian public sector belongs to?

3. CONLUSIONS AND RECCOMENDATIONS

This review indicates that the practice of audit committees as the function that ensure the citizens for the integrity of the financial information, is not well-known within Albania, public sector although, the Albanian government has introduced since 2009 the decentralized common-law model of public internal financial control with senior officials charged with responsibility for the stewardship of the organization's resources. Furthermore, the absence of audit committees is not replaced by the work of any other professional body resulting in a consulting gap for the public sector's management board and Accounting Officer in understanding the risks and internal controls and details of the financial instruments they have responsibility to approve. However, the political nominations which constrain the independence of the audit committee's members and, the small size and, the civil traditional legal culture of the Albanian public sector might add into question the effectiveness of the audit committees.

Such discussions and thoughts form the ground behind the recommendations given below:

Recommendation 1

Following the best practice adopted worldwide, the public sector in Albania might consider establishing audit committees in large and important governmental entities and Publicly Owned Enterprises, as the advisory body that supports the management and governing bodies with professional expertise in risks and internal controls. However, it is up to Albanian government to evaluate how to apply the principles of world class audit committees in developing its own tailored model, taking into account the cost and benefits of such regulation.

Moreover, one of the top priorities of the Albanian government nowadays is to combat bribery and corruption of high public officials by examining corruptive practices risk, reinforcement of internal control mechanisms, including, internal and external audit and, identifying conflict of interest (HSC, 2009). In this context the audit committees will contribute to a great value in strengthening the Albanian public sector institutions by monitoring the anticorruption and antifraud culture of governing entities and, addressing the ethical concerns.

Additionally, the existence of such committees will enhance the transparency and accountability of top managers by ensuring the taxpayers for the integrity of the financial statements in general and, for the reliability of revenues and expenditures as well as for the high standards of audit work thereby, to increase their confidence.

Similarly, they will ensure governing bodies and citizens that the external and internal audit findings are properly addressed, followed up and accurately resolved in terms of, taking corrective actions and making public officials accountable to take responsibility and to prevent similar breaches in the future.

Finally, the audit committees will be involved in appraising the performance of the entities' internal audit function. They will ensure the management that the internal audit operates according to international standards and it is conducted in an efficient and cost-effective manner aiming to improve the public internal financial control system.

Recommendation 2

The responsibilities, duties and powers, role and remit of audit committees, membership, member's skills and capabilities needs and, frequency of meetings should be regulated upon Terms of Reference document for each government' organization thus, to contribute to a better governance within Albanian public sector.

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EMPIRICAL RESEARCH FOR THE EFFICIENCY OF THE GREEK MARKETS

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ABSTRACT

The main purpose of the research work was to investigate the efficient market hypothesis (EMH) in the Greek Capital Market. The efficient-market hypothesis (EMH) asserts that financial markets are efficient from an informational perspective. Other words, one cannot consistently achieve returns in excess of average market returns on a risk-adjusted basis, given the information available at the time the investment is made. Our approach was based on two market anomalies, the January effect and the Monday effect, in Athens Stock Exchange. Furthermore, serial correlation test and variance ratio test were used for the hypothesis that the General Market Index and a factor market index follow a random walk.

The empirical findings of the five year period (2007-2011) investigated in our research do not support the Monday and/or the January effect. Making certain assumptions we can conclude that the month November phenomenon is in effect for the general market index. The same can be claimed for the day Tuesday and the month February for the factor market index.

According to the above we cannot reject the hypothesis of the "weak form" of the efficient market for the Greek Capital Market although our investigation revealed no strong evidence.

KEYWORDS

Efficient market hypothesis, Greek Capital Market, January effect, February effect, Athens Stock Exchange

JEL CLASSIFICATION CODES

E44

Introduction

One of the most debated issues in the financial sector n science is the predictability of prices and stock returns in international markets. Since very old times, stock markets, investors worldwide continually seeking practical ways to implement them could increase the likelihood of profit-taking at stockbroker HPLC. Asking them what was the correct prediction of prices and stock returns.

The purpose of this paper is to explore what form efficient market or g can classify the Greek stock market using historical average returns of the General Index of the Athens Stock Exchange Index and Utilities. This effort will inter alia consider the existence of the phenomenon A Monday (the Monday E ffect) and u U phenomenon of January (the January Effect).

The theory of efficient markets (Efficient Market Hypothesis) which has been used extensively in the field of economy, defined as the actual price of a stock title which at all times will correspond to a proper assessment of its internal value. The market efficiency describes the reaction of the markets in relation to information. The conditions for an effective market which should apply in parallel at all three levels are as follows:

• The first assumption underlying the theory of efficient markets is the participation of a large number of investors who seek to maximize profits by examining each one individually assessing bonds.

• The second assumption is that new information relating to the pricing of bonds which come in a random fashion (random fashion) and are independent from each s in relation to time their appearance or s. This has lead to unpredictability of new information and thus have no influence on prices until the moment you are notified.

• Tuesday and momentous affair is that the investing public with decisions made after treatment with the aim to maximize its profits, pushes the prices of securities to adapt quickly to emerging information. This rapid adaptation caused by the competitiveness of investors who seek to benefit from the introduction of this new information.

Conclusion of the above conditions, ie the great participation of investors who compete while the random display of information in markets is an independent and unpredictable changes in stock prices. The price adjustment requires a high number of participants (as most people are investors who participate, the more efficient the market) that are based on the movements of shares analyze and examine the effect of new information affecting prices and proceed accordingly in trading up their price to reflect current information.

The Fama proposed also a gradation for effective marketbased on the total information incorporated in the prices of stock titles in three forms. These forms are seen at Table 1.

EFFECTIVE FORM MARKET	TOTAL INFORMATION All prices mirrored	CONTROL
Weak form (weak fo rm)	Past prices	Check predictive capability yields values (It is possible that past prices to predict future stock prices)
Semi - strong form (semi strong form)	All available public information	Checking influence events and news (event studies) (How fast stock prices reflect the published news)
Strong form (strong form)	Any information, public and private	Checking private information (Can anyone investor has private information, which is not fully reflected in price levels)

Table 1: A Case of Effective repurchase (Giannopoulos, 2008)

Surveys on efficient markets in literature are as early as 1970 (Fama), while there are several more recent, such as Fama (1991) and Keim and Ziemba (2000). The Case efficient with significant market under scrutiny in the financial sector over time was accepted until 1977. Then, because it confronts some contradictions multiply the e beirikes studies. In the literature referred to as anomalies our markets (market anomalies), which from some experience i nal results can not be explained within the framework set by efficient markets.

The efficient market hypothesis, focuses on the fact that the mechanisms of seasonality should be non-existent or minimal importance, because their victory poses result in excessive profit potential by using strategies similar time.

1.1 The phenomenon of January (January effect or the Turn of the year effect)

The phenomenon of January is a calendar anomaly based on some statistics, where during the first day of January, stock returns appear higher than the other months of the year and especially in the month of December, which is much lower and sometimes negative. According to some studies, yet, it has been observed that the average yields of January in some share prices have surpassed the average performance of the entire year. It has also been observed that the average return for January is much higher for the portfolios of small-cap stocks compared with the portfolios of large capitalization shares.

1.2 The effect Monday (Monday effect or the Weekend effect or the Day of the week effect)

This effect Monday, is a calendar anomaly whereby not occur on all days of the week the same daily average returns in the markets, as it should be agreements to the theory of efficient markets (Lyroudia et 2002).

More specifically, this phenomenon concerns the relatively high yields ments Friday compared with returns Monday. That is, if the stock market closed positive on Friday, the same should be continued Monday. Thus, the phenomenon Monday indirect gkeitai in pre-weekend high yield (Friday) and the weekend after low yields, public-Ladi Monday (Singal, 2003).

In Greece, the investigations into the phenomenon Monday is very limited. Two studies exist and are known to engage in bulk Monday (Alexakis and Xanthakis, 1995 and Nikos, 1997).

1.3 Excessive Volatility (Volatility) (excess volatility)

Early studies on the existence of excess volatility in the markets made by Shiller (1979) and LeRoy and Porter (1981) and related to the bond market and the stock market early studies were done by Shiller (1981a, 1981b) with Using a model in which prices are equal to the expected net present value of future dividends, discounted at a constant rate and the case that investors know exactly how it's going to grow dividends in the future, when assessing the stock market accordingly. The conclusion of these studies was that market prices are much higher volatility than would be justified on the basis of fundamental analysis.

1.4 Over-reaction of the market (Stock Market Over-reaction)

In the article by De Bondt and Thaler «Does the Stock Market Overreact?" (1985) mentioned that this research result is the discovery that investors systematically overreact to alpha await news (good or bad), it shook the EMH in the patient form. Their study was quite radical for the time-setting mosieftike, after giving evidence to support the hypothesis that systemic cognitive mistake of overreaction of people in a series of bad events may cause foreseeable mistake pricing shares in the index of the New York Stock Exchange. This article is considered crucial for the development of the universe riforikis Finance.

1.5 The effect size (Size effect)

Empirical findings suggest the conclusion that small firms are more efficient prices than large-sized companies. The Banz (1981) studied the behavior of prices of all shares traded on the New York Stock Exchange. According to the results of this study, the share prices of small-cap companies produce larger-than doses than those of large capitalization companies.

1.6 The effect of the multiplier (P / E effect)

Several studies, starting from Basu (1977), have examined the relationship between the importance-historical values of the index P / E and stock returns. Some have suggested that the shares are low-apple ratio P / E will achieve better returns than those with a higher index. The explanation lies in the fact that companies Fr-rousiazoun enjoy high growth and high rates of P / E because the market tends to overestimate. On the other hand, companies with low growth rates, with low ratios P / E because the market undervalues. Therefore, the prices of undervalued shares (with a low P / E) we expect to grow to reach their normal levels, according to the model of CAPM, while the prices of overvalued stocks (with high P / E) would expect to present drop-presentation. A possible relationship between the index P / E and alpha-FOOT shares could be a proof that there is the case of the semi-strong form efficient market. The measurements have been made, showed that stocks with lower index P / E finally achieve higher returns on the market, while those with higher index achieve lower yields than the market. Therefore, the study of this index, can provide important information for predicting future installments of-stock, and therefore rejects the validity of the semi-strong form efficiency.

1.7 The phenomenon Book Value to Market Value (BV / MV)

This index relates the book value of capital business operator by market value. The Rosenberg et (1985) found a significant positive relationship between this index and the future yields of the shares and therefore concluded that this correlation disproves the hypothesis of efficient markets. The e-surveys of Fama and French in 1992 reached the same conclusions. More specifically, these researchers evaluated the combined results of its betas of shares, size of firms, the index P / E, the level of leverage and the index BV / MV with stock returns. The result was the existence of im-divining positive relationship between the index BV / MV and stock returns, which remained even when taking place and the other aforementioned variables. All investigations were carried out and used to analyze the available indicators as EP-galeio predictor of future stock returns, yielded significant evidence against the hypothesis of semi-strong form efficient market.

4. METHODOLOGY

The reporting period is from 2/1/2007 to 15/12/2011.Ta to me leti-data are the average returns of the General Index (GI) uses matistiriou Athens Stock Exchange (ASE) and the Sectoral index Services Utilities Index (SGI) learned from the Bloomberg website on a monthly, weekly and daily basis.
The statistical analysis was performed with the software package SPSS version 19.

5. RESULTS
5.1 month Phenomenon

Analysis of Variance (ANOVA) of the monthly GIdid not show a statistically significant model.The significance level was $\alpha = 0.05$ and the p-value= $0.376 > 0.05$. Our first conclusion is that there is the phenomenon of January in ASE for the period in study. Furthermore, the Descriptive statistics (Table 2) of the mean values and the standard deviations show that the months February, with average price =-6,1940 and standard deviation = 4,66814 and November, with average price =-10,4020 and standard deviation = 4,94030 arestrong negative.

Descriptives								
APOD_GI_MONTH								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	5	-,6000	11,23337	5,02372	-14,5481	13,3481	-15.76	$ 12.69
2.00	5	-6,1940	4,66814	2,08766	-11,9903	-,3977	-13,69	-1.03
3.00	5	2,9260	6,02117	2,69275	-4,5503	10,4023	-3.56	9.67
4.00	5	2,7140	12,39959	5,54527	-12,6821	18,1101	-9.55	21.93
5.00	5	-1,6780	11,79726	5,27589	-16,3262	12,9702	-17.07	13.33
6.00	5	-7,0220	6,29918	2,81708	-14,8435	, 7995	-17.64	-2.32
7.00	5	3,7020	8,88210	3,97220	-7,3266	14,7306	-5.86	17,27
8.00	5	-6,0320	10,90631	4,87745	-19,5740	7,5100	-23,93	4.40
9.00	5	-3,8600	9,69564	4,33602	-15,8987	8,1787	-13.25	7.91
10.00	5	-3,2720	13,87079	6,20321	-20,4949	13,9509	-27.87	5.19
11.00	5	-10,4020	4,94030	2,20937	-16,5362	-4,2678	-15,74	-5.26
12.00	5	-2,1560	3,40688	1,52360	-6,3862	2,0742	-6.64	2.47
Total	60	-2,6562	9,38958	1,21219	-5,0818	-,2306	-27.87	21.93

Table2: DescriptiveGI Statistics per category per month

So making theT-test for the month of November itproducesa p-value= 0.053>0.05 which is not statisticaly significant, but slightly increasing the margin of error we can claim that we have "borderline" phenomenon in the Greek stock market in November for the five-year period of the study.The month of November shows considerably larger negative average yields compared to other months.

As far as the the Utilities index isregarded (Table 3) there is some indication of the month of February phenomenon with average price =-9,7320 and standard deviation= 4,20564.

Descriptives								
MONTH_SGI								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	5	5,3440	11,28321	5,04601	-8,6660	19,3540	-13,23	14.00
2.00	5	-9,7320	4,20564	1,88082	-14,9540	-4,5100	-16.60	-5.05
3.00	5	5,4220	9,29066	4,15491	-6,1139	16,9579	-5.28	15,66
4.00	5	-,4320	6,92825	3,09841	-9,0346	8,1706	-8,02	7.93
5.00	5	-1,9520	9,79982	4,38261	-14,1201	10,2161	-15.08	9.80
6.00	5	-3,2360	6,55512	2,93154	-11,3753	4,9033	-9.69	4.79
7.00	5	-,3600	8,37495	3,74539	-10,7589	10,0389	-11.90	5,99
8.00	5	-8,2680	13,13792	5,87546	-24,5809	8,0449	-28.03	4.93
9.00	5	-4,1820	18,15408	8,11875	-26,7233	18,3593	-31.48	19,23
10.00	5	-1,8960	7,51563	3,36109	-11,2279	7,4359	-13,34	5.15
11.00	5	-3,5200	18,33135	8,19803	-26,2814	19,2414	-29,04	15.76
12.00	5	2,1980	3,92574	1,75564	-2,6764	7,0724	-1.36	8,74
Total	**60**	**-1,7178**	**10,72530**	**1,38463**	**-4,4885**	**1,0528**	**-31.48**	**19,23**

Table3: DescriptiveStatistics Index SGI per category per month

Checking withT-testthe month of February phenomenon we get a p-value= 0.081.Therefore there is not a statistically significant result. If we increase the percentage of acceptable error in 10% we could accept the month of February phenomenon. In other words we could say that we do not have the month of January phenomenon but we can say that we have the motnh of February phenomenon with significantly lower average yields.

5.2 Phenomenon day
The Analysis of Variance (ANOVA) of the GI in the daily archive does not show a statistically significant model at significance level α = 0,05 since the p-value= 0,439 > 0.05. The conclusion is that the phenomenon of Monday for the five years 2007-2011 of the study does not apply for the GI of ASE.

Observing carefully the Descriptive statistics (Table 4)it is evident that the day of Monday phenomenon and the day of Tuesday phenomenon and possibly the day of Wednesd may exist. For a more comprehensive analysis we decided to apply the t-testfor these three phenomena of the day.

Descriptives								
YIELD_PER_DAY								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	240	-,2810	2,29352	, 14805	-,5727	, 0106	-6.17	14.37
2.00	252	-,2476	2,22957	, 14045	-,5242	, 0290	-6.92	7.15
3.00	254	, 0051	2,01399	, 12637	-,2438	, 2539	-7.04	9.54
4.00	253	-,5177	6,58236	, 41383	-1,3328	, 2975	-100.00	8.00
5.00	242	-,0119	1,94480	, 12502	-,2582	, 2344	-9.71	8,68
Total	1241	-,2115	3,52502	, 10006	-,4078	-,0151	-100.00	14.37

Table4: DescriptiveGI Statistics per class day

The results of thet-testgive a p-value greater than 0.05 for all three days so we can say that we see no phenomenon of a day in the Greek market by looking at the GI of ASE.
Analyzing the results of the daily index file utilities and by analysis of variance we can conclude that there is the phenomenon of Monday since the p-value is greater than 0.05.

ANOVA					
APOD_IMER_KOIN_WFEL					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	50,083	4	12,521	, 840	, 500
Within Groups	18430,519	1236	14,911		
Total	18480,602	1240			

Table5: Analysis of variance Index SGI (daily record)

Descriptives								
APOD_IMER_KOIN_WFEL								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	240	-,2182	3,06717	, 19798	-,6083	, 1718	-17,56	22,26
2.00	252	-,3464	2,57443	, 16264	-,6658	-,0270	-8.42	5.91
3.00	254	, 1706	2,55207	, 16013	-,1448	, 4859	-7.75	11.30
4.00	253	-,3543	6,78831	42678;	-1,1949	, 4747	-100.00	12,53
5.00	242	-,0449	2,28499	, 14689	-,3342	, 2445	-7.51	8.89
Total	1241	-,1586	3,86053	, 10959	-,3736	, 0564	-100.00	22,26

Table6: DescriptiveSGI Pointer Stats per class day

The check with thet-testfor the day of Tuesday phenomenon for a 95% significance level did not give us a statistically significant effect, since the p-value= 0.069.Expanding the percentage of acceptable error of 5% to 10% we could not reject the alternative hypothesis. In other words the existence of the phenomenon of the third with an average price average daily yield lower compared to all other classes of the day.

5.3 autocorrelation coefficient

When calculating the autocorrelation coefficient of the General index of the ASE notice that no files have a statistically significant value for $\alpha = 0.05$. The daily file gives us autocorrelation coefficient = 0.051 forp-value= 0.075. Expanding well slightly the acceptable error for the analysis we can get price rate of 5.1%. in terms of the rate index autocorrelation Utilities with similar reasoning, we have autocorrelation coefficient= 0.050 with p-value= 0.078.

5.4 variance Index

The results of this indicator are listed in the summary table of results of the investigation that follows.

CONTROLS	*GENERAL INDEX ASE*			*GAUGE ASE SERVICES OF GENERAL INTEREST*		
	Monthly	**Weekly**	**Daily**	**Monthly**	**Weekly**	**Daily**
Event Month	November	------------	------------	February	------------	------------
Day Phenomenon	------------	------------	Not found	------------	------------	Third
Maint. autocorrelation	0,213 (p-value = 0.091)	0.026 (p-value = 0.678)	0.051 (p-value = 0.075)	0.053 (p-value = 0.672)	0.063 (p-value = 0.307)	0.050 (p-value = 0.078)
Variance	88,164	20,026	4,396	115,032	30,808	6,869
Variance index	0.972	0,954	------------	0,811	0,939	------------
Coefficient (b)	------------	------------	------------	0,750	0,736	0.799

Table7: The Athens Stock Exchange Test period: 2/1/2007-15/12/2011 summary results statistical survey

5.5 Rate b Utilities index

Regression analyses applied to the three files (monthly, weekly, daily) was used to calculate the coefficient b, in other words the systemic risk of the industry Utilities. It was found to take values from 0,736 to 0.799, depending on the file.

6. CONCLUSIONS

According to our results, the existence of the *phenomenon* of the month *November* according to the general index and the month *of February* in accordance with the index for Utilities, given our assumptions for broadening the acceptable error, lead us to the conclusion that we cannot reject the classification of Greek money in weak form efficient market. Of course it must be noted that the sample population used in this analysis is very small (monthly archive with 60 cases.

From the results of the phenomenon of the day which was not found on the general index but only on SGI Pointer for the *day Tuesday,* and with the above-mentioned assumptions, arrive at a similar conclusion with regard to the form of efficient market of ASE.

It is also worth mentioning that the Fama gave emphasis to the fact that, although the autocorrelation test are tools for control dependence, there are cases where they do not prove adequate conclusions, either by practice or from a statistical point of view.

As regards the coefficient b SGI sector, the most reliable value is the one we get from the regression analysis at the daily price file (0.799). Increase or decrease of general index in one unit means a corresponding increase or reduction of SGI in 0.799 units.

It should be noted that we use the historical returns of the index SGI and market portfolio, to evaluate the beta factor, and thus systemic risk in the industry. It is obvious that for the period under consideration, the systemic risk that we consider is stable. However, in practice, (b) are unstable over time, so by default and only for the purpose of calculating in the present work we have an error. Passing the error in question, on the basis of the calculated coefficients b, we can describe the industry as an industry defense SGI and change in general index that is altered to a lesser extent.

It is important to remember that the collapse of the Greek market starts after the high of 2007 on October 31, with the overall Index that day to reach the 5,334, 50 points. From 1 November 2007, which essentially starts and the great credit crisis in the U.S.A. because of subprime loans became an international financial crisis, the Greek Bourse was gradually beginning to lose ground.The negative international developments influenced the course of the Greek capital, which in 2008 was characterized by a significant decline in stock prices.Noteworthy is that in September 2008, general index of ASE notes significant monthly decrease of 13.25% driven by the collapse of Lehman Brothers in the U.S.A. and the great upheaval caused in the international markets. In October the general index notes monthly fall of 27.87% due to ongoing problems in international markets.Thus, from the second quarter of 2010 the adverse developments in the sizes of the Greek economy are driving the stock market indexes to follow a downtrend. The problems continue to exist in 2011 during which the intensifying Greek debt restructuring scenarios, the worsening of the deficit in 2010 and the floodtide of speculation on taking new measures to tackle the deficit are driving stock prices to the same downward path. It is worth mentioning that on 2 October 2009, day Friday, the general index of ASE closed at 2,645, 43 units while two years later on 3 October 2011, day Monday, closed at 779,29 points.

After the acute financial crisis that intensified and spread across the world in 2008, the global economy begins to show signs of stability as a result of the interventions of governments to international financial markets to be stabilizing in the first half of 2009. These international developments are helped slightly improve the state of the Greek capital, which in 2009 is characterized by rising stock prices until the revelation at the end of the year, the rating agencies, the imbalances of the low competitiveness of the Greek economy and the high public debt deteriorated the situation with the Greek economy. The revelation of these imbalances worried markets, which in turn gradually began to demand more and higher yields to lend the Greek government. Soon, the new borrowing becomes prohibitive and so, in May 2010, the Eurozone, with the IMF providing loan € 110 billion, sufficient to finance Greece at least until March 2012.

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REDUCE DIGITAL GAP IN THE CERTIAGRI PROJECT

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ABSTRACT

The ICT created digital divide in the society but some people are unable to individually respond to this progress, but the proper use of ICT can help them overcome this handicap. One of the possibilities is to create accessible and usable applications depending on the character and level of disability.

In accordance with the European CertiAgri project, e-learning tools are used for integrating people with disabilities and low level of qualification into the horse attendant area. The partnership is structured to meet this challenge. On European level the French, German, Hungarian, Czech and Italian partners have to be related to national institutions in charge of education and training in their respective countries. The effective cooperation between institutions in charge of education and training, training centres will allow the creation of educational tools.

The project main goals are the following:

- transferring to three agricultural certificates and degrees this method of adaptation of training programs, of creation of educational software;
- harmonizing, as far as possible, these processes of certification between several European countries;
- modalizing the workpackage in order to exploit, value and disseminate the results of this work on one hand on other degrees and on the other hand towards other countries.

The project types of results are the following:

- adapting three training and evaluating programs (wine growing, landscaping and horse attendants) to promote their access for target group;
- developing educational software to facilitate acquisition of skills;
- adapting procedures for evaluation and certification to the special needs of the target groups;
- developing training programs and teaching manuals for the target public (notebook, mentoring guide for dual training system)
- settling a guide for the employers of the target groups to facilitate integration and promote lifelong training.

The effects expected in CertiAgri will concern three sectors:
1. The educational sector
   - by contribution to the development of new teaching methods, based on the dual system;
   - by developing new modes of shared certifications between several countries of the EU;
   - by promoting integration in the mainstream training of persons with disabilities and low level of qualification;
   - by training the teacher or the tutor for welcoming and integrating the target public and by making them aware of it.
2. the level of apprenticeship.
   - by facilitating access to training courses to the target public by adapting training programs.
3. the economic sector
   - by answering the increasing need in qualified agricultural labour.

All these products will take into account the specificities of each country in the search for modes of shared certifications and will be produced in the languages of the partnership as well as in English. The documents used will be adapted to e-learning. The target public involves on one hand persons with disabilities, job seekers, persons in special education or employees in integration, and on the other hand the teachers, trainers and tutors or mentors in enterprises.

This article shows the project results on the field of horse attendant, which is selected at the Hungarian partner.

KEYWORDS

Agricultural sector, CertiAgri, e-Learning education, disability, accessibility

JEL CLASSIFICATION CODES

I23

INTRODUCTION

The digital divide commonly refers to the gap between those who do and those who do not have access to new forms of information technology. Most often these forms are computers and their networks but other digital equipment such as mobile telephony and digital television are not ruled out by some users of the term. This gap is very difficult to bridge. The term digital divide probably has caused more confusion than clarification (Gunkel, 2003). The digital divide is not a static condition while in fact the gaps observed are continually shifting.

1.2 The digital gap

Between the years 2000 and 2004 hundreds of scientific and policy conferences and thousands of sessions on regular conferences have been dedicated to this issue under the call of the term digital divide. In the years 2004 and 2005 attention has started to decline. Particularly in the rich and developed countries, reached the conclusion that the problem was almost solved as a rapidly increasing majority of their inhabitants obtained access to computers, the Internet and other digital technologies. The next question is how access these tools.

The last type of access is the purpose of the whole process of technology appropriation: usage. This model of access (Fig. 1.) will serve as a framework for the current state of the many digital divides in Europe.
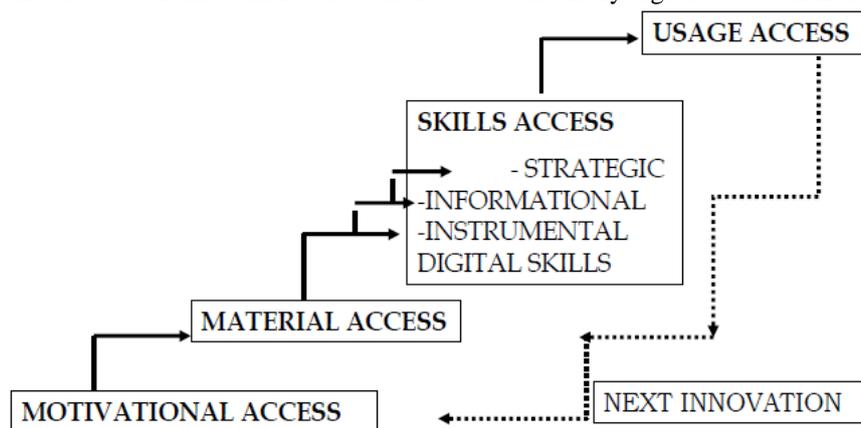
Figure 1.: A cumulative and recursive model of successive kinds of access to digital technologies
Source: van Dijk, 2005. p.22

After having acquired the motivation to use computers and some kind of physical access to them, one has to learn to manage the hardware and software. Here the problem of a lack of skills might appear according to the model in Figure 1. This problem is framed with terms such as computer, information or multimedia literacy and computer skills. Van Dijk (2003, 2005) and Steyaert introduced the concept of digital skills as a succession of three types of skill. The most basic are operational skills, the capacities to work with hardware and software. However, many scholars engaged with information processing in an information society have called attention to all kinds of information skills required to successfully use computers and the Internet. Information skills are the skills to search, select, and process information in computer and network sources. Finally, have to distinguish the strategic skills. It can be defined as the capacities to use computer and network sources as the means for particular goals and for the general goal of improving one's position in society. An example of a strategic skill on the Internet is the task to find the nearest hospital with the shortest waiting list.

There is more EU action plan to reduce the digital gap, which are the following:

- Developing digital literacy and e-competence actions tailored to the needs of the workforce both in the public and the private sector, with a particular emphasis on SMEs and also to the needs of the unemployed, elderly people, people with low education levels, people with disabilities and marginalised young people.

- Ensuring that workers can regularly update their e-skills and encouraging better and more user-centric ICT-enhanced learning and training approaches (e-learning).
- Ability to plan and manage training activities and projects and to train in a digital environment (user centric, learning-by-doing, action mutual learning, etc)

The most related action plan to our Leonardo project is the learning by doing.

1.2 Learning by doing

To create a more creative and innovative Europe, open to the rest of the world and respectful of human values, the European Commission present a manifesto, which sets out priorities and recommendations for action.

Main parts of this manifesto are the following:

- Nurture creativity in a lifelong learning process where theory and practice go hand in hand.
- Make schools and universities places where students and teachers engage in creative thinking and learning by doing.
- Transform workplaces into learning sites.
- Promote a strong, independent and diverse cultural sector that can sustain intercultural dialogue.
- Promote scientific research to understand the world, improve people's lives and stimulate innovation.
- Promote design processes, thinking and tools, understanding the needs, emotions, aspirations and abilities of users.
- Support business innovation that contributes to prosperity and sustainability.

The European Commission and national Governments need to engage in change together with social partners.

Some important actions are defined related to this manifesto, which are the following:

- In order to strengthen the competitiveness of Europe, new budgetary principles that give high priority to investments in people and knowledge are necessary. In the short term, unemployed workers should be offered a chance to upgrade their skills.
- Schools and universities need to be reinvented in partnership with teachers and students so that education prepares people for the learning society. Retrain teachers and engage parents so that they can contribute to an education system that develops the necessary knowledge, skills, critical thinking, problem solving and creative projects.
- People that take new initiatives in business, the public sector and civic society should be rewarded. Social policies can contribute to innovation by sharing risks with citizens who engage in change.
- The development and use of new media should be stimulated through raising the quality of the content. New economic models must be developed to finance free, diverse, independent and high-quality digital news media.
- There is a need for a more ambitious and broad-based innovation policy. Increased investment in science, technology and design should be combined with efforts to increase the demand for knowledge. Firms should be stimulated to combine scientific knowledge with experience-based knowledge. The education of engineers, managers and designers should mix theoretical education with practical experience. Innovation policy as well as labour market and education policy should aim at mobilising users and employees in processes of change.
- A competitive Europe should develop economic collaboration both with the strong new emerging economies and with the poor countries most in need of support. Promoting innovation in poor countries is a moral obligation and it reduces the pressure of immigration.
- Europe must mobilise creativity and innovation. Investments need to be combined with new institutions, new regulation and new habits. Creativity is the major tool to find solutions that combine sustainability with prosperity.

THE CERTIAGRI PROJECT

The ICT created digital divide in the society but some people are unable to individually respond to this progress, but the proper use of ICT can help them overcome this handicap. One of the possibilities is to create accessible and usable applications depending on the character and level of disability.

In accordance with the European CertiAgri project, e-learning tools are used for integrating people with disabilities and low level of qualification into the horse attendant area. The partnership is structured to meet this challenge. On European level the French, German, Hungarian, Czech and Italian partners have to be related to national institutions in charge of education and training in their respective countries. The effective cooperation

between institutions in charge of education and training, training centres will allow the creation of educational tools.

2.1. Goals and expected project results

The aim of this project, which is a part of the Transfer of Innovation, Leonardo da Vinci, Lifelong Learning Programme, is the creation of pedagogical supports in the form of online materials that are created with regard to the target group - mentally handicapped people.

These courses should help persons with mental disabilities through retraining in horse attendant, wine growing and horticulture area (Tas & Tatnall, 2008). Courses are designed as simple procedures describing the required jobs. Materials are designed for people with intellectual disabilities however students need the help of an assistant in the navigation through the course. In each course there is time reserved for evaluation of the students (Benda et.al, 2011).

The project main goals are the following:
- transferring to three agricultural certificates and degrees this method of adaptation of training programs, of creation of educational software;
- harmonizing, as far as possible, these processes of certification between several European countries;
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   - by training the teacher or the tutor for welcoming and integrating the target public and by making them aware of it.
2. the level of apprenticeship.
   - by facilitating access to training courses to the target public by adapting training programs.
3. the economic sector
   - by answering the increasing need in qualified agricultural labour.

All these products will take into account the specificities of each country in the search for modes of shared certifications and will be produced in the languages of the partnership as well as in English. The documents used will be adapted to e-learning. The target public involves on one hand persons with disabilities (Barricelli et.al, 2011), job seekers, persons in special education or employees in integration, and on the other hand the teachers, trainers and tutors or mentors in enterprises.

For the creation of educational materials and organization of practical courses, European experiences from the activities of social enterprise have been used. There are complex elements, concepts and structures in e-Learning, difficult to transmit to people with disabilities (Guenaga, 2004).

The principles of education are based on practical experience teaching hours in the field, where students learn or train in individual jobs, as well as in the necessary theory. Learning support materials are intended as a summary of the methodological instructions for self-learning and also to repeat reminders and skills acquired through practical experience (Benda et.al, 2011).

2.2. The activities of the Hungarian partners in the project

There are 60,000 horses in Hungary from which 10,000 mares (from various breeds) are registered in herd-books, 7,000 Sport Horses, 500 riding clubs, 300 enterprises working in horse tourism, 200 private studs with at least 10 broodmares, 5 national study centre with more than 50 broodmares. There are 15 breeds in Hungary. The

distribution of these breeds is unequal both geographically and in their population. Most of the horses are with unknown pedigree and used as draught horses. The planned course could be useful for employees of riding clubs, horse tourism enterprises or private studies

The main aim of the course is the education of a manager who is able to manage and solve all problems in a small horse study (primarily breeding study). The graduated students have some basic reproduction, breeding, nutrition and economy knowledge. The graduated students are generally able to take care of a horse without causing any problems to the horse. The students are not trainers, horse riders or drivers, but are able to manage all necessary tasks in relation with horses.

The main features of the Centre for horse education at University of Debrecen are the following:

- There are 50 horse from with 12 owned by the University
- Riding hall
- Show jumping and dressage tracks
- Training track
- The centre located in 1.5 ha
- Separated cubicles and tool-shed
- Horses are in stalls and boxes

The Hungarian consortium members are the following:

- University of Debrecen, Centre for Agricultural and Applied Economic Sciences
- Hungarian Association of Agricultural Informatics
- Centre for adult and distance education (University of Debrecen, Centre for Agricultural and Applied Economic Sciences)
- Balásházy János Secondary School of Agriculture and Economics
- ECDL Training Centre of the University of Debrecen Centre for Agricultural and Applied Economic Sciences
- Hungarian Association of Horse Breeding and Horse Organizations

We identified a common training content and conception and sent it to our partners. We have a stable manager high-level vocational training, which consist of more than 20 subjects. We selected the most important 10 subjects, which supremely suit to project goals and requested the potential participants. These consist of theoretical and practical work.

There are the followings subjects:

- Anatomy health control farm animal
- Animal nutrition
- Basic genetics
- Basic riding driving
- Basic technology
- Behaviour ethic horsemen
- Computer utilization
- Horse judge knowledge
- Horse sport competition racing usage
- Reproduction

Most of the subjects able to keep our lecturer, but in two cases (Behaviour ethic horsemen, Reproduction) we need invited lecturer for training.

The training programme is formalized with several training modules.

2.3. Some results

The first international face to face meeting was held in Bari, Italy between 30/03/2011 and 03/04/2011. The title of presentation which held the Hungarian partner are the following: "Stable manager course and horse breeding in Hungary". We spoke about the description of course, the required preliminary studies to the course, where will be the venues. This course is running only in Hungary. The centre for horse education is presented and introduced and finally a short description is presented about the Hungarian horse population.

We could visit the different agricultural activities near Mesagne at the Italian partner. A picture can be seen in Fig. 2.

Figure 2.: Agricultural activity near Mesagne at the Italian partner

We prepared a special book (text-book), the contents are specialized for the horse attendant "Computer utilization" training module in Hungarian language. The authors are János Posta, László Várallyai and András Cseh. These persons are named in the project. It is reviewed by Miklós Herdon. The full text-book is found on the Moodle Certiagri site. The main goal of this text-book to help the participants in the pilot project understands the computer utilization module.

Here is the skeleton of the table of contents:
- The basics of informatics
- Structure of a computer (CPU, peripherals)
- Description of software
- Operation systems (basics, groups, tasks, types)
- Internet (definition, evolution, identifications, protocols)
- Database handling (tables, relations, queries, forms, reports)
- Spreadsheet handling (structure, functions, diagrams)
- Word processing and presentation creating
- Introducing the special system for horse attendant

A Moodle project pilot course was created. We have some special courses in the traditional horse attendant courses, which can be linked under the pilot course (Figure 3).

Figure 3.: Project information and course on the Moodle LMS

We try to set up the experimental training session, select the appropriate persons. They have to be some knowledge about the horse. We gathered the address list of the potential course participants from the following associations:

- Hungarian Horse Breeders' Society
- Hungarian Association of Horse Breeding and Horse Organizations
- Bábolna National Stud
- Mezőhegyes National Stud
- Máta Stud
- Szilvásvárad National Stud
- Other possible recruit staff can be the workers of private studs breeding with more than 10 broodmares.

We try to integrate the training session in our educational and training system.

CONCLUSION

The ICT created digital divide in the society but some people are unable to individually respond to this progress, but the proper use of ICT can help them overcome this handicap. One of the possibilities is to create accessible and usable applications depending on the character and level of disability.

In accordance with the European CertiAgri project, e-learning tools are used for integrating people with disabilities and low level of qualification into the horse attendant area. The partnership is structured to meet this challenge. On European level the French, German, Hungarian, Czech and Italian partners have to be related to national institutions in charge of education and training in their respective countries. The effective cooperation between institutions in charge of education and training, training centres will allow the creation of educational tools.

The aim of this project, which is a part of the Transfer of Innovation, Leonardo da Vinci, Lifelong Learning Programme, is the creation of pedagogical supports in the form of online materials that are created with regard to the target group - mentally handicapped people.

These courses should help persons with mental disabilities through retraining in horse attendant, wine growing and horticulture area. Courses are designed as simple procedures describing the required jobs. Materials are designed for people with intellectual disabilities however students need the help of an assistant in the navigation through the course. In each course there is time reserved for evaluation of the students.

We identified a common training content and conception and sent it to you. We have a stable manager high-level vocational training, which consist of more than 20 subjects. We selected the most important 10 subjects, which supremely suit to project goals and requested the potential participants.

We prepared a special book (text-book), the contents are specialized for the horse attendant "Computer utilization" training module in Hungarian language.

The full text-book is found on the Moodle Certiagri site. The main goal of this text-book to help the participants in the pilot project understands the computer utilization module.

A Moodle project pilot course was created. We have some special courses in the traditional horse attendant courses, which can be linked under the pilot course.

We try to set up the experimental training session, select the appropriate persons. They have to be some knowledge about the horse. We gathered the address list of the potential course participants from the professional associations.

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A STUDY OF OPEN INNOVATION IN CLOUD COMPUTING

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ABSTRACT

This paper is dedicated to the analysis of theoretical and methodological problems of innovation and offers a synthesis of ideas to create a theoretical model for future more extensive and detailed work. Subject of this study is the information-technology sector of economics. Goal of this contribution is the concept and implementation of open innovation paradigm. This implies that companies can and should use external ideas and their own ideas as well as internal and external paths to telecommunication services market.

The basis of this study is the behavior of participants, their interaction and cooperation opportunities with external partners. This interaction has a great potential in developing new products and design of services. It is implemented by the so-called "cloud" that offers new ways in which users connected to the Internet or private network can take advantage of the available IT services, resources, software and processing capacity without having to invest in IT infrastructure, staff training or buying expensive software licenses.

KEYWORDS

Open innovation, cloud computing, cloud services

JEL CLASSIFICATION CODES

031, 033

INTRODUCTION

Over the past 20 years we have witnessed a rapid development of technologies. Most strong factor in this direction is the Internet system, which connects the world in many aspects and has completely changed the way companies conduct business. Internet technologies enable communication and collaboration for interested participants at different levels all over the world. Almost every day we see new products and services in the Information Technology (IT) sector. The keyword for the development of the modern world is „innovation" (Schumpeter, 1934). To develop and commercialize their innovative products as well as the service process, the companies are turning towards open innovation strategy for cooperation with external partners to be enriched with new knowledge from outside the company. The paradigm of open innovation (Chezbrough, 2006) suggests that companies can and should use external ideas as well as internal ideas, and internal and external paths to the market. Innovation has become a major factor for the companies' development, which changed their concept for innovation.

PROBLEM FORMULATION

There exist many definitions of the term „innovation". The first who introduced it was the Austrian scientist Josef Schumpeter in the early twentieth century. He defined innovation as new combinations stimulating the economic development. This includes creating new products or existing products with new quality; new production methods, opening of new markets. Based on this definition we can say that innovation is an act by which a

company creates a new product or service, different from other companies' products or services, or realizes the existing ones in a new way. Chezbrough introduces the term „open innovation" (Chezbrough, 2006) which we have examined in more details in the article and which will be applied in „Cloud computing" (Goldin, 2011), (Rittinghouse & Ransome, 2010), (Cloud Security Alliance.2011). Cloudcomputing is considered to be the third revolution in IT after the PC and Internet. We also have presented a model of the participants in the network of Cloud computing, and there interaction as well as the cooperation opportunities with external partners. This interaction gives greater possibilities in developing new products and services design. Cloud computing offers a new way that users connected to the Internet or private network can take advantage of the available IT services, resources, software and processing capacity without having to invest in IT infrastructure, staff training or expensive software licenses purchase.

CHARACTERISTICS AND PROBLEM PRESENTATION

Cloud computing opens space for new entrepreneurial opportunities for both large multinational companies and for small and medium business.In recent years, increasing attention is paid to the concept of open innovation, both in theory and in practice. The paradigm of „open innovation" was introduced by (Chezbrough 2006) as a new paradigm for innovation. He compares it to the existing innovation that is internally focused, closed in the companies' innovation process. Open innovation he presents as the use of purposive inflows and outflows of information to accelerate internal innovation and external use of innovation for market expansion. Using external and internal ideas and external and internal paths for innovation realization on the market, companies strive to improve technologies. In Figure 1 is presented a model of open innovation. (Chezbrough 2006)
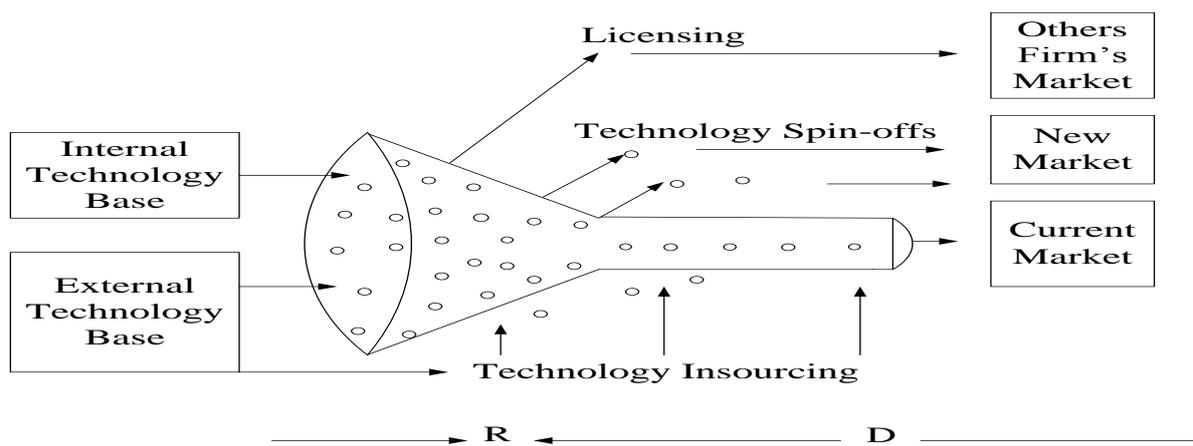

Figure 1. The Open Innovation Paradigm (Chezbrough 2006)

Chezbrough's definition for open innovation can be apprehended in two ways.

- **Outside – In** To search and find ideas outside the company including competitors, customers, suppliers, universities and other third parties, is more favorable than close cooperation within the company. According to (Davis, 2006) benefits of this approach are: wider access to new research as well as to new technologies and products. Companies are able to open up new market segments, improve the production of their products, reduce cost for product development by accelerating R & D. As a consequence they increase their competitiveness, reduce the risk in taking decision. The business model plays a major role in the company's management. Companies are able to take advantage of their own strengths and combining them with opportunities from outside, to realize income from the innovation. Building a better business model might be a better perspective than to think how to be first to market which is one of the principles of closed innovation paradigm (Chezbrough, 2006).
- **Inside – Out** Another way to capture value from technological innovation used in business is to provide it to other companies for use in the form of a patent or license. Therefore, licensing of technology to other companies can be commercialized and applied by partners working in different spheres of market.

Thus, companies that have purchased the technology, accelerate time to market, while others increase their revenue from the sale of technology. These are the main benefits of this approach (Davis, 2006).

In addition, open access to innovation can be presented as a strategy within a large company that facilitates the flow of information between departments.

Innovations are necessary to lead the inevitable wave of change. Most companies strive to reduce the costs for IT by means of virtualization (Goldin, 2011), (Forester, 2011). The growing needs of companies of servers with bigger capacity and related with this additional costs, leads to the emergence of virtual servers as a good economic decision. Virtualization is the starting point of Cloud computing and fundamental infrastructure for Cloud deployments. (Goldin, 2011) , (Forester, 2011). The implementation of server virtualization as a standard model for server deployment, is a critical or high priority for business. Interest in virtualized technology remains high, as it reduces costs, gives high effectiveness – results whit less efforts and resources, faster recovery from natural and industrial disasters and greater flexibility This demand for reducing the cost of computing power has led to innovation in Cloud computing. Over time the ability to build a common interface to the Internet is duo to the evolution of hardware and software. Using web browsers has led to steady migration from traditional models of data centers to cloud based models. Using technologies like server virtualization, parallel processing, massive parallel data processing has caused a radical change.

As (Dylan Larson, 2011), Director Xeon Platform Marketingin Intel Data Centre Group said „By 2015 one billion users and 15 billion devices will be connected to the network, and the annual traffic on the Internet will be one zeta byte." According to Intel Cloud 2015 Vision cloud technologies will be linked (with the possibility of sharing data in social and public clouds in a protected environment), automated, and customer oriented.

METHODOLOGICAL APPROACHES TO SOLVING THE PROBLEM

What is Cloud computing model?

The concept of Cloud computing began to take shape in 2000 as a result of technological developments. Definitions of different authors are very considerably, but the process can be described as a supply of hardware and software services via the Internet. Cloud computing is described as technological change caused by convergence of new and existing technologies (Skilton, 2010).NIST defines Cloud computing by describing five characteristics three cloud service models, and four cloud deployment models.(Cloud Security Alliance. 2011) They are represented visually in Figure 2.

Cloud computing can provide new levels of connectivity, flexibility, speed and cost savings for various types and size businesses. Cloud is a data center, where hardware and software systems are located. Cloud computing provides the IT (information technology) resources at the request of the customer. As shown in fig2 above, there are five main characteristics of Cloud computing, which explain the relationship and differences from traditional computing. According to (Cloud Security Alliance. 2011) and (Mell and Grance, 2009) they are:

- **On - demand – self – service**
- **Broad net access** – opportunities to access the network via a standard mechanism.
- **Resources pooling** – computing resources of the provider are combined to serve multiple users with different physical and virtual resources.
- **Rapid elasticity** – C necessary.ustomers are able to increase the capacity of resources as or to reduce it. Opportunities provided by customer's perspective are unlimited.
- **Measured service** – an appropriate measurement system that allows clients to transparently monitor,control and report the resources used.
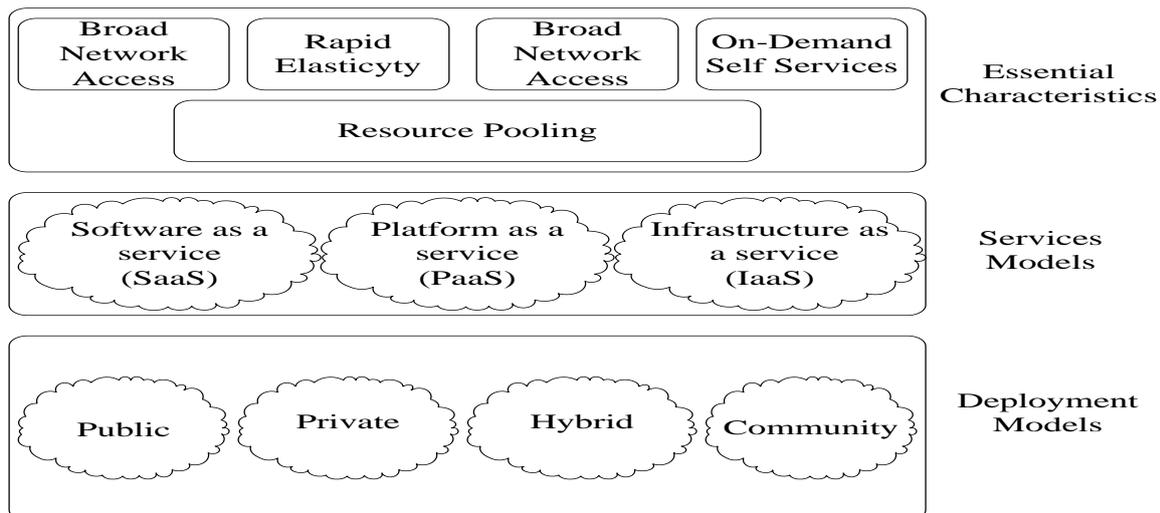
Figure 2. NIST Visual Model of Cloud Computing (Cloud Security Alliance, 2011, p.14)

SOLUTIONS TO PROBLEMS

Cloud computing – provides traditional services via Internet, as well as hardware and software systems as a type of service. There are three main types of IT services that can be provided through the cloud.(Goldin, 2011),   (Rittinghouse, Ransome, 2010),(Mell and Grance, 2009), (Cloud Security Alliance. 2011).

1. **Software as Service (SaaS) –** In this model the service provider applications are located on the cloud and interact with end user through the Web portal. SaaS includes Web based e-mail, database management, implementation on of business process and inventory control. This service is used by end users anywhere and at anytime that the Internet is available.
2. **Platform as a Service (PasS) –** Includes providing a set of software tools and tools for application development. The providers of this service use API (application program interface), website portals or software portals that are installed on the computers of the end users.
3. **Infrastructure as a Service IaaS** – Through API of the providers, customers get access to start, to stop, and also to configure their virtual servers and their data storage. This service gives customers the advantage to pay only the amount of capacity they need.

As seen in the example above four models of the cloud are identified – Public, Private, Community and Hybrid.

1. Public cloud – The earliest examples of cloud computing are public clouds. They provide flexible computing resources remotely via Internet from an outside company, such as Amazon Web Services, Google and others. The public cloud is owned by an organization that sells cloud services to a wide audience. They continue to be a rapidly growing business opportunity.
2. Private cloud – It infrastructure is owned or rented by an organization and used exclusively by it. This model is beneficial because of its flexibility and speed and would be very important for companies that have a high degree of software innovations, such as Yahoo, which have invested heavily in the delivery of their own cloud services called Sherpa (Goldin, 2011) In other words, eliminating the complex IT infrastructure that can be used in a highly automated cloud platform, innovators cam focus more on their efforts to turn their ideas into great services.
3. Community cloud – The infrastructure is shared by several organizations and supports a specific community of users who share a common mission, policy, etc.
4. Hybrid cloud – A combination of two or more cloud (public, private, community) which retain their identity in spite of the fact that they are associated with common technology.

The reasons for the widespread use of computing are;

- Economic incentives to offer new products and services
- Economic incentives to reduce costs
- Higher efficiency of the materials used
- Increasing personal comfort and friendliness towards users

Services offer greater opportunities for distributing computing, because new technologies and infrastructure allow companies to track their customer's needs and provide personalized services anywhere and anytime. Concerns of Cloud computing users are connected with the data security. Cloud providers have taken security measures and privacy policies trough cryptographic method to authenticate users. Users can choose whether to encrypt the information before they store it on the providers' server.

CLOUD TYPES AND PATTERN OF CONNECTIVITY AND INTERDEPENDENCE OF THE PARTICIPANTS IN IT.

In Figure 3 we present a model of different types of clouds, as participants in a network and their interaction.

It obvious that the most important role in this model is played by the Internet providers who make the connections on the network possible. Internet providers are organization providing Internet access. Depending on the type of clients the Internet providers can be – "connection providers" and "retail providers". (Sherif, 2006).

Internet operators provide Internet access through different technologies. The majority of users use the following types of Internet access:

- Dial – up access
- In phone
- In digital network with integrated services
- In digital subscriber line
- Wired access
- In a cable TV network
- In LAN
- Wireless

Some consumers have access to Internet through high – speed lines – usually through optical networks for data transmission, built by Internet service providers or leased by telecommunication companies. Often the Internet providers offer not only Internet access but other services as well, like collocation (providing physical space for installation of customers' equipment in providers' technical centers), building websites and providing web space, domain registration, free email, free disk space and so on. Therefore they can also be Cloud service providers and Cloud owners too.

Cloud service providers - They advertise their services to potential Cloud service applicants. They have to describe the service in a standard format and publish it in a central services register (in our case, this register may be in Hybrid Cloud) or these services may be provided to brokers and consultants of Cloud services. They posses additional information about the Cloud service provider (address, contact), as well as technical details concerning the service. Cloud service providers (public, private, community) can integrate in Hybrid Cloud or develop existing services by suitable techniques. They can record a description of the services they offer, and also to manage and monitor their implementation.

Cloud service applicants – May be any participant of the developed model. They extract information from the register using the service description to find the service out and if it satisfies them respectively, to receive it.

Cloud service brokers – They maintain records of published services and can offer different providers with their services to Cloud applicants. They use universal description integrator detection to find the desired service. Cloud service brokers provide storage for services with their description, where Cloud providers publish their services and thus Cloud applicants receive information and find the needed service. Cloud

service brokers can act as consultants on request of the Cloud service applicants to provide the best solution referring the type of service or combination of services whit their providers, prices, quality, delivery time etc. to satisfy their needs.
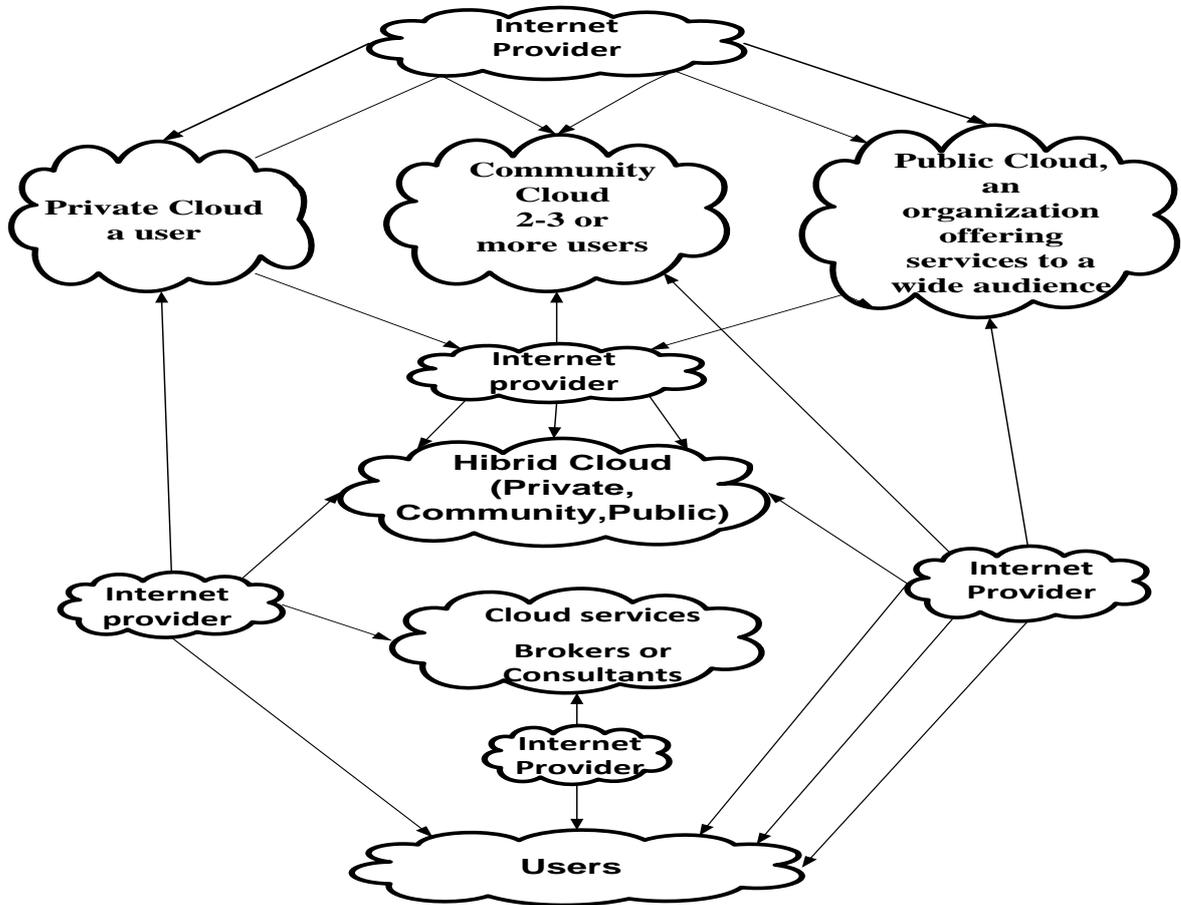

Figure 3. Model of different types of clouds, as participants in the network

Participants in the Cloud computing network cooperate on the basis of the open model. They can be Cloud service applicants as well as Cloud service providers. Acting as Cloud service applicants they can declare and use services like IaaS, SaaS, PaaS,.and to become Cloud service providers of a new service or improve old ones based on external ideas or provide their own unrealized ideas to external partners and therefore receive income.

CONCLUSION

The aim of this paper is to present the main characteristics of Cloud computing, the various Cloud models and the services offered by the Cloud. We also present a pattern of the participants in the network of the Cloud computing and their interaction based on the open innovation. From the facts exposed in our article it is obvious that Cloud computing offers an entirely new way in which the users connected to the Internet or private network can take advantage of the available IT services, resources, software and processing capacity. Cloud computing open new space for entrepreneurial opportunities directed to big multinational companies, as well as to small and medium business. Each company with its IT organization may act as a service broker and so create value through the open innovation approaches: **Inside - Out** and **Outside-In**.

To implement Cloud computing some important steps have to be made, like standardization and consolidation of IT resources. The benefits of standardization are decrease in capital costs and staff expenditures. Applying virtualization as a major consolidation technology gives the companies potential to use their servers more

efficiently. Automation of IT processes enables companies to provide physical and virtual resources to the server in real time. Main advantage of automation is the labor costs reducing.

As main disadvantages of Cloud computing we can indicate: necessity of a fast and reliable Internet everywhere and at anytime, elaboration of models for better service scalability. As another disadvantage we can point also the users' concern regarding eventual abuse of personal information by the Cloud service providers, which raises the question of better law regulation and development of new technologies to ensure data security.

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FACTORS AFFECTING THE ADOPTION OF NEW TECHNOLOGIES: EMPIRICAL INVESTIGATION IN THE BANKING SYSTEM OF A BALKAN COUNTRY

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ABSTRACT

The study aims to identify how personal characteristics of bank employees influence the drivers of new information technologies adoption. Based on the theory of Technology Acceptance Model (TAM) the proposed methodology is investigating how employees' demographic and psychographic variables affects their beliefs about their self-efficacy on using the new information technology, as well as about the technology's ease of use and usefulness. The survey was conducted in a sample of 697 bank employees in several bank institutions in Greece using a dedicated research instrument. The results indicated that employees' self-efficacy and perception about technology's ease of use and usefulness are affected by their level of education, while employees' age is related to employees' self-efficacy and technology easiness and not to technology usefulness. As far as the employee's psychographic variables are concerned, contrary to previous research efforts, mood has not revealed any impact on their beliefs about the technology characteristics. Finally, theoretical contributions and practical implications of the findings are discussed and suggestions for future research are presented.

KEYWORDS

Technology Acceptance Model, TAM, Self efficacy, Individual Characteristics, Mood, Banking.

JEL CLASSIFICATION CODES

O33, O34, M190

INTRODUCTION

The diffusion of new technologies in all parts of human life has created the necessity to understand, and predict the forthcoming adoption or rejection of a new technological system. Globalization and the multidisciplinary economic environment, in which banks operate, demand technologically advanced products and services containing an increased level of knowledge and specialization. Bank employees are the critical mass, accepting technologies that obsolescent fast and being replaced even faster.

There are a lot of studies providing insights into the reasons leading to adoption of a new technology. Among the most widely accepted approaches is using the technology acceptance model (TAM). TAM has received empirical support through validations, applications and replications by researchers and practitioners, suggesting that TAM is robust across time, settings, populations and technologies.

The current research attempts to further advance the understanding of factors influencing the adoption of new technologies in a working environment. Research on technology acceptance has focus on determining the factors influencing the adoption, factors- stimuli making the adoption seem appealing and factors that ensure the continuance of using the implemented technology (Giovanis et al., 2012). Researchers and practitioners have restricted their attention to system design characteristics (Davis et al., 1989) or training (Venkatesh & Speier, 1999). The research attempts to add on the significance of individual characteristics, such as demographic and psychographic characteristics of bank employees, and their association with technology adoption.

The rest of the paper is organized as follows. The next section is devoted to previous literature and sets out the hypotheses of the study. These are followed by the methodology of this study. Then, the paper presents the results of the empirical study in achieving the goals set above. In the last two sections, discussion of the findings, managerial implications and direction for future research are provided.

LITERATURE REVIEW & RESEARCH HYPOTHESES

2.1 Technology acceptance model (TAM)

Technology Acceptance Model proposed by Davis (Davis, 1989; Davis et al., 1989), has its roots in the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) and the Theory of Planned Behavior (TPB). According to TAM, a person's belief determines his/her Attitude toward usage. Davis (1989) introduced Technology Acceptance Model (TAM) on his attempt to address reasons that users accept or reject information technology and how user's acceptance is influenced by system characteristics.

Research has concluded that two beliefs, perceived usefulness and perceived ease of use have been identified as important user acceptance criteria. They are instrumental in explaining the variance of customer's attitude. Both perceived usefulness, along with customer's attitude, determine customer's behavioral intentions. Perceived usefulness is defined as "the degree to which an individual believes that using a particular system would enhance his or her job performance". Perceived ease of use is defined as "the degree to which an individual believes that using a particular system would be free of physical and mental effort". Perceived ease of use is hypothesized to have a significant direct effect on perceived usefulness (Venkatesh & Davis, 2000). Users perceive a system as easier to use as they gain more knowledge and confidence through direct experience in using the system (Hackbart, et al., 2003). Attitude towards using a technology was omitted by Davis et al. (1989) in their final model because of partial mediation of beliefs on Behavioural intentions by attitude a weak link between PU and Attitude and a strong link between PU and Intention. That was explained as originating from users intending to use a technology because it is useful even though they did not have positive affect toward using.

2.2 Self efficacy

A determinant of perceived task difficulty is a person's belief in his/her ability to successfully perform a behavior; or the level of task difficulty an individual believes is attainable with their perceived skill level. Bandura (1986) has argued that personal beliefs about self efficacy are crucial determinants of action. Self efficacy is defined as one's belief in one's ability to exercise control over events. Self efficacy beliefs can determine whether one is willing to act, with what energy, and persistence. Many empirical studies have validated self efficacy in a wide variety of settings, such as employee attendance management (Frayne & Latham, 1987), complex decision making (Wood & Bandura, 1989), computer skill acquisition (Mitchell et al., 1994), and user acceptance of technology (Agawal et al., 2009).

Computer efficacy is affected by someone's practical intelligence, the ability to solve new problems, and the ability to learn from experience, by tacit knowledge. When a system is considered as pleasant and useful, users are highly motivated to use it and increase their productivity and efficiency. According to Marakas et al. (1998), computer self efficacy is the perception of one's capability to use a computer, in a multilevel construct, operating at two levels: the general computer level and the specific application level. The general computer level is defined as "an individual judgment of efficacy across multiple computer domains". Application specific self efficacy is defined as an individual's perception about efficacy in using the specific application within the general domain (Yi & Hwang, 2003).

Research has concluded that personal computer efficacy relates directly to someone's perceptions concerning these technologies.

2.3 Employee's mood and motivation in innovation adoption

Mood refers to how people feel when they are engaged in activities (George & Jones, 1996). Moods and emotions differ in their degree of *pervasiveness*, *intensity*, and *specificity*. Emotions may be very brief, lasting seconds or minutes, while moods last much longer, typically hours or days. Emotions have a specific cause (e.g., an action) and a target (e.g., anger). Moods are less intense, but more enduring and diffuse affective states, not direct it toward any particular object or behavior. Yet it is possible that the effects of mood on subsequent behavior may have both short and long term implications (Curren & Harich, 1994).

Mood states can be grouped into positive, negative, or neutral (e.g. Clark, & Isen, 1982; Wright, & Staw, 1994). When mood is positive (i.e., positive affectivity), a dimension of someone's personality is enthusiastic, active, and alert, with social potency and volatility (Cropanzano, et al., 1993; Watson, et al., 1988). Someone with negative affectivity is subjectively distress, tired, apathetic, with high nervousness (Cropanzano et al., 1993).
The influence of mood on judgment, motivation and performance has branched into two paths: the *Resource Allocation* (Ellis & Asbrook, 1988) and the *Associative Network models* (Bower, 1991). The distinction between them is the way mood interacts with cognitive process. The Resource Allocation perspective suggests that mood

can interfere with cognitive processing while the Associative Network model suggests that mood provides a context in which cognitive processing is performed.

Proponents of the *Resource Allocation* path suggests that individuals have limited attentional resources and any affective state, including positive or negative mood, requires the expenditure of limited resources, decreasing the resources available for information processing (Ellis & Ashbrook, 1988). Individuals in positive mood expend some resources "enjoying" their mood (Asuncion & Lam, 1995) while individuals with negative mood are more likely to concentrate on their current negative mood state (Ellis & Ashbrook, 1988). There is mood congruent recall of information where those in positive mood recall positive information and those with negative mood recall negative information.

In the *Associative network model*, Bower (1991) proposes that moods are stored as *nodes* in memory just as information content is stored in memory nodes. When new information is learned or processed, it is associated with the nodes that are active at the time of learning, linking the content and the affective state nodes together. When content that has been associated with a specific affective state is retrieved from memory, the affective state is also retrieved, resulting in an ongoing association between the affective state and the content (Forgas, 1995).

In the context of technology, Davis et al., (1992) found that motivation plays a key role in new technology acceptance. More specifically, extrinsic motivations (emphasizes performance as an instrument of achieving valued outcomes that are distinct from the activity) and intrinsic motivations (refers to the pleasure and inherent satisfaction derived from a specific activity) are key drivers of an individual's intention to perform the behavior (the technology usage) and their actual behavior. They connected extrinsic motivation to use a specific technology in the workplace by relating it to performing job related activities more productively.

In addition to perceived productivity gains in using a technology, some individuals may also have intrinsic motivation to interact with technologies. Such intrinsic motivation is the perceived enjoyment one has using a technology (Davis et al., 1992). Perceived enjoyment exists when the use of a computer is perceived to be enjoyable, distinct from any performance outcomes that might be obtained (Malone, 1981).

Vallerand (1997) suggests that individual, situational or social factors influence motivation to perform a variety of activities. For example, an individual's perception about the enjoyment of technology use is likely to be influenced by mood. Positive mood results in more favorable assessments of one's abilities (Schwarz & Bohner, 1996) and enhanced perceptions confidence (Forgas, 1991) thus increasing perceptions of enjoyment and thereby intrinsic motivation. When in positive mood increases the satisfaction on performing a specific task (Brief et al., 1995). Mood may also influence someone's extrinsic motivation. An individual in positive mood learns and recalls positive details associated with the material and is more likely to do more positive attribution regarding ambiguous information (Forgas, 1991).

These positive attributions are likely to result in individuals recognizing greater value in using the technology so as to increase productivity. (Venkatesh & Speier, 1999). Individuals in negative mood are more likely to make negative attributions regarding the technology's usefulness and its ability to increase their productivity and their rewards. They perform detail oriented processing and their reasoning is characterized by limited originality, creativity and playfulness (Schwarz & Bless, 1991).

2.4 Hypotheses formulation

According to Legris et al. (2003) only 60% of TAM studies consider external variables and that there was not a clear pattern with respect to the choice of the external variables considered.

The impact between Age, PU, PEOU and self efficacy: There has been consistent proof that users' age is related to the use of information technologies. Older employees tend to resist changing and they avoid adopting new technologies (Porter and Donthu, 2006). They do not fully understand them and they perceive new technologies as less useful in the short and the long run (Venkatesh et al., 2000). Even if they consider the technology to be interesting, they feel they are not competent to use it and that it is not easy for them. Older employees learn in a slower pace (Barth, 2000) and are less motivated toward their job (Rhodes, 1983). According to Colonia-Willner (2004) by ageing increases the time one needs to fulfill a task using information technology.

H1: Age is negatively correlated to employees' perception of self efficacy. Older employees perceive themselves as less efficient in using new technologies than younger employees.

H2: Age is negatively correlated to employees' perception of ease of use. Older employees perceive new technologies as less easy to use than younger employees.

The impact of mood, PEOU, PU and self efficacy: Examining mood and behavior in an organizational context, George (1991) found that positive moods in salespeople led to greater customer-helping behaviors. George and Brief (1992) suggested that positive mood will lead to more extra-role behaviors because there will be greater goodwill spread in the group due to increased social interaction and positive thoughts about the organization. Forgas (1998) found that subjects in positive moods were more effective as negotiators than those in negative

moods. In organizations, both positive moods and dispositional positive affect have been found to be related to superior job performance ratings in a variety of occupations (e.g., Seligman & Schulman, 1986; George, 1991; Staw, et al., 1994; Wright & Staw, 1994). Positive affect has also been shown to lead to a perception of better performance and higher self-efficacy on a variety of tasks by individuals (e.g., Kavanagh & Bower, 1985; Saavedra & Earley, 1991) and groups (Heath & Jourden, 1997). There is empirical evidence showing that leaders' and managers' positive moods during work are positively associated with employees' work performance (George, 1991) and that people are attracted to emotionally expressive others (Friedman, et al., 1988). This could imply that positive mood is associated with perceived ease of use of a new technology.

H3: The mood of the employees affects the perception of their self efficacy.

H4: The mood of the employees affects the perception of a new technology's ease of use.

The impact of gender, PEOU, PU and self efficacy: Gender issues affect business in technology-related fields. Women and men mean and understand similar messages about information technologies quite differently: 'the same mode of communication may be perceived differently by the sexes" (Gefen, & Straub, 1997). Bennett & Brunner (1998) found that the feminine attitude towards technology looks right through the machine to its social function, while the masculine view is more focused on the machine itself.

Women view technology as attractive, since it allows them to connect, empathize and share feelings, which is the basis of female communication. Women may be particularly sensitive about the user friendliness of the technology. The effects of gender on PEOU do, however, support previous observations that noted men's relative tendency to feel more at ease with computers. Frankel (1990) found that women experience higher anxiety than men in using computers in general, which could imply that women perceive technologies to be less easy to use.

Research on gender impact on IT innovation adoption indicates that men tend to be highly task-oriented (Agarwal et al., 2009) and, therefore, system's performance expectancies, which focus on task accomplishment, are likely to be more important for them. Moreover, men are characterized as assertive, independent, competitive, influenced by instrumentality (Gefen & Straub, 1997).

H5: Females are considering a new technology easier to use than males.

H6: Males are more self efficient in using a new technology than females.

The impact of educational level, PEOU, PU and self efficacy: A large body of prior research has shown that highly educated workers tend to adopt new technologies faster than those with less education (Lleras-Muney & Lichtenberg, 2002). Krueger (1993) finds that more highly educated workers were more likely to use computers on the job, which could imply that they perceive themselves to be efficient in adopting new technologies. Employees with more education have longer work experiences in using computers than those with less education. Agarwal & Prasad (1999) resumed level of education as one of five variables defining perceived ease of use and perceived usefulness. Zmud (1979) suggests that as the level of education rises, increases the perceived ease of use of a new technology, and its usefulness.

H7: The level of employee's education has a positive impact on perceived ease of use of a new technology.

H8: The level of employee's education has a positive impact on perceived usefulness of a new technology.

H9: The level of employee's education has a positive impact on perceived self efficacy on adopting a new technology.

RESEARCH METHODOLOGY

3.1 Measures

In order to collect empirical data to assess the scales' properties and for testing the proposed hypotheses, a self-administrated questionnaire was prepared according to related literature and users' and experts' opinions. The items of the questionnaire were adapted from existing and well tested scales offered by the extant literature. The developed instrument used validated scales from Davis et al. (1989) and Compeau & Higgins (1995) to measure PEOU, PU and Self-efficacy respectively. Mood was measured using elements from Positive and Negative Affect Schedule (PANAS) scale developed by Watson (1988). Each item was rated on a 5-point Likert scale ranging from 1= very slightly or not at all, to 5= extremely, to indicate the extent to which the respondent has felt in the indicated time frame. The individual differences considered in this study are employee demographics (gender, age and educational level) which indirectly affect employees' behavior.

3.2 Data collection and sample profile

Data for this survey were obtained from bank employees in Greece, attended seminars organized by Hellenic Bank Association (HBA). After contacted to the top management of the HBA and granted permission, questionnaires accompanied with a cover letter were distributed to employees that attended seminars during 2007 (distance learning participation and attendance at the premises of the HBA) including full-time and part time programs. Employees' participation on the study was voluntary. Questionnaires were anonymous in order to guarantee complete confidentiality. Questionnaires were either completed during the seminar, or were mailed to the distant participants, who received a package containing the cover letter, the survey instrument and a stamped reply envelop. Respondents were requested to return the complete questionnaire in the sealed envelope provided.

Prior to the administration of the current study, a pre-test was conducted at the Deposits and Loan Institute, so as to ensure the clarity and the overall presentation of the questionnaire. The questionnaire was distributed to 49 randomly selected employees, and 29 of them replied. The revised and corrected questionnaire was then distributed to the sample of the study.

Totally 2.378 questionnaires were distributed and 897 returned completed, reaching a response rate of 37.7%. 72 questionnaires were omitted from the survey since they had incomplete data. The demographic characteristics of the participants are shown in following in Table 1.

Table 1. Sample demographics

Demographic data		Frequency (%)
Gender	Male	37.2
	Female	62.8
Age	18-30	38.6
	31-40	31.3
	41-50	23.7
	51-65	6.5
Educational level	Secondary school	16.5
	Bachelor degree	61.4
	Post graduate studies	22.0

DATA ANALYSIS AND RESULTS

All measurement scales were examined for their psychometric properties. Data validation corrected the wrong imports and then proceeded the hypothesis testing and model analysis. Raw data were encoded, imported and analyzed using the Microsoft Office Excel and Statistical Package for the Social Sciences 18.0 (SPSS).

An Exploratory Factor Analysis (EFA) was performed with the 897 questionnaire responses to identify the factors affecting the adoption of information and communication technologies to Banks employees in Greece. The extraction method was Principal Component Analysis (Hair et al., 2006) and the Varimax method was applied to increase the explanatory ability of the model. Effects are grouped in three factors (perceived ease of use, perceived usefulness and self-efficacy), since eigenvalues exceeded 1. The selected factors accounted for the 65% of the total variance. The Kaiser-Meyer-Olkin value was 0.65 indicating the appropriateness of using the technique for factor analysis. This appropriateness was further supported by the significant result from Bartlett's test of sphericity ($\chi^2 = 3764.751$; p<0.0001). Cronbach's αcoefficients were: Perceived Self efficacy: $\alpha = 0.787$; Perceived ease of use: $\alpha = 0.929$; Perceived Usefulness: $\alpha = 0.685$. The rotated component matrix including the factor loadings is in Table 2.

Table 2. Factor Loadings of PEOU, PU, and self efficacy

Factors	Loadings
Perceived ease of use	
I find a new adoption easy to use	0.821
My interaction with new technologies is clear and understandable	0.795
I find it ease with new technologies to do what I want to do	0.860
Perceived usefulness	
Using a new technology increases my productivity	0.641
I find a new technology useful in my job	0.619
Using a new technology improves my job performance	0.565
Using a new technology improves my effectiveness	0.731
Perceived Self efficacy	
I believe I have the ability to easily use new technologies	0.919
I believe I have the ability to easily become skilful in new technologies	0.901
I believe I have the ability to easily learn about new technologies	0.993

The impact of personal characteristics upon the three factors influencing the adoption of a new technology is examined, by using inferential statistics (t-tests and ANOVA tests). According to these tests:

Females are considering adopting a new technology since they perceived it as easier to use than males (t=2.756 df=695 & p=0.006<0.05). The hypothesis "Males are more self efficient in using a new technology than females" was not supported, since t=1.560 df=516.783 & p=0.119>0.05.

The level of employee's education has a positive impact on perceived self efficacy on adopting a new technology. As the level of education rises, increases the perceived self efficacy of the employees adopting a new technology. Different variances assumed and F(2.693)=36.291 p< 0.005 indicates differences among the means of the groups of employees with different educational level. Employees-graduates of secondary school indicated lower perception of self efficacy (mean=-0.5324840) than graduates with bachelor degree (mean=-0.0258622), who also indicated lower perception of self efficacy from the employees with post-graduate studies (mean=0.4639108).

The level of employee's education has a positive impact on the perceived ease of use of a new technology. As the level of education rises, increases the perceived ease of use of a new technology. Equal variances assumed and F(2.693)=4.125 p< 0.005, indicates differences among the means of groups of employees with different educational level. Specifically, post-hoc analysis revealed differences to the perception of employees towards considering a new technology as easy to use, between graduates of secondary school and graduates with bachelor degree (mean: 0.0256410 > -0.2366863), and also between graduates of secondary school and employees with post-graduate studies(mean: 0.0972040 > -0.2366863).

The level of employee's education has a positive impact on perceived usefulness of a new technology. As education level rises, increases the perceived usefulness of a new technology. Equal variances are not assumed, F(2.693)=6.964 p<0.005, indicating differences among the means of groups with different educational level. Post-hoc analysis reveals differences among adoption between employees with different educational background. There is different perception of usefulness among employees awarded with bachelor degree and graduates of secondary school. Employees with bachelor degree perceived the adoption of a new technology as less useful comparing to the graduates of secondary school (mean: 0.2897110> -0.0931591).

Age is negatively correlated to employees' perception of self efficacy. Older employees perceive themselves as less efficient in using new technologies than younger employees. Equal variances assumed and F(2.693)=10.253 p< 0.001 indicates differences among the means of groups of employees belonging in different age groups. As the age of the employees increases, decreases their perception of their self efficacy. Employees at the age group 51-65, have different perception (mean=-0.38104) of self efficacy, than employees in the age group 41-50 (mean=-0.2913233), comparing to the age group of 31-40 (mean=0.1058948). The young employees (age 18-30) have the highest perception of self efficacy among all age groups.

Age is negatively correlated to employees' perception of ease of use. Older employees perceive new technologies as less easy to use than younger employees. Equal variances assumed and F(2.693)=6.151 p< 0.001 indicates differences among the means of groups of employees belonging in different age groups, concerning their perception of ease of use of new technologies. Differences exist among the age group of (18-30) comparing to the group of (41-50) and the group (51-65). Younger employees consider a new technology as easier to use than their older colleagues.

We applied Exploratory Factor Analysis (EFA) with the questionnaire responses of the employees about the Mood, to identify if mood is one of the factors affecting the adoption of information and communication technologies. The extraction method was Principal Component Analysis (Hair et al., 2006) and the Varimax method was applied to increase the explanatory ability of the model. Effects are grouped in two factors (positive affectivity, negative affectivity), since eigenvalues exceeded 1. The selected factors accounted for the 48.9% of the total variance. The Kaiser-Meyer-Olkin value was 0.725 indicating the appropriateness of using the technique for factor analysis. This appropriateness was further supported by the significant result from Bartlett's test of sphericity ($\chi^2 = 1773.675$; $p<0.0001$).

Cluster analysis (Sharma, 1996) was applied to identify the actual groups of the respondents and identify common patterns. Using the K-means method, effects are grouped in two clusters: the cluster of Employees Cautious of technology 33% and the cluster of Employees Keen of technology (67%).

ANOVA analysis was further applied between groups of employees and their perception of self-efficacy. Equal variances not assumed, $F(1.695)=0.470$ $p>0.05$, indicating that the hypothesis was not supported. Also, ANOVA analysis between groups and their perception of their ease of use in adopting a new technology demonstrated, assuming equal variances, $F(1.695)=0.367$ $p>0.05$, indicating that the hypothesis was not supported.

Table 3. Factor Loadings of mood measures

Factors	Loadings
Negative affectivity	
I feel afraid	0.702
I feel nervous	0.663
I feel upset	0.615
Positive affectivity	
I feel excited	0.714
I feel interested	0.802

Based on the above, the hypothesis that employees' psychographic situation, represented by mood, affects the perception of their self efficacy and their perception of a new technology's easiness and usefulness was not supported by the results.

DISCUSSION OF FINDINGS

The findings of the study concluded that the employee's educational background, gender and age are related to the adoption of new technologies.

Gender shapes the individual's opportunities to education, work, reproduction and authority. Women are characterized as "nurturing" and influenced by social factors and environmental constraints (Gefen & Straub, 1997). They are seeking intimacy, support and consensus. They prefer interpersonal aspects and are good at providing service.

When exploring the level of education the findings highlighted that respondents with a Bachelors degree or above had a much higher adoption impact than those less qualified and that the higher the level of qualification the more the impact on adoption. The education level has impact on the three well known factors that affect the adoption of new technologies: the perceived self efficacy, perceived ease of use and perceived usefulness. The improved usage of new technologies comes through education. Agarwal & Prasad (1999) concluded that education level was mediated by PU and PEOU. Given that organizations, especially banks, are operating in an information intensive age, relying heavily on information technology to acquire process and deliver the appropriate information to employees, customers and users, the level of education is important in adopting a new information and communication technology.

Employees' maturity, a factor that is supposed to add wisdom to human experience, does not increase the employee's favorable attitude toward information technology (Babcock et al., 1995). Agarwal & Prasad (1999) concluded that PU and PEOU mediate the relationship between age and attitude.

Analysis of the psychometric data of the sample revealed that the impact on the factors affecting adoption was not significant. Also, impact was not found between mood and demographic characteristics. Watson et al. (1988)

in developing PANAS scale also did not find consistent gender differences in affective states. Employees cautious of technology and employees keen of technology, face the adoption of information and communication technologies at the same way. In corporate life, employees are not able to reject an IT because the implementation is mandated. The mandatory nature of adopted technologies makes employees to accept and use them. Since the technologies they adopt are mandatory, by increasing the use, increases the perception of the ease of use of the technology and raises the self efficacy of the employee, creating positive attitude towards any adoption of any technology.

CONCLUSIONS

The adoption of new technologies has been explained by models based on economic, social and psychological factors. This study examined the impact of personal and psychographic characteristics of bank employees on the factors that influence information and communication technologies (ICT) adoption such as perceived self efficacy, perceived ease of use and perceived usefulness. Results supported the impact of educational level and age in employees' perception. These findings could help banking organization to specify more accurately the training needs of their employees. From the other side, the employees' psychometric situation impact on ICT adoption factors was not supported in the sample. A possible explanation could be the mandatory nature of new ICT's usage. However, the results further revealed that 1 out of 3 bank employees are cautious of technology. Given the fact, that bank employees are trained to use new banking technologies and then participate in innovations' spreading (e.g. online banking), by exhibiting their benefits to consumers, it would be beneficial for banking institutions' internal marketing activities to devoted to these employees' empower by explaining the hedonic gains of new technologies' usage, which in general facilitates ICT's adoption and usage.

The results of this research need to be interpreted within the limitations of the study. For example, a limitation is its cross-sectional design, which means that an important step for further research is the collection and analysis of longitudinal data. Secondly, the findings need to be confirmed by further evidence from other regions given the differences in values and cultures among different regions. Finally, further research should include other variables that affect ICT adoption such as compatibility, innovativeness, and risk etc. towards better explaining the mechanisms behind the adoption/usage of new banking technologies.

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NEW CONCEPTS OF COMPANIES' COST MANAGEMENT IN THE GLOBAL ECONOMY

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ABSTRACT

In last few decades, constant and dramatic changes have created highly dynamic and thoroughly uncertain competitive market and need for constant search for the ways in which the companies could create and offer products with unique features and at a lower prices than the competition. In conditions of great external and internal complexity, managers in contemporary companies face complex and numerous challenges of successful company management. Achieving and sustaining competitive advantages and better market position depend on the choice of appropriate strategy. Regardless of the specific commitments in terms of business strategy, the modern company is, inevitably, faced with the requirement of cost competitiveness. This paper deals with adequate designed cost accounting information system as a reliable support to modern company management. Some of the new concepts which are fundamentally important in order to implement and support the competitive strategies of companies, have been highlighted as well as the relevant problems which concern the practice in our country.

KEYWORDS

Management, strategy, cost accounting, cost management, competitive advantages.

JEL CLASSIFICATION CODES

M41

1. INTRODUCTION

New business environment of marked external and internal complexity brings new challenges and problems. The modern company achieves its success as a result of the interaction among the environment resources and management – its ability to employ the resources adequately, bearing in mind the company's position. This requires, along with acceptable risk, a maximum exploitation of challenges brought by the environment, in order to realize the interests of various stakeholders.

Constant and dramatic changes in contemporary competitive environment, as well as the need of integration into the European and world market flows, require the knowledge of a wide focus of cost and performance management of companies. Regardless of the concrete orientation regarding business strategy, the contemporary company inevitably faces the requirements of cost competition. Modern business environment inevitably requires cost accounting (CA) restructuring and new concepts and approaches to costing and cost management (CM) in order to improve cost information and decision-making quality. It is necessary to provide adequate information support concerning the process of business strategy formulation and implementation – finding adequate directions leading to the strengthening of the competitive position on the increasingly turbulent market.

The purpose of this paper is to highlight some of the new tools, techniques and concepts of CM that have been appeared during the last few decades, as well as the relevant problems concerning the practice in our country.

2. FLEXIBLY DESIGNED COST ACCOUNTING SYSTEM AS THE KEY INFORMATION SUPPORT

Accounting system of a company has, basically, the objective to create a quality information basis which, ultimately, has to be in the function of efficient company management. The management is expected to lead the company towards the achievement of set objectives which, in the contemporary settings of marked external and internal complexity, inevitably requires sophisticated expert knowledge and skills, as well as quality information support

Within business and financial decision-making CA, which measures and reports financial and non-financial information related to the organisation`s acquisition or consumption of resources (Horngren, et al., 2005.), represents a reliable information support for the management. As the essential part of a company's accounting information system as a whole, CA provides information to both management accounting and financial accounting as subsystems of the accounting information system of an organization - for the financial accounting it measures product costs in compliance with the strict legal and professional regulations; when its information is used for internal purposes it provides the basis for planning, control, and decision-making. This means that information support of CA is not exhausted by providing information for the purpose of reporting balance sheets and income statements of the company as a whole, which is its traditional task. Its information support is expanding towards the creation of relevant information for internal reporting on a company's business activities – especially for short term periods and in smaller organizational segments. Cost data for the purpose of internal reporting are meanwhile relatively free from the constraints of legal and professional regulations. Accounting data used for external reporting very often do not completely satisfy managers' needs for decision-making purposes. Attempts at slight modifications of financial accounting systems for managerial purposes rarely end happily – like eating soup with a fork: it is possible, but it is far from effective (Maher, 1997.).

CA information systems should be flexibly designed. It is very important - being flexible, it will be able to adapt to changes occurring in the business environment as well as in the company itself and, accordingly, respond in a qualitative manner to numerous and various information requirements of the company management. While designing CA information systems one must not lose sight of the following (Maher,1997.): decision-makers' needs must be met; different cost information is used for different purposes – what works for one purpose will not necessarily work for other purposes; cost information must meet the cost-benefit test – namely, cost information can always be improved, but before establishing a new system, one basic question should be asked: will the benefits outweigh the costs?

Today, there are new requirements for changes and continuous improvement so that the management could have adequate information support in managing the company – particularly key strategic variables. Meeting management various information needs related to making individual business and financial decisions has been emphasized, over the last few decades, as the fundamental CA task - assumes calculating costs and benefits of individual business alternatives. It creates reports based on the concept of relevant information (Horngren et al., 2005.) by using un-routine cost-benefit analyses. The concept of relevant costs (and relevant revenues) in choosing among alternatives, assumes considering the expected future costs which differ in alternative actions. Relevant cost analysis generally emphasizes quantitative financial information, but in decision-making managers must pay due attention to quantitative non-financial and qualitative information and must, occasionally, give greater significance to qualitative or non-financial quantitative information (concerns legal and ethical considerations and long-term effects of decisions on the company image, employees' morale and the environment, and is relevant to particular business decision.

Only by integrating the internal and external aspects it is possible to provide quality information for strategic management of a modern company. Strategic cost management (SCM) implies the use the cost data to develop and identify superior strategies that will produce a sustainable competitive advantage.

3. CONTEMPORARY CHALLENGES AND NEW CRUCIAL THEMES

Numerous and dramatic changes in the last couple of decades have contributed to a high level of complexity, turbulence and uncertainty in the business environment in which contemporary companies accomplish their economic mission. The modern company achieves its success as a result of the interaction among the

environment, resources and management, i.e. its ability to employ the resources adequately, bearing in mind the company's position - its strengths and weaknesses. Company management faces numerous strategic challenges of the open economy. This requires, along with acceptable risk, a maximum exploitation of challenges brought by the environment, in order to realize the interests of various stakeholders. Severe global competition and technological innovations, combined with changing customer demands, are forcing companies to develop new approaches and instruments of management, change production systems and invest in new technologies characterized by a greater flexibility of production processes, organization of business and management. This results in a shorter product lifecycle, changes in cost structure and the nature of particular types of costs.

Achieving, maintaining and improving the competitive advantages of companies, is a *condition sine qua non* of modern business.Companies worldwide have considerably changed their strategies. Ever growing competition, lower population growth rates and lower economic growth rates are forcing companies to switch from internally focused strategies to externally focused ones, whose top priority is customer satisfaction. There is a widely accepted saying that customers are company's most valuable assets. Profit is generated by customers, and products are only the ways of turning customer demands into profits. The quality of customer service is a sole criterion for distinguishing a successful company from unsuccessful one (Kaplan,1992.). The company's power is based on its superiority to create values for customers - they are more fastidious and insist upon low costs/prices, quality, time and innovations. This imposes the need of redirecting from mass production of standard products and the strategy of the economy of scope to the strategy of the economy of scale of company activities.

Regardless of the specific commitments in terms of business strategy, the modern company is, inevitably, faced with the requirement of cost competitiveness. Numerous and skilled competitors with new sophisticated approaches to CM and cutting edge technological achievements force it to manage costs carefully and skillfully. It is not possible without adequate information system. As the environment changes, the traditional CA system may not yield sufficient useful information for a significant number of organizations. Thus, advanced CM accounting systems are emerging.

Many organizations have faced a new environment that inevitably affects CA and CM. There are several crucial themes that should be stressed. One of the key themes is *customer in focus*. It isthe key point of the organization success. Among all aspects of business operations which the management must take care of, the customer is the most important because without him the organization loses its purpose. There is a permanent question in the way business operations are performed which puts the emphasis on customer satisfaction: how can value be added for the customer? The focus is on the most profitable customers and the ways to first attract them and then retain them. Today, companies first identify customer needs and demands, and then proceed with the product design and production. Also, the key theme is *value chain and supply chain analysis.* By using VC and activity cost information companies can identify strategic advantages on the market. Thus, a VC analysis is one of the steps towards customer satisfaction. If the company wants to gain, keep or improve its competitive advantage, which is condition sine qua non in modern business, it should perform its primary and secondary activities more efficiently than its competitors. Supply chain (SC) assumes the idea of an "extended company**".** CM emphasizes integration and coordination of these activities through all links i.e. companies in the SC, as well as through each business function in the VC of individual companies. *Costs, quality, time and innovations* are key factors of business success. Customer satisfaction is provided with focusing on key factors of success. The management must continuously focus on these key strategic variables in relation to competition, which surpasses the frames of their company and draws their attention to changes in the external environment observed and assessed by their customers as well. It is of vital importance to manage them carefully and thus affect the level of customer satisfaction. Customers want more than just lower prices and costs – they want quality, responsibility, punctuality. Quality is the key variable of the differentiation strategy as well as of the leadership strategy in low costs. Quality cost is a relatively new tool and it includes: prevention, detection, internal and external failure. Shorter delivery time replies to customer demands regarding services, information etc., add to greater customer satisfaction. Hence measures based on time element should be of major concern to modern CA. Production cycle time consists of: process time, move time of production, queue time and inspection time (Drury,2004.). Only process time adds value to the product - thus, time spent on activities that do not add value to product should be reduced as much as possible by efficient management measures. Innovations are the crucial factor of company competitiveness and success. The success of one company depends on its ability to research, develop and launch new products and services on the market. This should be accompanied by the importance of

innovation in customer communication, selling and distribution channels, specific customer services, etc., leading in turn to rise in costs generated by activities outside production, which is a great challenge to CA. The combination of *benchmarking and continuous improvement* is an ever-present theme in the new approach to management. By comparing with the best examples, the management finds ways of continuously improving their proper practice. Continuous improvement is one of the ways of gaining customer satisfaction. This is a process of constant search for possibilities of cost reduction, elimination of waste, and quality enhancement, etc. In order to consider the possibilities of improvement, a continuous comparison of company's services, products and other activities with those of competitors needs to be made, along with continuous gathering of information about the competitor's activities, research and development achievement in the world, and customer complaints and demands. Benchmarking and continuous improvement are often described as a "the race with no finish" because management and employees displeased with a particular performance level seek continuous improvement. When they adopt this philosophy, the organizations perceive that they are able to achieve performance levels which they previously considered unattainable (Maher, M. 1997.).

Thus, new environment brings new challenges and problems which inevitably impose the need for serious reconsideration of past business philosophy established in stable and predictable business settings. It is of great importance to adopt a wider external orientation with the constant focus on changeable and sophisticated customer demands.

4. MODERN TRENDS IN COST MANAGEMENT

CA information system has the task to help managers make balanced decisions in the light of organizational changes and possibilities offered by the environment, but also to monitor and evaluate strategic and operational development. While considering the development of CM, it is very important to link it to modern challenges to organizations. Therefore, suggestions go in the direction of separating it from traditional accounting and abandoning the long-standing linearity of measuring historical costs and static standards. Managers should anticipate rather than simply react to changes in cost structure and financial performances. In the past few decades there has been an increasing number of discussions about CM and extending various limits. It is a dynamic process which assumes intensive efforts directed towards continuous improvement, i.e. improving the existing and inventing new tools and techniques, starting with early activity-based costing models and pursuing lately in the direction of strategic cost management (SCM). In that period, the most prominent trend has been *shift the focus* from determining product costs by using standard traditional cost models, towards providing support for strategic and operational decisions by using certain forms of activity analysis.

The turning point in the development of CA was the advent of *Activity Based Costing (ABC)* which emerged primarily as an expression of the need to provide much more accurate data about the output cost price compared to traditional methods. It focuses on activities as parts of the entire process in a company and their cause and effect relations with the resources used as well as with cost objects (products and services, market segments, customers) i.e. activity drivers. However, management can use it not only for the purpose of calculation, i.e. more accurate product costing and, therefore, more successful price and product and service range management, but also for providing financial and non-financial information on activities, and effective CM – as assistance to activity based management. When considering the use of ABC for the strategic purposes, many experts think that it offers strategic opportunities to companies. Many companies have gained competitive advantage due to ABC information, i.e. cost reduction by lowering prices in order to increase their market share. *Activity Based Management (ABM)* focuses on managing activities with the aim of increasing the value which the customer receives and profit obtained by providing this value, which assumes driver analysis, activity analysis and performance evaluation. The main data information source for that is ABC. Using cost information about various activities helps managers to identify activities that do not add value to products but waste resources, and also urges them to redesign expensive production methods. Thus, according to ABM approach to company management the attention of managers is directed towards company activities; ABM assumes a set of decisions and actions based on ABC concept information. The goal is to increase the value delivered to customers and to boost company profitability to a higher level. Strategic and operational ABM are singled out. *StrategicABM* assumes directing the organization towards the

most profitable use of resources. Due to ABC information we can point out non-profit activities as well as the most profitable ones, and make decisions affecting product development and design, fixing sales prices, specifying the production and sales mix, and establishing and developing relations with key customers and suppliers. All this can be achieved due to skilful combining of the knowledge about cost behavior (i.e. their drivers) with the knowledge about customer behavior. *OperationalABM* assumes decisions and actions with the goal of continuous improvement of business processes; and for designing ABC systems, as its information support, several hundred activities may be necessary in order to obtain better insight into processes underlying production and customer service. Operational ABM is directed towards the improvement of efficiency and reduction of resources necessary for performing respective activities (Cooper and Kaplan, 1999.). ABC model determines where the greatest possibilities of cost reduction lie; but ABC information is not a current operating tool for the activities of improvement. This model offers the key direction for decision-making where to launch initiatives such as kaizen costing, pseudo-profit centers, TQM and reengineering. *Activity Based Budgeting(ABB)* extends the ABM idea to the planning cycle by using it to establish cost limits and control systems in organizations. Supported by activity analysis ABB uses benchmarking information to help the company to control costs and eliminate the increasing trend of exceeding the budget without improving the company's ability to create value for customers (McNair,2007.). ABB is directed towards future resources, activities and outputs and is a valuable information support to the process of strategic decision – making.

Just-in-Time (JIT) concept of purchase and production is one of the most important recent innovations. In attempts to realize JIT objectives, many companies introduce a flexible production system i.e. computer-aided production system which enables the company to produce various products with minimum setup time. This business philosophy emerged from the need of the management for a more efficient inventory management, i.e. reduction of investing in inventories and it assumes that materials flow and production process runs smoothly. JIT system application requires a highly efficient coordination of purchasing, production and marketing functions. Unless all production process components are reliable, this system loses its efficiency. As a result, significant changes in organizational (structural and procedural) company activities which occur with the introduction of JIT systems, affect the nature of CM accounting systems–traceability of costs changes, product costing accuracy rises, the need for allocation of service-center costs diminishes, cost behavior and relative importance of direct labor costs changes, job-order and process costing systems are affected, reliance on standards and variance analysis as well as inventory tracking systems decrease. In sum, organizational changes concern both CA and operational control systems. In general, they simplify CM accounting systems and at the same time increase the accuracy of cost information obtained. Therefore, a simplified approach to manufacturing cost flow has been developed – *Backflush Costing (BFC)*. It is said to be a simplified method which significantly saves time and effort and reduces errors – in JIT settings, among other things, there are no departments, production cycle time is measured in minutes or hours, and products are dispatched immediately after the completion; so it looks absurd to track costs from position to position within a cell. BFC uses trigger points to determine when manufacturing costs are assigned to particular key accounts. There are several variants of this method depending on the number and location of trigger points.(Hansen&Mowen,1997.)

*Q*uality has become an important competitive dimension for both service and manufacturing organizations. It is an integrating theme for all organizations. Increased attention to quality is result of not only increased competition but also increased customer demands for higher-quality products and services. Improving quality may actually be the key to survival for many firms. Continual improvement and waste elimination are foundation principles that govern a state of manufacturing excellence, which is the key to survival in contemporary world-class competitive environment. A philosophy of *Total Quality Management (TQM)*, in which managers strive to create an environment that will enable workers to manufacture perfect (zero-defects) products, is replacing the acceptable quality attitudes of the past. Reducing defects, in turn, reduces the total costs spent on quality activities. Four categories of *quality costs* are emphasized: *prevention* costs are incurred to prevent poor quality in the products/services being produced; *appraisal* costs are incurred to determine whether products/services are conforming to their requirements or customer needs; *internal failure* costs are incurred because products/services do not conform to specifications or customer needs; *external failure* costs are incurred because products/services fail to conform to requirements/satisfy customer needs after being delivered to customers. Quality costs can also be classified as *observable* (available from an organization's accounting records)or *hidden* (opportunity costs resulting from poor quality – not usually recognized in accounting records). Quality costs must be reported and controlled. A quality cost

report is prepared to improve managerial planning, control and decision making (strategic pricing and cost-volume-profit analysis). There are two views concerning the optimal distribution of quality costs: the *conventional* view (acceptable quality level) and the *world-class* view (zero-defects level). In achieving a defect-free state, a company is strongly dependent on its suppliers' ability to provide defect-free parts. This linkage has to be incorporated in a standard "partnering agreement"between purchaser and supplier. Perhaps the most important observation is that quality cost information is fundamental in a company's pursuit of continual improvement. Quality is one of the major competitive dimensions for world-class competitors (Hansen&Mowen, 1997.). Organizations operating under the TQM philosophy have introduced a broad array of non-financial measures to monitor and improve the quality of their products/processes. For example, Motorola, a leading company in applying the TQM philosophy, adopted an aggressive approach to quality, setting a quality target of a level representing fewer than 12 defects per 1 million parts. (Cooper&Kaplan,1999.).

Target Costing (TC) is a tool (McNair,2007.) which emphasizes the relation between the price and market share as a basis for disciplining an organization's spending during product and process design, development and engineering. Basically, it assumes cost reduction per product unit. It is a completely new approach: how much a product *is allowed to* cost (Seidenschwarc,1993.). As a concept of a much more comprehensive and aggressive CM information support, TC is built in the decision-making (planning) process concerning introduction of new and making radical changes to the existing products and processes. *Target Cost Management (TCM),*as a tool for a comprehensive cost and profit management and as a concept of long-term strategic CM, focuses on the design stage. It initiates CM in the earliest stages of product development and is aimed at intensifying the cooperation with the suppliers and other organizations on the market. TC operates after a general model: target costs = target sales price − target profit. If the target cost (as the difference between the sales price needed to ensure a previously determined market share and the desired profit per unit) is below the presently feasible cost, the management budgets cost reductions which direct real costs to target costs. Bearing in mind the organizational aspect, a successful implementation of TC concept assumes the creation of an organizational team structure that should include experts from different functional areas of the company as well as from the organizations it cooperates with on the market.

*Life Cycle Product Costing (LCPC)*is an extension (McNair, 2007.) to TC tools, which links all costs driven by a new product, from the conception of the idea for the product through to its removal from the production program and withdrawal from the market, i.e. 'from the cradle to the grave'. The products are analyzed in order to determine whether they will bring profit during their entire life cycle. *Life Cycle Product Cost Management (LCPCM)*, according to the integrated approach, consists of activities leading to product design, development, manufacturing, marketing, distribution, use, maintenance, service and removal, with the aim of maximizing life cycle profits. As a result, product costs are tracked and analyzed through all stages of its life cycle, which is radically shortened due to changeable customer demands and the increasingly ambitious competition regarding the technological product innovations. In contemporary settings it is of vital importance to launch a new product on the market and replace the existing product with the innovated one as soon as possible (regarding quality and functionality). LCPCM stresses cost reduction, not cost control. Since 90% of the life cycle product costs are determined in its design process, i.e. in the stages of a new product development and construction, activity management during this stage of product existence is stressed. This should, by all means, affect the managerial decisions regarding investments and directing more resources towards activities in the early stages of product life cycle. Although LCPCM is important for all manufacturing companies, it is particularly significant in short life cycle circumstances, when good planning is critical. (Hansen&Mowen,1997.).

Costing and CM through the value chain - *Value Chain Analysis (VCA)-* is a concept representing the broadest approach to management. It assumes monitoring the relations among activities that create value with the aim of cost reduction, where the problems of tracking, measuring, analyzing and managing costs are extended outside the borders of a company. Beside internal value chains (VC), it extends to the area of supply chain, i.e. suppliers, on the input side, and distribution chain, i.e. customers − distributors and end users, on the output side, because the internal VC of a company is built in the broader value system which includes both supply VC and customer VC. That is to say that the leadership strategy in low costs and/or the differentiation strategy can lead to sustainable competitive advantage, but successful application of these strategies requires the managers to understand all the activities that contribute to their achievement. It is necessary to understand the industrial value chain as a whole, not only the part in which the company participates. Without an external focus there is no effective strategic CM. With the aim of successful

implementation of the relevant strategies it is necessary to break the VC into strategically relevant activities of a company. VC is a necessary approach to understand these activities; understanding both the complex links and interrelations between activities performed inside the internal VC of a company (internal linkages), and those describing the linking of activities of a company with the activities of suppliers' VC and customers' VC (external linkages). Therefore, in order to describe and exploit these relations, it is necessary to identify company activities and choose the ones that can be used for creating and sustaining competitive advantage. The optimal choice assumes the knowledge of costs and value created by each of the activities, as well as relevant cost drivers. In the context of strategic analysis, activities are classified into organizational (structural and procedural) and operational, while costs of these activities are determined by means of organizational and operational cost drivers. Understanding organizational cost drivers is crucial for strategic cost analysis. The factors in question are structural and procedural factors which determine the long-term cost structure of an organization and play the fundamental role in any cost reduction strategy (Hansen&Mowen,1997.).

By focusing on the entire industrial VC a broad frame is created, useful for a better understanding, tracking and managing costs. This requires new techniques, tools and models for cost measuring and control, with continuous comparing of cost performances of the main competitors on the market, as well as a subsystem of nonfinancial performance measures, to be included into cost accounting information systems. This is necessary in order to provide information support to heterogeneous information needs and to allow complete insight into the entire VC costs, their more accurate linking to activities, products, customers, distribution channels or narrower segments of a company, as the relevant objects whose profitability is being measured. It is recommended that a reliable accounting support for this integrated approach to CM should be found in a combined implementation of new and improved existing concepts, alongside with an adequate integrated software support. We must also point out that one of the critical factors of the success of pursuing competitive strategies on the market is to provide a rounded up performance measuring system. One of the solutions is the so-called *Balanced Scorecard (BSC)* which provides a comprehensive framework linking strategic objectives of the company with a coherent set of performance measures (Zimmerman, 2000.). BSC attempts to unite and balance traditional financial perspective (concerning the measuring of current and designing future financial results) with three more perspectives of vital importance for a successful pursuit of competitive strategies on the market – the perspectives of customers, business processes and innovations and learning. In the BSC approach to performance improvement the most critical processes for the success of a strategy are identified. They are stressed not only for their potential for cost reduction, but also for their ability to fulfill end users' expectations. When using BSC, managers usually realize that for the implementation of a new strategy it may be much more important to stand out in completely new processes than to create gradual cost improvements in the existing processes.(Cooper&Kaplan,1999.) . *Value Stream Accounting (VSA)*is characteristic of *leanmanufacturing* (LM) which developed from Toyota production system based on the JIT model and is the complete opposite of traditional production. Many companies, aspiring to the "world class" position, follow LM whose objective is to improve efficiency and effectiveness in every area – including product design, interaction with the suppliers, factory operations, managing employees and customer relations. In order to keep this position, they must persist in "endless journey" which requires continuous innovations and improvement. "Lean" includes making the right product at the right place at the right time in the right quantity with minimum waste and sustaining flexibility. Thus, the key for successful LM lies in the achievement of production flexibility which includes physical organization of production plants and the application of automated technologies including CNC machines, CIM, *robotics, CAD, CAM.* (Hall,2008.) Companies inclining to LM often use the tool *value stream map (VSM)* to present their business process graphically in order to identify the wasteful aspects which should be eliminated. Information needs of a lean company cannot be adequately supported by traditional information provided through conventional accounting techniques, because of inaccurate cost allocation, promotion of non-lean behavior, inaccessibility in real time, financial orientation. Therefore, many lean companies have adopted an alternative accounting model, so-called VSA. VSA tracks costs by the value stream instead of department or activity; the value streams cut across function lines and departments, i.e. horizontally, and thus links with traditional vertical reporting on structure and cost flows are broken. (McNair,2007.). It is of fundamental importance for its implementation to define *product families*– namely, products are grouped into natural families which share common processes from placing an order to delivering of finished products to customers (Hall,2008.) As for the information support to lean manufacturing and world class companies, three information systems are being considered - from MRPand MRP IIto ERP.

Finally, in order that CM could secure an important position in the 21st century and reject the label 'old wine in new bottles', key instructions are listed for the most recent research and practice regarding new techniques for the 21st century, such as (McNair,2007.): resource consumption accounting; the relative cost of intellectual capital and the value it creates; waste measurement and analysis; non-linear cost functions; dynamic cost modeling and prediction. Each of these techniques adopts a broader view of costs, focusing more on the way resources affect one another in creating or destroying the company value than on measuring the status quo. CM follows the need to define, measure and help the organization to maximize its potential to create value.

5. CONCLUSION

New environment brings new challenges and problems which inevitably impose the need for serious reconsideration of past business philosophies of companies based on stable and foreseeable business conditions.As a response to numerous contemporary challenges, a broad range of new management approaches and philosophies is developing, such as: value chain analysis, setting up long-term relationships of close cooperation with key customers and suppliers, continuous improvement, broad empowerment of employees, new production management systems and many others. Despite the underlying notional differences, they all have the same universal motif – to master key factors for business success (cost, quality, time, innovations) and supply customers with superior value on the market. Regardless of the concrete orientation regarding business strategy, the contemporary company inevitably faces the requirements of cost competition. Numerous and skilled competitors with new sophisticated approaches to cost management and cutting edge technological achievements force it to manage costs carefully and skillfully.

Achieving and sustaining competitive advantage in a dynamic and thoroughly uncertain environment necessarily requires sophisticated professional knowledge and skills, as well as designing an adequate information system. Cost accounting, as a basic information source useful for business decision-making, has the fundamental role within the entire accounting information system of a company. When considering the development of cost management, it is very important to link it with modern challenges to organizations. Only a flexibly designed cost accounting information system can qualitatively respond to numerous and various information requirements – as such, it will be able to adapt to changes occurring in business environment as well as in the company itself. Only by integrating the internal and external aspects it is possible to provide quality information for strategic management of a modern company. Practical application of some new solutions faces difficulties in developed countries as well, because of high investment and operational costs. It is particularly emphasized that, from the aspect of modern cost management, there is much left to be done in order to raise cost management to the highest level of the modern practices.

Unfortunately, our conditions are characterized by underdevelopment and weak application in practice of the conventional as well as the new solutions for cost accounting. It is necessary to widen and deepen more intensively the existing theoretical and practical knowledge which will enable us to examine the wide focus of company cost and performance management and to recognize the right conditions for gradual development and implementation of new solutions along with the development of our economy. It also seems logical to ask the following question: How much do cultural features and mentality affect the implementation and efficient functioning of a particular solution? In any case, the new solution must be closely examined by the cost-benefit analysis which should clearly show whether the benefit of using particular information outweighs the costs of providing it.

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