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International Business – Central European Business Realities

Costs of entering the EMU and the case of Greece

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Declaration:

I hereby declare that I am the sole author of the thesis entitled “Costs of entering the EMU and the case of Greece“. I duly marked out all quotations. The used literature and sources are stated in the attached list of references.

In Prague on 15/05/2012

Signature

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Abstract

The introduction of euro in 2002 was considered to be a risky “experiment. Even before its actual existence, many economists have doubted the success of the Economic Monetary Union (EMU) emphasizing the potential costs of such a bold action. The traditional Optimum Currency Area by Mundell (1961), Mc Kinnon (1963) and Kenen (1969) has pointed out the loss of the exchange-rate mechanism and the structural differences among the member states as the main sources of costs within a monetary union. Ten years after the circulation of euro, the ongoing Greek debt crisis has revealed the imperfections of the EMU. Greece has become the “black sheep” of the union, having accumulated unsustainable levels of public debt and deficits that could pose a threat for the future of the Eurozone. It is widely believed that the profligate fiscal policies of the Greek government and the domestic flaws of the Greek economy have played an important role on the country’s debt crisis. However, the impact of Greece’s accession to the EMU on the current crisis is still a moot question.

Key words: monetary union, optimum currency area theory, public debt and deficit, Greek debt crisis.

Abstrakt

Představení eura v roce 2002 bylo považováno jako riskantní experiment. Již před svým počátkem mnoho ekonomů zpochybňovalo úspěšnost Evropské měnové unie (EMU) s poukazem na potenciální náklady této troufalé akce. Tradiční přístup teorie optimální měnové oblasti Mundella (1961), Mc Kinnona (1963) a Kenena (1969) zdůrazňoval jako klíčový zdroj nákladů měnové unie ztrátu kurzového vyrovnávacího mechanismu a existenci strukturálních rozdílů mezi členskými státy. Po deseti letech existence eura ukázala probíhající řecká dluhová krize nedokonalosti fungování EMU. Řecko se akumulací neudržitelné úrovně veřejného dluhu a deficitů, které ohrožují budoucnost Eurozóny, stalo "černou ovcí" unie. Má se všeobecně za to, že rozmařilá fiskální politika řecké vlády a chyby v řecké ekonomice hrály důležitou roli v dluhové krizi této země. Na druhé straně vliv přistoupení Řecka k EMU na současnou krizi je stále spornou otázkou.

Klíčová slova: měnová unie, teorie optimální měnové oblasti, veřejný dluh a deficit, řecká dluhová krize

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Abbreviations

ECB: European Central Bank

ECC: European Economic Community

ECOFIN: Economic and Financial Affairs Council

EMU: Economic and Monetary Union

EU: European Union

GDP: Gross Domestic Product

IMF: International Monetary Fund

MU: Monetary Union

OCA: Optimum Currency Area

OECD: Organization for Economic Co-operation and Development

R&D: Research and Development

WTO: World Trade Organization

Introduction

The process of integration in Europe went through many phases during the 20th century. The most important step towards that direction was the implementation of the Treaty of Rome on 1st of January 1958, establishing the European Economic Community (ECC). Its objective was to create a common market between Germany, Italy, France, Belgium, Luxembourg and the Netherlands. It involved both the creation of a customs union and the convergence of certain economic policies such as the free movement of goods, services, capital and labour. By January 1986, six more countries had joined the ECC, including Denmark, Ireland, the United Kingdom, Greece, Spain and Portugal.

The decision for the formation of an Economic and Monetary Union (EMU) was taken by the European Council in Maastricht, Netherlands in December 1991 but the Maastricht Treaty was signed by the twelve members of the ECC in February 1992. By signing that Treaty, the countries of the ECC agreed on gradual evolution of the ECC into the European Union (EU) and finally into an Economic and Monetary Union. The evolutionary path included three stages with a total duration of ten years, resulting to the replacement of the national currencies by the euro on 1st of January 2002. During the ten-year period the economies of the member states were under a convergence process based on the following five Maastricht criteria (European Commission):

- Price stability – Inflation rate no more than 1,5 percentage points above the average of the member states with the lowest inflation rate.
- Sound public finances – The annual public deficit to Gross Domestic Product (GDP) ratio must not be more than 3%.
- Sustainable public finances – Public debt to GDP ratio must not exceed 60%.
- Durability of convergence – Long-term interest rates must not be more than 2 percentage points above the average of the three member states with the lowest inflation rate.
- Exchange rate stability – Participation in the exchange rate mechanism (ERM II) for at least two years without serious variations.

Currently there are 17 member states that have adopted the euro including Belgium, Luxembourg, the Netherlands, Germany, France, Italy, Austria, Ireland, Finland Spain, Portugal, Greece, Slovenia, Cyprus, Malta, Slovakia and Estonia.

The creation of the EMU was considered to be a highly risky "experiment" by many economists. Ten years after its circulation, the euro is going through a critical period confirming the doubts of scholars for the success of the union. The excessive public deficits and debt of Greece, resulting to a sovereign debt crisis, have affected the economy of the whole union. The potential of a generalized crisis in Europe and the austerity measures that have been massively applied within the union has increased the concerns regarding the costs of a country's participation in a Monetary Union (MU).

The ongoing Greek crisis has attracted the interest of the European mass media which has divided and in some cases misled the public opinion regarding the causes of the crisis and the future of the EMU. Heavy blame has been attached to the Greek government's policies and to the Greek citizens who under the threat of losing their national pride and rights have surged along the streets. The economic and social impact of the crisis has been very strong in Greece where unemployment reached the unprecedented level of 21,8% in January 2012 (Greek National Statistics), salaries have been shrinking, suicide rate increased by 40% from 2010 to 2011 according to the Ministry of Health and many families have been forced to live in poverty.

The huge dimension of the crisis at a European level and especially its tremendous consequences on the quality of life in Greece have triggered the interest for writing this paper on the topic "Costs of entering the EMU and the case of Greece in Eurozone". Additional motivation for choosing the specific topic was the ignorance of Greek citizens on the implications of the country's participation in the EMU which was proved by a personal research and could partially attributed to the focus of the Greek mass media on the endogenous causes of the crisis. There seems to be a lack of connection between the domestic weaknesses of the Greek economy and the EMU's contribution to them. The main challenge of this thesis is to bridge this gap by applying the existing theoretical background for the costs of a MU in the case of Greece.

The primary objective of this work is to analyze the causes of the current Greek debt crisis and find out to what extent the accession of Greece to the Eurozone has contributed to this crisis. It also aims to offer empirical knowledge on the already

existing theory regarding the costs of monetary unions. The achievement of these goals requires firstly a deep analysis of the relevant theoretical framework and afterwards a detailed elaboration on the endogenous and exogenous factors of the Greek crisis.

To be more specific, the first chapter provides an explanation of the main sources of the potential costs due to a country's admission to a monetary union. The basis of this analysis is the traditional Optimum Currency Area (OCA) Theory, developed by Mundell (1961), Mc Kinnon (1963) and Kenen (1969). The fundamental OCA theory is reinforced by the views of Corden (1972), Giersch (1973), De Grauwe (1975) and the contribution of Bruno and Sachs (1985), Calmfors and Driffill (1988) to the potential risks of a MU stemming from structural differences in the member states' economies. In addition, the chapter includes examples and graphs that clarify the theoretical arguments.

The second chapter is a critical approach to the theoretical framework of the first chapter. It examines the importance of the structural differences in the economies of a MU as well as the effectiveness of exchange-rate policies as a balancing mechanism. Paul De Grauwe's "Economics of Monetary Union" has drawn up the basic guidelines for this chapter. The starting point is the examination of two contradictory opinions concerning the frequency of asymmetric shocks in the EMU by Krugman (1991) and the European Commission (1990). Then, the McDonald – Solow (1981) model is used to evaluate the institutional differences in the national labour markets of a MU while the Barro-Gordon (1983) model demonstrates the influence of the governments' preferences on the economy. The chapter also provides a cost – benefit analysis of a MU from a monetaristic and a Keynesian point of view. The analysis is enriched by empirical studies (Angeloni, Ehrmann 2003, European Commission 1990, IMF 1981-1998) and graphic illustrations of examples.

The third and last chapter, which is the empirical part of the thesis, examines the case of Greece in the Eurozone. It begins with the evolution of the Greek debt and deficits through the years and their impact on the country's economy. The results of a personal research from December 2011 to March 2012 are also included in this chapter. The purpose of the specific research was to discover the public opinion on the causes of the current crisis through face-to-face and phone interviews. The next step of the analysis is the division of the causes into endogenous, e.g., government fiscal policies, tax evasion, corruption and exogenous such as the global financial

crisis of 2008, Greece's participation in the EMU and the imperfections of the union. Then, all the above mentioned factors are examined in connection to the theory presented in the previous two chapters. The necessary data are taken mainly from the statistical database of the Organization for Economic Co-operation and Development (OECD), the Greek and the European Central Bank (ECB), the Eurostat and the Greek National Statistics Organization as well as the World Trade Organization (WTO) and the International Monetary Fund (IMF). Useful information is also taken from articles in the international press such as BBC, the Economist, Reuters and from academic papers published on the internet. In addition, interesting ideas are found in the online documentaries "Debtocracy" and "Catastroika", directed by Aris Hatzistefanou and Katerina Kitidi. In general, foreign –especially European- institutions and press are the main source of the used data in order to reach more objective conclusions. However, in some cases the necessary data are only available in Greek sources.

Finally, the results and the findings of the combined empirical and theoretical analysis are presented in the end of the paper leading to conclusions and suggestions.

CHAPTER 1

The main costs of a Monetary Union
- The Optimum Currency Area Theory

Source: Shooty

1. The main costs of a Monetary Union

The entrance of a country in a monetary union has significant impacts on its market and economy. The replacement of the national currency with the common one is the beginning of a series of changes that take place in the society. In this crucial period, is created the reasonable question of the increase or reduce of the citizens' welfare after a country's admission to a Monetary Union (MU). In the first part we will focus on the most important costs that a country could face as a member of a MU and we will continue our analysis based on the Optimum Currency Area Theory.

- **Loss of sovereignty over monetary policy**

The main cost for the economy of a country that becomes part of a MU stems from the consequences on the monetary policy, caused by the abandonment of its national currency. The national central bank can no longer exercise an independent monetary policy, as the price of the common currency, its quantity in circulation and the interest rates are determined by the union's central bank. Nevertheless, what benefits would a country gain from implementing an independent economic policy? It is proved that the changes in the exchange rate (currency devaluation or revaluation) and the management of the domestic interest rates can contribute to the achievement of economic goals. For example, in 1992 United Kingdom left the European Exchange Rate Mechanism in order to overcome the recession by setting lower interest rates. In addition, governments cannot devalue the exchange rate to deal with balance of payments problems. Suppose that a member state of a MU has lost its international competitiveness due to high unit labour costs resulting to current account deficit. Currency devaluation would help the country to improve its competitiveness in the world market but this is impossible for a member of a MU. Indeed, as it will be discussed in the chapter 3 of this paper, Greece has faced such a problem due to its participation in a MU.

- **Partial loss of independence over fiscal policy**

The participation of a country in a MU does not imply the end of its independent fiscal policy. It is possible that the members of a MU maintain their fiscal policies independent, although some centralization and common goals of fiscal policies are necessary and could be an important mechanism to handle an asymmetric shock. For example, in the case of the Economic Monetary Union (EMU) the countries try to maintain to a large extent the control over their fiscal policy but the

Stability and Growth Pact imposes certain limits on deficits and national debt. All the members of the Eurozone must respect these limits otherwise they will face sanctions. According to the Pact the yearly deficit of each member state should not be more than 3% of its GDP. However, the authorities have adopted more reforms in order to take into account the economic conditions of each member state. Maybe for this reason, no fines were imposed in 2002 when Germany and France had violated the 3% rule.

- **Asymmetric shocks**

Asymmetric shocks are unexpected changes in the macroeconomic environment that affect the countries unequally and can cause serious imbalance of trade, production, investment, consumption and government spending. This kind of shock has a negative impact on the economic growth of a country while in another it can enhance the economic development or it might have no impact to other countries. In the case that a country maintains its national currency it can use monetary and fiscal policies to face the asymmetric shock. However, if a country is a member of a MU it cannot change its monetary policy and has to find other ways that might be more costly, to handle an asymmetric shock. Later on, we will explain further the effects of an asymmetric shock with the help of the Optimum Currency Area Theory.

- **Loss of seignorage**

Governments can make an economic profit through printing money when the value of the money that is created is higher than it costs to produce it. This seignorage revenue can be used by governments as an alternative way of financing their budget deficit without having to collect additional taxes or to sell debt. Seignorage is widely also known as the “inflation tax”.

According to the theory of optimal public finances, rational governments will use the alternative sources of revenue so that the marginal cost of raising the last unit of revenue from each source is equalized. When a country does not have a developed fiscal system, it is more costly to raise revenue by increasing taxes than through inflation.(Tavlas 1993: 673; De Grauwe 2003: 20-21). Therefore, countries with underdeveloped tax systems are said to undergo a significant cost by joining a monetary union that has a stable price level (Dornbusch 1988, Artis 1991). Such countries will experience a loss of welfare as they will have to increase taxes or let their budget deficits rise.

Despite the fact that the loss of seignorage is a cost for a country participating in a MU, it is very difficult to calculate the significance of this type of cost. In the

case of the EMU we must not forget that seignorage continues to exist, although in modest amounts, and is shared among the member states. In addition, the use of the euro as an international currency brings extra seignorage, beyond the union's borders. These additional seignorage revenues that come from the international use of the euro were not available for the majority of the members when they were using their national currencies. A country should also take into consideration that the loss of seignorage must be compared with the increase in tax revenue resulting from any future increase in growth attributable to a more stable economic environment (Antinolfi and Keister 2001: 31). Finally, the calculation of the future loss of seignorage should not ignore the reduction in public-debt service costs resulting from lower real interest rates due to the more stable economic environment - that is, to a lower risk premium on the real interest rate (Dornbusch 2001).

The significance of the loss of the seignorage revenue varies from country to country, based on the dependency of the country's government on this type of revenue before entering the MU and on the size of the above-mentioned benefits for each member state. In Western Europe, for instance, only in some southern countries the seignorage revenue was estimated to be higher than 1% of GDP in 1997 (De Grauwe 1997). Maybe, the most reasonable question is how seignorage revenue will be distributed inside a monetary union.

- **The costs of introducing the common currency**

Adopting the common currency involves changeover costs for each member state for switching from the old to the new currency. These costs include legal, administrative, communication and information technology system changes. The public and private institutions of the members have to spend a huge amount of money in order to adjust bank accounts, payrolls, price lists, contracts, databases, software, vending machines, etc. Despite the fact that this is an enormous cost, it is not as important as the previous ones because it is one-off cost, i.e. it is only paid once.

1.1 The Optimum Currency Area (OCA) Theory

The Optimum Currency Area Theory (OCA), like it was developed by Mundell (1961), Mc Kinnon (1963) and Kenen (1969) elaborates the criteria for the evaluation of both the costs and benefits of a country's entrance in a MU:

- **Degree of openness:** The higher the degree of openness of a country, the more the benefits from joining a MU. In order to assess the openness of a country, one should

take into consideration the overall openness of a country to trade with the world and especially the degree of openness vis-à-vis the countries of the union. In general, a country is considered open when the trade accounts for a high proportion in domestic output.

- **International factor mobility:** High factor market integration and factor (capital and/or labour) mobility among the countries of a MU can reduce the need to change real factor prices and nominal exchange rates in response to external shocks. If a country suffers from an asymmetric shock then factors of production may move from this country to another that is positively affected by the shock. Therefore, the prices of these factors will not have to decrease and rise significantly in the badly and positively affected economies. For better understanding refer to the example in the part 1.1.1 where shift in demand between two countries can be balanced either through labour mobility or changes in wages.
- **Product diversification:** A country is less vulnerable to sector-specific shocks when its exports include highly diversified products. Therefore, diversification reduces the need for changes in the nominal exchange rate and can provide protection against a variety of external shocks.
- **The degree of fiscal policy integration and similarities between rates of inflation:** Different rates of inflation among the member states of a MU can lead to loss of competitiveness in countries with higher inflation. For this reason, policy integration is necessary, maybe even before the creation of the union, in order to achieve low inflation within the MU.
- **Similarities of shocks and business cycles:** Unsynchronized business cycles and asymmetric shocks increase the need for country-specific adjustments in monetary policy which is impossible within a MU.
- **Real wages flexibility:** When the real wages are flexible among the countries of a MU, the process of adjustment to an asymmetric shock is faster and less likely to involve sustained unemployment in one country and inflation in another. Furthermore, this implies a reduced need for nominal exchange rate adjustments. (Friedman 1953).
- **Fiscal transfers** among the member states counteract asymmetric shocks in a MU. Furthermore, in case that a member state of a MU has experienced a big loss of its world competitiveness, a mechanism of fiscal transfers would imply huge fiscal transfers to that country. These transfers would help the country to stabilize its economy but not to really retrieve its lost competitiveness. In order to achieve these

transfers, countries should create a supranational fiscal transfer system that would manage the redistribution of funds to the countries that are negatively affected by an asymmetric shock. However, this requires a high level of political integration and risk-sharing.

The loss of control over the exchange rate in combination with the different political and economic priorities of a country, over time, constitute the main source of cost of a common currency. In the following paragraphs we will analyze the cases that the cost of a MU is so high that it would have been better for a country to maintain its own currency.

1.1.1 Shifts in demand

We will examine the case of a shift in demand, analyzed by Mundell (1961) in his Optimum Currency Area Theory. Suppose that two countries, for instance France and Italy, replace their national currencies with a common one, controlled by a common central bank. In addition, suppose that the consumers within this union – for some reason- start to prefer more the Italian products to the French ones, leading to a permanent asymmetric shock of aggregate demand in France.

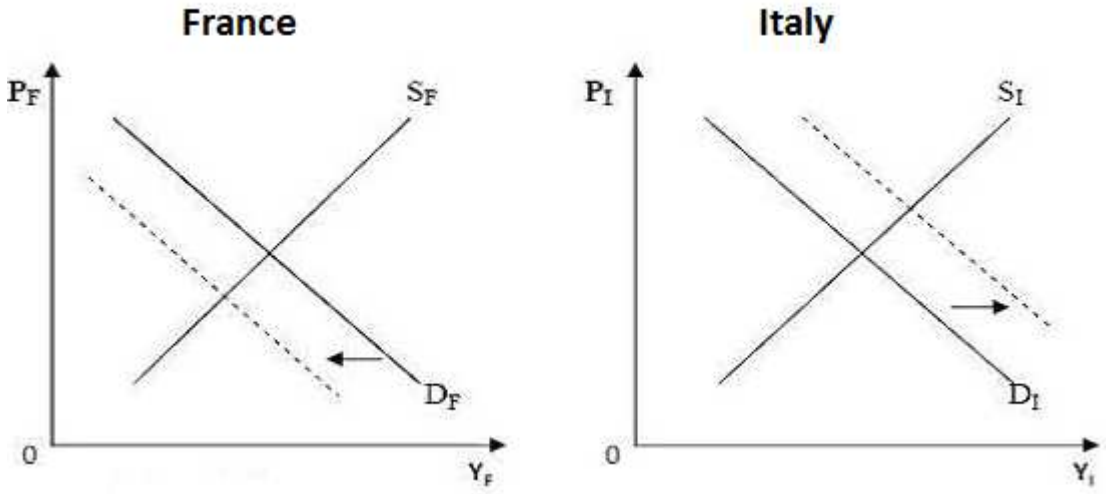
For the graphic illustration of this shift we will use the macroeconomic model of aggregate demand-aggregate supply (AD-AS). The demand curve has a negative slope because an increase in the domestic price level causes a decrease in the demand of domestic output. On the other hand, the supply curve has a positive slope because a rise in the domestic price level increases the supply of domestic output, as the businesses increase their production and supply in order to take advantage of the higher prices.

This shock is represented by a shift of the aggregate demand curve upwards to the right in Italy and downwards to the left in France (figure 1). These shifts have as a result the decline of equilibrium level of output in France and the increase of equilibrium level of output in Italy. So, France has to face a rise of unemployment level while in Italy the boost of production activity exerts upward pressures on price level with a decrease of unemployment at the same time.

The consequences in the countries' current account balances, which is the difference between domestic product and national expenditure, are the following: in France the shift in aggregate demand results in a decrease of its domestic product's

value. If French expenditure is not equally reduced, the country will face a current account deficit. This will most likely happen because the social security system automatically pays unemployment benefits and the French disposable income will not be reduced the same as the production, leading to an increase of public deficit. Exactly the opposite situation prevails in Italy, where the value of production increases while the value of the total Italian expenditure might not grow as much resulting in a current account surplus (Paul De Grauwe, 2005, "Economics of Monetary Union")

Figure 1 ***Aggregate demand and supply in France and Italy***



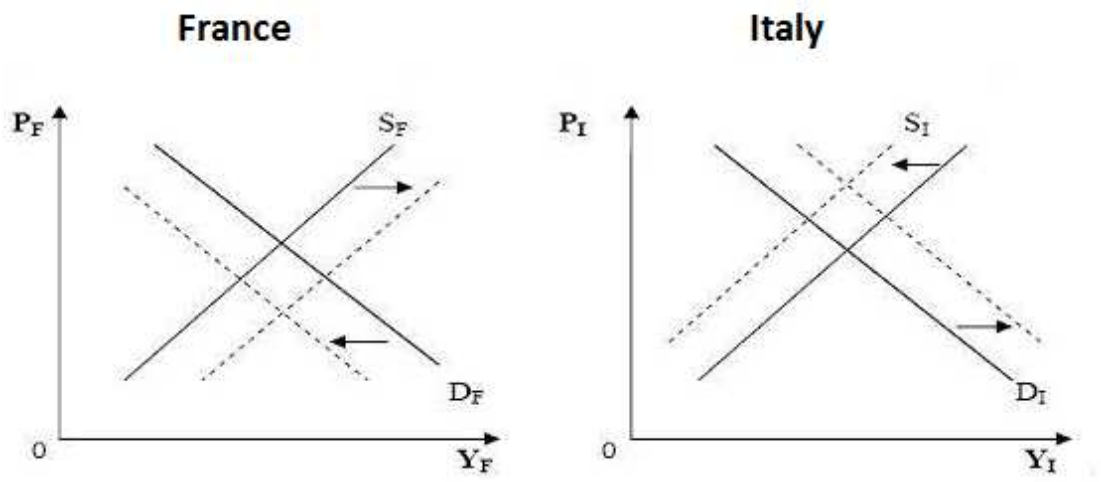
Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

According to the OCA theory, there are two criteria that can act as automatic mechanisms of counterbalance and allow the countries to face the asymmetric demand shock with the least possible adjusting problems. The first one is based on wage flexibility and the second on labour mobility.

If the wages in the two countries are flexible, the unemployed in France will accept the necessary cut in their wages. In Italy, the boost of production will create excess labour demand, pushing up the wages. Graphically, the wage decline in France shifts the aggregate supply curve downwards to the right. Correspondingly in Italy the wage rise shifts the aggregate supply curve upwards to the left (figure 2). Furthermore, the secondary effects on aggregate demand will reinforce the counterbalance mechanism. The rise of wages and prices in Italy enhances the competitiveness of French products over the Italian ones, shifting the aggregate

demand curve of France upwards to the right and the aggregate demand curve of Italy downwards to the left. These shifts will restore the balance. However, it is a question how fact this mechanism can reverse the impacts of the demand shift in the two countries.

Figure 2 ***Process of automatic adjustment***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

The second mechanism is related to the labour mobility between the two countries. The gap that is caused by the excess labour demand in Italy can be covered by the French unemployed. This drift of labour can restrict the decline of wages in France and the rise of wages in Italy. By this way, the problem of unemployment in France will be solved and the inflationary pressures in Italy will be disappeared.

In case that the above-mentioned criteria are not satisfied, France will face a persistent problem of unemployment and lasting current account deficit, public deficit as well as public debt that could only be solved through a deflation policy. The consequences of the specific policy on production and employment reflect the cost of participation in the MU when the country faces the negative impacts of a demand shift. On the other hand, the participation in the MU bears some cost also for Italy, as its economy is under strong inflationary pressures. We have to mention that the European Central Bank (ECB) would not react to this shock because it takes place in Italy and not in the whole EMU.

1.1.2 Insurance against asymmetric shocks

When the countries of a MU suffer from asymmetric shocks, help may be provided by the mechanisms of fiscal transfers from one country to the other. Income

redistribution, aiming at cushioning the adverse effects of the shocks in the country affected the most, can be organized either through the governments and the supra-national budget (public insurance systems) or through the "integration" of private markets (private insurance systems).

One way of organizing a public insurance system may be that of a central budgetary planning by the countries participating in a MU. We will make the assumption that there exists a central government, which collects taxes (e.g. social security taxes) and makes transfer payments (such as unemployment benefits payments) to the citizens of France and Italy. The decrease in the output of France as a consequence of the shock in demand will reduce the central government's income. Correspondingly, the increased output of Italy will increase the Italian government's tax revenue. The central budget will transfer income from Italy to France, allowing the latter to increase its consumption expenditure. This way, France and Italy will be able to stabilize their consumption expenditures, thus absorbing the consequences of an asymmetric shock and at a lesser cost. The result is also a less costly MU. The motive on the part of Italy to participate in such an insurance system is the probability that its own economy could experience a similar shock in the future.

The main drawback of public insurance systems is that their efficiency depends on the kind of the asymmetric shock. When this is temporary, a fiscal transfer to the country experiencing the negative effects essentially helps the country tackle the adjustment problem it faces. However, when the asymmetric shock is permanent, as is the case in the example of section 1.1.1, then this transfer mechanism is expected to become permanent too. In France, which is experiencing the negative effects of a permanent shift in demand, the transfer of income from Italy will weaken the forces pushing its economy to balance. This mechanism will assuage France's adjustment in the short run, but will gradually become the source of an even bigger problem. If the revenue transfers obstruct (through changes in wages and labour mobility) the functioning of the adjustment mechanism, then France is going to find itself in a constant state of imbalance, watching its budget deficit and public debt rise. The above mechanism is based on ex-ante approach aiming at preventing a default. At this point one could think of an alternative mechanism based on ex-post approach. Such a mechanism would help in time of default, where most of losses are suffered by private investors, with some limited funds provided by public sectors in order to stabilize the financial system and fiscal policy. However, it is a question which of the two

approaches is more effective. Anyway, national policies of managing national budgets generally provide some insurance against asymmetric shocks within a MU, but their efficiency is limited by the presence of a high public debt in the members of the MU.

The organization of a private insurance system can function through the financial markets. We will assume again that an asymmetric shock hits France and favors Italy. We will also assume that their financial markets are fully "unified". This means that there is one bond market, one equity market and the banking sectors of the two countries are also completely "integrated". In France, firms will make losses due to the adverse effects of the shock and their stock prices will be pushed down. On the contrary, in Italy, firms will make bigger profits and their stock prices will rice. However, since the stock markets are "integrated", the French firms' stocks are also held by Italian citizens and the Italian firm's stocks are also held by French citizens. This implies that all the owners of Italian assets are going to make a profit while all the owners of French assets are going to make a loss. Thus, part of the losses sustained by the French and which are attributed to the difficult economic context of their country, are counterbalanced. There is a positive impact on the financial account of balance of payments and the net investment position of France. The "integrated" stock market and the "unification" of the banking sectors facilitate in a similar way the adjustment process, functioning as a mechanism of insurance against disturbances.

A disadvantage of private insurance systems is the emerging accumulation of wealth on the part of the financially powerful citizens of France, who manage large stock market portfolios and reap the biggest part of the benefits created by the revenue transfers of the private insurance mechanism. When the private system of insurance is not coupled with a public one, the majority of the citizens of France cannot be protected by the effects of a shock. However, the most serious problem in the organization of private insurance system arises in the realization of the assumption of the existence of "unified" markets. To many economists, the co-existence within a union of nations-states with different economic contexts, with differences in their markets, as well as in the types of their trade sectors, will be a constant source of asymmetric shocks. Under such conditions the cost of a union is high, since the participating countries would have benefited from using their exchange rate as an instrument for corrections. Therefore, in order for a MU to function effectively and bring about a further "unification" of markets it is necessary that a deeper political unification between the participating countries is in place.

1.1.3 Preferences of countries concerning inflation and unemployment

For any country considering joining a MU, an additional cost resulting from the voluntary abandonment of its exchange rate is the limited freedom of choice between inflation and unemployment.

As Corden (1972), Giersch (1973) and De Grauwe (1975) have shown, two countries with different priorities concerning inflation and unemployment will face problems as members of a MU. The exchange rate of the common currency will be fixed at such levels so that the inflation rates of these countries shall always be equal. If though a country's fair inflation rate is higher, this country will have to accept a lower inflation rate and higher unemployment. If the lower inflation will not be accepted then the country's unit labour cost will rise resulting to a decline of its competitiveness in the world market. Consequently, in order to keep the real exchange rate between the two countries stable, a flexibility of the goods markets is required or in other words, a sustainable price competitiveness of their goods.

1.1.4 Differences in the institutions and laws of labour

As Bruno and Sachs (1985) and Calmfors and Driffill (1988) have shown, the creation of a MU among countries with institutional differences in their labour markets may bring extra costs. These costs arise when countries face the same supply shocks. When, for example, two countries experience the same oil price increase, the effect of this increase on wages and prices depends on the way labour unions react to the shock.

Countries that follow centrally controlled or decentralized bargaining about salaries, namely countries with "extreme" labour market systems, are better equipped to cope with a supply shock. In these markets, labour unions take into account the inflationary effect of wage increases and are aware that their excessive claims will lead to more inflation. Hence, a supply shock is not counterbalanced by increases of nominal wages. On the contrary, in countries with "intermediate" labour market systems, despite the consequences of the supply shock, the conditions and the competition among labour unions do not incentivize them to moderate their demands concerning nominal wages.

We conclude that countries with quite different labour market institutions may consider their accession to a MU costly. A supply shock can have different effects on prices and wages, resulting into more serious problems (inflation or unemployment) in the process to rectify these differences.

1.1.5 Differences in economic structures

The way a country's economy operates in the long-run may create problems upon its accession to a currency area. Countries that traditionally follow different monetary and fiscal policies exhibit structural differences in the operation of their financial markets. These differences generate the risk of a monetary shock affecting differently each MU member.

More specifically, the different legal systems of the member states of a monetary union have a significant effect on the way their markets function. For example, within the EU, countries with an Anglo-Saxon legal tradition have sophisticated capital markets, with the result that firms can finance their investment programs either through the bond market or through the stock market. On the other hand, countries with a continental legal tradition are based primarily on the banking system. With less developed capital markets, firms attract financial resources from the banking system. Taking these into account, an increase in the interest rate by the ECB will affect the countries with an Anglo-Saxon legal tradition through the wealth effect for consumers and firms. An interest rate increase will lower bond and stock prices, so that the wealth of consumers will decline. On the other hand, the wealth effect in countries with continental-type financial markets will be less noticeable as the interest rate increase affects consumer spending mainly through the channel of bank loans. A significant enough increase of the interest rates will motivate banks to restrict credit.

Moreover, countries that are about to join a currency area, shape - through their fiscal systems - different optimum inflation rates. When developing countries with not very developed fiscal systems become members of a MU along with countries with better organized fiscal systems, they must increase net taxes on a certain amount of expenditure in order to lower inflation. This increase in taxes will bring about a relative loss of prosperity. Dornbusch (1987) has shown that southern EU countries, by joining the northern low-inflation monetary zone will need to raise taxes or let their deficit increase further.

1.1.6 Different growth rates

Some countries grow faster than others. The different growth rate in the national incomes of countries about to form a MU may induce significant costs for the countries with a higher growth rate. If we assume that two member states of a MU have the same income elasticity of imports, then the country growing faster will face a deficit in its trade balance. This is because over time, the faster growing country's imports will grow faster than its exports.

If this country had not been a member of a MU, the trade balance problem would have been solved by a voluntary depreciation of its currency. This way, the faster growing country would have lowered its exports prices and its products would have remained competitive. However, if this country joins slower growing countries in a MU it must follow deflationary policies, which in turn constrain the growth process. Consequently, a MU means some extra costs for the faster growing country. This country will realize that it would be more preferable to keep its national currency when it has to face such unfavorable developments in its trade balance.

CHAPTER 2

A critical approach to the Optimum Currency Area Theory

Source: Shooty

2. A critical approach to the optimum currency area theory

In the previous chapter, the different sources of costs that result from a country's to a MU were discussed on the basis of the optimum currency area theory. In the present chapter, we examine the significance of differences among countries that are planning to form a union and the effectiveness of the exchange-rate policies as an instrument of correction of such differences.

2.1 Differences between countries

It is clear that differences exist in the structures of the economies of the European Union countries. Over the years, the different political regimes have created different contexts for the economy of each country. To what extent do such differences obstruct the process of economic integration?

2.1.1 Economic shocks and trade integration

The starting point of Mundell's analysis of the costs of a MU is the following assumption: A change in the preferences of consumers causes a permanent asymmetric shock in France and results in a decrease in the demand of the country's products, while it favors the products of Italy. What is the likelihood though of such shocks to occur frequently across European countries that intend to form a MU? Two completely different opinions have been formulated on the matter by: i) the European Commission and ii) Krugman.

In the European Commission report with the title "One Market, One Money" it was supported that a future monetary union can reduce asymmetric demand shocks, due to the fact that trade between the industrialized countries of Europe is mainly intra-industry and is based on economies of scale and imperfect competition. With countries trading mainly differentiated products of the same industry, most demand shocks are bound to affect economies in a similar manner. Thus, with the integration in a common market – the result of a MU – asymmetric shocks that are related to demand will tend to become symmetric.

On the other hand Krugman (1991), points to the fact that the presence of economies of scale leads also to a regional concentration of industry. The presence of economies of scales within a country is influenced by various factors such as the country's size, quality of infrastructure, access to the latest technologies, qualified

labour etc. In this way, firms can produce closer to final demand, but this condition also allows concentration of activities in order to make dynamic profits from economies of scale. Economic integration leads countries to even greater specialization and makes them susceptible to even more asymmetric shocks. Krugman's point reinforces Kenen's opinion (1969), who claimed that countries with a less differentiated industrial production and exports structure suffer from more asymmetric shocks and thus are less suitable for participation in MUs.

Despite the fact that economic integration can lead to concentration and agglomeration, at the same time as market integration among the countries increases, national borders will be eventually losing their importance regarding the decision of the area of economic activities. As a result, the effects of concentration and agglomeration will be independent of the existence of borders making it more possible that the concentrated economic activities will exceed national borders. For instance, the automobile industry could be concentrated not only in Germany but in the region that includes Southern Germany and Northern Italy. Therefore, shocks in the auto industry would affect both countries and the use of exchange rate between their currencies would not be able to absorb the shocks (Paul De Grauwe, 2005, "Economics of Monetary Union").

Although it is difficult to conclude on the validity of the two points, we can argue that the European Commission's point of view has found a wider acceptance The results of empirical studies on the countries of Europe show that the EMU has increased the volume of trade transactions among member-states by 20% to 40%, which is a proof that the monetary union has accelerated the economic integration process. Moreover, based on other empirical studies it can be deduced that the development of strong commercial relations between two countries enhances the correlation of their economic activities and places their economies on parallel tracks. On the basis of the above data, we can say that the formation of an MU creates the appropriate conditions that facilitate its operation. The higher the degree of commercial integration among the countries, the less divergent their economies are going to be. However, it is still important to emphasize Krugman's distinction between countries focusing on goods production and countries focusing on services. Since services are less transferable than goods, it could be more difficult to find new markets for services than for goods in case of asymmetric shock. Therefore, the service-oriented countries, like Greece, have a limited capacity for export growth and

face big difficulties to create current current account surplus in case of asymmetric shock.

2.1.2 Asymmetric shocks and the nation-state

A significant source of asymmetric shocks is the different economic policies of the member states of a monetary union. Although the EMU's economic policy is determined by the European Central Bank (ECB), a big part of the budget that has to do with expenditure and taxation is managed by the authorities of the member states. A change in the budgetary policy of a country is bound to bring about shocks in the economy of this country that may affect the economy of the union.

The absence of an integrated policy across the member states could impose difficulties in the adjustment process of their economies during shocks in the frame of a future MU. Despite the fact that economic integration, as already discussed, reduces the frequency of asymmetric shocks, differences in the priorities of the nations-states that comprise the union, constitute a threat to the balance of the union's economy.

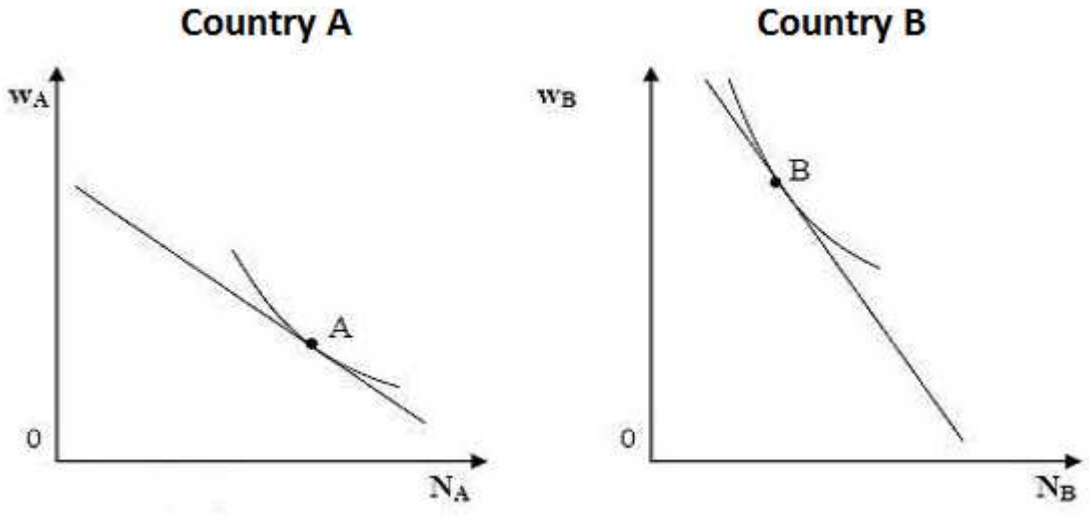
2.1.3 Institutional differences in the labour market

Heterogeneities among the labour markets of the member-states of the EU are significant. To what extent can monetary integration alleviate these differences? We will try to answer this question using the model developed by McDonald and Solow (1981) in the case of two countries. Figure 3 shows the labour markets of two countries that are candidates for joining a MU. We assume that there is only one labour union in each country. The vertical axis represents the real wage level and the horizontal axis represents the level of employment (N). The convex curves are the indifference curves of the labour unions. The labour union maximizes its utility as long as the real wage level and employment of its members increase. The negatively sloped curve is the aggregate labour demand curve. For the union, which maximizes its utility, the labour demand curve is a constraint. Thus, the union will select a point on the curve which maximizes its utility. This is represented by the points A and B.

The interesting feature of this model is the relationship between the actions of the labour union and the reaction of the authorities. If we make the assumption that the authorities put more weight on employment in their utility function than the labour unions, when the latter set a wage that reduces the employment level below the level

that the authorities consider optimal, they will react by changing their policies. For example, they will implement expansionary monetary and fiscal policies in order to create new jobs. The steepness of the employment line reflects the willingness of the authorities to engage in employment policies. We have drawn the employment line of country B steeper than that of country A, assuming that the authorities of country B are more willing to accommodate the behavior of the labour unions.

Figure 3 ***Solow - Mac Donald model for two countries***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

When the two countries decide to form a MU, their monetary policies are not going to be independent. The labour unions of the two countries will face the same reactions on the part of the monetary authorities. The labour demand curves in figure 3 will be similar, so that the labour unions will have to select a similar combination of wage rates and employment levels.

Although national governments have alternative employment policies at their disposal, the differences between the labour unions are unlikely to disappear completely. In our analysis of the model, we made the assumption that in each country there is only one labour union which is completely centralized in its structure. However, in reality, labour unions differ due to different degrees of centralization. The institutional differences in the national labour markets will continue to exist even after the formation of the MU. This can lead to divergent wage and employment tendencies and to serious adjustment problems in the member states, when their exchange rate instrument will not be available to use.

A potential source of problems could be the differences in the growth rate of productivity. If country A has higher growth rate of productivity than country B and they decide to form a MU then the nominal wages should increase more in country A than in country B. However, the centralization of the countries' labour unions within the MU could achieve equal increases in the nominal wages of both countries resulting to higher unit labour costs (= wage growth – productivity growth) in country B. Therefore, country B will experience a significant loss of competitiveness and current account deficits.

The problem of productivity and wage growth differentials is linked with the inflation differentials within a MU. According to the Balassa – Samuelson effect, countries of a MU that have different growth rates of productivity should also have different inflation rates. To be more specific, country A that has higher productivity growth rate than country B should also have higher inflation so that the nominal wages in country A will grow faster than in country B. Such a mechanism would prevent the loss of competitiveness in country B.

2.1.4 Differences in legal systems and financial markets

The differences in the way the financial markets of the countries of a MU function create the risk that the same monetary shocks are transmitted differently. Apart from the legal systems, different monetary policies implemented by the national governments play a significant role in the operation of their markets. The following example will clear this up. Some countries, like Germany, manage to keep inflation low. This enables their economies to finance their public debt through long-term bonds. On the opposite side, countries like Italy have experienced relatively high inflation rates. For these countries, debt financing involves almost exclusively short-term bonds, since the prices of long-term bonds tend to fall within an environment of long-term high inflation.

The different conditions in the financial markets of these countries have influenced their economies quite differently when they faced similar interest rate changes. The interest rate increase in Italy caused its national debt to increase sharply and as a consequence the Italian government had to spend more on interest payments. This led to increased budget deficits. In Germany, the consequences of the increase in interest rates were felt much later.

Within a MU, divergences in inflation cannot be considerable. A relevant study by Angeloni and Ehrmann (2003) has shown that the maturities of national bonds have converged within the EMU. The union itself annuls some of the institutional differences that are present across national financial systems. However, the differences arising from the different legal systems will continue to exist as long as a deeper political integration is absent.

2.1.5 Different growth rates

According to the OCA theory analysis, countries that achieve fast growth rates will suffer losses when they join a MU along with countries that grow at a slower pace. Increased imports in combination with the lack of an exchange rate policy will create a deficit in their trade balance and will obstruct their growth process. However, this view is supported more on a theoretical basis rather empirically.

Data from the European Commission and the International Monetary Fund (IMF) for the countries of the European Community in the period 1981-1998, show that essentially there is no relationship between economic growth and the real depreciations (or appreciations) of their exchange rates. Indeed, the "highly developed" countries saw their currencies being appreciated, contrary to what was set out in the previous chapter. Krugman (1989) showed that, as a rule, the income elasticity of the exported goods of the "fast growing" countries is higher than that of "slow growing" countries. In particular, the income elasticity of exports of the "fast growing" countries, will be higher, as a rule, than that of their imports. Consequently, these countries can grow faster without facing deficits in their trade balance.

Moreover, a "fast growing" country's accession to a monetary union may increase its potential for growth. And this is because these countries' difference in capital productivity compared to the "slow growing" countries will induce investment flows to the "fast growing" ones. The stabilization of the exchange rate will increase the investors' willingness to move their capital to the "fast growing" country, thus profiting from the larger returns. However, if high investments are not accompanied by high saving rates, the country's high growth will cause net export deficit and real exchange rate epreciation.

We conclude that growth rate differences among the different states are not a constraint imposed on economic integration. The “fast growing” countries will not have to lower their growth rate once they join a MU.

2.1.6 Different policy priorities

Another source of cost for a MU, as presented in the first chapter, is the difference in the governments’ priorities about inflation and unemployment. With the stabilization of the exchange rate of the common currency, some countries will have to accept higher (or lower) inflation rates and lower (or higher) unemployment rates, respectively.

This view was supported on the basis that the Phillips curve is stable and that is not affected by the changes in the expectations about the future inflation rate. However, the monetarist critique of the Phillips curve has changed economists’ view in regard with its form. Following Friedman’s (1968) and Phelps’s (he was not monetarist) criticism, today it is generally accepted that the Phillips curve is shifted in response to future inflation expectations. In the long run it is impossible to select an optimum combination of inflation and unemployment, since the latter is determined by the natural unemployment rate and is independent of inflation. Thus, the long run Phillips curve is a vertical line at the natural rate of unemployment.

Two countries that are about to form a MU can equalize their inflation rates by stabilizing their exchange rates at no cost to their unemployment levels. The fact that they cannot implement an independent monetary policy (and therefore inflationary policy) within a MU does not have any cost since an independent monetary policy cannot reduce the level of unemployment. However, the short run shape of the Phillips curve still implies that a country’s effort to reduce inflation is likely to result in a temporary increase of unemployment.

2.2 Nominal and real devaluations of the currency

The loss of the availability of exchange rate adjustments to counteract different developments in the economy is considered a significant cost for a country upon entering a MU. Is it however possible that a change in nominal exchange rate will cause a permanent change in a country’s real exchange rate?

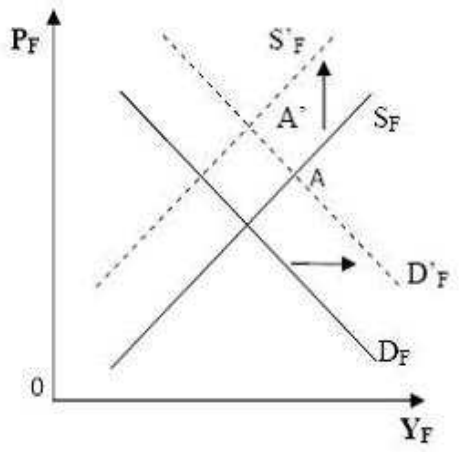
2.2.1 Dealing with asymmetric demand shocks

We will examine the effectiveness of exchange rate policy in the different cases of demand shocks, using the two-country model of Italy and France, introduced in chapter 1.

A shift of consumers' preference to the products of Italy causes a permanent asymmetric demand shock in France. We assume that Italy and France have pegged their national currencies to a system of fixed exchange rates, enabling their economic authorities to change the exchange rate between the two currencies.

France, in order to cope with the asymmetric shock, will devalue the franc. The effects of the devaluation are depicted in the figure 4. The relative prices of the French products are decreased and as a result the French economy's competitiveness is increased. The aggregate demand curve is shifted to the right, counteracting the decrease in aggregate demand induced by the asymmetric shock. The devaluation of the currency seems, at least initially, to be counteracting the negative effects of the permanent asymmetric demand shock, as the total output of France shifts to the point A.

Figure 4 ***The effects of the devaluation on prices and production cost***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

However, this state of balance for the French economy cannot be maintained for a long period of time. The depreciation of the franc makes intermediate products imported from Italy more expensive. Moreover, the fall in the purchasing power of the French causes pressures for wage increases. These reactions cause the aggregate supply curve to shift upwards. This shift causes an increase in the price level and a decrease in the total output of France.

Due to the price level increase, the French workers demand new increases of their wages. The parallel increases in prices and wages shift the aggregate supply curve to A'. As the French economy moves from point A to point A', the initial positive effects of the depreciation of the franc on total output and relative prices are weakened.

We conclude that in the long run, the changes in the nominal exchange rate cannot affect the real exchange rate. Empirical studies conducted by the European Commission (1990) lead us to the conclusion that over time, the initial positive effects of the devaluation of the currency were cancelled out in most European countries. This is logical because there were no reforms of labour markets that could support the country's position in the foreign trade in the long term. Consequently, relinquishing the exchange rate instrument does not incur significant costs for a MU.

We should not however forget that there have been a number of successful depreciations of national currencies during the 1980s. The effects of the devaluation of a currency depend on how developed the trade relationships of the country affected by the shock with the rest of the world are, as well as on the speed of adjustment of nominal wages to the price level increase. In our example, France, either in a MU with Italy or financially independent, will not be able to deal with the asymmetric shock if the French workers do not accept decreases in their real wages. Restoring economic equilibrium after a permanent asymmetric shock is difficult, irrespective of the monetary environment.

Restoration of equilibrium would be different in the case of a temporary asymmetric shock. When the economic cycles of the member states of a MU are not synchronized enough, temporary demand shocks can occur.

Using the figure 1 from the previous chapter, we assume that the French economy is in a phase of recession and the Italian in a phase of expansion, as the result of a shock to their economic cycles. We make the observation that if the two countries form a MU, their economic authorities will have to face hard-to-solve problems. When the common central bank lowers the interest rate, aiming at helping out France go out of its recession phase, will cause an increase in the inflationary pressures to the Italian economy. At the same time, when it raises the interest rate in order to avoid inflationary pressures in Italy, recession will deepen in France. Also, due to the temporary nature of the shock, the flexible wages and labour mobility mechanism is not applicable.

Within a MU, the problem of a temporary asymmetric shock is impossible to be tackled. The common central bank cannot stabilize economic activity on a national level. On the contrary, when France and Italy retain their national currencies, they have at their disposal policy instruments to stabilize their output at a national level. As we have seen in the case of a permanent asymmetric shock, the French central bank in its effort to deal with recession is in position to boost aggregate demand by lowering the interest rate and devaluating the French franc. Similarly, the Italian central bank, by raising the interest rate and revaluating the Italian lira, can cope with inflationary pressures. Of course, the question of macroeconomic policy effectiveness on a national level arises at this point. In the next section of this chapter, we will show that the more active monetary policies may cause greater economic imbalances.

2.3 Time consistency and economic policy credibility

The exchange rate mechanism may be ineffective in the long run; still it is a policy instrument in the hands of governments. In their papers, Kydland and Prescott (1977) as well as Barro and Gordon (1983) stress the way in which the economy is influenced when governments aim to implement the announced policies. In order to understand the impact of the government's strategies, we will start with the Barro-Gordon model for a closed economy. Then, in order to examine the choices of the countries as to whether they should join a monetary union or not, we will apply this model to an open economy.

2.3.1 The Barro-Gordon model for a closed economy

Our starting point is the definition of the classical Phillips curve, where the expectations about future inflation rate are taken into account:

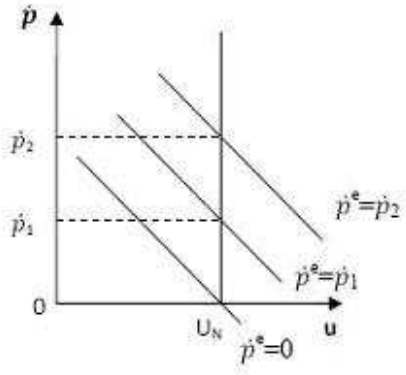
(equation 2.1) $$U = U_N + a\,(p^e - p\,)$$

where U is the unemployment rate, UN the natural unemployment rate, p is the observed inflation rate and p^e the expected inflation rate. From the above equation it is derived that when the inflation rate is higher than the expected inflation, unemployment falls below its natural level.

We are also going to make use of the rational expectations hypothesis. According to this, economic agents use all relative information in order to predict the

inflation rate and these predictions cannot be systematically wrong. Therefore, on average $p=p^e$ and U=UN.

Figure 5 ***Phillips curve and natural level of unemployment***

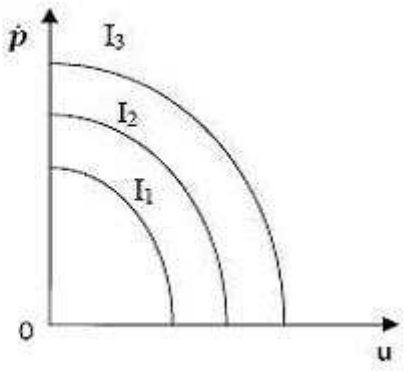


Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

Figure 5 shows the long-term vertical Phillips curve. This curve is the collection of all points for which $p=p^e$. The vertical line defines the natural rate of unemployment UN or in other words that unemployment level at which inflation does not accelerate.

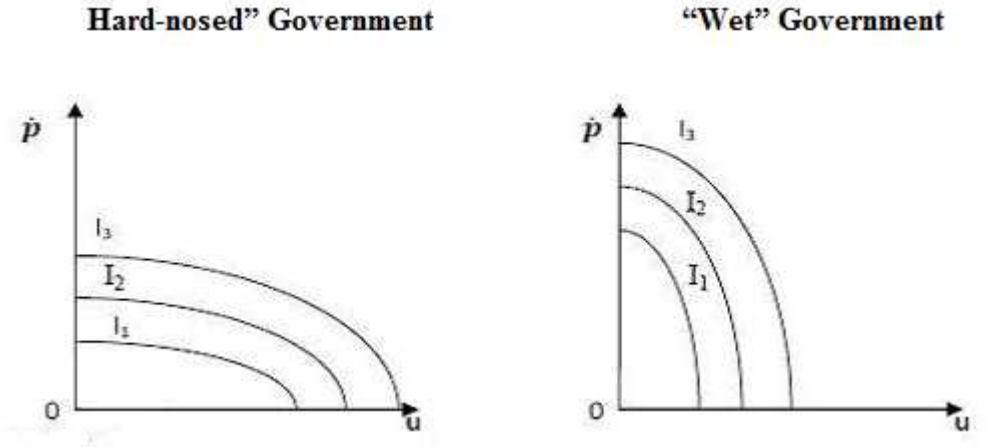
The second element of the analysis is made up of the priorities of the monetary authorities. We will assume that the monetary authorities have an interest both in inflation as well as in unemployment. The authorities' preferences are depicted diagrammatically in figure 6 in the form of indifference curves. We have drawn these indifference curves concave, expressing the idea that as the inflation rate declines, the monetary authorities tend to attach more weight to unemployment. Moreover, the indifference curves closer to the origin represent a lower loss of welfare and are thus preferred to those farther away from the origin.

Figure 6 ***Priorities of the monetary authorities***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

Figure 7 *"Hard-nosed" and "Wet" Government*



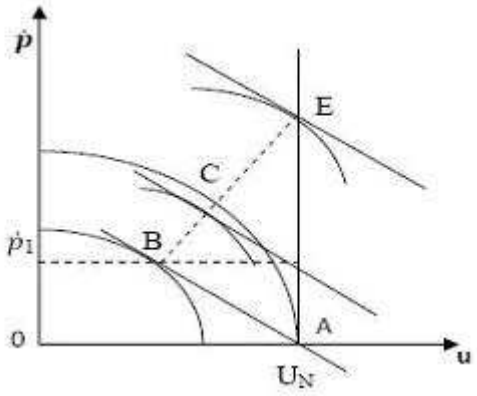
Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

The slope of the indifference curves expresses the relative importance that the authorities attach to combating inflation or unemployment. The "wet" authorities, which care more about unemployment, have steep indifference curves and are thus willing to accept a higher inflation rate in order to reduce the level of unemployment. On the contrary, "hard-nosed" authorities are willing to let the unemployment level increase considerably in order to reduce the inflation rate. The indifference curves in this case are almost horizontal and are depicted in figure 7.

We can now bring together the Phillips curves and the preferences of the authorities to determine the equilibrium of the model. This is done in figure 8.

In order to find out where the equilibrium will be located initially, we assume that the government announces that it will follow a monetary policy rule aiming at an inflation rate equal to zero. We also assume that the economic agents are convinced by these governmental announcements and set their expectations for inflation equal to zero. If the above are in place, we move to point A.

Figure 8 ***The equilibrium inflation rate***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

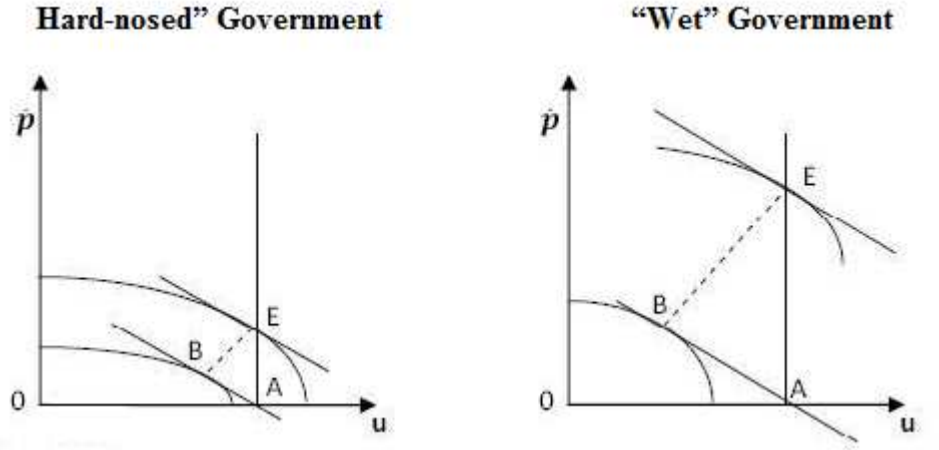
Now, we see that the government may break what has promised. An unexpected inflation rate increase would lead the economy to the point B, located on a lower indifference curve. One could support that the government has the incentive to change its policy. However, it is known that the economic agents are likely to react, raising their expectations about inflation. This shifts the Phillips curve upwards in the long-term period. The government must weigh the short-term gains from this policy change against the future losses that will result from the shift of the Phillips curve including the loss of the citizens' trust to its policies.

Now, let us assume that the government is made up of "shortsighted" politicians and attaches more weight to the short-term gains and thus unexpectedly raises the inflation rate. The economy moves to point B. This "cheating" on the part of the authorities will cause the Phillips curve to move upwards and to the right. With the new expectations of the economic agents, the monetary authorities will realize that it is more preferable to move to point C. Due to the government's inconsistency in regard with its initial announcements this game will go on until equilibrium point E is reached. At that point, the government will no longer have the incentive to raise the inflation rate any more. A movement upwards along the Phillips curve will lead to a higher indifference curve and therefore to loss of welfare. Also, point E is located on the vertical Phillips curve and therefore the agents' expectations are fulfilled. The latter will have no incentive to make any further changes to their expectations.

Given the assumption that the government attaches greater weight to the short-term gains of inflationary strategies, point E is the unique point of equilibrium. Under different conditions, the economic authorities would have the incentive to fulfill their

promises, since equilibrium would have been achieved with a much lower inflation rate. However, in many countries political institutions do not allow politicians to make long-term policy planning and they are thus obliged to attach excessive weight to the very short-term results.

Figure 9 ***Equilibrium with a "hard-nosed" and a "wet" government***

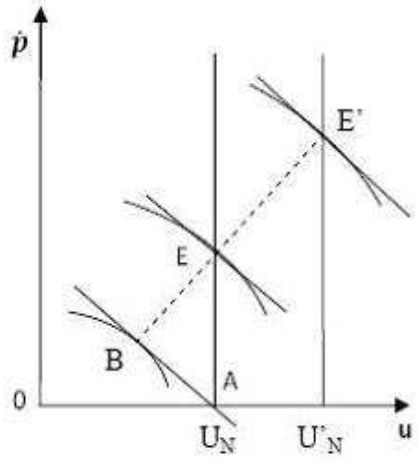


Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

Before we expand our analysis by adding the parameter of the MU, it would be useful to distinguish the factors that affect equilibrium at point E. Figure 9 shows the different equilibrium points as determined by the different priorities of the monetary authorities. Assuming that the Phillips curves have the same slope, we observe that the equilibrium inflation rate is higher in the country with a "wet" government than in the country with a "hard-nosed" government.

The second factor determining the discretionary equilibrium is the level of natural unemployment. With the help of figure 10 we can easily see that if the natural rate of unemployment is increased and the preferences of the authorities remain unchanged, the rate of inflation will increase. Thus, equilibrium point is shifted from point E to point E'. Some possible factors that could have caused a rise of the natural rate of unemployment include generous unemployment benefits, low labour mobility and/or wage rigidity due to high levels of unionization. Another potential cause of such an increase is the Hysteresis hypothesis which claims that higher unemployment due to a recession can rise the natural rate of unemployment because workers become demotivated and deskilled while they are unemployed making it more difficult to find a new job.

Figure 10 ***Equilibrium and natural level of unemployment***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

2.3.2 The Barro-Gordon model for open economies

In the previous section we saw that a government interested both in inflation and unemployment will not be able to be credible when it announces a zero inflation policy. It will therefore have to accept a different than the optimal equilibrium, where the inflation rate is much higher. In order to find out how the economy of a country would be affected if it made the decision to form a MU with another country we will extend our analysis to the case of an open economy.

We will make the assumption that Germany and Italy form a monetary union. Let us also assume that the government of Germany is a "hard-nosed" one and that of Italy a "wet" one. Moreover, we will add the purchasing power parity condition, i.e.

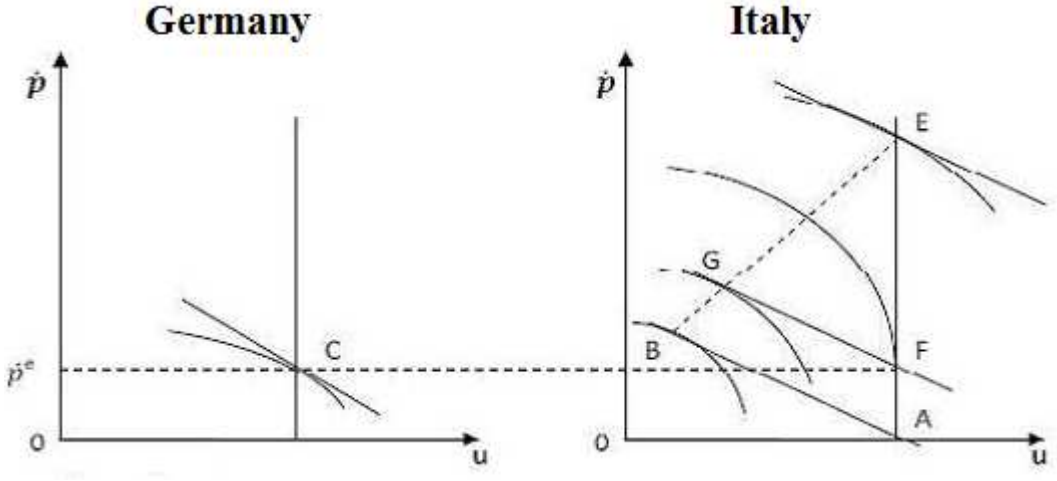
(equation 2.2) $e = p_I - p_G$

where e is the rate of depreciation of the Italian lira vis-à-vis the German mark. Figure 11 shows the equilibrium inflation of the two countries. In Italy, the inflation rate is a lot higher than that of Germany and therefore, it must depreciate its currency continuously. The Italian government could achieve equilibrium with a lower inflation rate if it could convince its citizens that it would not attempt to go from point A, where it stands, to point B.

We notice that if the two countries form a monetary union, Italy has the option to achieve equilibrium with a much lower inflation rate. If Italy keeps the lira exchange rate fixed, given the purchasing power parity, the Italian inflation rate will be reduced to the inflation level of Germany (point F). However, the fixed exchange rate is not the most credible rule for solving the problem. The moment the Italian

monetary authorities find themselves at the new equilibrium point F, they have the incentive to implement a surprise devaluation of the lira. The increase of the inflation rate, as a result of this devaluation, will enable economy to move to point G. Over time, the economic agents will adjust their expectations and the inflation rate will thus end up being the same as it was before fixing the exchange rate.

Figure 11 ***Inflation rate of equilibrium in two countries***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

The Italian inflation problem could be solved by abandoning the lira and adopting the German mark. Given the fact that Italy no longer has an independent monetary policy (with "wet" preferences), point F will represent the new Italian equilibrium inflation rate. Thus, Italy may benefit greatly by entering a MU with Germany, while the latter experiences no welfare losses. However, even efter the formation of the MU, the Italian government might keep the "wet" preferences in its fiscal policy. In other words, the government might try to achieve growth (lower unemployment) by fiscal expansion. In this case, there could be a conflict between the "hard-nosed" policy of the union's central bank and the preferences of the Italian fiscal policy, resulting to high growth of public debt.

We conclude that only a completely integrated MU can give Italy the required credibility. An arrangement to fix the exchange rate between the two currencies will be questioned as long as the exchange-rate policy is in the hands of the inconsistent Italian authorities. Indeed, the participation of the Italian authorities in the new central bank will negatively influence the cost of the MU. More specifically, if the new central bank is considered less "hard-nosed" than the central bank of Germany, the new equilibrium inflation rate of the monetary union will be higher than the one of

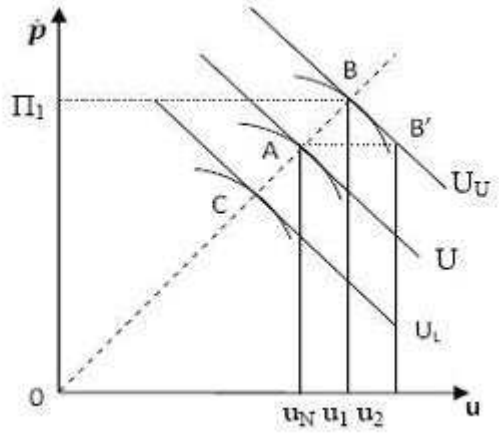
Germany before union. This will probably be beneficial to Italy, but not to Germany which will not be too keen to participate in such a union.

2.4 Optimal stabilization policy and monetary union

In the previous section we discussed the difficulties that the economic authorities of a country will face within a MU, following a temporary asymmetric demand shock. At this point, we will examine the effectiveness of the national stabilization policy, using the Barro-Gordon model of analysis.

In figure 8, we presented the inflation rate that guarantees the equilibrium. In figure 12, we will take into account the reaction of the central bank to a shock in the short-term Phillips curve. We assume that the short-term Phillips curves shift up and down due to temporary shocks. Suppose that a temporary positive shock occurs which shifts the short-term Phillips curve from position U to position UU. The monetary authorities react to the increase in unemployment by implementing an expansionary monetary policy, thus raising the inflation rate to the point Π_1. The intervention of the authorities constrains the increase in unemployment to U_1. If the monetary authorities had not reacted by implementing an expansionary monetary policy, the unemployment would have increased to U2. Following a similar rationale, we conclude that the monetary policy authorities implement a contractionary monetary policy and choose the point C when they face a temporary decrease in the unemployment rate.

Figure 12 ***Optimal stabilization policy with the priority of stabilizing the level of unemployment***

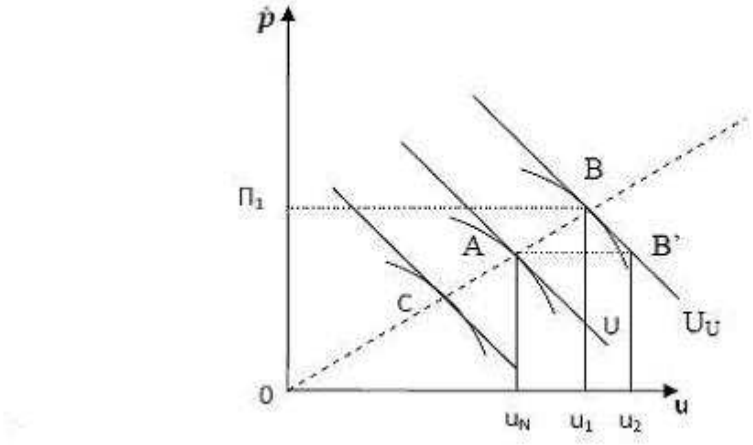


Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

The dashed line that includes all the points of intersection of the short-term Phillips curves with the indifference curves is the line of optimal stabilization policy. The slope of this line, in this case, is determined by the weight attached by the monetary policy authorities to the stabilization of unemployment. To every change in the unemployment level the authorities react with a relatively powerful monetary policy.

Figure 13 shows the optimal stabilization policy when the monetary authorities attach less weight to the stabilization of unemployment. In this case, the optimal stabilization policy line has a lower slope. Comparing the two figures, we observe that the more the weight the monetary authorities attach to the stabilization of the unemployment rate, the higher the inflation rate of equilibrium. This is the cost of the effectiveness of the stabilization policy.

Figure 13 ***Optimal Stabilization policy with low inflation as priority***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

Based on the above analysis, we conclude that the countries entering into a MU lose an instrument of stabilization policy implementation, which contributes to combating the temporary asymmetric demand shocks. However, the cost of this loss is not high, since in the long run this policy leads to higher inflation rates.

2.5 Mundell's revised analysis

In his first article, where he laid the foundations of the cost and benefits analysis of a monetary union, Mundell questioned the chances of a successful monetary union of Europe. However, in another article published in 1973, Mundell

stressed the benefits of the MU focusing on two points: i) the effectiveness of an exchange-rate policy and ii) insurance against asymmetric shocks.

As we have showed in this chapter, the changes in the exchange rate are not related to fundamental economic variables, such as changes in the inflation rate or economic growth. Indeed, in many cases, the more active monetary policies are influenced by psychological factors, such as "herd behavior", whereupon these same policies cause asymmetric shocks and trigger off imbalances in national economies.

Mundell's second argument is that an insurance system against asymmetric shocks can be organized more effectively within the frame of a MU. When, for instance, a country is hit by a temporary demand shock, it is easier for this country to borrow capital funds as a member of a monetary union, as opposed to the case where this country is in an environment of exchange rate uncertainty – by keeping its national currency. Capital flows (from the "sufficiently" integrated capital markets) will help the country stabilize its consumption at optimal levels.

According to Mundell's revised analysis, a MU can moderate the economic imbalances occurring in the member states and can contribute to insurance against asymmetric shocks. However, the analysis of the outcomes of a MU does not stop here. Although exchange rate fluctuations can be an independent source of asymmetric shocks, the major asymmetric shocks are better faced with fluctuating exchange rates. Moreover, Mundell's second argument has to do with insurance systems against temporary asymmetric shocks. In the case of permanent asymmetric shocks it is questionable whether the countries of a MU will be willing to be transferring capital funds for a long period or indefinitely towards the country that is in need of them. Therefore, the adjustment of this country must necessarily be based on price and wage changes. In this case, we turn back to Mundell's initial analysis (1961) and his more pessimistic view of MUs.

2.6 Cost-benefit analysis of a monetary union

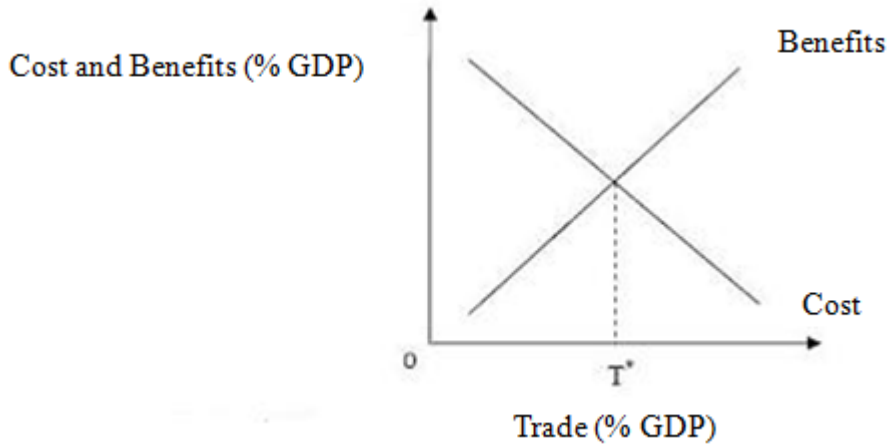
Previously, we focused on the OCA theory in order to understand the potential costs of a MU for its member states. However, there is no doubt that the participation of a country in a MU brings a variety of benefits mainly due to the decrease of both transaction costs and exchange-rate risk. The costs and benefits of a MU vary from country to country, influenced by different factors such as a country's degree of

openness, the level of labour mobility and flexibility of wages etc. Therefore, each country is necessary to make a cost-benefit analysis before deciding to join a MU.

2.6.1 Cost-benefit comparison and the criteria of optimum currency areas

One way to compare the costs and benefits of a monetary union for a country is through the graph of cost and benefit curves, having as criterion the country's degree of openness. In figure 14 that was introduced by Krugman (1989), the intersection of the two curves determines a country's critical degree of openness which is necessary for its beneficial entrance in a MU.

Figure 14 ***Costs and Benefits of a MU***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

At the left of the intersection point, a country has interest to maintain its national currency while at the right of this point it will obtain benefit from the replacement of its currency. The shape and the position of the cost curve depend on how efficient is considered the tool of exchange-rate policy for the adjustment to asymmetric shocks.

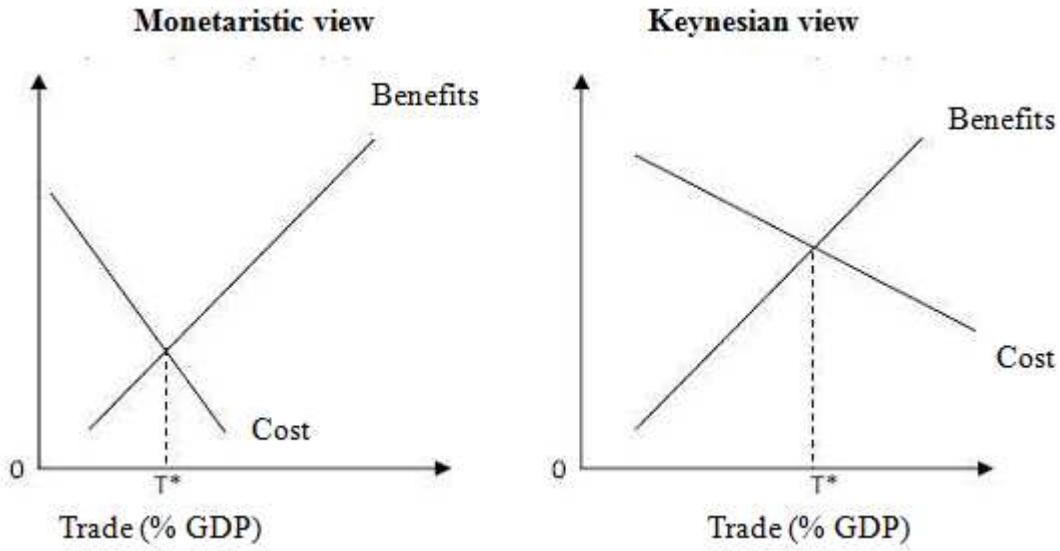
According to the monetaristic point of view, the use of the exchange-rate policy and inflation cannot affect real variables such as output and employment. Therefore, monetary policies are ineffective for correcting the different developments within a MU and the cost of a union is really low. Graphically, the cost curve is closer to the origin and is also steeper (figure 15). This means that many countries would be benefited by abandoning their national currency and joining a MU.

On the other hand, the Keynesian point of view supports that the exchange-rate policies can eliminate the rigidities of the labour markets. Thus, many countries

not only would face high costs from participating in a MU but also some large countries would gain much higher benefits by issuing two or more different currencies within their own territory. In this case, the cost curve is far from the origin and is more horizontal (figure 15).

Mc Kinnon (1963) claimed that the high degree trade openness is a necessary condition for a country's beneficial entrance in a MU. However, it is clear that in the 1980s many economists were in favor of the monetaristic point of view, encouraging the creation of the EMU in the 1990s.

Figure 15 ***Two points of view for the costs and benefits of a MU***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

According to empirical data, the economic authorities of countries such as Italy, Greece and France, have considered beneficial their entrance in the EMU despite the low level of trade (as percentage of their GDP) with the rest of the union's member states. This fact indicates that the cost-benefit analysis of a MU should take into account additional important parameters.

One of these parameters is the degree of rigidity of wages and price. As it was shown in the first chapter, the encounter with permanent asymmetric shocks under a regime of fixed exchange rate makes harder the adjustment of the economy to the equilibrium. Therefore, the countries with low degree of wages and prices rigidity will face a lower cost in a MU. Thus, a decrease of rigidity in prices and wages, as well as

an increase of labour mobility (Mundell 1961) within a MU, shifts the cost curve of the figure 14 downwards to the left, making the participation in a MU more attractive.

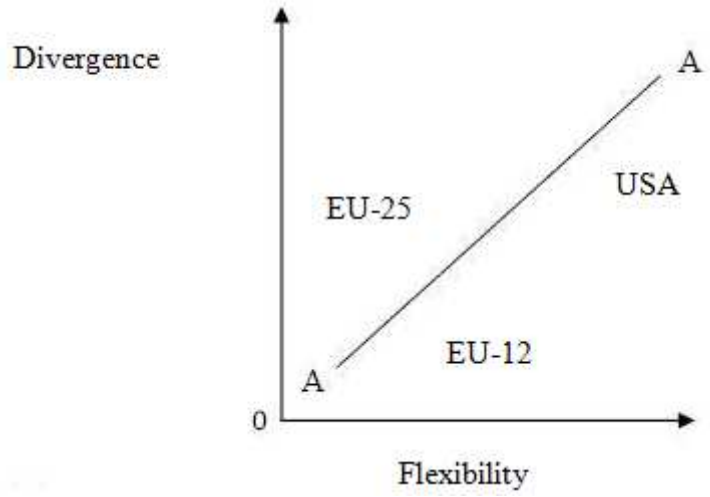
2.6.2 Asymmetric shocks and flexibility of labour markets

One factor that increases the participation cost of a country in a MU is the asymmetric shocks within a union. Countries that have very different industrial structures will also face much different demand and supply shocks. This fact shifts the cost curve of the figure 14 upwards to the right and the entrance in a MU becomes less attractive.

The main conclusion of the OCA theory is that countries with high divergence in the growth rate and employment need a high degree of flexibility in their labour markets in order to form a MU without asymmetric demand or supply shocks. The size and the frequency of these shocks are positively correlated with the degree of heterogeneity in the production structure of the countries that are about to form a MU. The correlation between a flexible labour market and asymmetric shocks is described by an ascending linear function (figure 16). The vertical axis represents the divergence in the growth rate of production and employment as a result of asymmetric shocks while the horizontal one represents the degree of wages flexibility and labour mobility.

Countries that are placed below the line AA can form a MU without a big adjustment cost. Therefore, they form an optimal currency area. On the other hand, countries that are placed above the line AA would be better to keep the independence of their exchange rates, as the participation cost in a MU would be higher than the benefits.

Figure 16 ***Real divergence and flexibility of labour market within MUs***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

According to empirical researches, the EU of the 25 member states does not form an optimum currency area. From an economic point of view, for many countries the costs outweigh the benefits of participation in the union. Therefore, in the figure 16 it is placed above the line AA. Other empirical analyses prove that subgroups of the EU of 25 member states, such as the EU of 12, form an optimum currency area. The main criterion for the optimum size of MUs is the size and the type of asymmetric shocks. As it was analyzed in the first chapter, the presence of member states with independent expenditure and tax policies, as well as with their own particularities regarding the economic authorities, creates a significant source of asymmetric shocks. However, in the framework of a MU these shocks can be reduced. To be more specific, the study of Artis and Zhang (1995) shows that the business cycles of the EU member states are much more correlated than in the beginning of the 1980s. Thus, today there are less asymmetric shocks among the member states of the EU than 20 years ago.

The difficulty of a quantitative measurement of a country's participation cost in MU cannot lead us to absolutely objective and clear conclusions. There is a conflict of opinions even about the optimum size of the EU of 12 member states. The higher the divergence among a union's economies, the more difficult is to achieve full integration. The challenge for the EU of the 25 member states to form a less costly monetary union can be succeeded through political integration. Apart from

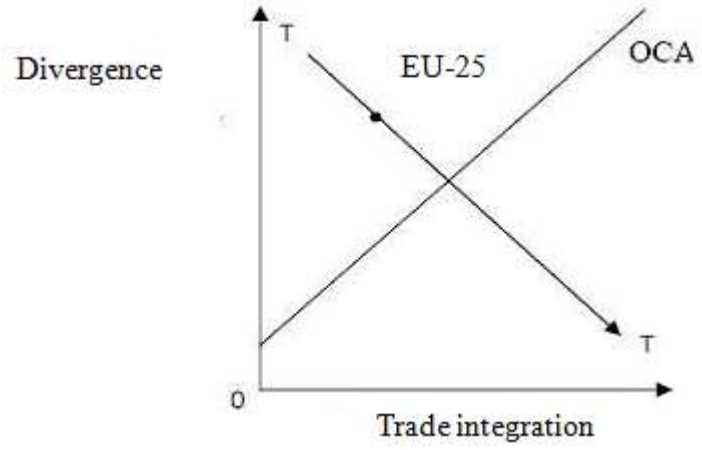
institutional and legal adjustments, it will be also necessary a higher coordination of the economic policy in order to reduce the frequency of asymmetric shocks.

2.6.3 Costs and benefits in the long-term

There are two contrary views about the long-term costs and benefits of a MU. One is supported by the European Commission and the other by Krugman, both presented in the 2.1.1 part. Figure 17 represents the European Commission's point of view which claims that as the trade integration increases, the countries become more similar and they face less asymmetric shocks. The OCA line represents all the points where the costs are equal to the benefits and it has positive slope for two reasons: i) as the economic integration increases, the net profits of a MU go up, while ii) as the economic divergence increases, the cost of a MU gets higher.

All the points that are at the right of the OCA line are points where the benefits of a MU outweigh the total cost. The EU of the 25 member states is placed on the TT line with negative slope and towards the left of the OCA line, confirming the conclusion of the part 2.6.2. From the figure, it is clear that as the trade integration goes on, the EU-25 will inevitably move at the right of the OCA line. Therefore, according to this point of view, the MU will be beneficial in the long-term for the countries of EU.

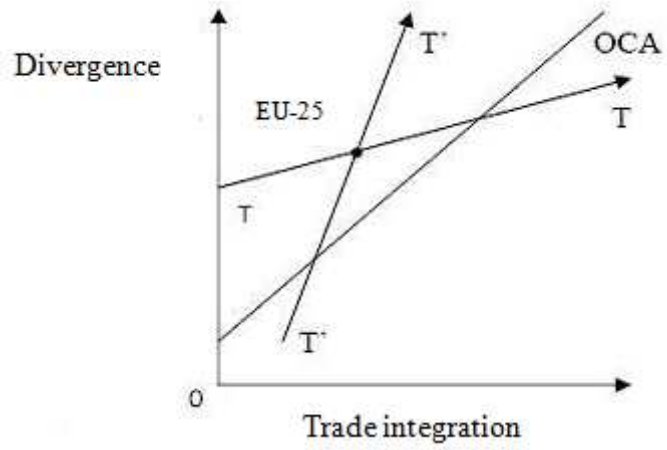
Figure 17 ***The European Commission's view***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

Figure 18 depicts Krugman's opinion which states that the economic integration leads to higher divergence, resulting to more asymmetric shocks. This is represented by the two lines, TT and T'T', that have different positive slope.

Figure 18 ***Krugman's view***



Source: Paul De Grauwe, 2005, "Economics of Monetary Union"

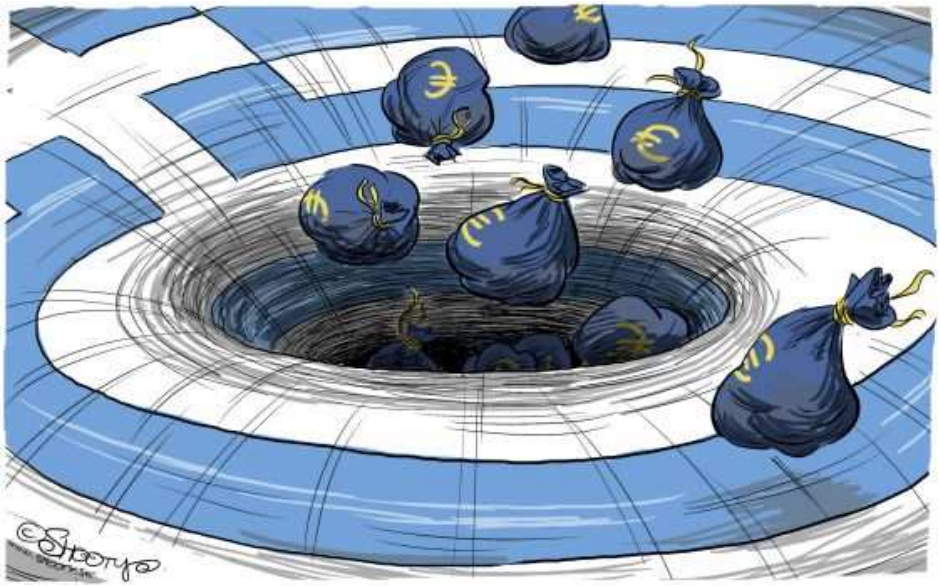
Now, there are two scenaria for the union's long-term evolution. The first one is presented by the line TT that has lower slope than the OCA line. In this case, the EU of the 25 member states will achieve to become an optimum currency area in the future. Despite the fact that higher integration leads to higher specialization, and therefore to more asymmetric shocks, it also increases the benefits of a MU. As a result, the higher economic integration will move the EU-25 at the right of the OCA line.

The second scenario is represented by the line T'T' that is steeper than the OCA line. Here, the prospect of an optimum currency area is impossible. The degree of integration increases faster than the benefits of a MU, resulting to dreadful divergence cost. It is important to emphasize that this case leads to a paradox. It shows that the decrease of economic integration among the member states of EU-25 makes the MU more attractive. However, the theoretical hypothesis that Krugman based his opinion was not confirmed by the recent results of empirical researches.

Finally, a significant element for a MU's long-term evolution is a country's own decision to join the union. Since figure 18 depicts the current situation, a country's decision to participate in a MU, even if it does not meet the OCA criteria, will accelerate the process of economic integration. It is supported that the criteria of the OCA theory have endogenous characteristics. When a group of countries decides to form a MU, the OCA criteria are better fulfilled.

CHAPTER 3

Case study: Greece in the European Monetary Union



Source:Shooty

3. Greece in the European Monetary Union

Greece became the 12th member of the Eurozone in 2001 after dramatically cutting inflation and interest rates. Although the Greek government promised greater stability and prosperity, many analysts were afraid that the euro could suffer from the inclusion of weaker European nations. In 2004, number fudge was revealed after a close scrutiny of Greece's budget figures. The new government (New Democracy) that was elected in 2005 imposed an austerity budget in order to decrease the country's deficit and to cover the cost of hosting the Olympic Games in 2004. Just a year after the Greek economy appeared to be recovering and growing again with a GDP up to 4.1%. Despite the fact that the economy was performing well, the citizens were dissatisfied with the austerity measures. As a result, in the October 2009 elections the Panhellenic Socialist Movement (PASOK) party won the power. At that time the Greek economy has contracted by 0.3% and the national debt has increased to €262bn, from €168bn in 2004. The deficit was expected to reach 6% of GDP by the end of 2009 but in reality it reached 15.4% of GDP. In November 2009 the fear of default grew while the Prime Minister said that the economy was in "intensive care". From that point, different scenaria of bankruptcy and panic were spread through international mass media. In December 2009, rating agencies degraded Greece from A- to BBB+ which raised the cost of borrowing and escalated the crisis.

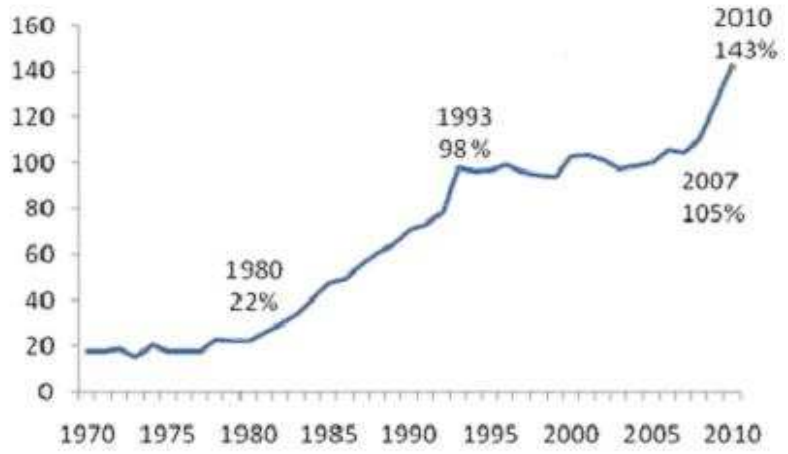
3.1 The public debt of Greece

In order to have a better understanding of the factors that led to the current crisis it is necessary to have a look at the past and to identify the origin of the problems. A very important question is how and when the country's huge public debt was accumulated. Before we start the analysis it is better to make clear the difference between debt and deficit. Every year, a government has a certain level of revenue mainly from tax collection and a certain level of expenditure for education, healthcare, payments of public servants etc. In the case that the expenditure is higher than the revenue then the government has a deficit and has to borrow money, which creates debt. If the government has accumulated debt from previous years due to consecutive deficits then a new deficit in the current year increases even more the existing debt. There is a bidirectional relationship between debt and deficit: not only a new deficit raises the already existing debt, but also the accumulated debt of previous

years increases the deficit of the current year. This happens because the interest payments on the existing debt consist part of the current year's expenditure, thus contributing to the year's deficit. There is also the concept of primary deficit which is equal to the annual deficit without the interest payments for the public debt.

We can now proceed to the actual analysis of the Greek public debt. In 2011, the country's total debt was around €350 billion or 160% of GDP, representing 0,57% of the total sovereign debt in the world (OECD statistics).

Figure 19 ***Public debt over GDP ratio***



Source: European Commission, IMF

According to the figure 19, the debt increased rapidly during the 1980s and continued rising with a lower rate during the 1990s and 2000s. We can notice that between 1993 and 2007, the ratio was quite stable while the deficits were very high. This could be attributed to the high GDP growth since mid-1990s. The nominal growth was higher than average rate of interest on debt favoring a decrease of debt (Kevin Featherstone, Hellenic Observatory, 2010, "Greece and the crisis"). However, the high deficits had obstructed that decline resulting to a stable debt/GDP ratio. The accumulated debt caused a decrease of the productive investments and an increase of the consumption. The evolution of the public debt is reflected into the evolution of the deficit.

Table 1 ***Public Deficit***

Decade	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009
Public deficit (% of GDP)	**-0.6**	**1.2**	**8.1**	**8.4**	**5.9**

Source: OECD

Table 2 ***Public Debt***

Year	1980	1990	2000	2009
Public Debt (% of GDP)	**26**	**71**	**101,5**	**115,1**

Source: OECD

It is obvious that the high deficits during the 1980s led to a dramatic inrease of the debt. As we can see in the table 2, the debt skyrocketed from 26% of GDP in 1980 to 71% of GDP in 1990. In the 1980's expenditure (%GDP) rose by 19 points from 24% in 1980 to 43% in 1988, while revenue rose by only 7 points form 20% to 27%. The debt continued to rise during the next decades as a result of high deficits which were in high levels partly because of the interest payments of the accumulated debt.

A crucial issue is how the economy was affected by the public debt. The table below shows the average consumption and investment as a percentage of GDP in each decade.

Table 3 ***Consumption and Investments***

Decade	1970-1979	1980-1989	1990-1999	2000-2009
Consumption (% of GDP)	**77.2**	**85.1**	**90.1**	**88.8**
Investments (% of GDP)	**30.7**	**23**	**20.6**	**22.6**

Source: OECD

In comparison to the 1970s, the consumption increased significantly during the 1980s while at the same time the investments reduced by the same almost percentage (8% of GDP). This means that the Greek citizens were consuming more while only a small amount was used for productive investments. Both these effects were mainly due to the dramatic rise of the public debt during the 1980s as well as due to the way that the governments spent the money that they had borrowed. In fact, the amount of money that was spent for productive investments was not more than 25% of the total amount. The largest portion of the money was spent in order to increase the salaries in the public sector and the pensions. The higher consumption (table 3) was the consequence of increased salaries. The lower investment was the result of fewer available private savings to finance it. This was due to the fact that the Greek citizens were investing their savings in both public and private bonds.

Therefore, private firms had access to fewer savings for financing productive investments. As the government was not investing the money that has raised by issuing bonds on public infrastructures, the total public and private investment reduced.

Furthermore, it is necessary to examine the external debt of the country which is the amount of money that Greece owes to foreigners. In 2009, the external debt came up to 82.5% of the GDP. A country accumulates external debt when its government or its private sector (businesses and citizens) borrows money from abroad. In the case of Greece, the private sector did not borrow money from foreigners but it was the government that did it. Indeed, the external public debt was up to 79% of the total public debt in 2009. This means that the external debt of Greece is public debt (Costas Meghir, Dimitri Vayanos, Nikos Vettas, 2010, "The economic crisis in Greece: a time of reform and opportunity", page 6).

When a country borrows money from abroad then it consumes more than it can produce. The additional consumption comes from the imports. The situation in Greece was that its citizens were consuming imported goods with the money that the government had borrowed from abroad. The money that was coming from abroad was passing from the government to the citizens in different ways such as salaries and pensions. Because of the higher salaries the people were consuming more and in total the country was consuming more than it could produce.

Table 4 ***Trade balance and external debt***

Decade	1990-1999	2000-2009
Trade Balance (% of GDP)	**-10.7**	**-11.4**
Net lending (% of GDP)	**4.1**	**10.2**
Net transfer payments (% of GDP)	**5.9**	**2**

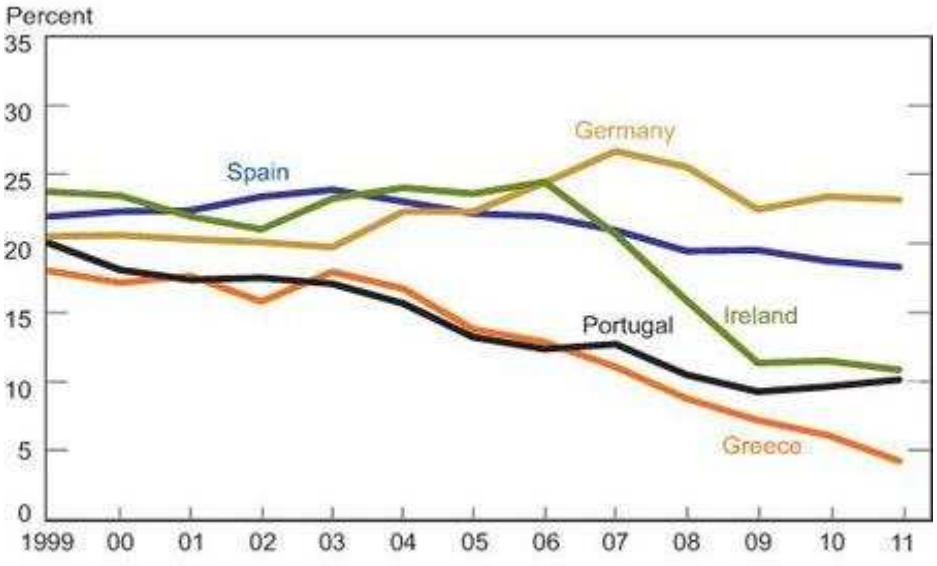
Source: OECD

According to the table 4 the last two decades the trade balance (exports – imports) was negative. This means that the country was importing more than exporting as well as that Greece was investing and consuming more than it could produce. The external lending increased because the country was importing much more than exporting but also because the transfer payments from abroad decreased.

One reason was that the payments from European Union reduced because of the new members that were less developed than Greece.

In the period 2000-2009 the external lending increased even more because of the increased imports and the reduced transfer payments from the EU. One possible reason of this high external lending was the required investments for the Olympic Games. However, the main reason was the declining private saving during this period as the interest rates were quite low and consumer loans from banks high available.

Figure 20 ***Domestic saving (%GDP)***



Source: Eurostat, Haver Analytics

As we can notice in the figure 20, domestic saving in Greece was consistently decreasing after 2003. That decline was mainly due to lower private saving and partially due to increasing public deficits (OECD). Although Greek citizens were still saving in 2000s, those savings were not enough to buy the governmental bonds. This means that saving plus taxes were lower than government expenditure plus investment. As a result, the government was forced to borrow money from abroad.

After a description of the Greek public deficit and debt, we need to identify and explain the factors that have contributed to the country's fiscal crisis. We can distinguish between endogenous factors related to governmental fiscal policies and the structure of the Greek economy, and exogenous factors concerning the global crisis of 2008 and the function of EMU. Then we will analyze these factors under the prism of the theory provided in the previous two chapters.

3.2 The main causes of the Greek fiscal crisis

Before actually analyzing the causes of the crisis, it might be interesting to present the results of a personal research that was conducted between December 2011 and March 2012. During this period, 5000 Greek citizens from 17 to 70 years old that live in different regions of Greece were called to answer the same question -"What do you think that are the causes of the fiscal crisis in Greece?". Each participant gave one of the following answers:

A. Bad governments (2850)

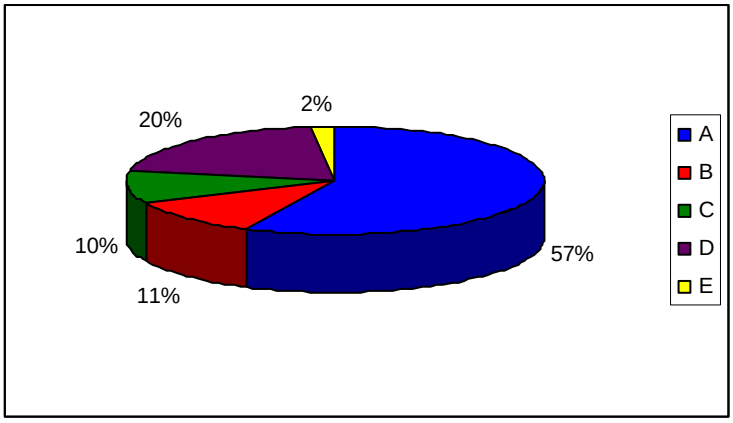
B. Tax evasion (550)

C. Huge public sector (500)

D. Corruption (1000)

E. Participation in the Eurozone (100)

Figure 21 ***Causes of the fiscal crisis based on the sample's opinion***



Source: Author's research

According to the figure 21, more than half of the participants (57%) blame the governments for the current crisis. Greek citizens are frustrated with the government's lies and mistakes. There is a general anger for the austerity measures because most of citizens feel that they have to pay a debt that they are not responsible for. In total, 98% of the sample believes that the causes of the crisis are endogenous while only 2% thinks that the participation in the EMU could be a reason of the crisis. The second most important factor is considered to be corruption supported by 20% of the participants. At the same time, tax evasion and the huge public sector have almost an equal contribution to the crisis, representing 11% and 10% of the sample respectively. The results of the research point out that the sample was well informed about the conditions of the Greek economy while it only had a limited knowledge about the implications of the EMU participation. Actually, these are the factors that have been

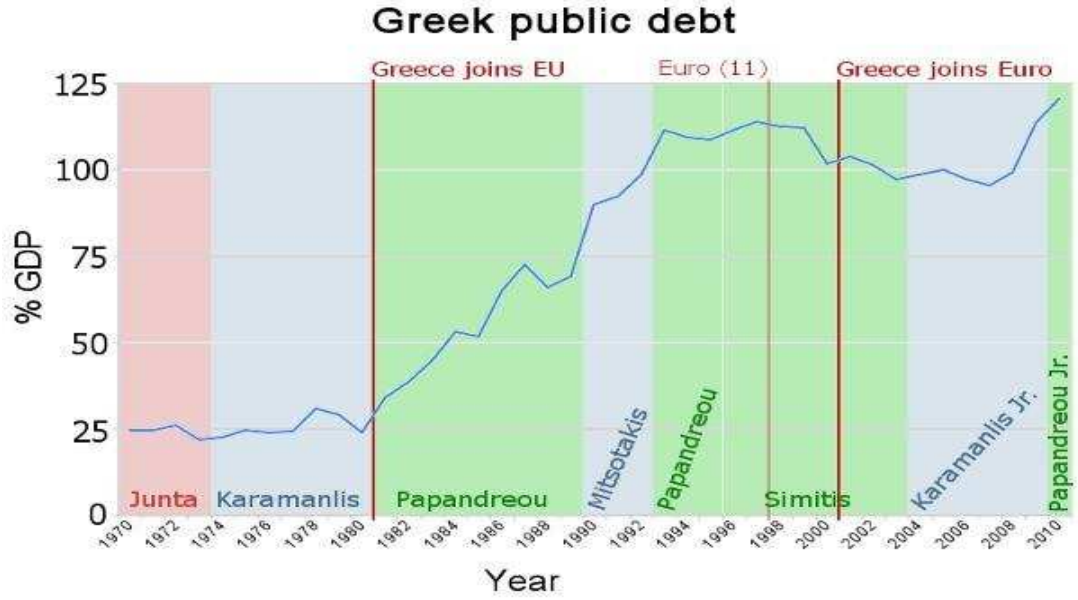
highlighted from the mass media and they are part of the main causes that will be analyzed in the next section.

3.2.1 Endogenous causes of the Greek fiscal crisis

We will first examine the endogenous causes of the crisis that according to the previous research are considered to be the main reasons of the Greek crisis. There is no doubt that the increasing public deficits in combination with the declining competitiveness played an important role on the ongoing debt crisis.

- **Governmental fiscal and monetary policies**

Figure 22 ***Evolution of the Greek public debt***



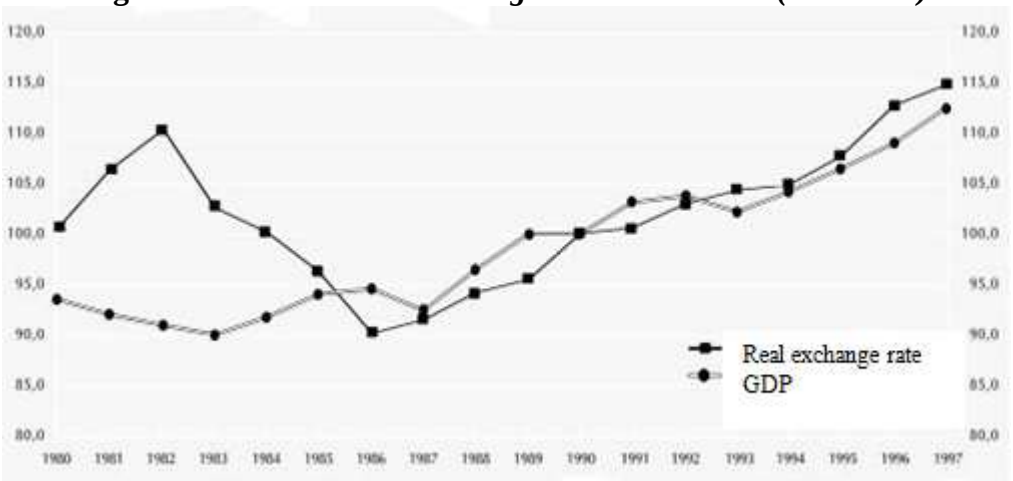
(Source: Georgios P. Kouretas, The Greek Crisis:causes and implications, page 13)

Figure 22 depicts in a very clear way the relationship between the Greek public dept and the different governments from the early 1970s till 2010. As we can notice, after the fall of dictatorship (Junta) in 1974, the first government managed to maintain the debt/GDP ratio at a low level, around 25%. In 1981, the election of the socialist government, led by Andreas Papandreou, inaugurated an expansionary fiscal policy heavily based on borrowing from the markets and with the goal of increasing the income of the average Greek household. The borrowing was part of the government's policy to improve the standard of living in Greece through higher levels of consumption. This process was further supported by the EU funds e.g. agriculture subsidies, financing of infrastructure projects. Similar expansionary fiscal policies were followed by all the next governments leading to unsustainable development of a

consuming society and augmented public debt as well as public deficit due to high interest payments.

At this point someone would pose the reasonable question of how did Greece was accepted in the EMU while having such a high public debt. In reality, as it was revealed later in 2004, the country has never fulfilled the criteria for joining the Eurozone. (Howden, Daniel. 2004. "Greece admits deficit figures were fudged to secure euro entry". The Independent, 16 November). The Greek government admitted that its deficit has never been below 3% since 1999. Greece had some difficulties to meet the requirements of the Maastricht Treaty, especially regarding inflation. However, the government was highly motivated to enter the EMU as fast as possible and focused its monetary policy on cutting inflation from an average of 20% in 1991 to 3.15% in 2000. This huge decrease was achieved through the "strong drachma" policy which was a strategy of intermediate exchange rate targets, involving nominal depreciation of the Greek drachma against the ECU increasingly lower than the inflation differential between Greece and the EU average (Michael G. Arghyrou 2006, Monetary policy before and after the euro: Evidence from Greece, page 4). The result was a gradual appreciation of the Greek drachma against the ECU. The following graph depicts the real exchange rate of drachma based on the consumer price index. A rise of the index corresponds to real appreciation.

Figure 23 ***GDP and real exchange rate 1980 – 1997 (1990=100)***



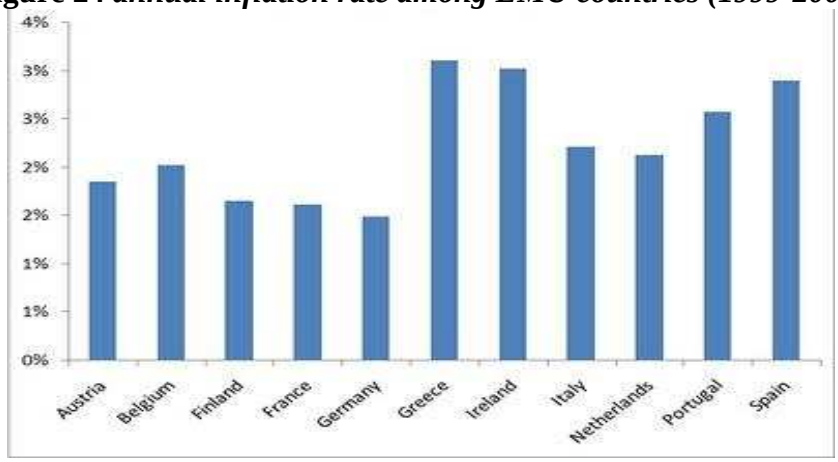
Source: Bank of Greece, 1999

Since 1988, when the Bank of Greece had started unofficially applying the "strong drachma" policy, the real exchange rate began to appreciate. That

appreciation lasted till 1997 resulting to a loss of competitiveness for the country's exports.

Although the "strong drachma" policy managed inflation convergence, allowing Greece to join the Eurozone, it only had a short-run effect. The government was more focused on numbers than on real reforms. Inflation decrease was not supported by developments in the real side of the economy. As a result, Greece faced strong inflationary pressures after joining the union, increasing the inflation differential between Greece and the EMU average.

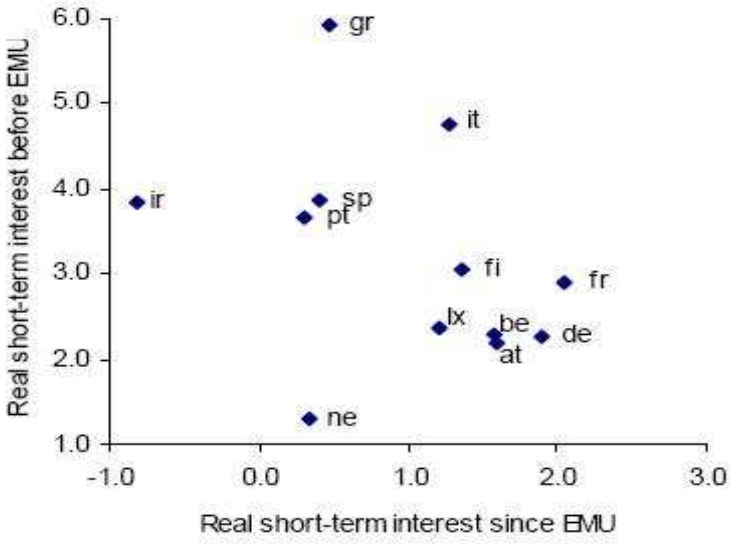
Figure 24 ***annual inflation rate among EMU countries (1999-2008)***



Source: OECD Statistics, David Beckworth, 2010, "Eurozone Periphery and the euro"

According to the figure 24, the peripheral countries had much higher inflation rate in the period 1999 to 2008 in comparison with countries such as France, Germany, Austria, Finland and Belgium. Especially Greece had the highest average annual inflation rate among the selected countries. This fact led to significantly lower real interest rates than the EMU average and to overvaluation of the Greek real exchange rate. In fact, as the following figure shows, the real short-term interest rates in Greece had sharply dropped from 6% before the country's accession to the EMU to less than 1% after EMU.

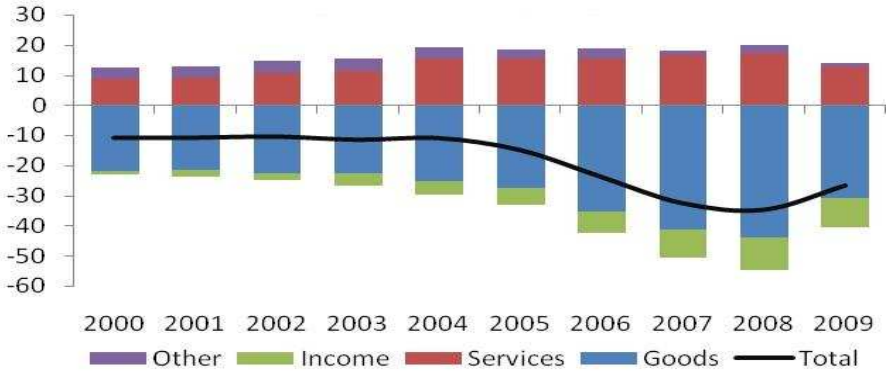
Figure 25 ***National real interest rates : Before and since EMU***



Source: World Bank and CEPR

Under such conditions a country's competitiveness is decreased having an adverse impact on its current account. Indeed, Greece has increasing levels of current account deficit since 2000. It is clear in the following graph that the major factor of that deterioration was the increase in imports which was not accompanied by a similar export growth.

Figure 26 ***Greece: Current account deficit 2000-2009 (€ billion)***



Source: Nikos Tsafos, 2011, "Greek default watch" based on Bank of Greece

There is no doubt that Greece did not achieve the real convergence required. The country was not ready to join the EMU. It is supported that at that time there existed an incompatibility between the domestic requirements of the Greek economy and the EMU policy, indicating a lack of sychronism between the Greek and the European business cycle. The results of a study from Leon Costas (2006, The

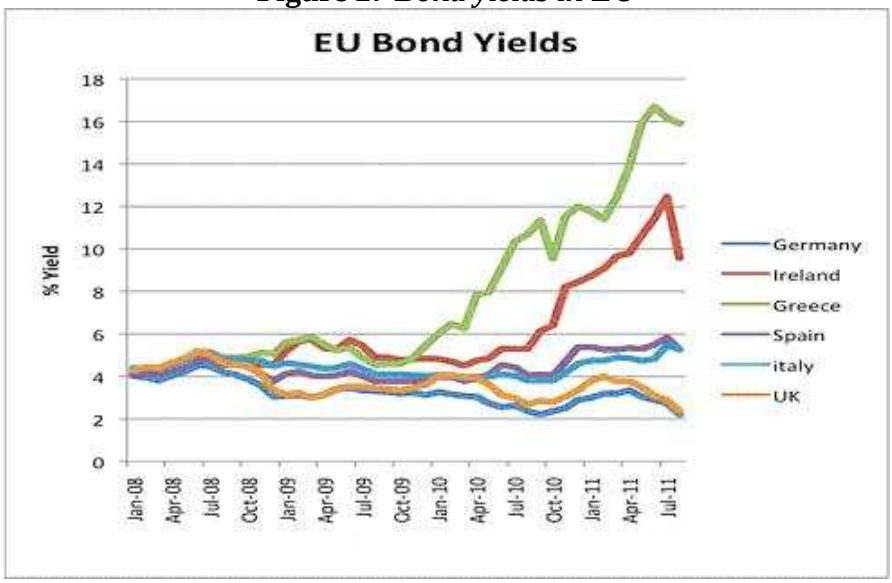
European and the Greek business cycles are they synchronized?) that tested the European and Greek business cycles from 1980 to 2005 have shown that although both cycles exhibited lower volatility over time, their correlation and their transmission mechanism appeared to be weaker over time. This means that the two cycles became less synchronized through time. The lack of synchronization between the two business cycles can be a source of asymmetric shocks with high costs for Greece and the union.

Now, let us focus our analysis back to governmental policies. The Greek government was in a hurry to join the Eurozone, although real convergence was not achieved and the deficit criterion was not fulfilled. At the mean time, the different governments kept following expansionary fiscal policies, resulting to huge public debt and extremely high public deficits. The dramatic fall in interest rates after the adoption of the euro created favorable conditions for further borrowing. One could support that the Greek governments were involved in moral hazard behaviour. They were consistently violating the fiscal rules of the EMU as well as they were hiding their real debt and deficit from the European authorities, putting in serious danger the union's future. The moral hazard behaviour is based on the fact that the profligate country has more information about the real size of its deficit and the total exposure of foreign banks in its debt. This is called information asymmetry. The rationale of the governments could be that Greece as a small country- it counts for less than 3% of total EU GDP- cannot have a big impact on the whole union. In addition, the governments were relying on the help of the other member states in case of fiscal difficulties.

For a small economy that belongs to a MU it is less costly to misreport its deficits than reporting the real ones and pay a fine. Greece that was always having a high deficit found that the costs of hiding its deficit, including the risk of being caught and the reputation costs, are less than the cost of reporting its real deficit and paying a fine (Marco della Giacoma, 2010, Small countries in non optimum currency area: Only moral hazard? The Greek case, pages 22, 23). This situation also affects the markets and the investors that hold part of the country's debt. If the real deficit was known, the rating agencies would downgrade the country and the investors fearing a debt default would sell bonds, causing a steep fall in their prices. The small country can keep "lying" to the European authorities and the markets till it finds itself in the edge of bankruptcy.

At the point that the truth is revealed, the investors react by selling their bonds and the country is downgraded which extremely increases its interest rates. This is evident in the following graph that depicts the bond yields of selected EU countries.

Figure 27 ***Bond yields in EU***



Source:ECB

The yield of the Greek bonds kept rising since November 2009 when the new Prime Minister announced the real size of the Greek public deficit and debt. The increasing yield differential between Greek and German bonds reflected the fact that investors are less willing to buy Greek bonds due to a high possibility of debt default in Greece. Banks from all Europe that hold these bonds are adversely affected while panic and fears of potential debt crisis in other European countries are spread through the market. The potential risk of contagion against other member states forces the EMU to rescue the profligate country in order to save the whole union. The ECB has to buy the bonds of the troubled country in order to prevent a collapse of the European banking system.

Nevertheless, Greece was not the only player in this game. Apart from accounting "tricks", the Greek government managed to cover its debt with the help of Goldman Sachs. In 2001, the Greek government made a huge deal with the US investment bank which involved an underground loan of 2.8 billion Euros. This deal was a mistake that cost a lot to the country. From the very first day of the deal, Greece owed Goldman Sachs around €600 million more than the initial amount of the loan (Nicholas Dunbar, Elisa Martinuzzi, 2012, "Goldman secret Greece loan shows two sinners as client unravels").

The deal also included cross currency swaps in which the debt issued by government in dollars and yens was swapped for euro debt for a certain period using an historical exchange rate. This is a common type of government refinancing as European governments issue bonds around the world in yen, dollars or Swiss francs in order to obtain funds while they need Euros for their daily transactions. After a certain period the bonds are repaid in the original foreign denomination. Especially for Greece, Goldman Sachs devised a "creative" kind of swap with fictional exchange rates, allowing the country to receive a much higher amount than the actual euro market value of 10 billion dollars or yen. By that way, the US bank secretly arranged an additional credit of up to $1 billion for the Greek government. (Beat Balzli, 2010, "How Goldman Sachs helped Greece to mask its true debt). This amount of money under the form of a swap was not included in the Greek debt statistics as the reporting rules by Eurostat do not impose detailed recording of transactions involving financial derivatives. In the past, Italy has managed to hide its real debt with a similar mechanism. Goldman Sachs used an imaginary historical exchange rate in the swaps that made about 2% of the Greek debt disappear from the country's national accounts. As a result, the Greek deficit in 2002 was estimated to be only 1.2% of GDP but in 2004, when Eurostat reviewed the data, the deficit amounted to 3.7%.

At the same time, in order to repay the €2.8 billion loan, Greece entered into another swap contract tied to interest rate swings. The events of September 2001 led to a sharp decrease of bond yields which caused a market-to-market loss on the swap for Greece due to the Goldman Sachs's formula to compute Greece's repayments over the time. After a renegotiation of the deal in 2002, the US bank proposed to base repayments on an inflation swap linked to the Eurozone's harmonized index of consumer prices. Unfortunately, the new swap did worse than the previous one as bond yields fell, rising the government's losses up to €5.1 billion (Nicholas Dunbar, Elisa Martinuzzi, 2012, "Goldman secret Greece loan shows two sinners as client unravels").

So, Greek governments have created a vicious circle of excessive borrowing and systematic misreporting of their deficits. They were borrowing money mainly from abroad to support their expansionary fiscal policies, as previously explained, creating huge public debt and deficits that were hiding from the European authorities with the help of Goldman Sachs. However, the extremely high level of borrowing was not the only cause of the high public deficits. The following tables present a

comparison between Greece and the EU average, regarding the public income and expenditure in 2007.

Table 5 ***Public Income***

2007	Total Income (% of GDP)	Indirect Taxes (% of GDP)	Direct Taxes (5 of GDP)	Social Contributions (% of GDP)
Greece	**39.7**	**12.5**	**7.9**	**13.4**
Average of EU	**44.9**	**13.5**	**13.4**	**13.5**

Source: Eurostat

Table 6 ***Public Expenditure***

2007	Total Expenditure (% of GDP)	Intermediate Consumption (% of GDP)	Salaries (% of GDP)	Interest Payments (% of GDP)	Social Provisions (% of GDP)
Greece	**45**	**5.7**	**11.2**	**4.4**	**17.6**
EU average	**45.7**	**6.4**	**10.4**	**2.7**	**19.1**

Source: Eurostat

From the table 6 we can conclude that the size of public expenditure is very close to the European average. However, the allocation of the expenditure has some important differences. In Greece, the interest payments were representing 4.4% of the public expenditure in 2007 while the EU average was only 2.7%, something that was due to the high public debt of the country that was explained before. In addition, the Greek government spent less in social provisions while at the same time the salaries were a bigger part of public expenditure in Greece. This could be attributed to the large public sector that will be analyzed later on.

On the other hand, the public income in Greece was much lower than the European average in 2007. This was due to the government's inability to collect direct taxes. In fact, in an average European country, the government collects 13.5% of its GDP from direct taxes but in Greece this percentage is only 7.9%. It is important to mention that this difference is not due to lower tax rate, Greece has slightly higher tax rate than the European average, but it is because of tax evasion. This could also have contributed to the fast growth of consumption in Greece. To be more specific, the funds that would otherwise had been collected as taxes were used for private consumption. If the governments in the past had managed to collect taxes from all the citizens according to their real income, the deficit would have been much lower.

Although the tables 5 and 6 represent the year 2007, this is a general situation in Greece. According to Eurostat statistics, in 2009, the total general government revenue was 38% of GDP in Greece with an EU average of 44.2%. From 2001 to 2010, the average government revenue in Greece is around 39.5% while for the same period the EU average is around 44.3%. The numbers indicate another main issue of the Greek economy, the tax evasion that is closely connected with corruption.

- **Tax evasion and corruption**

The ability of government to collect taxes is really problematic in Greece, having one of the lowest revenue from taxes in the EU – 32,6% of GDP as against an EU average of 39,3% (European Commission). This is due to tax avoidance and tax evasion. At this point, it is useful to differentiate between the two terms. Tax avoidance is the practice of reducing the amount of payable taxes by legal means while tax evasion is the illegal action of not paying the proper amount of taxes.

According to a report (2011) by the European Commission's task force, Greece has €60 billion in unpaid taxes due to tax avoidance which proves the gravity of the problem. From the €60 billion only €8 billion can be easily recoverable. At the same time, half of the total amount is in uncollected taxes that have been presented in the court and wait for a decision, in some cases for more than 10 years, indicating also the matter of bureaucracy. Greece has an ineffective and expensive tax system which is full of exceptions and ad hoc provisions due to its complicated tax legislation.

Tax evasion is closely connected to the "shadow" economy which in Greece was estimated to be equal to 27.5% of its GDP in 2011 (Report by Central Bank of Greece). Part of this problem is the illegal labour which is considered to be extremely high in Greece. To be more specific, based on statistics published by the National Labour Inspectorate for the year 2010, from the total number of 77.666 workers that were investigated, 19.435 or 25% were illegal.

The report by the Central Bank of Greece for the year 2009, has shown that 53% of the tax revenue was coming from employees and pensioners, 31% from businesses, 7% from free lancers, 2% from rentiers and 1% from farmers. Furthermore, 44% of the businesses declared zero profits in 2009. This means that the lower income classes (employees and pensioners) were account for more than half of the total tax revenue that year. Tax evasion has also a social impact. Since the rich usually cheat more, it leads to unfair distribution of wealth as well as it means that the

tax burden falls too heavily on the shoulders of the honest and lower income taxpayers.

It seems that tax evasion has deep roots in Greece. The enforcement of the tax laws is insufficient due to corrupt tax officials that are very easily bribed. This is an extra motivation for tax evasion. People are more likely to be honest and to comply with the law when they know that illegality will be detected and punished. However, it is not only a matter of lax enforcement but also of low "tax morale". In developed countries, people pay taxes because they want to contribute to the common good with the belief that all the citizens think the same way and that the government is legitimate and trustworthy. This belief is very low for the Greeks, as they face fraud and corruption in their everyday life e.g. in healthcare, in tax system, in politics, in business. Indeed, in 2009 the organization Transparency International ranked Greece as the most corrupted member of the EU, together with Bulgaria and Romania. According to a report by the Hellenic Foundation for European and Foreign Policy, Greece loses €13 billion each year in corruption and tax evasion. Since Greeks do not trust the system because is corrupted and tax evasion is very common, they are less willing to pay taxes. Tax evasion in Greece is a social inclination which means that for a successful tax reform apart from a policy change is also needed a cultural change.

- **Huge public sector and early age of retirement**

The accusation that Greece has an enormous public sector is more a stereotype than reality. OECD, in its "Government at a Glance 2011 – Greece" publication, quotes: "Greece has one of the lowest rates of public employment among OECD countries, with general government employing just 7.9% of the total labour force in 2008. This is a slight increase from 2000, when the rate was 6.8%. Across the OECD area, the share of government employment ranges from 6.7% to 29.3%, with an average of 15%. The Greek government has plans to further decrease this share, by replacing only 20% of staff leaving on retirement. Public employment is also highly centralized in Greece, with over 80% of staff working at the central government level." The following table summarizes the situation of the Greek public sector in 2011.

Table 7 ***The Greek public sector in 2011***

	Greece
General government	**705,645**
Wider public sector	**175,000**
Total public sector employment	**880,645**
Total labour force	**4,967,200**
Total population	**11,257,290**
Public sector employment as: % Total population	**8%**
% Labour force	**18%**

Source: Greek National Statistic Organization

According to the table 7, Greece's public sector employment in 2011 was 8% of the total population which means that there was one public employee for every 13 citizens. After all these statistics, it seems that Greece does not have such a big public sector as it is generally believed and cutting its size will not bring enough benefits to the government. Actually, it will increase the unemployment rate that currently is more than 21% and it will further reduce the tax income.

The main problem of the Greek public sector is not its size but its inefficiency. Greece has very low values of Public Performance Indicators together with Portugal, Spain and Italy (Heinz Handler, 2005, "The size and performance of public sector activities in Europe", page 18). It also has low productivity and quality of delivered services. Another issue is that the Greek public sector is considered to be very corrupted. For example, many employees got a job in the public sector by exchanging their vote with a position in this sector. For many years, public employment was considered to be the "dream" job of every Greek citizen due to its permanent character and less working hours in comparison to the private sector.

Greek public servants work the same amount of hours per week as the German ones i.e. 35 to 36 hours while at the private sector Greeks work around 42 hours per week. As Eurostat statistics have revealed in 2011, Greece has the first position among the EU countries regarding the working hours. The research has shown that Greeks work from 42,2 to 43,7 hours/week while the French work 38 hours/week and the Germans only 35,5 hours/week. The numbers totally contradict

with the rumors that Greeks are lazy, spread by the mass media all over the world. Unfortunately, according to the same research Greece has a quite low productivity index per hour worked, only 76,3, while in Germany is 123,7 with an EU average of 100. The index is based on GDP per hour worked and is expressed in a common currency that eliminates the differences in price levels between EU countries (Eurostat). Regarding the wages in the public sector, it is true that since the country's EU entry, they have increased more in comparison to others countries such as Germany and France but this increase was part of the convergence procedure within the union. Still the net hourly wage for public employees is 30% higher in Germany than in Greece. On the other hand, if we take into consideration the productivity difference between the two countries we can claim that public employees are more expensive in Greece than in Germany.

However, the public sector is not such a big burden for the Greek government as the pension system.

Table 8 ***Age of retirement and level of retirement pension 2006-2009***

	Official age of retirement	**Average pension (% of average income)**
Greece	**58**	**95.7**
OECD	**63.2**	**60.8**

Source: OECD

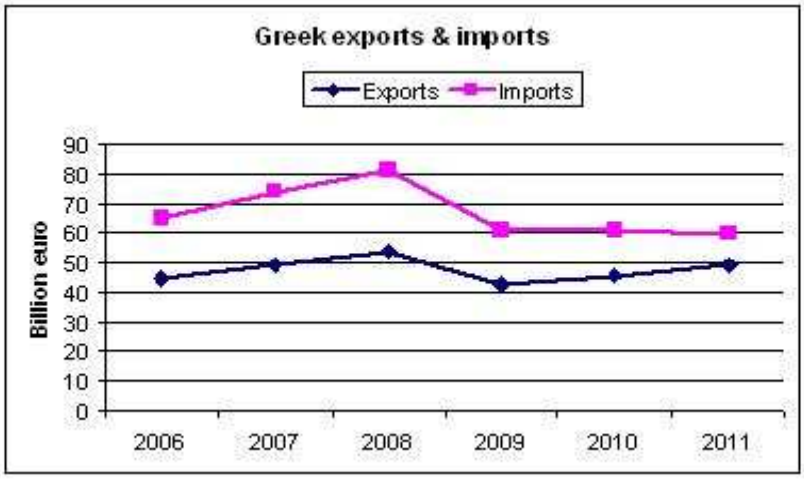
According to the table 8, the working population in Greece could retire at the age of 58 receiving a full pension, with the condition that they have completed 37 working years. This age of retirement is much lower than the average OECD while at the same time the pension is significantly higher in Greece. Although the age of retirement has increased, the pension system is still under reform. The social contribution that the government receives from each worker is 44% of its total income (28% from the employer and 16% from the employee, OECD 2009) and is the second highest among the OECD countries. From this percentage, 60% is used for the pension payments and 40% for other social provisions like health insurance. Let us assume that there is no population growth and that people live exactly up to their life expectancy which is 80 years old in Greece. If individuals work for 37 years and retire at 58, this means that there are 37/22=1,68 employees for each pensioner. Thus, a pensioner can receive only 1,68x44%x60%=44,5% of his/her gross earnings at retirement which is less than half of the average pension in table 8 (Costas Meghir,

Dimitri Vayanos, Nikos Vettas, 2010, The economic crisis in Greece: a time of reform and opportunity, page 19). In fact, the Greek pension insurance funds have serious deficits -€500 million in 2010 (Greek National Statistics Organization)- confirming that the pension system is unsustainable. Since the pension insurance funds are public, their deficit increases further the total public deficit and the need for borrowing.

- **Structure of the Greek economy**

Greece is a small peripheral country of 11,3 million people in the southeastern edge of the EU. The country's accession to EU in 1981 fuelled its transformation into an open economy. However, Greece still has a very low level of exports inside and outside the European Union while at the same time the level of imports was consistently higher resulting to a chronic trade deficit of 15% of GDP on average for the past 12 years.

Figure 28 ***Greek exports and imports (2006 -2011)***



Source: The Economist, 2012, "What Argentina tell us about Greece"

According to the figure 28, the last three years (2009, 2010, 2011) the trade deficit has significantly narrowed. In the period between 2006 and 2008 both exports and imports were presenting an upward trend that was stopped by the global crisis of 2008 -2009. Between 2009 and 2011, the imports remained relatively stable at a much lower level than in 2008 while the exports have increased by almost €10 billion. Overall between 2008-2011, the trade deficit has decreased by 52% from €43,3 billion to €20,8 billion. Only in 2011, imports decreased by 7,5% while exports increased by 38,7% (Greek National Statistics Organization).

According to the World Trade Organization (WTO), Greece's share in world total exports in terms of merchandise trade was only 0,14% in 2010 while its main exports were agricultural products (27,1%), fuels and mining products (20,7%) and manufactures (49,3%) such as textiles, foodstuffs and petroleum-based products. One serious problem is that the Greek exports are poorly diversified and consist mainly of low value goods. EU-27 was the destination for the 62,6% of Greek exported goods. The biggest markets for the Greek products are Germany and Italy among EU countries. Other main trade partners in EU include Bulgaria, Cyprus, UK, France, Spain and Romania. The most important markets for the Greek exports outside EU are Turkey, United States, Albania and Russia. Concerning the trade of commercial services, Greece's share in world total exports was 0,99% in 2010. The main Greek exported services are travel and transportation (especially shipping), representing more than 90% of the country's total exports of services. It is a fact that Greece has the world's biggest fleet with 3.213 ships. In 2011, shipping comprised 65% of the total exported services.

On the other hand, Greece's share in world total imports for merchandise trade was 0,41% in 2010 (WTO statistics). The main imported items were agricultural products (13,4%), fuels and mining products (26,9%) and manufactures (59,6%). Manufactured goods are mostly machinery, transport equipment and chemicals. EU-27 is the origin for 51,3% of the imported products in Greece with Germany, Italy and France being the country's major suppliers. Apart from EU, Greece is importing from Russia, China, Korea and US.

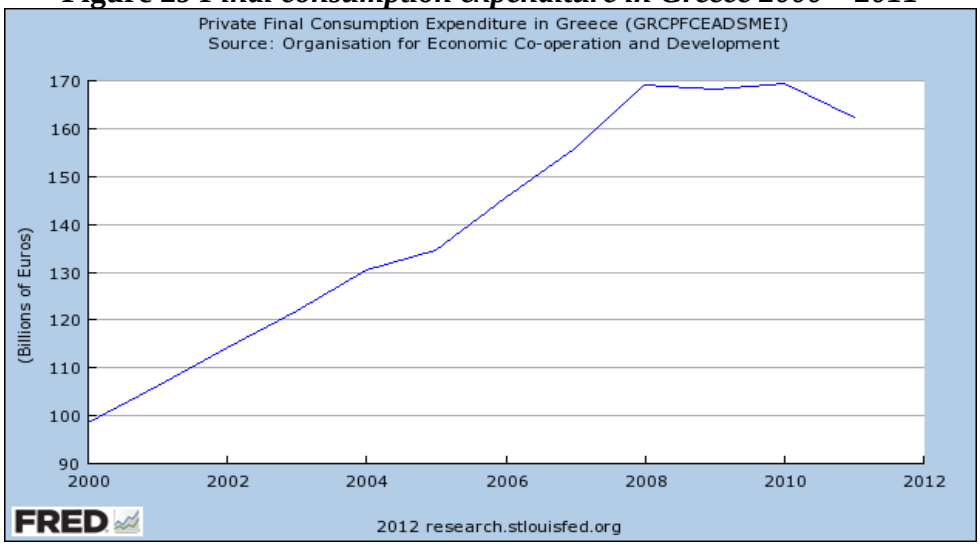
It is worthy of remark that Greece is the world's third largest importer of arms after India and China. Over the past decade Greece was spending on average 4% of its GDP on defense while the Eurozone average was 1,7% of GDP. What is even more interesting is that the past six years Greece was Germany's number one customer for munitions, representing 15% of German arms sales, as well as France's largest customer in Europe. Even in 2010, Greece increased its defense spending by €900 million while at the same time social spending was cut by €1,8 billion. (Credit Writedowns, March 2012, Greece is a huge importer of German and French weaponry). Germany and France were granting generous loans to Greece so that the latter would be able to buy military equipment from them. Obviously, this is the reason why these two countries were not putting pressure on Greece about cutting down arms spending. Regarding commercial services trade in 2010, Greece had a

share of 0,55% in world total imports with transportation and travel accounting for approximately 71% of total imported services (WTO statistics).

The composition of Greece's exports and imports reflect the structure of its GDP. We will take as example the year 2010, as the WTO statistics for the exports and imports were also from the same year. The data for the GDP structure are from the Greek National Statistics Organization. So, in 2010 the Greek GDP was €227 billion. Services accounted for 78,8% of the GDP, agriculture for 3,3% and manufacturing for 17,9%. The primary sector in Greece is the service sector with tourism contributing 15% of its GDP. At the same time, as already mentioned, transportation/logistics and travel are the country's main exported and imported services. According to WTO statistics for the year 2010, Greece had a trade surplus in services. The major agriculture products in Greece are tomatoes, olives, olive oil, wheat, maize, sugar beets, dairy products, rice, figs, cotton, tobacco, wine, grapes, raisins, peaches, oranges. However, due to the country's morphology and small size, the cultivatable land is limited which does not allow the country to have a significant volume of agricultural production. Therefore, Greece was a net importer of agricultural products in 2010. Industrial production in Greece is less developed than many other European countries. The most important Greek industries are food procession, shoes, textiles, metal, chemical, cement, glass, electric power, construction, electrical equipment and petroleum products. The absence of "heavy" industry explains the high level of imported manufactured goods such as machinery and transport equipment. Furthermore, the country's spectacular level of imported arms is in line with the structure of government expenditure. Greek government spends a larger share of resources on defense while at the same time it spends a much smaller portion of resources on education in comparison to other OECD countries (OECD, Governance at a glance 2011, Greece). In 2011, Greece ranked 20th on the world list for military expenditure published by the Stockholm International Peace Research Institute.

The high levels of imports were also necessary to support the increasing consumption between 2000 and 2008 that was the result of the previously discussed governments' policies.

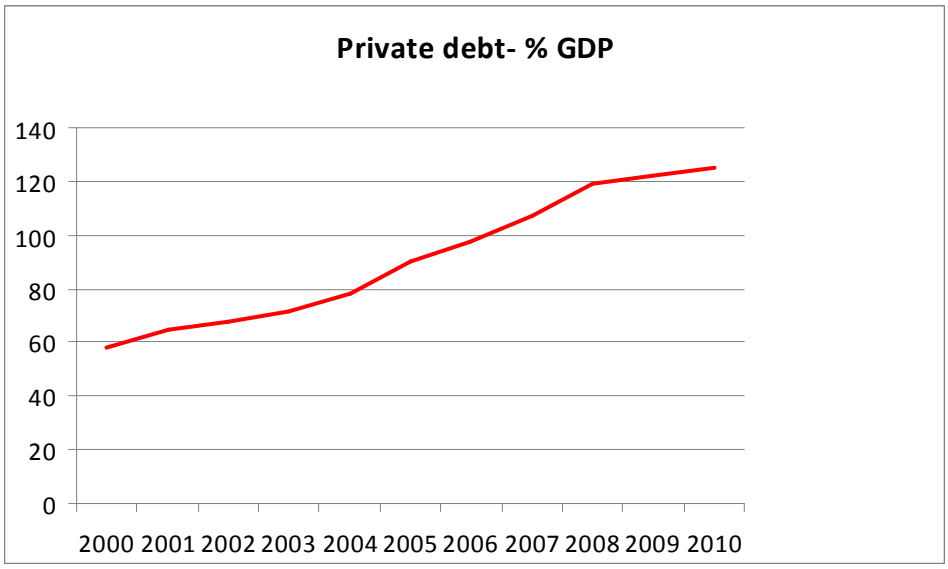
Figure 29 ***Final consumption expenditure in Greece 2000 – 2011***



Source: Federal Reserve Bank of St. Louis based on OECD data

Figure 29 shows the private final consumption expenditure in Greece which is the sum of household final consumption expenditure and final consumption expenditure of nonprofit institutions serving households (definition by National Accounts main aggregates database). Indeed, the above figure confirms the situation. Consumption levels were consistently increasing between 2000 and 2008 supported by rises in wages and pensions as part of fiscal policies but also by increased levels of private borrowing. The adoption of the common currency brought a significant fall in interest rates favoring both public and private borrowing. As a result, in the period between 2000-2009 not only the public debt to GDP ratio increased from 100,1% to 115,1% but also the private debt to GDP ratio more than doubled. The red line in the next figure represents the Greek private sector debt in percentage of GDP. "The private sector debt is the stock of liabilities held by the sectors: Non-Financial corporations, Households and Non-Profit institutions serving households" (Eurostat definition). As the figure shows, the private debt in Greece kept rising since 2000. To be more specific, the private sector debt was 58% of GDP in the end of 2000 and reached the 125.2% of GDP in 2010.

Figure 30 ***Private sector debt as % of GDP in Greece (2000-2010)***

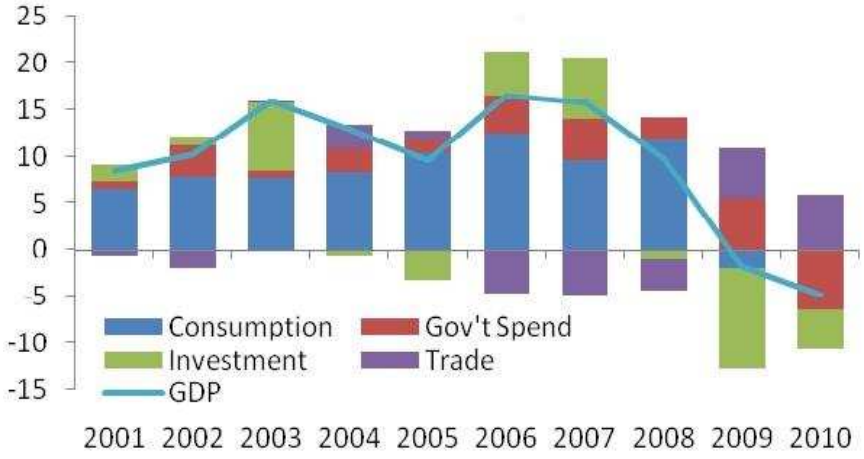


Source: Author based on Eurostat data

The high availability of private loans is also connected with the boost in the housing market between 2000 and 2006. In 2003, the rate of homeownership was 83,6% the second highest in the EU (Eurostat). The global crisis of 2008 had a slight negative impact on private consumption expenditure. However, since 2010 the level of consumption started to decline with a faster rate due to the debt crisis, cuttings on wages and pensions as part of the austerity measures and limited access to bank loans.

It seemed like a demand "shock" took place in Greece between 2000 and 2008 where increased domestic demand fuelled the country's growth. It is important to clarify that it was not an asymmetric demand shock between two countries but a domestic one that had affected only Greece. The increasing public and private consumption between 2000 and 2008 was resulting to high nominal but also real GDP growth rate. Indeed, during the period 2000-08, the average rate of real GDP growth in Greece was almost double of the EU average, 3,9% and 2% respectively (OECD and Eurostat). At the same time, as it is clearly illustrated in figure 31, the investment has been declining since 2003. In that year Greek investment was 25% above the EU average while in 2010 it was 21.5% below the average (Eurostat). This can be explained by the decline in both housing investment since 2006 and metal products and machinery investment since 2008.

Figure 31 ***Greece: Nominal GDP growth by source in € billion***



Source: Nikos Tsafos, 2011, "Greek default watch" based on Eurostat statistics

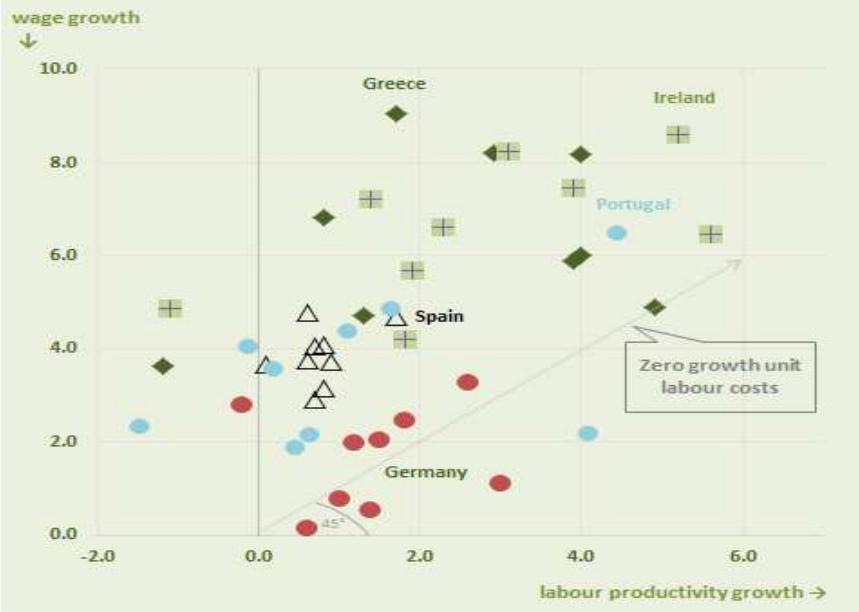
Therefore, the GDP growth was only supported by high consumption levels and government spending but not by export growth and investments, resulting to unsustainable development within an uncompetitive economy. In fact, the Greek economy suffers from serious competitiveness problems. In 2011 Global Competitiveness Index, Greece ranked 90th out of 142 countries, having the lowest position among EU countries. Each year the country gets a lower position in the Global Competitiveness Index as in 2010 ranked 83rd out of 139, in 2009 71st out of 133 and in 2008 61st out of 128. Greece is classified as an innovation-driven economy in the Global Competitiveness Report 2011 but it still lacks competitiveness in many important sectors in comparison with other economies of the same category.

Figure 32 ***Global Competitiveness Index 2011, Greece***

Source: Global Competitiveness Report 2011

From the figure 32, it is obvious that the most problematic areas of the Greek economy are the macroeconomic environment, financial market development, innovation, labour market efficiency and institutions. The low evaluation of the macroeconomic environment is without doubt the result of the ongoing sovereign debt crisis. In the same context, the country's financial markets are poorly assessed reflecting the lack of investors' confidence. The inefficient labour market is a matter of serious concern. This is due to a combination of high labour costs and low productivity which is evident in the next graph.

Figure 33 ***Nominal wage and labour productivity growth (2000-2009)***



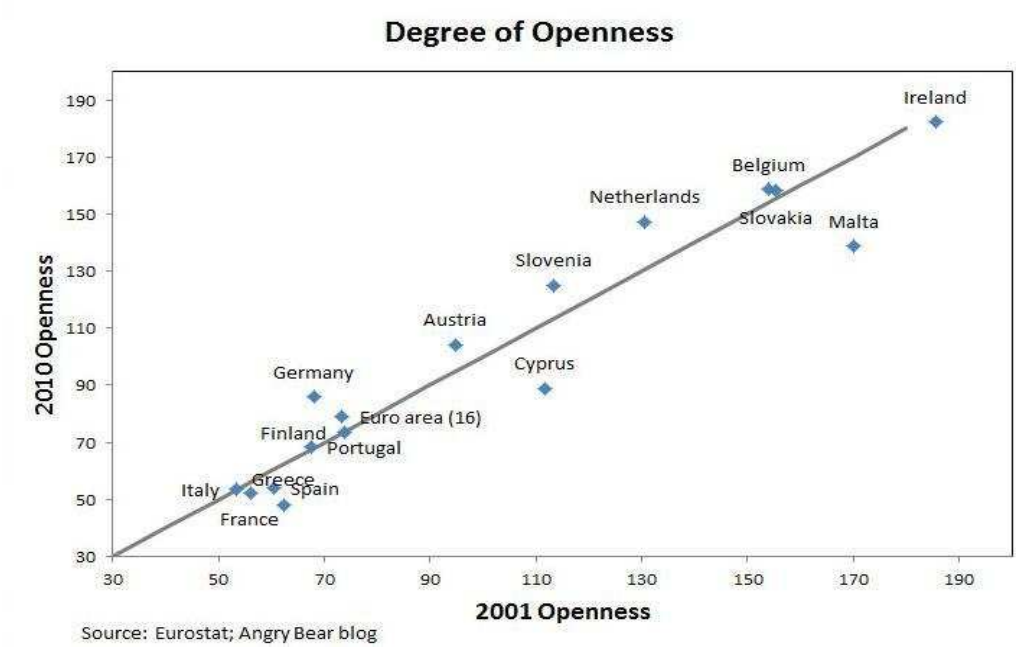
Source: Peter and Den Reijer (2011) based on OECD and EU

In the period 2000-09, the growth of nominal wages in Greece was not only notably higher than in other member states but also it was not accompanied by an equal productivity growth, resulting to abnormal levels of unit labour costs. At the same time the Greek labour market is heavily regulated with rigid employment laws regarding wage determination and hiring/firing practices. In 2011, the country's Rigidity of Employment Index was 50 in a scale of 0-100 (worse), which gave Greece the 125th position among 142 countries. Public institutions are also inefficient as they considered being corrupted and bureaucratic. For example, 15 procedures are required to start a new business in Greece which takes 19 days. The problem is not only the high hurdles to start a business but also the inadequate investor protection. Regarding innovation, the country has a low level of protection for intellectual property and low

number of patents. In addition, the company spending on R&D is substantially below the average in EU. All these conditions create a model of economy with little capacity for innovation and low FDI attractiveness. However, Greece has a well educated workforce with high technological readiness, good quality of infrastructure and a developed market with sophisticated consumers.

Let us now combine all the previous information about Greece's structure of economy with the OCA criteria from the first chapter. The following figure compares the degree of openness among the member states of the EMU, having as a measure the sum of exports and imports divided by GDP.

Figure 34 ***Degree of openness in the EMU***

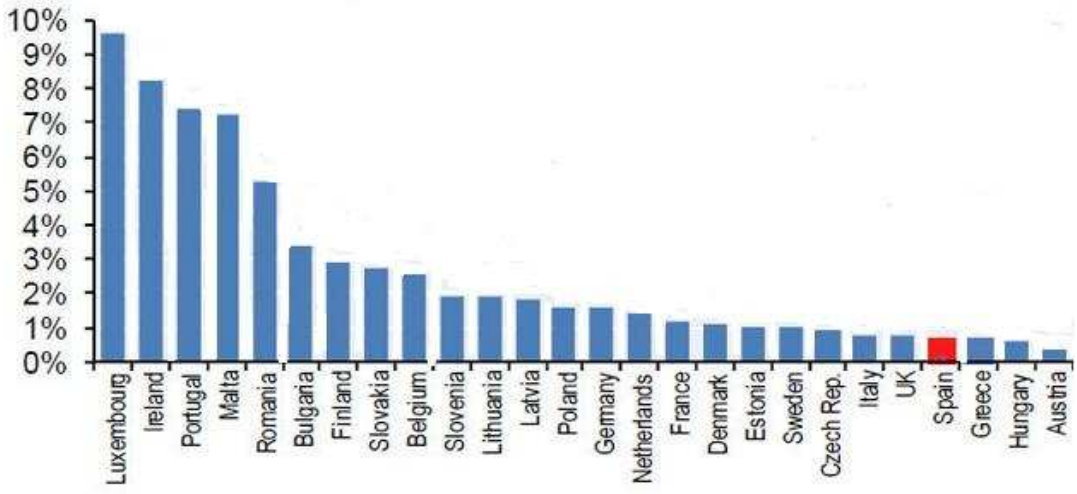


Source: Angry Bear blog based on Eurostat data

According to the figure 34, Greece has one of the lowest level of openness in the Eurozone. It is noteworthy that the country's degree of openness has been reduced from 2001 to 2010. This can be attributed to the significant decrease of imports since 2008, as imports make a larger contribution to Greece's openness than the exports. The situation is also confirmed by the country's chronic trade deficits.

In addition labour market in Greece is rigid with strict regulations and labour mobility is among the lowest in EU mainly due to cultural and linguistic differences. Indeed, as the following figure shows, in 2009, the share of Greek citizens living in another EU country was around 1% of the total population in Greece.

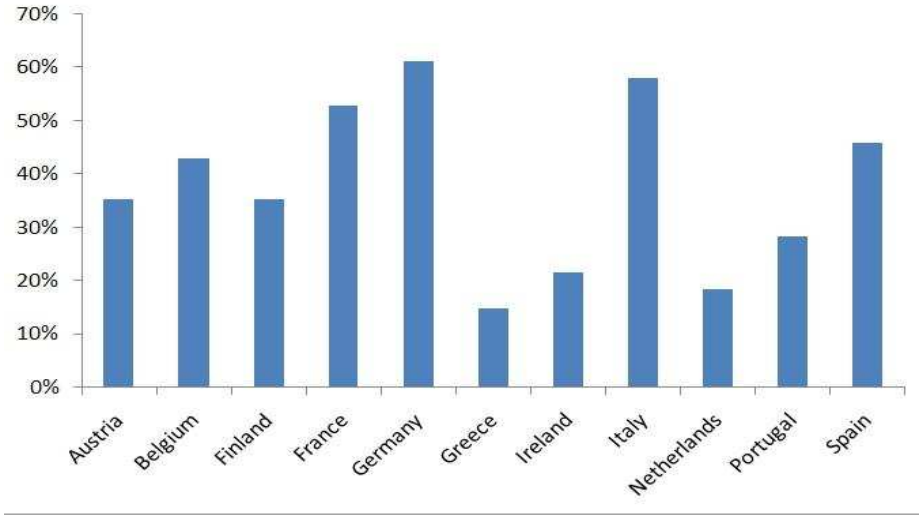
Figure 35 ***Share % of citizens living in another EU country relative to population***



Source: IZA Institute for the study of labour, 2009, "Labour mobility and the integration of European Labour Markets"

Now, if we take into consideration that Greece had much higher annual inflation rate than most of the EMU countries in the period 1999-2008, the low diversification of Greek exports and the lack of synchronization between the Greek and European business cycle we can easily conclude that Greece does not fulfill the majority of the OCA criteria. The lack of synchronization between the two cycles was identified in a study by Leon Costas (2006, The European and the Greek business cycles are they synchronized?) but is also obvious in figure 36 where we can notice that Greece is significantly less synchronized with the euro economies.

Figure 36 ***Industrial production growth rate correlation with euro area 1998-2009***



Source: OECD Statistics, David Beckworth, 2010, "Eurozone Periphery and the euro"

All these conditions indicate relatively lower than the expected benefits and high risk-cost of asymmetric shocks from Greece's participation in the EMU. Even though Greece is member of the EMU since 2001, it has not met the OCA criteria yet which means that the endogenous character of the OCA theory was not confirmed in the case of Greece.

3.2.2 Exogenous causes of the Greek fiscal crisis

We have identified two main exogenous factors that could have contributed to the current Greek crisis. The first one is the global financial crisis of 2008 and the second is the participation in the EMU.

- **Global financial crisis 2008**

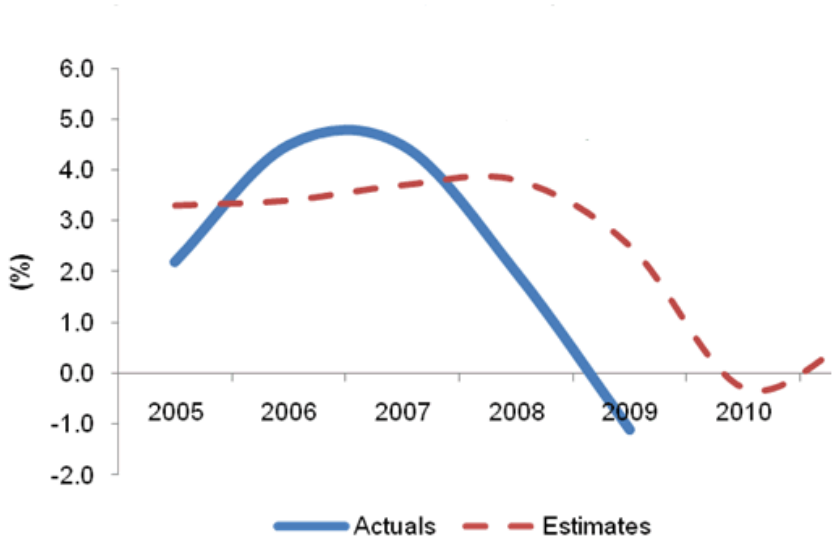
The 2008 crisis is considered to be the worst financial crisis after the Great Depression in 1929. It started from the US housing market and expanded all over the world causing a global economic recession. We will not try to analyze the roots of this crisis but we will focus on how this economic downturn has affected the EMU and especially the Greek economy.

We could consider the global crisis of 2008 as an asymmetric shock for the EMU as it had affected the member states in a different way, revealing the structural weaknesses of the union and the absence of successful convergence policies among its members, especially in the peripheral countries. The European Commission claimed that the global financial crisis further deteriorated the economic divergencies among the union's members regarding their current accounts and their competitiveness. In addition, the 2008 crisis resulted in an unprecedented unemployment rate of 10% in the Eurozone at the end of 2009. The European Central Bank identified many asymmetries in unemployment policies in Greece, Spain, Italy, Germany and Ireland which not only meant a lack of coordination in employment and unemployment policies within the union but also indicated a dominance of national preferences over the common ones.

There is no doubt that the world crisis affected all the union's member states but with a different way and intensity. For example, the export-oriented German economy was badly affected due to the sharp decline of international trade while Spain felt the impact of the crisis mainly through the housing bubble. In general, it is

believed that the 2008 recession did not have such a large negative impact on the Greek economy as in other European countries e.g. Germany and Spain due to the relatively small Greek manufacturing sector. The real GDP growth in Greece decelerated from around 4% in 2007 to 2% in 2008 but still remained positive.

Figure 37 ***Greece: Real GDP growth (2005-2010)***



Source: Reggie Middleton's BoomBustBlog

The Greek banking sector also was not significantly affected by the crisis as Greek banks were more conservative in their investment decisions and they had a relatively low dependence on external funding in comparison with larger European banks. The loan-to-deposit ratio was 108% for Greek banks while for other European banks was 127% (Dr. Panos Livadas, February 2009, "Global Crisis: Greek resilience in turbulent times"). The Greek banking sector was further supported with a financial package of $36 billion provided by the Greek government.

However, in 2009 the country's income fell by 15% and Greece experienced a negative GDP growth (figure 37). This could be to some extent explained by Greece's dependence on tourism and shipping, that both industries were severly hurt during the global downturn. Prodromos Vlamis and Evaggelos Karousos (2010) supported that Greece as well as its main Balkan trade partners were hit by the global crisis with a time lag.

While in the middle of a global downturn with a public debt of around 100% of GDP, the Greek government did not take any measures although in early 2008 the bond spreads began to rise. In March 2008, Jean Claud Trichet, the president of the

ECB, warned Greece over bond spreads in EMU while one month later the Bank of Greece cautioned about debt dynamics. In September 2008, the rating agencies Fitch and Standard & Poor's forewarned that if Greece will not reduce its public debt, they will downgrade its rating. In the turmoil of the global financial crisis, in late 2008, the markets sold a substantial volume of Greek bonds as a reaction to the country's deteriorating fiscal data and macroeconomic prospects. Investors have lost their confidence in the Greek economic conditions resulting to capital outflows from Greece to stronger economies. The 2008 world crisis shed light on the country's macroeconomic imbalances and structural problems, eventually taking the form of a debt crisis for Greece.

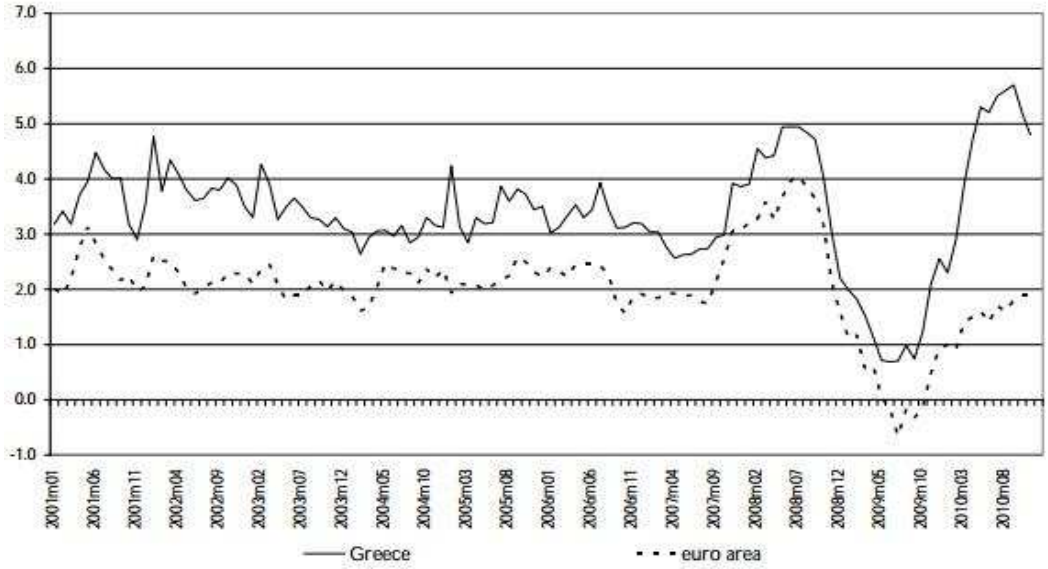
- **Participation in the European Monetary Union**

In 1999, Greece was the only country from the EU that wanted to adopt the euro but was not allowed to because it had not met the convergence criteria. However, in June 2000 the European Council decided that Greece would be able to officially join the EMU in January 2001. The country's accession to the EMU was considered to be a big success for the Greek government that was expecting to obtain great benefits from a more stable macroeconomic environment and a common monetary policy, without showing a serious concern for the costs of such a decision. The government might was afraid that if Greece had not joined the Eurozone it would have been left in a "second class" group of countries.

Due to the government's haste, Greece did not achieve a real convergence prior to its EMU accession (More details about the government's convergence policies were already provided in the part 3.2.1). At this point, Greece's admission to the EMU raises the reasonable question of why the other member states and the union's authorities accepted a country that had not achieved a real convergence. One possible explanation is that they had not paid enough attention to the country's future macroeconomic development, underestimating the impact that the small Greek economy could have had on the whole union. Maybe the EMU authorities were sure that Greece will achieve better convergence after its entrance in the union, keeping their eyes closed in front of the country's risky financial situation. Anyway, the result was that Greece joined the EMU with a divergent economy in relation to the other member states and nobody realized the potential risks/costs of such an irresponsible action.

The mistake of accepting Greece in the EMU had far-reaching implications. First of all, the way that Greece joined the union, having only an ephemeral convergence, could be perceived as a hit on the EMU's reputation and firmness that further motivated the Greek authorities to keep on following policies with temporary and misleading results. Second, it led to an increasing gap among the Greek economy and the economies of the older member states. It was already demonstrated in the part 3.2.1 that the inflation differential between Greece and the EMU average increased after the country's admission to the EMU which is also verified by the figure 38.

Figure 38 ***Inflation in Greece and in Eurozone (2001-2010)***

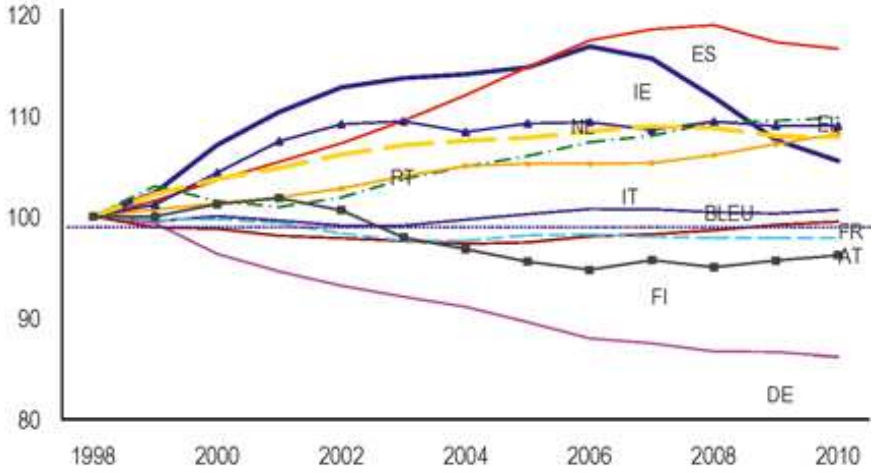


Source: Greek National Statistics Organization

We can notice that in the end of 2001- beginning 2002, the inflation rate in Greece increased sharply which could be attributed to the temporary inflation convergence prior to Greece's admission to the EMU. However, Greece had constantly higher inflation than the EMU average in the period 2001-2010. The problem is that Greece with a tradition of high inflation (average of 11.44% in 1990s, Bank of Greece) has joined the low inflation Eurozone. This has resulted to an estimated loss of seignorage revenue more than 1% of GDP (European Commission, "One money, one market") but the most important source of cost is the incompatibility between the policies of the "hard-nosed" ECB and the expansionary fiscal policies of the Greek government. On the one hand the ECB had (and still has) a very strict target of inflation and on the other hand the Greek governments' fiscal policies were aiming at high growth by stimulating domestic demand. The high

domestic demand and consumption was pushing up the prices in Greece. The constant inflationary pressures in Greece caused an overvaluation of its real exchange rate.

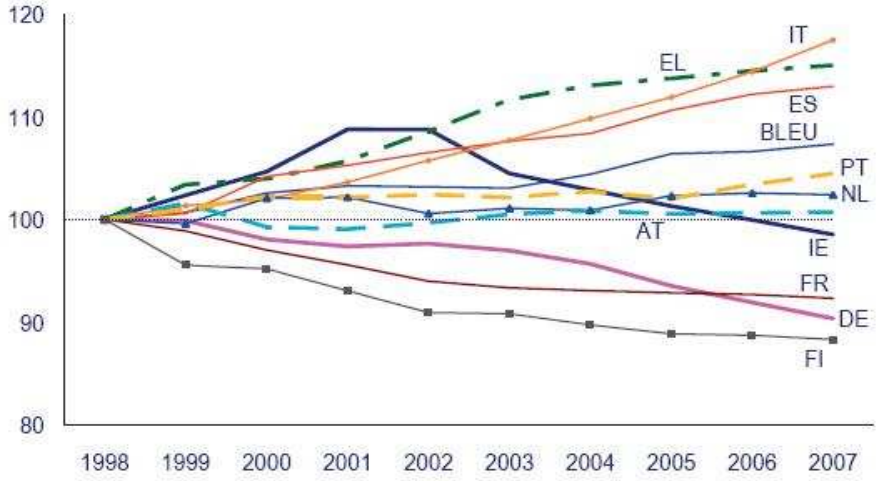
Figure 39 ***Intra-Euro real effective exchange rate developments (1998-2010)***



Source: European Commission, 2010

It is clear in figure 39 that countries with higher inflation like Greece (EL), Spain, Portugal, Ireland have experienced an appreciation of their real exchange rate after joining the EMU. On the other hand, in countries with low inflation rate such as Germany, Finland, France the real exchange rates have depreciated. The real value of a currency is what it can buy in terms of goods of foreign countries and not in terms of other currencies. The exchange rate divergencies among the union's member states are connected with imbalances in current accounts and in competitiveness. To be more specific, a country like Germany with low inflation and weak real exchange rate can build current account surpluses with a country with high inflation and strong real exchange rate like Greece. This is even more obvious in the following graph that depicts the evolution of the export prices within the EMU.

Figure 40 ***Export prices in euro-area countries (1998-2007, 1998=100)***

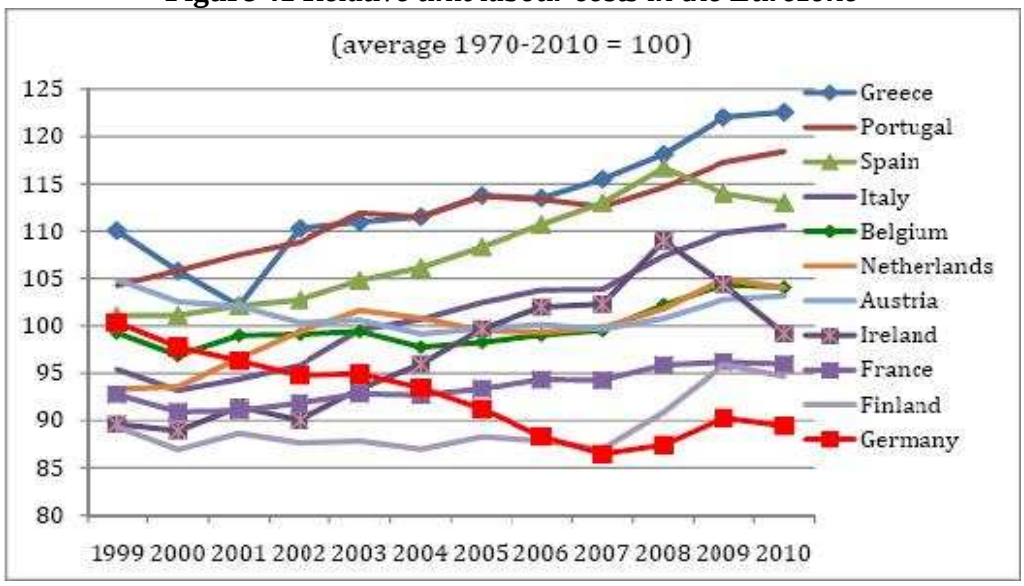


Source: European Commission, 2010

The export prices in Greece, Italy, and Spain have been consistently growing between 1998 and 2007 while in Germany, Finland and France they have been reducing. Thus, there was created a gap between the two groups of countries leading to a loss of competitiveness in the first group. This means that the countries of the second group have achieved an export growth at the expense of the fist group's countries.

Furthermore, if we take into consideration that the real exchange rate deviations reflect the differences in the unit labour costs (wage growth minus productivity growth), then we can presume a lack of wage coordination within the EMU which is confirmed by the following chart.

Figure 41 ***Relative unit labour costs in the Eurozone***



Source: De Grauwe, 2011, based on European Commission, Ameco

Again the peripheral countries e.g. Greece, Spain, Ireland, Portugal with high inflation and strong real exchange rate appear to have also higher unit labour costs than the low inflation ones. These substantial divergencies in the unit labour costs indicate the presence of different national policies for wage determination. Normally, wage growth should be aligned with productivity growth but in each member state exist additional factors that affect wage formation. In Greece, Ireland, Spain and Portugal wages were pushed up by unemployment and prices. Especially in Greece, prices were the most important cause of wage growth (Peeters, Marga and Den Reijer, Ard, 2011 "On wage formation, wage flexibility and wage coordination"). Domestic demand growth drove up consumer prices in Greece by 47% from 1997 to 2010 while in the Eurozone the increase was only 27% (IMF). Thus, increases in prices led to high wage growth even when productivity growth was low. In the period 2000-2010, the per capita employee compensation in Greece rose by 80% with an EMU average of 23% (IMF). It seems that the Balassa-Samuelson effect (explained in part 2.1.3 of chapter 2) was not confirmed in the case of Greece as the higher inflation was not reflecting a higher growth of productivity.

A moderate wage development has a positive effect on a country's international competitiveness, contributing to export growth and current account surpluses. On the other hand, countries with high wage growth face a loss of international competitiveness because higher wages mean higher export prices and therefore lower export levels. This is a reasonable explanation why countries like Germany, Austria, Luxembourg, and Finland have accumulated current account surpluses while Greece, Portugal and Spain have large deficits. As the trade between the EMU countries has increased since the creation of the union, the lower competitiveness of specific members has a severe impact on their national accounts and causes a financial vulnerability. Given the fact that they cannot devaluate their currency, they have to achieve an internal devaluation which means that prices and wages must be driven down to the level of their competitors. The only way to succeed this is through deflationary macroeconomic policies that will initially lead to a recession and thus to increases in budget deficits (Paul De Grauwe, 2011, "The governance of a fragile Eurozone"). One can now understand the importance of wage growth coordination within the EMU that could partly eliminate the imbalances on the currents accounts among the members states. Since the union has failed this task, some countries were "doomed" to suffer a crisis.

According to De Grauwe (2011), during a country's effort to improve its competitiveness within the EMU, the increasing deficits can hurt the financial market's trust to a great extent causing a liquidity crisis and eventually a solvency crisis. He supported that the financial markets have the power to force default on the member states of a MU because these countries issue debt in a currency over which they do not have control. Suppose that investors are afraid of a default by a country that belongs to the EMU and they start selling its government bonds, causing an increase in the interest rate. The investors that sold the bonds and have Euros in their hands might decide to invest this money in government bonds of another member state. Thus, the Euros leave the first country's banking system reducing its total amount of liquidity. The government cannot anymore finance its debt at reasonable interest rates which means that it faces a liquidity crisis. Unfortunately, the government cannot force the country's central bank or the ECB to buy its debt. A strong liquidity crisis can lead the government into default.

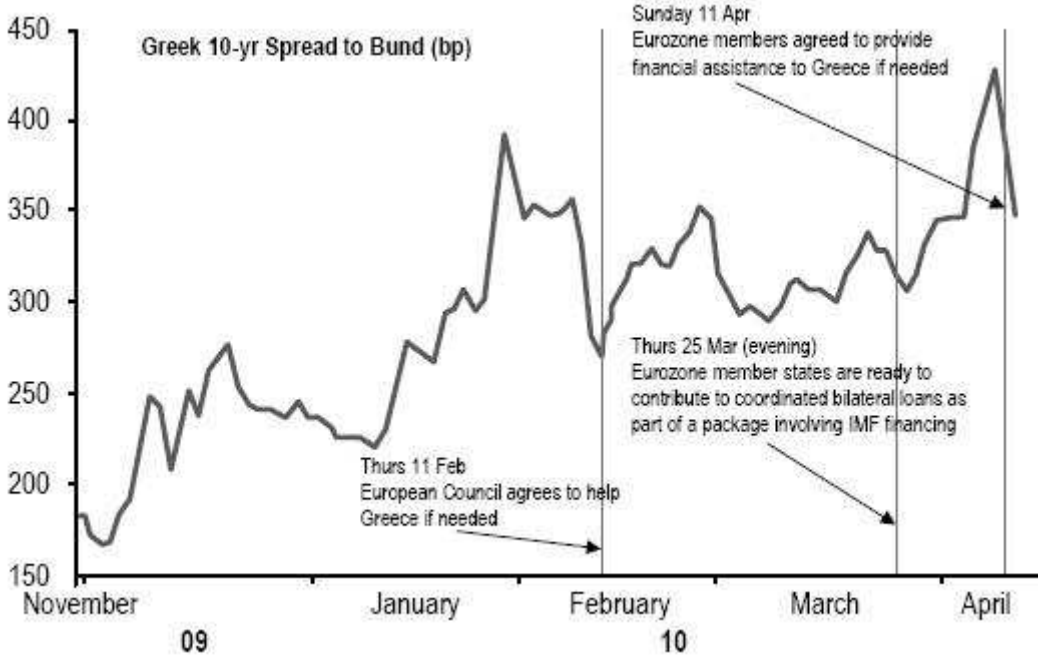
Such a crisis would not happen in the case of a country that is not part of the EMU. Although in fear of default the investors would sell again the country's bonds raising the interest rate, they would need after to get rid of this currency by selling it in the foreign exchange market. This would cause currency depreciation but the money supply and the liquidity would remain unchanged. The depreciation gives a boost to the country's economy as well as it increases the inflation. Even if the country's government cannot fund its debt at reasonable interest rates, it can force the central bank to buy its debt. Therefore, the investors cannot expect a liquidity crisis that would force the government into default.

We can support that the countries of a MU are very vulnerable to liquidity movements. Increased fears of default lead to reduced liquidity in the national market. The liquidity crisis pushes up the interest rates resulting to a solvency crisis. In the end the fears of investors are confirmed. The crisis is somehow predetermined: the country has defaulted because investors are afraid of default. Although this is not totally applicable in the case of Greece as the Greek government had been already insolvent before investors caused a liquidity crisis in May 2010, the Greek banking sector was adversely affected by the loss of liquidity. When investors sold the Greek bonds, driving up the interest rates, the Greek banks had huge losses on their balance sheets. As the total liquidity reduced in the Greek market, the banks found extremely difficult to rollover their deposits without paying floated interest rates. By this way,

the sovereign debt crisis in Greece led to a collapse of its banking sector although Greek banks were sound enough before the crisis. Since the financial markets in the EMU are highly integrated and the Greek bonds were held throughout the union, the banking sectors and financial markets of other member states were also negatively affected. However, it is important to mention that during the crisis the ECB has provided significant liquidity (€96 billion) to the Greek banking sector through the mechanism of Trans-European Automated Real-Time Gross Settlement Express Transfer (TARGET). Through this system the ECB has transferred stock of refinancing credit to the Greek banks. Now, if we take into account the ECB's exposure to the Greek bonds (it is estimated around €55billion), then a Greek default would imply huge losses for the ECB.

In addition, the Greek crisis brought to the surface the lack of solidarity among the union's countries that escalated the crisis. The governments of the member states did not give a clear sign to the markets that they were willing to support Greece. They claimed that a bailout of Greece would be illegal according to the Article 125 of the Maastricht Treaty. Especially Germany was very skeptical about providing financial assistance to the country since Greece has misbehaved and its government's irresponsible behaviour has accumulated a huge debt leading to insolvency. However, nobody mentioned the Article 100, section 2 of the Maastricht Treaty that quotes: "where a member state is in difficulties or is seriously threatened with severe difficulties caused by natural disasters or exceptional occurrences beyond its control, the Council, acting by qualified majority on a proposal from the Commission, may grant under certain conditions, Community financial assistance to the member state concerned". Thus, a bailout is not totally illegal or forbidden by the Maastricht Treaty. The dispute of the EMU countries about helping Greece made the markets believe that the implicit guarantee on Greek debt by the other member states had been withdrawn. At the same time, the ECB did not clarify its position as collateral of the downgraded Greek bonds. All these ambiguities were reflected on the widening spreads between the Greek and German bonds as well as on the deteriorating ratings of the Greek debt.

Figure 42 ***Spreads between Greek and German 10 year bonds***



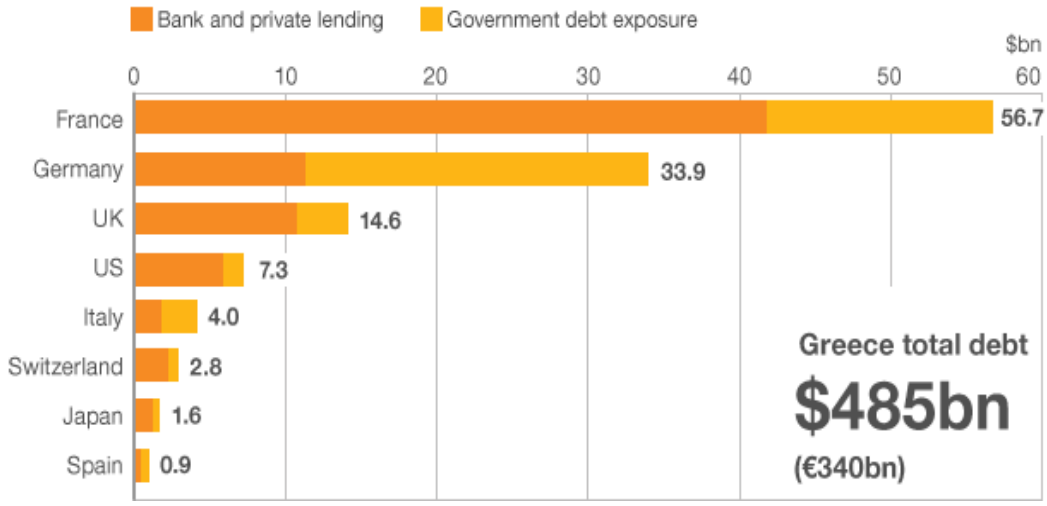
Source: Reuters EcoWin Pro, 2010

In the period March-August 2008 the spread of the 10 year Greek bond against the German one ranged from 25 to 65 basis points. Then, the global crisis raised the spread up to 285 basis points in March 2009 but it declined to 121 basis points in August 2009. In November 2009, the new government revealed that the Greek debt was not sustainable anymore causing a dramatic increase of the spread. The Greek spreads to the German Bund kept widening until April 11 that the Eurozone members finally agreed to provide financial assistance to Greece.

Although, in February 2010, the president of the ECB, Jean-Claude Trichet, announced that the ECB would continue to accept Greek bonds as collateral and in March 2010 the EU leaders together with the IMF agreed on a 3-year rescue package for Greece, the rating agencies kept downgrading the Greek debt driving up the spreads. The austerity measures announced by the Greek government causing massive strikes and violent protests in Greece encouraged the further downgrading of its debt. It was in December 2009 when Fitch first downgraded Greece from A- to BBB+, the lowest rating of Greek debt in the past 10 years. In April 2010, after the agreed rescue package, Standard and Poor's downgraded the Greek debt to BB+ (non-investment grade) while in January 2011 Fitch gave a junk status to the Greek debt. Standard and Poor's further decreased its rating to B in May 2011 and just one week later Moody's downgraded Greece to Caa1. It seems that the EMU authorities and the national governments of the member states did not persuade investors that they would do

anything to prevent Greece from default. All the accusations and misleading articles regarding Greece that have been published in the European press during the crisis have ruined the country's reputation and have definitely been far from a sense of solidarity within the union. The member states behaved like enemies attacking each other in order to support their national interests. There is no doubt that the member states' decision of providing financial help to Greece was influenced by the fact that the union's biggest economies e.g. France and Germany, are the ones most exposed to the Greek debt, with $56,7 and $33,9 billion respectively.

Figure 43 ***The countries most exposed to Greek debt***



Source: Bank for International Settlements, published on BBC in July 2011

Greece had to be "saved" not only to prevent the contagion of the crisis to other peripheral countries with high debt and deficit such as Spain, Italy, Portugal but also to prevent huge losses and a potential collapse of the banking sector in France and Germany.

At this point one could argue about the diffusion and dilution of power within the Eurozone. Do small and weaker economies are considered to be equal members of the union as the strong and big economies? Germany gives the impression of the union's hegemon as it is the strongest economy and the biggest country in terms of population. Everyone was expecting that Germany, maybe together with France, would successfully handle the crisis within EMU. However, in the very beginning of the crisis Germany kept a silent and distant attitude. That position could be a deliberate plan of the German government to put pressure on Greece where a vast majority of Greek citizens was protesting against the austerity measures that the

government had announced and promised to the EMU authorities. Even when Germany finally decided to intervene in the crisis, its actions were unilateral including its decision to ban naked short selling, its request for a change in the Treaty that would allow the ejection of undisciplined countries from the union, its reluctance about the €750 billion EU safety net for the euro as well as its appeal to the IMF's help (Melanie Morisse-Schilbach, "Ach Deutschland! Greece, the Euro crisis and the costs and benefits of being a benign hegemon", page 34). In particular, Germany's appeal to the IMF could be perceived as a sign of mistrust to the power of the EU authorities and institutions. Anyway, it was clear that in times of crisis Germany preferred to act on behalf of its national interests instead of supporting and leading the union.

When the member states of a MU act in an atomistic way then the union's future is at risk. Such behaviour could result to a confidence and solidarity crisis among the EMU member states as well as it could hurt the union's credibility and power as an international actor. We could also support that the predominance of national interests among the member states has harmed the process of convergence within the EMU. Furthermore, the ECB has been several times criticized for following a monetary policy suitable for the German needs. Many scholars believe that the ECB asymmetric inflation target of 0% to 2% is too inflexible and that the ECB is too focused on price stability instead of growth stimulation (De Grauwe 2002, Artis 2007). An increase in inflation could have helped the peripheral countries to improve their competitiveness but in January 2011 the ECB president announced his intention to maintain the 2% inflation target. Such inflation stabilizes the real exchange rate, but it does not promote either a real depreciation in the peripheral countries or a real appreciation in the rest member states. This can be also a proof that the peripheral countries should not have been part of a monetary union with the core countries.

We should not also forget the exception made by the Economic and Financial Affairs Council (ECOFIN) for Germany and France in 2002 when their deficits had exceeded the 3% limit. In January 2003 the ECOFIN gave a formal recommendation to Germany to take the necessary actions to reduce its deficit by the end of May 2003, allowing then a year to effectively correct its deficit. By the end of 2003, the German deficit was 3,5% of GDP which meant that Germany would not be able to reach the 3% target within the agreed deadline. In that case, according to the excessive deficit

procedure, Germany should have been asked for a non-remunerated deposit equal to 0,2% of its GDP. This amount would then have become a fine if Germany would not manage to decrease its deficit. However in reality the ECOFIN allowed an extension of time giving Germany a new deadline to reach the 3% target by 2005. This kind of deviations from the rules could harm the credibility of the EMU authorities and could also encourage other member states to misbehave in their fiscal policies, defying the rules. In addition, the fact that Germany with the reputation of a strong and stable economy violated the fiscal rules and remained unpunished could motivate the weaker economies to be more careless with the rules. The Greek government's moral hazard behaviour might have been influenced or even triggered by such conditions which in combination with the low effort of EMU authorities on monitoring Greece's financials made it possible to hide its real deficits. Of course this is not an excuse for the Greek government's thoughtless behaviour but it proves the contribution of the EMU's imperfections to that behaviour.

The unfavorable circumstances that were described in the parts 3.2.1 and 3.2.2 made it clear that the Greek crisis was simply a matter of course. Greece joined the EMU with a weak economic and financial situation and without having achieved a real convergence. The lack of coordination in economic policy e.g. wage policies, budgetary and social policies led to increasing divergence between the Greek economy and the strong economies of other member states. In the meanwhile, the significant loss of competitiveness that Greece has experienced since 2001 made it impossible to keep up and to compete with the robust economies within the union. Automatic fiscal transfers could have helped Greece to stabilize its economy but such a mechanism did not exist in the EMU. Unfortunately, the Greek governments sought growth through a consuming boom based on excessive borrowing that inevitably ended up on a dead end. The Greek crisis revealed the dire necessity for political integration that could gradually correct the existing imbalances within the EMU and pave the way for high coordination of the member states' economies.

Conclusions

Since the end of 2009, Greece undergoes a sovereign debt crisis that has put the whole EMU in jeopardy. The viability of the union is under dispute as several member states in the periphery have accumulated huge public debts. However, the current Greek fiscal crisis has been the bone of contention for the international mass media, presenting different scenaria for the causes of the crisis as well as for a possible Greek default and the country's exit from the Eurozone. At the same time, the Greek citizens keep protesting against the austerity measures imposed on the country by its lenders (IMF, EMU) as part of an economic adjustment programme for Greece. The increasing frustration was expressed through the recent elections on 6th of May 2012 that made impossible the formation of a stable Greek government. This has increased the uncertainty regarding the future of the EMU, making its member states to reconsider their costs and benefits from participating in the union.

The main goal of this paper was to examine the causes of the Greek debt crisis in order to identify the weaknesses of the Greek economy and the costs as well as the imperfections of the EMU that have led to this crisis. Furthermore, it attempted to apply the existing theoretical background concerning the costs of a MU in the case of Greece. To be more specific, this work has analyzed the membership of Greece in the Eurozone in an effort to provide empirical feedback that has confirmed or rejected the relevant theory.

The first chapter has introduced the reader to the traditional Optimum Currency Area (OCA) Theory which highlights the potential costs arising from a country's accession to a MU. According to the founders of the OCA theory, Mundell (1961), Mc Kinnon (1963) and Kenen (1969), the loss of the exchange rate policy, the necessity of real wages flexibility and factors mobility as well as the lack of fiscal transfers mechanism and the stuctural differences in the economies of the member states form a pessimistic opinion regarding monetary integration within the EMU.

However, in the second chapter, the critical approach to the OCA theory has contributed to a more optimistic approach towards the Eurozone based on the European Commission's view and the monetarist school of economic thought. On the other hand, the asymmetries in the labour markets (McDonald-Solow, 1981) and the

different priorities of the governments (Barro-Gordon, 1983) could still be a significant source of cost within a MU. This fact in combination with the Keynesian school of thought and Krugman's point of view has increased the risk and cost of asymmetric shocks within a MU.

Within this theoretical framework, the third chapter has provided an analysis of the Greek crisis' roots. Initially, this chapter has focused on identifying the sources and the economic impact of the high public debt and deficits in Greece. The rest of the chapter has been divided into two parts: the endogenous and exogenous causes of the debt crisis. The first part has dealt with issues such as governmental fiscal policies, corruption, tax evasion and generally the structure of the Greek economy in relation to the OCA criteria while in the second part the impact of the global financial crisis in 2008 and of EMU membership has been examined under the prism of the OCA theory. All the ideas and arguments have been supported by data of both international and national institutions like OECD, Eurostat, WTO, ECB, Greek National Statistics Organization and Bank of Greece.

The results of the analyses have shown that the causes of the Greek fiscal crisis are a combination of exogenous and endogenous factors. The consequences of the EMU membership have been felt in Greece since the mid-1990s. The deregulation of the financial system and the country's accession to the EMU had reduced significantly the cost of borrowing which increased both public and private debt. At the same time, the expansionary fiscal policies applied by Greek governments since the early 1980s have created a huge debt burden. Under those conditions, the high levels of domestic demand and the eventual consuming boom were the main driving forces of growth in the Greek economy.

There were many reasons why Greece should have not joined the Eurozone. First of all the absence of real convergence and the policies followed by the Greek governments in order to meet the Maastricht requirements had a tremendous effect on the country's economy. Overvaluation of real exchange rate and loss of competitiveness were the "heavy" costs of the dramatic decrease in inflation which was necessary for entering the union. In addition, the Greek authorities in a desperate effort to be accepted in the EMU had hidden the real size of public deficit getting involved in moral hazard behaviour. The union's imperfections and the lax surveillance of the Greek economy had encouraged that careless attitude. The Greek

governments took advantage of the opportunity in order to cover systematically the outcome, i.e., huge public debt and deficit, of their wasteful policies.

The situation has deteriorated right after the country's admission to the Eurozone, when the real consequences of that action have been revealed. The divergence between the Greek economy and the strong economies of the core kept increasing primary due to a lack of coordination in fiscal and wage policies. High levels of domestic demand have been pushing up the prices in Greece which has fuelled wage growth even though productivity growth has been substantially lower. The Balassa-Samuelson effect has been proven to be weak in the case of Greece as the higher inflation was not related to higher productivity growth. Therefore, rising unit labour costs have led to high export prices, loss of international competitiveness and current account deficits in Greece and other peripheral countries while at the same time declining unit labour costs have contributed to export growth in the core countries. The loss of the exchange rate policy was a big cost for Greece as a devaluation of its currency could allow an improvement of its world competition. In the end, it has become clear enough that the EMU has been divided into two subgroups: the peripheral countries that have accumulated current account deficits as well as huge public debts and the core countries that have "built" current account surpluses at the expense of the first group. This is definitely an evidence of how the differences in the labour markets can result to asymmetries within a MU, confirming the traditional OCA theory.

Greece with proneness to high inflation would inevitably face high costs, including a rise of public debt, by joining the Eurozone due to the incompatibility between the strict monetary policy of the ECB and the expansionary fiscal policies of the Greek government. This could have been avoided only in the case of a political union where economic policies would have been more coordinated and fiscal transfers among the member states would have counteracted the effects of possible imbalances.

Another sign that Greece was not the right candidate for joining the EMU is the fact that the country has never fulfilled the OCA criteria. The Greek economy is still one of the most closed economies within the union due to high dependency on services that are less transferable than goods and a small manufacturing sector. Exports have very low diversification and their growth has also been hindered by the higher export prices. The Greek products have gradually become less competitive in comparison to German and French products. The data have also indicated very poor

labour mobility and lack of synchronization between the Greek and the European business cycle. The domestic labour market is heavily regulated resulting to wage rigidity which does not allow the adjustment to asymmetric shocks through changes in wages. Based on this information and having as a fact the increasing inflation differential between Greece and the EMU average, the Greek authorities should have expected that the membership in the union would bring more costs than benefits. However, the EMU authorities bear also responsibility for accepting Greece in the union.

There is no doubt that the participation in the Eurozone has harmed the Greek economy which has its own weaknesses. The high levels of public debt and the profligate governments have not been the only cause of the constant deficits. Tax evasion and tax avoidance, the expensive public sector and the generous pension system have had a negative impact on the public income. A successful reform of the tax and the pension system is extremely necessary but corruption and bureaucracy are still important obstacles that are very difficult to overcome. In addition, the low capacity for innovation in combination with inefficient labour market have hurt the country's competitive position. The current crisis could be an opportunity for radical changes and reform. Then, one could examine if the measures already taken since the beginning of the crisis correspond to the actual needs of the Greek economy.

Despite all the above mentioned problems, Greece was giving the impression of a prosperous country, maintaining a stable and satisfying growth rate in the 2000s. The global economic downturn of 2008 had shaken the confidence of the investors in the Greek economy. Increased panic and fears about the effect of the crisis in Greece caused important capital outflows from the country to more solid economies. The markets sent their first signals of worries about the economic conditions in Greece. Although the financial crisis of 2008 could be considered as an asymmetric shock having a different impact on the member states of the EMU, it was not the same type of shocks described by the OCA theory. It cannot be seen neither as a significant source of asymmetries within the union nor as a main cause of the Greek sovereign debt crisis but it was the beginning of the end.

The Greek crisis has shed light on the problematic areas of the Greek economy and of the Eurozone in total. The lack of solidarity and the predominance of the national interests over the common ones have been evident in the reactions of the member states during the crisis. It has also become obvious that without coordination

of the fiscal and wage policies and even more without political integration, the future of the union is dubious. The achievement of a political union is a challenge for the member states due to the differences in the political and legal systems and the absence of a common culture. The willingness of the countries to put aside these differences will be critical for the viability of the EMU. In these circumstances, some member states might decide to opt out of the union in order to keep their national identity and sovereignty. The implications of such a decision for the specific country and the whole union are unknown and could be the object of further research.

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