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Yüksek Lisans Tezi

ÖZGÜN İMRE

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Danışman: Yrd. Doç. Dr. İmre Ersoy
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ONAY SAYFASI

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ABSTRACT

Economic and Monetary Union (EMU) has a unique set up of centralised monetary policy with individual fiscal policies of member states. European Commission argues that the creation of EMU would stimulate the system to have more flexibility and integration, thus resembling an optimum currency area (OCA), and when coupled with sound public finances this would be enough to offset asymmetric shocks. However, other monetary unions have centralised fiscal policies to complement their monetary policy, in line with the fiscal federalism literature, which argues that the macro policies should be governed by the central/federal government.

This thesis aims to assess the effectiveness of a centralised fiscal scheme, as recommended by the fiscal federalism literature, for EMU for asymmetric shock absorption. To achieve this purpose, a mathematical model is set up to provide union-wide unemployment insurance. The model estimates shock coverage values amounting up to 19% of the shock in individual countries affected negatively.

Keywords: EMU, OCA, Fiscal Federalism, Asymmetric Shocks

ÖZET

Ekonomik ve Parasal Birlik (EPB), kendine has bir politik yapıya sahiptir: para politikası merkezileştirilirken, mali politiakalar üye devletlerin kontrolünde bırakılmıştır. Avrupa Komisyon'u, EPB'nin kurulumuyla birlikte sistemin daha esnek ve daha entegre bir hale geleceği görüşünü, böylece bir optimal para alanına benzeyeceğini; üye devletlerin istikrarlı mali polikalar izlemeleri durumunda da bu sistemin asimetrik şoklarla başedebileceğini savunmuştur. Ancak var olan diğer parasal birlikler, mali federalizm literatürünün de önerdiği gibi, merkezileşmiş para politakalarını, mali politakaları da merkezileştirerek destekleme yolunu seçmiştir.

Bu tez - mali federalizm literatürünün önerdiği doğrultuda - merkezileştirilmiş mali bir sistemin, EPB'de asimetrik şokları asimile etmedeki etkisini araştırmaktadır. Bu amaca yönelik bir matematiksel model kurularak, olası bir Birlik çapında işsizlik sigortası kurulmuştur. Modelin tahminleri böyle bir mekanizmayla, krizden olumsuz etkilenen ülkelerde krizin %19'una varan oranlarda korunma sağlandığı yönündedir.

Anahtar kelimeler: Ekonomik ve Parasal Birlik, Optimum Para Alanı, Mali Federalizm, Asimetrik Şoklar

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First and foremost, I would like to thank my supervisor, Asst. Prof. İmre Ersoy, for her guidance, support and belief. I also want to thank to Tübitak for their financial support. I am greatly indebted to my family: my mother and father, Gülsen Çeşmeci and İren İmre, for their never-ending love and support over the years. Last but not the least, I would like to thank all my friends and extended family, for their patience with me.

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LIST OF ABBREVIATIONS

AT/AUT:	Austria
BC:	Business Cycle
BE/BEL:	Belgium
BR-DR:	Bajo-Rubio and Diaz Rolden
CA:	Current Account
CB(s):	Central Bank(s)
CVT:	Continuous Vocational Training
CY:	Cyprus
DE/GER:	Germany
DEN:	Denmark
EA:	Euro Area
EC:	European Community
ECOFIN:	Economic And Financial Affairs Council
ECB:	European Central Bank
EDP:	Excessive Deficit Procedure
EERP:	European Economic Recovery Program
EFSF:	European Financial Stability Facility
EL/GRE:	Greece
EMF:	European Monetary Fund
EMI:	European Monetary Institute
EMU:	Economic and Monetary Union
ERM:	European Exchange Rate Mechanism
ES/ESP/SPA:	Spain
ESCB:	European System of Central Banks
EU:	European Union
FDI:	Foreign Direct Investment
FI/FIN:	Finland
FR/FRA:	France
GDP:	Gross Domestic Product
HICP:	Harmonized Index of Consumer Prices
I-V:	Italianer and Vanheukelen
IE/IRL:	Ireland
IMF:	International Monetary Fund
IT/ITA:	Italy
LU/LUX:	Luxembourg
MS(s):	Member State(s)
MT:	Malta
MU:	Monetary Union
NCB(s):	National Central Bank(s)
NL/NDL:	the Netherlands
NOR:	Norway
OCA:	Optimum Currency Area
OECD:	Organization for Economic Cooperation and Development
PT/POR/PRT:	Portugal

SEE(s):	State Economic Enterprise(s)
SEM:	Single European Market
SGP:	Stability and Growth Pact
SI:	Slovenia
SK:	Slovakia
SWE:	Sweden
TB:	Trade Balance
TR:	Turkey
UI:	Unemployment Insurance
UK:	United Kingdom
US:	United States of America
VAT:	Value Added Tax

INTRODUCTION

As of 2010, the European Union (EU) is dealing with the effects of the global financial crisis. With the economic growth slowing down, the population ageing, the unemployment rising and the competitiveness declining, the crisis came at a most unfortunate time. Economic and Monetary Union (EMU) is at even more risk than the larger EU, with Greek sovereign debt crisis shaking the foundations of EMU.

Theory of Optimum Currency Areas (OCA) argues that a monetary union (MU) is beneficial for the members states (MSs), if they have highly flexible labour markets and/or if they are economically integrated. Without these conditions met, the MU would be open to asymmetric shocks, which would be hard to overcome due to the loss of independent monetary policies. With the monetary policy centralised at European Central Bank (ECB), the MSs have their own fiscal policy – even though it is constrained by the Maastricht criteria and Stability and Growth Pact (SGP) – to offset the financial crisis. However, as the situation shows, fiscal policies of MSs were not able to overcome the crisis; the differences in the economic set-up of the MSs showed that the integration achieved after EMU was not enough to fight against such a crisis. Though all the MSs have worsened economic conditions when compared to the pre-crisis, they were affected in different severity, thus signalling that the financial crisis acted as an asymmetric shock.

A possible solution to the asymmetric shock absorption problem in EMU can be obtained from fiscal federalism literature: assigning the fiscal policy to a central authority. While a full centralisation of the fiscal policies to a supra-national institution seems a far-fetched idea at the moment, applying the idea to some aspects of fiscal policy has some merit. The recently established European Financial Stability Facility (EFSF) is implicitly a fiscal federalist scheme, signalling that the MSs are ready to take some steps towards a more fiscal federal EMU. To see what can be gained from such fiscal federalist schemes, the thesis provides a review of the earlier proposals of fiscal transfer schemes for EMU for asymmetric shock absorption, and constructs a scheme of

unemployment insurance mechanism, to see how effective a fiscal federal scheme can be for EMU. As such, the main purpose of this thesis is to assess how effective a fiscal federal scheme can be in asymmetric shock absorption in EMU.

To achieve the purpose, the thesis asks the following questions:

1. Does EMU face asymmetric shocks and does it constitute an OCA?
2. How did the recent financial crisis affect EMU?
3. What are the fiscal federalist proposals for the EMU; and if there were proposals in the past, why weren't they applied?
4. Can a fiscal federalist scheme be used in asymmetric shock absorption in EMU; and if it can, to what extend ?

By estimating the effectiveness of a federal insurance scheme for asymmetric shock absorption, the thesis is expected to contribute to the academia by providing a reference value, that shows the ability of federal insurance systems in asymmetric shock absorption. This reference value will also provide a comparison of the contemporary situation with the earlier studies. If the European Commission's argument of EMU resembling an OCA after it's foundation is realised (European Commission, 1990; 2006) the logical assumption would be a significant decrease in the insurance provided by such federal insurance schemes.

However, the thesis has some limitations. A main limitation stems from the fact that the political aspect of the federal insurance scheme is left out. As experience shows, nothing is purely economic in European integration, and thus whatever the findings of this thesis are, the political power plays would be the decisive factor in applicability of a federal insurance mechanism.

Another implicit limitation arises as a result of the un-solidaric behaviour of some MSs by providing Eurostat with inaccurate information, thus making the validity of the results obtained from the proposed model, among all the quoted works that used Eurostat data, questionable.

The thesis is organised as follows: the first chapter opens up with a part that briefly details the system of EMU: the history of monetary integration in Europe, Maastricht criteria, and monetary and fiscal policy under EMU are detailed in subsections. A theoretical explanation of asymmetric shocks, followed by an evaluation of EMU for such asymmetric shocks makes up the second part of the chapter, followed by the third part that briefly deals with the global financial crisis, and how it irrigated the already problematic asymmetry issues in the EMU. The recent proposals for overcoming the crisis are also reviewed briefly. The chapter answers the first two questions of the thesis, and argues that EMU faces asymmetric shocks and has yet to become an OCA.

Second chapter begins with the first part that examines fiscal federalism by detailing the Decentralisation Theorem and evaluating the possible advantages/disadvantages of decentralising the public good provision. The bail out problem is discussed in the second part, arguing that any federal scheme must be designed in such a way that will not lead to a bail out of local jurisdictions. Third part argues that a federal insurance scheme against asymmetric shock is superior to national or individual insurance. Some of the reasons why such proposals of federal fiscal schemes were not adopted by EU/EMU is also briefly discussed in this section, alongside with the "new" proposals that resurfaced after the crisis. The third question of the thesis is answered, arguing that both economic and political factors played a role against fiscal federalist proposals, which could have helped EMU to offset asymmetric shocks.

To see to what extend can a centralised fiscal scheme help EMU, the third chapter proposes a federal insurance mechanism, based on unemployment insurance (UI). The first section makes a review of federal insurance systems, and some of the proposal for the EMU that advised such centralised schemes. The second section details the model: its set up and the data used for the mechanism is explained in subsections, followed by the results and a discussion of the results. An imaginary case of an enlarged EMU, with Turkey as a member, is also examined in a subsection in the results, to examine how an extra member changes the insurance coverages. Results suggest that a moderate shock coverage can be attained, thus answering the fourth question of the thesis.

The conclusion closes the thesis by giving a brief summary of the results obtained from the thesis. The OCA criteria for EMU are yet to be satisfied, and as the financial crisis has shown, EMU faces and will face asymmetric shocks. Fiscal federalist schemes of centralised policies can be of use to EMU, if they are designed properly. The proposed system satisfies the criteria that a fiscal federal scheme must satisfy, i.e. simplicity, low moral hazard, etc., and can cover up to 18% of the shock in individual MSs in 2008.

I. EUROPEAN MONETARY UNION

The first part of this chapter starts with a section giving a brief overview of history of EMU, followed by a second one, detailing the convergence of the MSs at the time of entering EMU. Third and fourth sections briefly examine the monetary and fiscal policies of the EMU to complement the framework of EMU. Second part examines the problem of asymmetric shocks in the EMU, first by laying out the theoretical groundwork, followed by an examination of the situation in the EMU. Third part briefly discusses the effect of the recent financial crisis on the EMU.

I.I. European Monetary Integration

European monetary integration has been a gradual process over time, with ups and downs paralleling the political integration of EU. Monetary integration was a step envisioned by fore-fathers of EU, but left as a project for future. Today, with the EMU, the project has been realised; but neither the road to, nor the future of the EMU is problem-free. This section of the thesis serves as a basis to build the concepts tackled later on, by explaining some aspects of EMU.

I.I.1. A Brief History of Monetary Integration

The foundations of the current common monetary policy of EMU – and to some extent of EU[1] – is rooted in the Delors Report (1989), which stressed the need for an economic and monetary union to create the Single European Market (SEM). The Report foresaw the creation of the EMU in three discrete but consecutive stages, as was proposed by the Werner Report (1970).

Stage 1 began in January 1st 1990, and was used as a preparatory period for the 2nd and

1 The monetary policy is included in the Treaty of Rome (Art.103-108), but due to the day's conditions were rather vague and non-binding. Till late 1960s' Barre Plan little development was observed in monetary policy in the EMU, which was supplemented by Werner Plan (1970), which due to the collapsing Bretton-Woods couldn't be applied wholly.

3rd stages by defining the competences of existing sub-committees and revising the treaties. In this stage, The Committee of Governors of the Central Banks, established in 1964, was given more authority to help to coordinate the monetary policy of the Community towards price stability.

Stage 2 began in January 1st 1994, with the creation of European Monetary Institute (EMI), which itself meant the abolition of the Committee of Governors. EMI didn't have the authority over neither the union-wide monetary policy nor the foreign exchange rate intervention. EMI was tasked to increase coordination of national central banks (NCBs) and to prepare the framework for the operation of the European System of Central Banks (ESCB). A notable event in this stage was the ratification of SGP[2].

The MSs of the EU, with the exception of Greece, were found to be eligible[3] for entering the 3rd stage, and it was decided to use the existing European Exchange Rate Mechanism (ERM) rates for determining the irrevocable conversion rates for the national currencies. In June 1, 1998, EMI was dissolved and ECB was established.

Stage 3 of the EMU began in January 1st 1999, with the fixing of the exchange rates of the participating countries irrevocably. From 1999 to 2009, the initial number of 11 countries[4] rose to 16, with the addition of Greece (2001), Slovenia (2007), Malta and Cyprus (2008) and Slovakia (2009). To participate in the EMU, the to-be-members should sufficiently satisfy some conditions, which are known as Maastricht criteria

I.I.2. The Maastricht Criteria

Maastricht criteria roughly demands the to-be-members to have stable inflation rates,

2 SGP is a surveillance and enforcement measure for MSs' budgetary positions. As per SGP rules, the MSs are obliged to follow policies that will lead to balanced/in surplus budgetary position in the medium term, and if they fail to comply with the provisions of SGP, they can be fined for excessive deficits, by a Council decision.

3 The eligibility criteria are the ones mandated by the Maastricht Treaty, known as the Maastricht criteria.

4 Out of the then 15 members of EU, Denmark, Sweden and United Kingdom (UK) chose not to participate in EMU, while Greece was not found eligible.

stable exchange rates and stable interest rates[5], and to adjust their fiscal stance so that they do not exceed a 3 % of GDP and 60 % of GDP limit for budget deficit, and general government debt[6], respectively. This can be interpreted as a need for symmetric economic structures to form a monetary union (MU). The convergence of these criteria are given in Figures 1-4.[7]

As seen from Figure 1, there was no significant clear-cut convergence for the price stability in Euro Area-12 (EA-12). When investigated, it is clear that this criterion was not used in accession to EMU[8]. The rise in inflation after entering EMU is also striking, Laffargue (2004) argues that the convergence up to entering EMU, and the rise of inflation after EMU shows that the convergence was artificial.

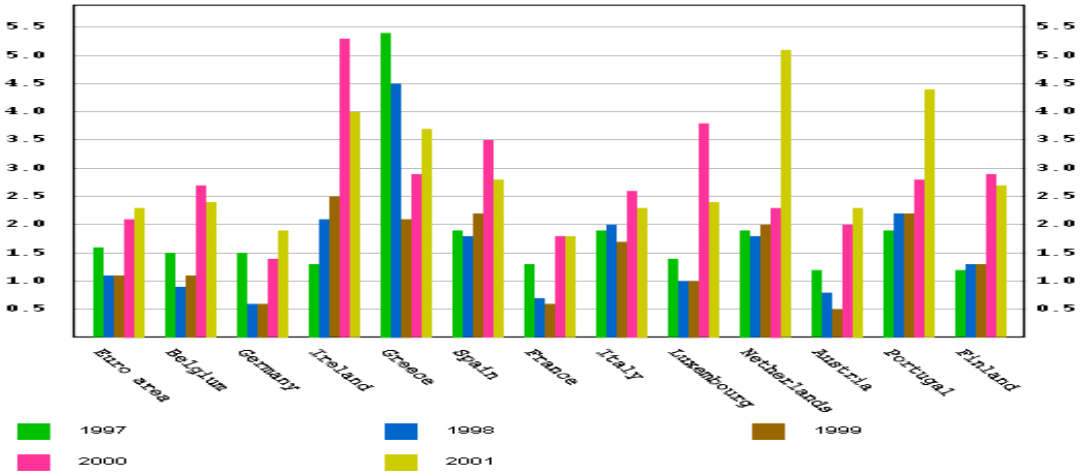
5 Art. 109-j of Maastricht Treaty cites:
- the achievement of a high degree of price stability; this will be apparent from a rate of inflation which is close to that of, at most, the three best performing Member States in terms of price stability;
- the sustainability of the government financial position; this will be apparent from having achieved a government budgetary position without a deficit that is excessive as determined in accordance with Article 104c(6);
- the observance of the normal fluctuation margins provided for by the Exchange Rate Mechanism of the European Monetary System, for at least two years, without devaluing against the currency of any other Member State;
- the durability of convergence achieved by the Member State and of its participation in the Exchange Rate Mechanism of the European Monetary System being reflected in the long-term interest rate levels.
Protocol on Art 109(j) annexed to the treaty sets the reference values of price stability and interest rate criteria to be at most 1.5% and 2% above the average of the three most successful states, respectively.

6 The Commission will monitor the member states for budgetary compliance by Maastricht Treaty Art. 104-c (a): "whether the ratio of the planned or actual government deficit to gross domestic product exceeds a reference value", and (b) whether the ratio of government debt to gross domestic product exceeds a reference value. The reference values are 3% and 60% of GDP for (a) and (b) respectively, according to the Art.1 of the 'Protocol on the Excessive Deficit Procedure, annexed to the Maastricht Treaty.

7 The exchange rate criterion was not shown since fluctuations were negligible.

8 For 1999, the eligibility maximum value for price stability was 2.2%, which some countries didn't achieve, i.e. Ireland, and some countries did achieve but just barely, i.e. Spain and Portugal. For 2001, the reference value was 3.5%, which Greece missed with 3.7%. These show that even at the beginning, the nominal convergence criteria were overlooked for entry. What is more striking is that after 1999, inflation rates in the EMU members have risen, which with the ECB concerned with price stability, may result in frictions between members and the ECB.

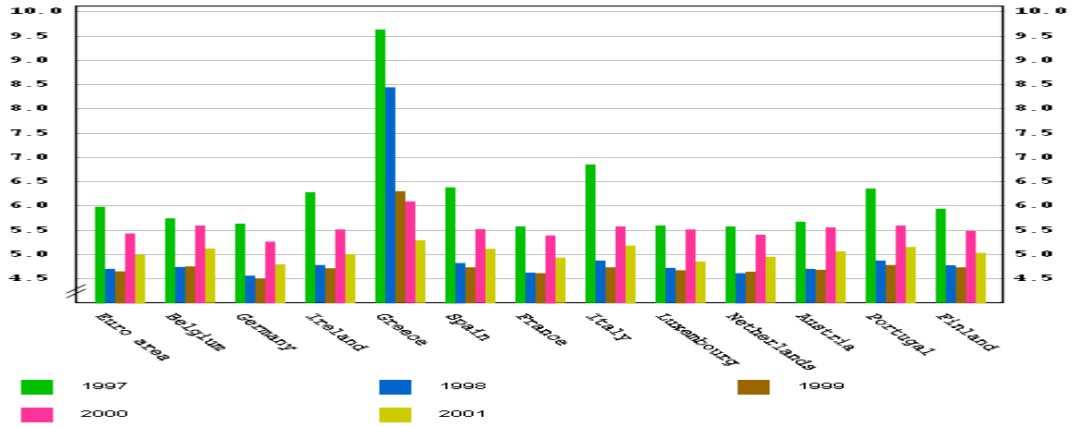
Figure 1. EMU Convergence Criterion: Annual Inflation Rates, %



Source: Eurostat, http://epp.eurostat.ec.europa.eu/tgm/graph.do?tab=graph&plugin=1&language=en&pcode=tsieb060&toolbox=type

In Figure 2 below, while a convergence of interest rates is observable, the post-EMU interest rates are higher than the entrance year values, just as was the case for inflation rates as seen in figure 1. Blavoukos and Pagoulatos (2008) suggest that this pre – post EMU differences are a result of asymmetric conditionality of EMU, with the pre-EMU stage having harder conditions.

Figure 2. EMU Convergence Criterion: Interest Rates, %

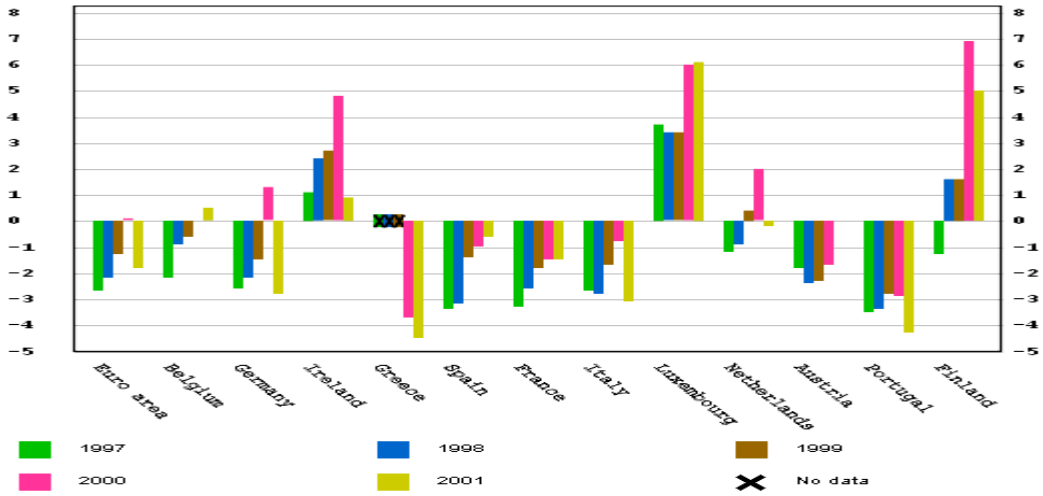


Source: Eurostat, http://epp.eurostat.ec.europa.eu/tgm/graph.do?tab=graph&plugin=1&pcode=tec00097&language=en&toolbox=type

Figure 3 gives the budget deficits of EA-12. Though for most cases the compliance for 3% limit was satisfied, the growth of deficit in Greece and Portugal after EMU, breaks the trend of union-wide compliance, as was the case for inflation and interest rates,

seen previously. Another point seen in the figure is that, only in year 2000, the EA had a budget surplus.

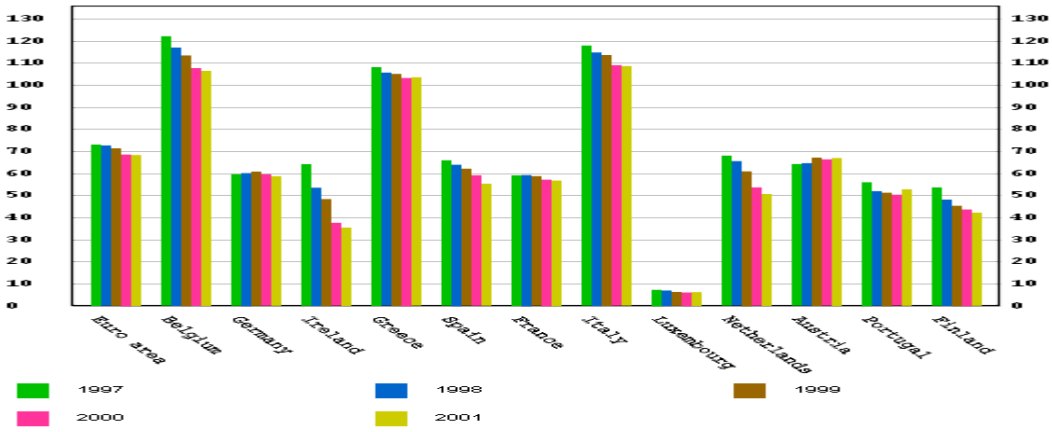
Figure 3. General Government Deficit (-)/Surplus (+), % of GDP



Source: Eurostat, http://epp.eurostat.ec.europa.eu/tgm/graph.do?tab=graph&plugin=1&pcode=teina200&language=en&toolbox=data

Figure 4 shows the public gross debt of the MSs, with Germany, Belgium, Greece and Italy not conforming to the Maastricht criterion. All five of these countries also face deficits generally, as seen in Figure 3. With Germany, Spain, France, Italy and Belgium near and above limits, and with only small economies having surpluses, can result in the Union not having enough room to manoeuvre in case of a severe economic crisis.

Figure 4. General Government Debt, % of GDP



Source: Eurostat, http://epp.eurostat.ec.europa.eu/tgm/graph.do?tab=graph&plugin=1&pcode=tsieb090&language=en&toolbox=type

After this quick look into the early years of EMU, and the convergence (or lack thereof) of the MSs, the next parts discusses the conduct of the monetary and fiscal policy in EMU.

I.I.3. Monetary Policy in EMU

The monetary policy in the EMU is conducted by the ECB. ECB, as the sole issuer of banknotes and coins, and holder of bank reserves in EA, is given the primary objective of maintaining price stability. However, ECB is asked to help to increase employment and growth as well, as stated in Maastricht Treaty, Art. 105(1).[9]

To operate smoothly, ECB's political independence[10] is guaranteed by the Maastricht Treaty explicitly[11]. One such independence clause can be linked to the bailout problem

9 "…Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Community with a view to contributing to the achievement of the objectives of the Community as laid down in Article 2. The ESCB shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources and in compliance with the principles set out in Article 3a"
On this objective ECB (1999) suggests: "…most effective means of increasing employment and growth prospects in the euro area is to *credibly* commit to low future inflation", but doing so and omitting other economic variables may not sit well with the Community as a whole.

10 An important issue that needs to be addressed is the problem of independence and accountability of ECB. The independence of ECB was briefly mentioned before, which is protected by the Maastricht Treaty, which itself needs unanimity of the now 27 EU members to change the setting of ECB. On this issue Bini-Smaghi and Gros (2001) find that ECB is more independent than Bundesbank and Federal Reserve. Then the question arises: "Is ECB as accountable as it is independent?"
When the president of ECB comes before parliament, he or she is not concerned as much as another national CB governor, since Parliament doesn't have the power to change the workings of ECB, namely a democratic deficit gap. (Verdun, 1998). Another accountability problem of ECB stems from the fact that Maastricht Treaty was not precise of ECB objectives, but just stating that the primary objective being price stability. ECB later designed its objective on its own, as mentioned before, a yearly increase of HICP around 2%, and further chose to restrict itself to price stability alone.
As an answer to this accountability problem, some economists suggested increased transparency. When compared with other CBs, ECB publishes more reports and bulletins, such as quarterly bulletins, but Buiter (1999) doesn't think that is enough, and he proposes some changes, such as publishing the minutes and the votes, which ECB refuses to do so, interpreting the Art. 10.4 of the Statues to prohibit publicizing the votes and minutes. Butier(1999) also asks for the system to be more centralized. Svensson (2000) argues that inflation targeting increases transparency and Walsh (2003) argues that increased transparency can support a stricter regime. Another way to promote accountability is to punish the ECB, according to some economists. Walsh (1995) proposes a scheme that 1% increase in inflation above the target would lead the CB to pay a fine of pre-determined amount of dollars (euros).

11 "When exercising the powers and carrying out the tasks and duties conferred upon them by this Treaty and the Statute of the ESCB, neither the ECB, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Community institutions or bodies, from any government of a Member State or from any other body. The Community institutions and bodies

that some EMU members faced in recent financial crisis. ECB is prohibited to bail the members/EU institutions out.[12]

With the aforementioned objective and the guarantees of independence, ECB is given some other tasks by the Maastricht Treaty[13]. When examined as a whole, the tasks suggest that the ECB is mainly influenced by the Bundesbank model, known by its ideas and fears on price stability (De Grauwe, 2005). The influence of Bundesbank is apparent in Delors Report (1989), which was drafted by the central bankers. By pressing the other central banks, Germany was successful in making the ECB more inflation averse and hard nosed[14]. In this wavelength, ECB commits itself to price stability, its primary objective.

To achieve this objective, ECB has announced its medium term target for price stability for the Union to be around 2%. This provides a clear cut benchmark for the public to account the ECB with, and makes it easier to understand what ECB aims to do. This target also provides the public a general feeling of the future prices, which plays a role in decision of the public, i.e. holding cash or investing, etc.

ECB conducts the monetary policy via official interest rates on its own operations: open market operations, standing facilities, minimum reserves[15]. How these interest rates affect the economy, known as the transmission mechanism of monetary policy, is shown in Figure 5. The interest rate transmission of monetary policy works by reflecting a

and the governments of the Member States undertake to respect this principle and not to seek to influence the members of the decision-making bodies of the ECB or of the national central banks in the performance of their tasks." (Art. 107)

12 "Overdraft facilities or any other type of credit facility with the ECB or with the central banks of the Member States (hereinafter referred to as "national central banks") in favour of Community institutions or bodies, central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of Member States shall be prohibited, as shall the purchase directly from them by the ECB or national central banks of debt instruments." (Art. 104) However, Fatas et al. (2003) argue that the treaty doesn't prohibit ECB from buying the debt in secondary markets.

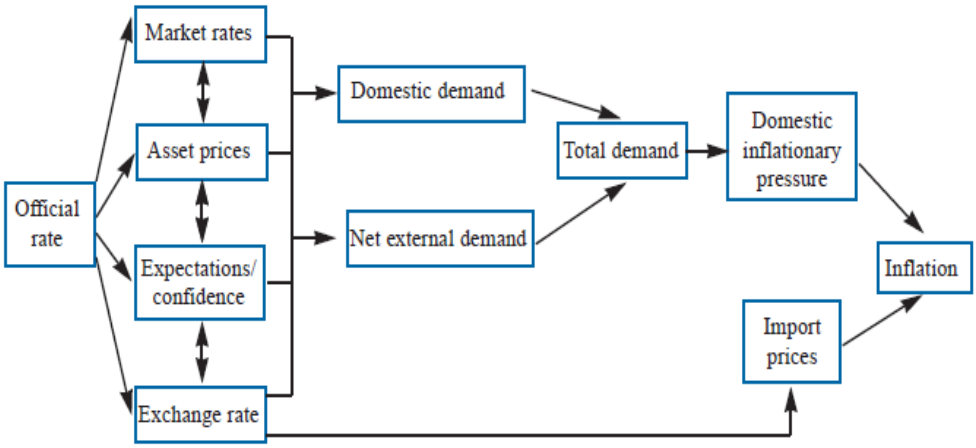
13 - to define and implement the monetary policy of the Community;
- to conduct foreign exchange operations consistent with the provisions of Article 109;
- to hold and manage the official foreign reserves of the Member States;
- to promote the smooth operation of payment systems." (Art. 105 (2))

14 Hard nosed authorities give more weight to inflation than unemployment. Thus ECB would prefer higher unemployment rates if it means lower inflation.

15 See ECB (2006) for ECB's policy instruments.

monetary tightening in liquidity and expectations in the economy, which are then reflected by the investment and consumption plans in the economy, thus influencing inflation. (Mishkin, 1995)[16]

Figure 5. Transmission Mechanism of Monetary Policy



Source: The Monetary Policy Committee (1999, p.3)

Another aspect that needs to be stressed is that, while the conduct of the monetary policy is left to the ECB, the banking sector supervision, closely linked to financial and money markets, was left to the MSs. Whereas the home country is responsible for the conduct of the branches in host country, host country is responsible for financial stability in its borders. With increased cross-border bank customers, it can be expected that there may be some problems, when some of the banks or countries have the incentive to not disclose the right and appropriate information. As markets integrate, the need for a centralized supervision will increase, which would pressure ECB, or a new authority, to take the mantle of such a role (International Monetary Fund (IMF), 1998). Though the monetary policy is centralised by the definition of a MU, these banking supervision issues shows that, the integration is far from perfect. The need for coordination/integration became more apparent with the recent financial crisis, in which MSs acted individually, like they do in their fiscal policies, which are discussed in the next part.

16 Cited in Angeloni and Ehrman (2003)

I.I.4. Fiscal Policy in EMU

The fiscal policy in the EMU, in contrast with the monetary policy, is conducted domestically by the MSs[17]. The main rationale behind such freedom is the belief that, when faced with shocks, the states will not have the monetary policy to adjust to the shock, and fiscal policy is the only alternative they have. In reality however, there are limits to full independence in fiscal policies of the EMU members. As Bureau and Champsur (1992, p.88) state: "The integration of the European capital markets prompts governments to improve the treatment of capital income in their national tax system because of competitive pressures; hence the observed convergence of corporate tax rates".

Against this background, it can be seen that, the politicians have foreseen some of hard-ships that may arise if the countries have been totally independent in conducting their fiscal policy, resulting in them authoring the convergence criteria, which are sometimes criticized as being arbitrary numbers, not estimated for the real world[18].

SGP[19] is another important aspect of fiscal policy in the EMU. Basically SGP asks the members to have broad guidelines, by which MSs declare their measures that will be adopted to keep themselves within the fiscal limits of SGP. The Pact also penalizes the MSs if they ignore/cannot abide the rules/recommendations. But as a result of the problems the members faced – and continuous breaches – SGP was reformed in 2005[20].

17 This is parallel with the subsidiarity principle of EU, which suggests that tasks should be performed at the most local level possible.

18 See De Grauwe (2005, p147) for a mathematical representation.

19 Ratified in 1997, SGP demands MSs to have balanced/in surplus budgets in the medium term. MSs have to be within deficit limit of 3% of GDP, unless they fulfil some conditions that allow them to run excessive deficits (like a 2% shrinking of economy). Unless the deficit meets the conditions for allowance for budget deficit over 3% of GDP, and/or the MS hasn't complied with the recommendations to bring the deficit down, Excessive Deficit Procedure (EDP) begins to operate to penalize the MS.

20 The reformed SGP argues for country specific circumstances to be evaluated to determine if the excessive deficit should be penalized. Slow growth of countries act as a factor (among others) when evaluating the deficit, whereas in the original SGP, only a downturn of economy amounting to a shrinking of GDP by 2% was envisaged to bypass EDP. Also countries with low debt levels are given more leeway to have deficits over the business cycle, while countries with special circumstances i.e. pension reforms etc., would be able to have prolonged periods of deficits without punishment, as does countries with low debt levels. While this increased flexibility (taking country specific circumstances into account) is in line with OCA theory, Buiter (2005, p.10) states "To all intents and purposes, this

The members gained some leeway to claim the need for a bigger deficit for longer periods of time, such as due to increased spending to comply with Lisbon Agenda, even though the limits were mostly left as they were.

Eichengreen and Wyplosz (1998) argue that if the MSs have balanced budgets, the 3% limit imposed by SGP would be enough to let fiscal instruments – the automatic stabilizers in the MSs– smooth the economy[21]. However, in some MSs the limit may hamper the automatic stabilizers (Andersen (n.a.), De Grauwe (1996))[22], and thus, the states near the limits would be dissatisfied with the SGP. Schelke (2005) in addition to this, argue that poorer countries would have less developed automatic stabilizers, therefore would have problems to stabilize with just automatic stabilizers. Ferre (2008) argues that the members will have incentives to deviate from the existing SGP – and even from broader coordination schemes they would prefer to SGP. The historic performance of SGP confirms this theory, that MSs do deviate from the norms. With the recent financial crisis, then, SGP is nearly forgotten, especially when the Council has lost credibility by not penalizing the former breaches of SGP[23].

This section of the thesis showed that there were some problems with the set up of the EMU: the convergence criteria was bypassed when assessing memberships; the main fiscal instrument of EMU, the SGP, was ignored by the MSs with the implicit backing of the Council. This sketchy foundation may cause further problems if EMU faces asymmetric shocks, which are detailed in the next section.

I.II. Asymmetries in EMU

The term "asymmetric shock" was mentioned frequently in the previous part. Before trying to tackle the problems created by them, this section tries to explain what they are.

means that the EDP is dead for existing" arguing that the increased flexibility aggravated the enforcement problem of SGP.

21 Also see: European Commission (2006)

22 Cited in Eichengreen and Wyplosz (1998)

23 Commission's proposal of an early warning to Portugal and Germany in 2002 was ignored by the Council. In this sense, Buti et al. (2003) find that SGP has the lowest ranking in enforceability.
For evaluations on SGP, also see: Warin (2007), Annett (2006), Hein and Truger (2006), Schalck (2006), Buiter (2005), Lambertini and Rovelli(2001), Kiander and Viren (2000).

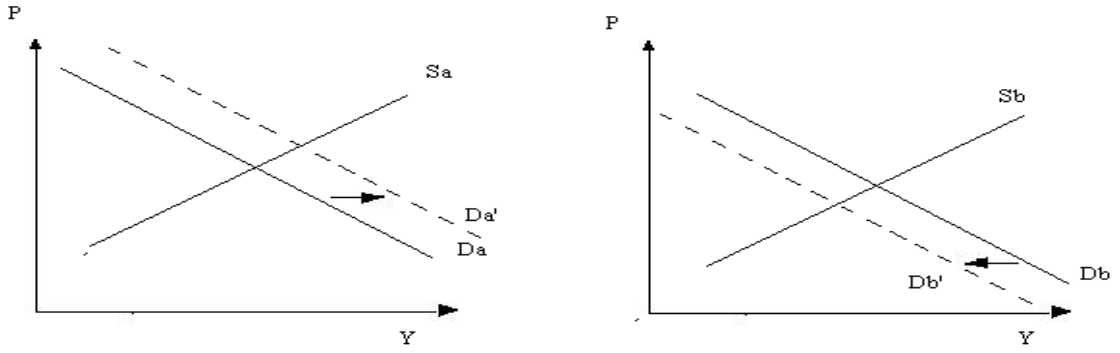
First part examines the asymmetric shock problem from a theoretical point of view, followed by the second part in which EMU is evaluated against such shocks.

I.II.1. Asymmetric Shocks in Monetary Unions

Asymmetric shock can generally be defined as a shock that affects countries differently. It is important for the countries entering in a MU to have low risk of asymmetric shocks, since they are losing their independent monetary policies when entering the MU, and thus would not be able to use monetary policy as a shock absorber.

To see the effect of an asymmetric shock, Mundell (1961) assumes two countries, A and B, producing similar products, a and b, respectively, and a demand shock affecting the two inversely, i.e. one positively and one negatively. This case is shown in the usual aggregate demand-supply curve in Figure 6, with the country A in the left hand side, having an increase in demand, shown in an upward shift in demand, from Da to Da´.

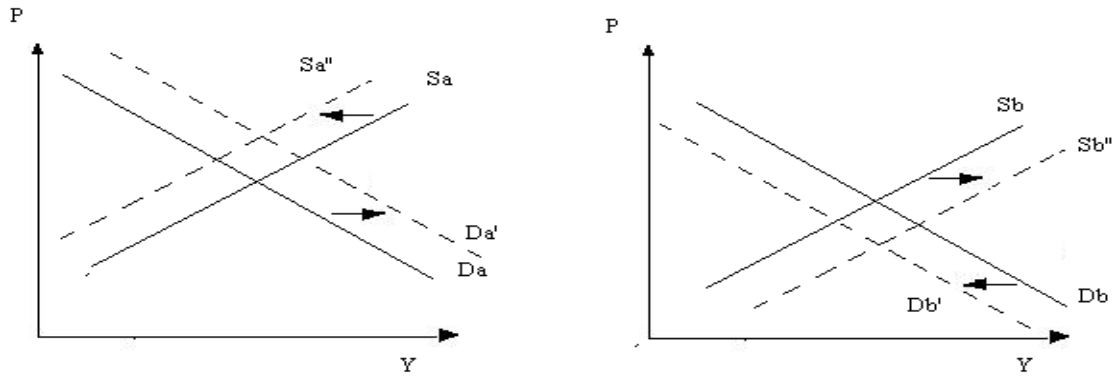
Figure 6. An Asymmetric Demand Shock



Source: de Grauwe (2005)

When those countries are acting independently, the shock absorption is done by using monetary policy, i.e. exchange rate mechanism, interest rate. When the two countries engage in a MU, the adjustment to a shock is to be done by either wage flexibility, or labour mobility. The representation of shock absorption, via independent monetary policy, or increased labour market flexibility, is shown in Figure 7.

Figure 7. Adjustments to an Asymmetric Shock



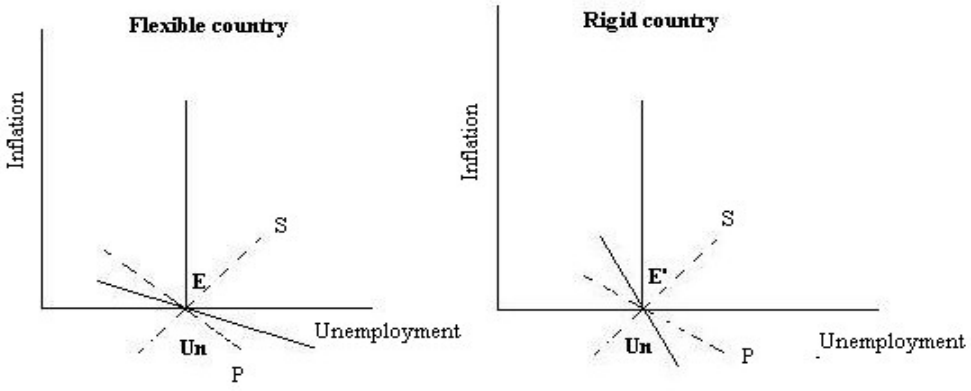
Source: de Grauwe (2005)

Country A is positively affected by the shock; the demand of the product a rises, pushing up wages in country A, while unemployment rises in country B – due to the decreased demand for the product b – lowering the wages. The high wages in A causes the firms to employ less than they would have liked, thus limiting/lowering supply (an upward shift in graphical expression), whereas supply of workers rises in B. In the second half of the game, the increased competitiveness of B would cause demand for the product b to rise up, while high price of the product a would lower the demand for it, therefore cementing the adjustment. The same adjustment is done if the newly unemployed workers in country B move to work in country A. Then the unemployment problem and high wage problem of the countries would be solved. However in the case when wage flexibility and labour mobility is restricted, the situation would result in rising inflation and unemployment rates in the countries A and B, respectively.

The real world lies between the ideal perceptions of perfect mobility/flexibility and total immobility/rigidity, which at best will result in lagged adjustment to shocks as Wildasin (2000) argues. He suggests the cause of such lags are the intrinsic impediments, i.e. transportation costs, language barriers, etc., and policy barriers to factor movements. Therefore, one can predict that an asymmetric shock would cause problems for some time in the MU, even if there is labour market flexibility.

Asymmetric transmission of a symmetric shock also acts as an asymmetric shock in a MU. To demonstrate, De Grauwe (2005) assumes a case of two countries, A and B, facing a positive demand shock, country A is more flexible, and country B is more rigid, therefore in country A, a surprise inflation will result in a greater change in employment than country B. In Figure 8, Union's short term Phillips curve is the average of A and B's, showed by downward sloped dotted line, P, and Union stabilization line is the upward dotted line, S. The y axis represents inflation, while x axis is unemployment. The equilibrium is then obtained at E and E´.

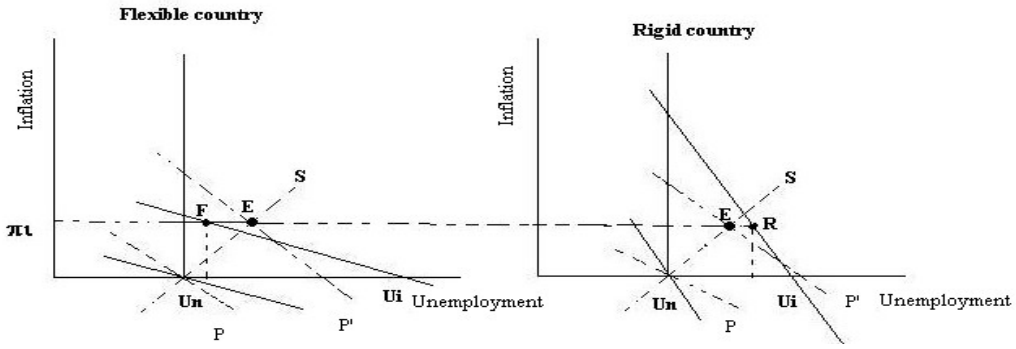
Figure 8. Inflation and Unemployment Preferences of Flexible and Rigid Countries (before shock)



Source: de Grauwe (2005)

Figure 9 gives the aftershock situation. A symmetric shock causes individual Phillips curves to shift, by the same amount (Un-Ui), with a same amount of shift of Union Phillips curve, to the right. The new equilibrium is at point E, at inflation rate πi, while the unemployment rate for A and B are F and R, respectively, which are very different from each other.

Figure 9. Inflation and Unemployment Preferences Flexible and Rigid Countries (after shock)



Source: de Grauwe (2005)

As the graphical representation shows, a symmetric shock can act as an asymmetric shock. For the smooth operation of the system, the economic structures of the members should be highly similar. De Grauwe and Senegas (2003, p.13) state "... when asymmetries in the transmission exist, the common central bank can improve the quality of monetary policy making by using national information about inflation and the output gap, instead of focusing only on the union-wide aggregates.". Unfortunately, if the case presented above occurs, ECB's "one size fits all" approach would further irrigate the economy.

The asymmetric transmission of a symmetric shock became more apparent in the recent financial crisis. Most members were affected in similar ways, i.e. rise in unemployment. But the severity of the shock differed in MSs, while some saw a rise in unemployment by 0.1% others were faced with 2% rises, a similar case to figure 9 above. Before investigating the financial crisis further, the next part discusses the asymmetries faced in EMU in more detail.

I.II.2. EMU: An Appraisal for Asymmetric Shocks

After the theoretical introduction to the asymmetric shocks, this part discusses the asymmetries in the EMU, in particular drawing from the OCA theory[24]. OCA can be

24 OCA theory suggests that there must be some conditions to benefit from engaging in a MU. Mundell

defined as "the optimal geographic domain of a single currency, or of several currencies, whose exchange rates are irrevocably pegged and might be unified" (Mongelli, 2002, p.7). If a MU is an OCA, MSs gain due to various reasons, i.e lower transaction costs, increased trade flows etc., more than they lose due to the loss of independent monetary policy; and to constitute an OCA, a MU basicly needs either highly flexible labour markets or high economic integration.[25]

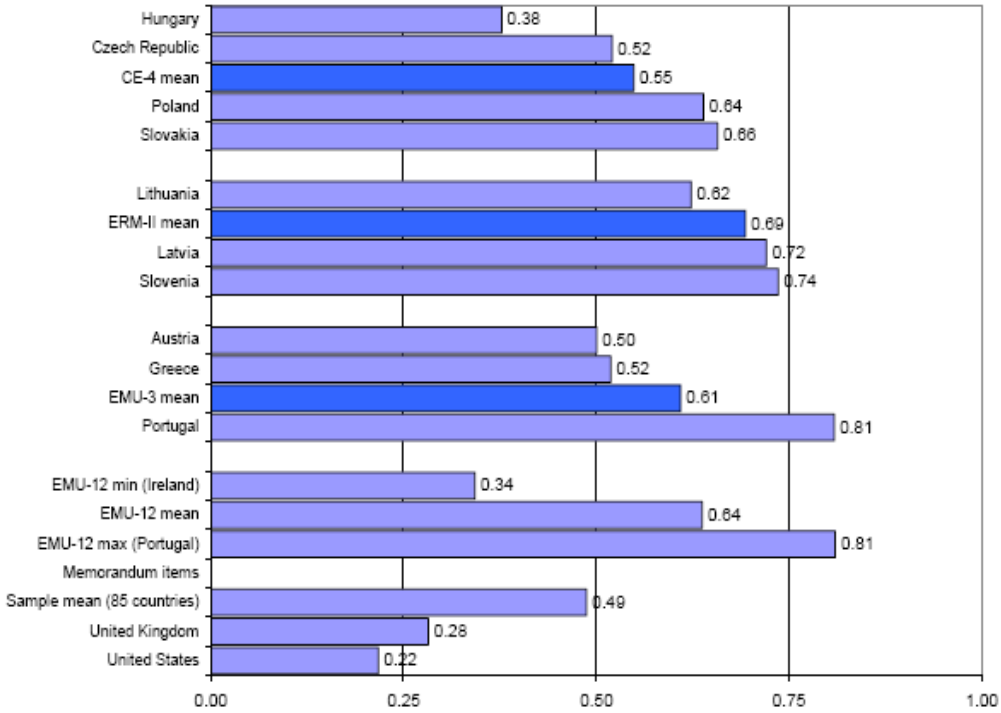
Figure 10 shows labour market rigidities for EMU-12 and other selected countries, high values representing higher rigidities. As can be seen, when compared with United States of America (US), EMU-12 average of labour market rigidity is more than double with .64 as opposed to .22. Also of importance is the lower rigidities of new members of EU (2004 expansion), when compared with EMU-12 average[26].

(1961) stresses the importance of inter-regional factor mobility, McKinnon (1963) suggest open economies shall benefit more than closed economies, Kenen (1969) argues that more diversed economies can benefit more, and that fiscal integration is helpful if the countries decide to form a MU. Other criteria such as flexible wages and prices, similarities in inflation rates, similar demand and supply shocks, financial market integration, political will also play a role in determining if the union is actually an OCA. Also related to OCA, Frankel and Rose (1997a,b) argues that the convergence can come after entering a MU (endogeneity hypothesis) so that it is not a pre-requisite for the union, whereas Krugman (1993) argues that with increased concentration and specialisation, there will be even more divergence, thus more asymmetries. For a survey of OCA literature see: Mongelli (2002) and Broz (2005)

25 See De Grauwe (2005) for the use of flexibility and integration in a cost-benefit analysis for OCA.

26 On a similar problem of rigidities in labour markets, L'Haardion and Malherbet (2002, p.21) argue that the increase in job protection (high in EU/EMU when compared with US) is paradoxical to the wide use of short term contracts (an increasing trend in employment in EU/EMU), and suggests the use of experience system in favour of usual job protection schemes, stating that "… it may be worthwhile to shift standard job protection measures towards an experienced rating system, experience rating being a mean to increase labour market flexibility and to stabilize employment contrary to short term contracts."

Figure 10. Indices of Labour Market Rigidities



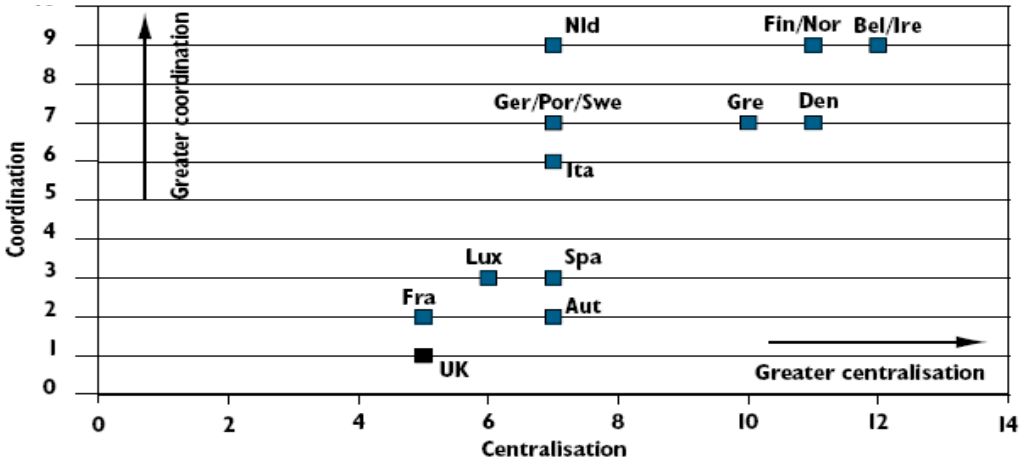
Source: Botero et al. (2004) cited in Babetskii (2007 p.19)

From the labour mobility angle of the problem, Siedschlag (2008) suggests that the problem in EU/EMU still persists[27], and even if MSs have converged in some of the other areas, this low mobility would make adjustment inefficient. Figure 11 looks at the picture from another angle, showing the wage setting patterns in the EMU. Decentralised and uncoordinated wage bargaining results in more flexible wages. As seen, UK is fitting both of the criteria whereas continental European countries show more centralisation and coordination, which is in compliance with the results of Babetskii (2007). More heavily populated countries having less wage flexibility may result in sluggish adjustment for the EMU. For the Union as a whole, Clar et al. (2007) argue that in regulated markets with high union density – the EU/EMU case when compared with US– the reaction of wages to unemployment is smaller.[28]

27 Also see: Copaciu (2004), Bayoumi and Eichengreen (1993), De Grauwe and Vanhaverbeke (1991)

28 From the perspective of wage setting and conservative central bank, Cuciniello (2007) finds that centralized wage setting with monopolic markets and conservative central bank, produces welfare gains, especially in a MU: thus EMU will likely ask for a conservative ECB. However Abritti and Mueller (2009, p.35) argue that, when there are asymmetries in the labour markets, adjustment to shocks become harder, and that monetary policy should give higher weight to countries with high unemployment rigidities but flexible wages.

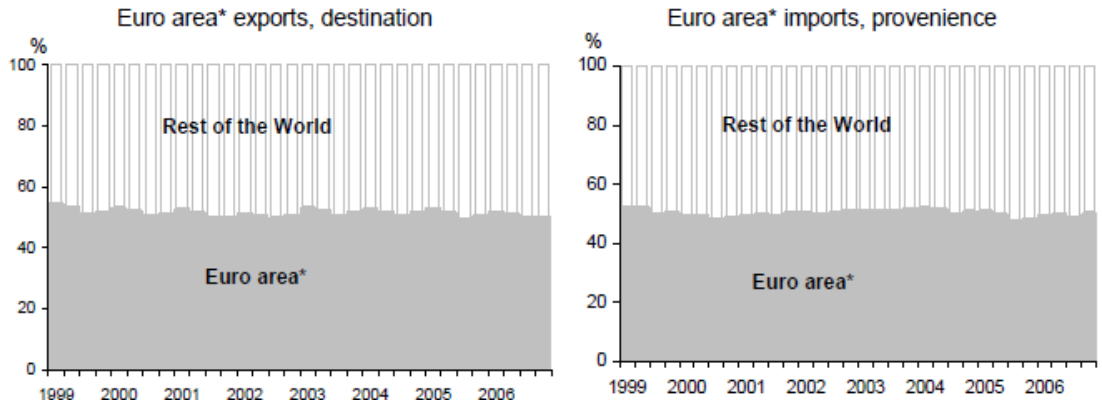
Figure 11. Level of Wage Bargaining Centralisation and Coordination in the EU, 2000



Source: HM Treasury (2003, p.75)
Note: Country names are abbreviated as: AUT: Austria, BEL: Belgium, DEN: Denmark, GER: Germany, GRE:Greece, SPA:Spain, FIN: Finland, FRA: France, IRL: Ireland, ITA: Italy, LUX: Luxembourg, NLD: the Netherlands, NOR: Norway, POR: Portugal, SWE: Sweden, UK: United Kingdom

The endogeneity hypothesis of Frankel and Rose (1997a,b) argues the MSs can resemble an OCA after they enter a MU. They argue that with increased trade among members, the business cycles will converge, thus the asymmetries will be reduced. Figure 12 gives intra- extra- EMU trade shares. With the hypothesis holding true, it is expected that an increase in intra-EMU trade would take place with the creation of EMU, but as seen from the figure, with the trade shares show no significant difference post- EMU. Berger and Nitsch (2008) argue that Euro was not a significant factor of any increase in intra-EMU trade, and they link any increase in trade to a trend that was observed before EMU. Berger and Nitsch (2010) argue that there are persistent trade imbalances in the EMU, and labour market rigidities are one of the underlying reasons of them.

Figure 12. Euro Area Trade Shares

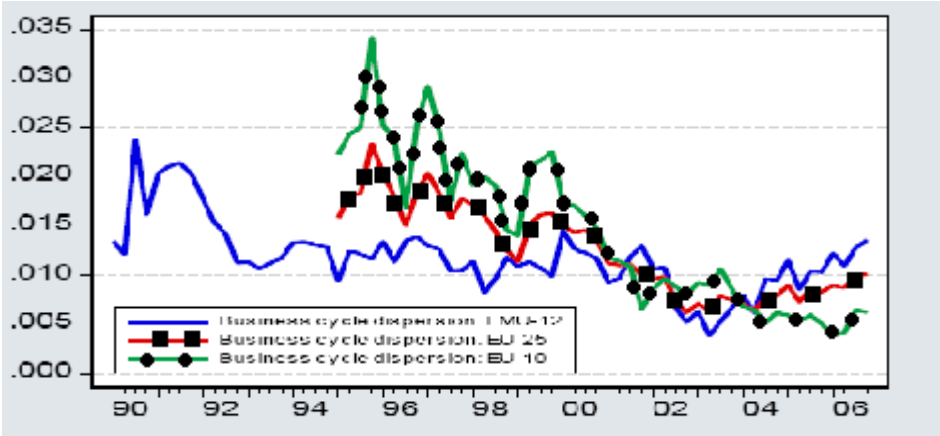


* EA consisting of 13 members at the start of 2007

Source: Hermann and Joebges (2008, p.3)

As a further point of the hypothesis, business cycle (BC) synchronisation of EMU-12 is examined and compared with EU-10 and EU-25. Figure 13 shows that, BC synchronisation in EMU-12 (the straight line) showed little convergence till the year 2003. The post-2003 period however shows a worsening of BC synchronization, which according to Cuaresma and Amador (2007) is a result of the end of fiscal consolidation. As a result, crudely, one can argue that the situation can be termed as status quo.[29]

Figure 13. BC Synchronization in EU



Source: Cuaresma and Amador (2007, sld.18)

As for financial integration, EMU has resulted in a drop in home bias (Buti and van den

29 Schiavo (2008) on the other hand, argues that EMU lead to an increase in capital market integration that resulted in a convergence of business cycles.

Noord, 2009). There is a pattern of increased foreign asset/liability values for all countries, though there are asymmetries in their proportion: even though greater financial integration in the EMU is realized, due to some factors, i.e. Spain and Portugal's bias towards Latin America, EMU's weight in MSs investment preference is different (Lane, 2008). Demyanyk et al. (2008) argue that the greater integration resulted in greater risk sharing, however they argue that to reach level of income smoothing effect of financial integration found in US, gross asset holdings should be 10 times more of the GDPs in EU/EMU. They also argue that most of the income smoothing effect come from investments done in extra-EU/EMU countries. Though the situation is far from full integration, financial market integration has been the more successful than trade integration: The financial integration resulted in increased foreign direct investment (FDI), increased equity holding among MSs; high convergence was observed in unsecured money markets and sovereign debt spreads[30]. The Lamfalussy process aimed to provide more coordinated supervision and lead to the creation of committees like Committee of European Banking Supervisors (CEBS). In the crisis period the legal framework of CEBS was strengthened to provide better assistance to the system.[31]

Uncorrelated shocks also signal asymmetries. Broz (2008), finds that the correlation of demand and supply shocks in the period 1995-2006, while being higher than 1995-1998 period, is lower than the 1999-2002 period. She argues that while some improvement can be observed in shock correlation, there are differences among the MSs. Table 1 gives her results.[32]

Demyanyk and Volosovych (2005) find that some of the new MSs' GDP per capita growth are more symmetric with the EU when compared with some members of the EMU; and Sweden, as a non EMU member, has the highest symmetry with Germany. This shows that the MSs that are more symmetric would have less adjustment problems

30 See Lane (2008) for a survey
31 For more information see: CEBS
32 For earlier studies with similar results see: Verhoef (2003), Boone (1997), Bayoumi and Eichengreen (1993)

Table 1. Shock Correlation in Selected Countries

	Correlations of supply shocks with the euro area					Correlations of demand shocks with the euro area			
	1995-1998	1999-2002	2003-2006	**1995-2006**		1995-1998	1999-2002	2003-2006	**1995-2006**
Austria	-0.10	0.42	0.29	**0.22**		0.02	0.05	-0.39	**0.00**
Belgium	0.56	0.71	0.70	**0.65**		-0.26	-0.46	-0.44	**-0.33**
Finland	0.50	0.18	0.10	**0.23**		-0.30	0.76	0.46	**0.25**
France	0.31	0.85	0.59	**0.56**		-0.06	0.54	0.44	**0.27**
Germany	0.59	0.56	0.82	**0.65**		0.07	0.30	0.75	**0.25**
Ireland		0.52	0.20	**0.43**			0.29	0.00	**0.02**
Italy	0.14	0.57	0.79	**0.45**		0.20	0.67	0.14	**0.22**
Luxembourg	0.15	0.67	0.27	**0.34**		0.39	-0.39	-0.28	**-0.01**
Netherlands	0.60	0.82	0.66	**0.64**		0.09	0.79	-0.17	**0.29**
Spain	0.21	0.32	0.36	**0.29**		0.19	0.11	-0.40	**0.11**
Average EMU	**0.33**	**0.56**	**0.48**	**0.45**		**0.04**	**0.27**	**0.01**	**0.11**

Source: Broz (2008, p.17)

when faced with a shock. Very similar results are obtained in Broz (2008), which are shown in Table 2. When GDP correlation is taken as a sign of similar structures of economies, it becomes clear that EMU membership was not suitable for some MSs.

Table 2. Correlation of individual countries' GDP growth

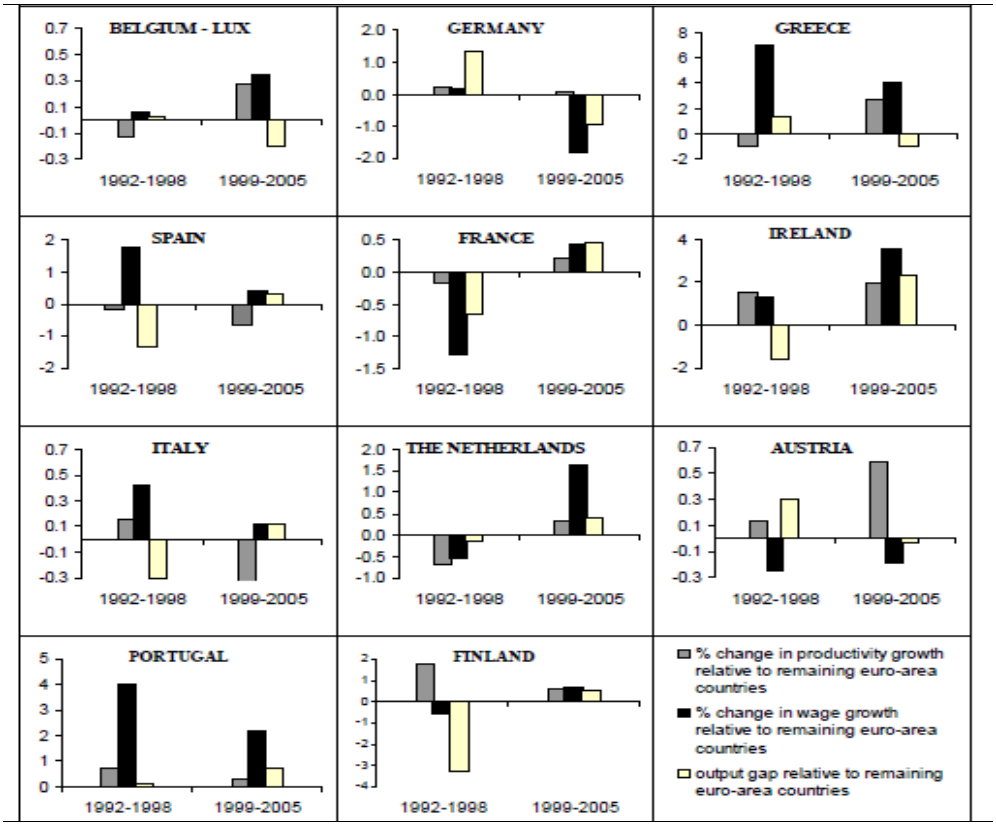
Austria	0.24
Belgium	0.42
Finland	0.34
France	0.72
Germany	0.67
Ireland	0.09
Italy	0.60
Luxembourg	0.20
Netherlands	0.56
Spain	0.20
Average EMU	**0.40**
Denmark	0.50
Sweden	0.53
UK	0.32

Source: Broz (2008, p.11)

Figure 14 takes another approach to evaluate the asymmetries in the EMU. Giving wage growth, production growth and out-put gaps for periods 1992-8 and 1999-2005, the

figure shows that for these indicators, there are asymmetries in the EA-12. As can be seen from the figure there is no significant convergence post-EMU. This may end in different performance of countries when faced with serious shocks, since they began with different settings and continue to have different endowments.

Figure 14. Output Gap, Wage Growth and Production Growth in EMU-12



Source: Arpaia and Pichelman (2007, p.11)

On the related issue of trade balances (TB), Christodoulakis (2009) claims that after EMU, the member countries faced an unexpected asymmetry, namely trade and current account (CA) balances asymmetry[33]. Grouping the countries as north and south via their improvement, or lack thereof, in trade accounts he finds that north improved its stance by an average of 3% units of GDP, whereas south worsened by 3.78% units of GDP, as shown in Table 3. The worsening was accelerated after EMU. The same conditions also holds true for CA.

33 Also see: Schmitz and von Hagen (2009)

Table 3. Trade balances (TB) and Current Accounts (CA) in the EA as % of GDP

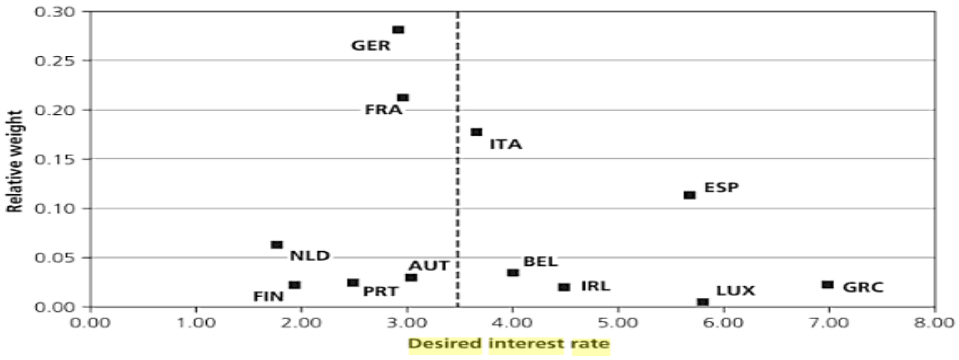
Countries	1990-98 TB	1999-07 TB	Change in TB	1990-98 CA	1999-07 CA	Change in CA
AT	0,16	3,93	3,78	-1,38	0,36	1,73
BE	3,48	3,79	0,31	4,32	3,84	-0,48
FI	4,87	7,41	2,84	0,47	7,06	6,59
DE	0,44	3,81	3,37	-0,54	2,24	2,78
NL	4,9	6,58	1,68	4,12	5,37	1,23
IE	12,15	13,93	1,78	1,78	-1,61	-3,39
North	3,35	6,58	3,23	1,36	2,88	1,52
IT	2,44	0,6	-1,84	0,57	-1,01	-1,58
FR	0,84	0,3	-0,54	0,8	0,56	-0,24
PT	-7,55	-8,63	-1,08	-2,19	-8,76	-6,57
ES	-1,04	-3,79	-2,74	-1,64	-5,41	-3,77
EL	-6,95	-11,89	-4,94	-2,39	-6,74	-4,32
South	-0,91	-4,68	-3,78	-0,88	-4,27	-3,39

Source: Christodoulakis (2009, p.21)
Note: Country names are abbreviated as: AT: Austria, BE: Belgium, DE: Germany, EL: Greece, ES:Spain, FI:Finland, FR: France, IE: Ireland, IT: Italy, NL: the Netherlands, PT: Portugal

As a final example of asymmetries, it is important to look at the case when countries act differently against a symmetric shock. Carlsson and Westermark (2007) find that when downward wage rigidities exist, the optimal policy response to changing economic conditions becomes asymmetric. Such a situation may result in different preferences for interest rates. Different preferences of the members for their interest rates are sketched in figure 15, the average ECB rate is represented by the vertical dotted line, the size of the country on the y axis, with desired interest rates showed in x axis.

In the case of a shock, it is easy to say that ECB's union-wide perspective would not satisfy the individual MSs. A very crude addition of member' weights shows that the countries that want a lower interest rate out-weight the countries that prefer higher rates. Since ECB is conducting the monetary policy for the Union as a whole, and not for individual countries, it is expected there to be some frictions, especially when the countries are affected differently, as was the case in the recent financial crisis.

Figure 15. Desired Interest Rates in the EMU, Taylor Rule (2005)



Source: De Grauwe (2007)
Note: Country names are abbreviated as: AUT: Austria, BEL: Belgium, GER: Germany, GRC: Greece, ESP:Spain, FIN: Finland, FRA: France, IRL: Ireland, ITA: Italy, LUX: Luxembourg, NLD: the Netherlands, PRT: Portugal

As seen, EMU does not constitute an OCA. The situation can best be termed as a status-quo, for pre- and post- EMU periods, for most of the criteria assessed. The labour market rigidities still exist, trade shares in EMU still resemble pre-EMU stage. Though financial integration has increased after EMU, the financial crisis, examined in the next section, showed it was not enough to alleviate the asymmetric transmission of the crisis.

I.III. Financial Crisis and EMU

This section gives a brief snapshot of global financial crisis' effects on EMU[34]. By various indicators, it is shown that the global crisis, which at first was seen as just a sub-prime crisis across the pond, had affected the EMU economy, both Union-wide and on national basis. As mentioned in the previous part, when the crisis is taken as an independent, extra-territorial variable, one can still expect to see asymmetries in the EMU, due to the differences in MSs' economic set-up. The financial openness of the members may result in unwanted consequences, Edwards (2008) argues, especially if the openness is not complemented with other reforms i.e. creation of supervision and regulatory agencies[35].

34 For a detailed selection of contributions to the study of the recent financial crisis, see: Felton and Reinhart (2008&2009)

35 Blundell-Wignall et al. (2008) tracks down the causes of the crisis to 2004, and argues that zero equity mortgage proposals, change of regulation rules of Fannie Mae and Freddie Mac, the investment banks' voluntary shift to less stringent capital rules and the Basel II regulations are the root causes of the financial crisis in US. This loosely regulated situation, i.e. shadow banking, etc. used the excess

Before delving into some specific effects of the global crisis, the interview of Rizea (2009) with the correspondent of Commissioner of Budget and Financial Planning can shed some light to Commission's response to shocks. When asked what the Commission would do if countries are not able to pay their contributions, Commissioner's spokesperson answered that in the unlikely event of payment default, the MSs can be sued, and that EU budget would be executed as foreseen till 2013. While the Commission, by definition, argues for the Union as a whole, some MSs would not be happy to be sued, especially if they are also facing economic downturns.

The early phases of the crisis were burdened with a lack of coordination. While France was in favour of EU-wide bailout fund, Britain and Germany insisted that it was members' own responsibility to overcome the crisis. As a result, they agreed to let the members act in their own way, but in a coordinated manner. Against this was Ireland unilaterally guaranteeing savings in Irish-owned banks which – while criticized by Germany – was also introduced in Germany a few days later, as an all-savings guarantee, amounting to €500 billions. (Lian (2008), Hall (2008)).The information asymmetry created by the different levels of competence and responsibility of different actors could have stifled some action programs to reach better, more suited financial institutions that were burdened by the crisis. Also, while not being an EMU member, but highly linked to it and the rest of the world by a well developed financial market, UK[36], has used anti-terror laws to seize deposits of the banks to prevent the defaulting Icelandic banks to shift funds from Britain to Iceland (Braithwaite et al., 2008), adding to the asymmetry in the system.

In 2009, MSs approved the European Economic Recovery Program (EERP) to solve the

liquidity and resulted in bubles in the economy. The credit ranking institutions also played a part in the crisis, overvaluing risky institutions. European Commission (2009a) argues that European exposure to the US subprime crisis began in summer 2007, with BNP Paribas announcing that it can not value some of the structured funds and freezing redemptions for them. Commission in line with Blundell-Wignall et al. (2008) suggests that insufficient financial supervision and regulation fed to the crisis.

36 European Commission (2009a) argues that countries housing large financial centres are exposed to financial turbulence. Thus, one can crudely link the relatively bad performance of Ireland to its financial openness, being an off-shore center and preference of holding shares in U.S. more heavily then the continental members, showing an investment preference can lead to asymmetries. This when connected with the overheating of the housing sector can explain the relative worsening of Ireland among other members.

coordination problem. EERP calls for at least 1.5% GDP for discretionary fiscal support, which the MSs exceeded with packages amounting to 1.8% for 2009-2010. (European Commission, 2009b) However, it might be difficult for some members which were already in a bad fiscal shape to live up to such expectations, especially if Maastricht criteria and SGP rules are upheld. Table 4 and 5 give the values for general government debt and budget balance, respectively, showing that the already unstable economies are becoming more so after the crisis[37].

As can be seen in table 4, all the EMU members had an increase in their debts for 2009. Values for the year 2008 also indicate that the shock affected the Union as a whole. While some countries, notably the new members, fared relatively well, the usual low-debt countries faced severe increases in their debts.

Table 4. General Government Gross Debt-to-GDP Ratio

	2006	2007	2008	2009
AT	62,2	59,5	62,6	66,5
BE	88,1	84,2	89,8	96,7
CY	64,6	58,3	48,4	56,2
DE	67,6	65,0	66,0	73,2
EL	97,8	95,7	99,2	115,1
ES	39,6	36,2	39,7	53,2
FI	39,7	35,2	34,2	44,0
FR	63,7	63,8	67,5	77,6
IE	24,9	25,0	43,9	64,0
IT	106,5	103,5	106,1	115,8
LU	6,5	6,7	13,7	14,5
MT	63,7	61,9	63,7	69,1
NL	47,4	45,5	58,2	60,9
PT	64,7	63,6	66,3	76,8
SI	26,7	23,4	22,6	35,9
SK	30,5	29,3	27,7	35,7
EA	68,7	66,2	69,7	78,7

Source: Eurostat, http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=teina220&language=en

Note: Country names are abbreviated as: CY: Cyprus, LU: Luxembourg, MT: Malta, SI: Slovenia, SK: Slovakia

As shown in table 5 below, whereas in 2007 only 9 countries had deficits, in 2008 13

37 Interest rates on 10 year government bonds increased in 2007 and 2008, with decreases in 2009 (except in Ireland and Greece). Inflation rates also saw increases in 2007-9, however for most of the countries 2009 saw sharp decreases in inflation rate, in which some MSs had negative growth, signalling a possible recession

countries faced deficits. In 2009 all members had deficits, with Ireland, a usual surplus country, expected to have deficits amounting to 15.6% of GDP. For the year 2010, the estimated deficit for the EA is 6.5% of GDP, which is the first time EA deficit exceeds the 3% limitation.[38]

Table 5. Budget Balances, % of GDP

	2006	2007	2008	2009
AT	-1,5	-0,4	-0,4	-3,4
BE	0,3	-0,2	-1,2	-6,0
CY	-1,2	3,4	0,9	-6,1
DE	-1,6	0,2	0,0	-3,3
EL	-3,6	-5,1	-7,7	-13,6
ES	2,0	1,9	-4,1	-11,2
FI	4,0	5,2	4,2	-2,2
FR	-2,3	-2,7	-3,3	-7,5
IE	3,0	0,1	-7,3	-14,3
IT	-3,3	-1,5	-2,7	-5,3
LU	1,4	3,6	2,9	-0,7
MT	-2,6	-2,2	-4,5	-3,8
NL	0,5	0,2	0,7	-5,3
PT	-3,9	-2,6	-2,8	-9,4
SI	-1,3	0,0	-1,7	-5,5
SK	-3,5	-1,9	-2,3	-6,8
EA	-1,3	-0,6	-2,0	-6,3

Source: Eurostat, http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=teina200&language=en

These two tables, when compared with the earlier figures 3 and 4, give a clear picture of how severe EMU is being affected by the global crisis. Parallel to these tables, some EMU countries like Italy and Greece couldn't adopt fiscal stimulus packages, as shown by table 6, due to their already fragile fiscal stance. The scenario can become gruesome: the crisis leading to increased debts to cover for deficits, and increased deficits due to increased expenses, resulting in defaults (or near defaults, as the case of Greece shows). This table clearly shows the importance of having sound public finances, since the MSs that needs the most stimulus couldn't provide them due to unsustainable debt and deficits. The values presented for 2010 is lower than 2009 values by a small margin, thus showing that the crisis would not be easily off-set by the 2009 stimulus packages.

38 While some convergence towards fiscal limits until the crisis can be observed, Ferreiro et al. (2009) argue that this may not be enough. They argue that, even though the public expenditure levels are more converged than before, the quality of expenditure is asymmetric. The countries that increase non- productive expenditure are likely to have more problem when a shock hits the system.

Table 6. Fiscal Stimulus Packages, as of GDP

	2009										2010
	Total	Of which in autumn forecast	Of which in budget 2009	Expenditure	Revenue	Measureas aimed at households	Increased spending on labour market measures	Measures aimed at businesses	Increased public investment	Of which public infrastructure	Total
AI	1.8	0.2	1.6	0.4	1.4	1.1	0.2	0.3	0.2	0.1	1.8
BE	0.4	0.2	0	0.2	0.2	0.1	0.1	0	0.2	0.1	0.4
CY	0.1	0	0	0.1	0	0	0	0	0	0	0
DE	1.4	0.3	1.4	0.6	0.8	0.9	0.1	0	0.4	0	1.9
EL	0	0	0	0	0	0	0	0	0	0	0
ES	2.3	1.2	1.2	1	1.3	0.3	0	1.1	0.9	0	0.6
FI	1.7	0.9	0.9	0.6	1.1	0.9	0.2	0.2	0.3	0	1.7
FR	1.4	0	0	0.7	0.3	0.2	0.1	0.4	0.3	0.1	0.1
IE	0.5	0.5	0.5	0.3	0.2	0.5	0	0	0	0	0.5
IT	0	0	0	0.2	-0.2	0.2	0	-0.2	0	0	0
LU	1.2	1.2	1.2	0.1	1.2	1.2	0	0	0	0	1.4
MT	1.6	0	1.6	1.3	0.3	0	3	0	0.1	0.7	1.6
NL	0.9	0.3	0.3	0.4	0.5	0.3	0.1	0.1	0.3	0.2	1
PT	0.9	0.1	0.1	0.9	0	0.1	0.2	0.3	0.4	0.3	0.1
SI	0.6	0	0	0.5	0.1	0	0.1	0.3	0.2	0	0.5
SK	0.1	0	0	0.1	0	0	0	0.1	0	0	0

Source: European Commission (2009b, p.14)

Though as of yet no EMU countries officially bankrupted as a result of the crisis, when investigated chronologically, it is clear that the case of Greece was a close call. The admission of frauds done in the crisis period (later on followed by the admission of fraud in the run up to EMU for membership, thus making figures 1- 4 questionable of authenticity) by Greece, pushed up the interest rates for Greece to borrow in the financial markets. Gros (2010) argue that for Greece to attain a sustainable adjustment, fiscal adjustments should be accompanied by wage cuts, both in public and private sectors. While the recommendations for public sector wage cuts were followed by Greece amid riots, the same can't be argued for the private sector. Gros and Mayer (2010a) argue that the option of orderly default must be on mind.

The claims of financial institutions in the EA are highly concentrated in the EA. This signals that there would be spill-overs, which necessitates a highly coordinated response, centralized even, if fiscal federalism's recommendations[39] are followed. Table 7 gives some of the financial institutions that were saved in the crisis in year 2008, to show the measures taken by individual governments to prevent a deeper crisis, and as Dabrowski (2009) argues, they were uncoordinated.

Table 7. Selected Financial Institution Failures

7 February - United Kingdom	Northern Rock w as nationalised	£ 88 bn
29 September – Benelux	Fortis rescued	USB 16 bn
29 September – Germany	Hypo Real Estate rescued	USD 50 bn (raised to 71 on 6 October)
29 September – Iceland	Glitnir rescued	USD 850 millions
29 September – United Kingdom	Bradford & Bingley rescued	USD 32.5 bn
30 September – Belgium	Dexia rescued	USD 9.2 bn
30 September – Ireland	Irish Banks rescued	USD 572 bn
7 October – Iceland	Lansbanki nationalised	
9 October – Iceland	Kaupthing nationalised	USD 864 millions
16 October - Sw itzerland	UBS rescued	USD 59.2 bn
19 October – the Netherlands	ING	€ 10 bn
20 October – France	French government lend money to 6 large banks	€ 10.5 bn
27 October – Belgium	KBG	€ 3.5 bn
4 November - Austria	Nationalisation of Kommunalkredit Constantia Privatbank was nationalised and sold to five Austria banks for one euro	
January- Ireland	Anglo Irish Bank nationalised	

Source: Furceri and Mourougane (2009, p.8)

39 Fiscal federalism argues that if there are spillovers, the policy in question should be left to the central government.

Table 8 shows the FDI inflows/outflows in the EMU/OECD members. When examined, it can easily be seen that generally speaking EMU[40] was worsened by the financial crisis in 2008 more than US. This can signal that EMU members would face more difficulties to normalise the economies if the FDI inflows continue to fall, since that may result in sluggish investments. Christodoulakis (2009) also argues that Southern members had attracted FDI inflows for non-tradeable goods, thus showing another asymmetry – in investment patterns – in EMU.

Table 8. FDI Flows in Some OECD Countries, 2007-2008 ($ US bn)

	FDI Inflows			FDI Outflows		
	2007	2008	% Change	2007	2008	% Change
AT	30	14	-54	33	28	-16
BE	111	60	-46	94	68	-27
DE	56	25	-56	180	156	-13
EL	2	5	150	5	3	-40
ES	69	65	-5	139	77	-44
FI	12	-4	100	8	2	-79
FR	104	97	-7	169	200	18
IE	31	-12	-100	21	13	-36
IT	40	17	-58	91	44	-52
LU	186	80	-57	251	104	-59
NL	118	-9	-100	29	53	-83
PT	3	4	33	5	2	-62
SK	3	3	0	0	0	0
Euro Group	765	345	-55	1025	750	-27
U.S.	276	320	16	399	332	-17
OECD	1583	1021	-35	2024	1631	-19

Source: Adapted from OECD (2009)

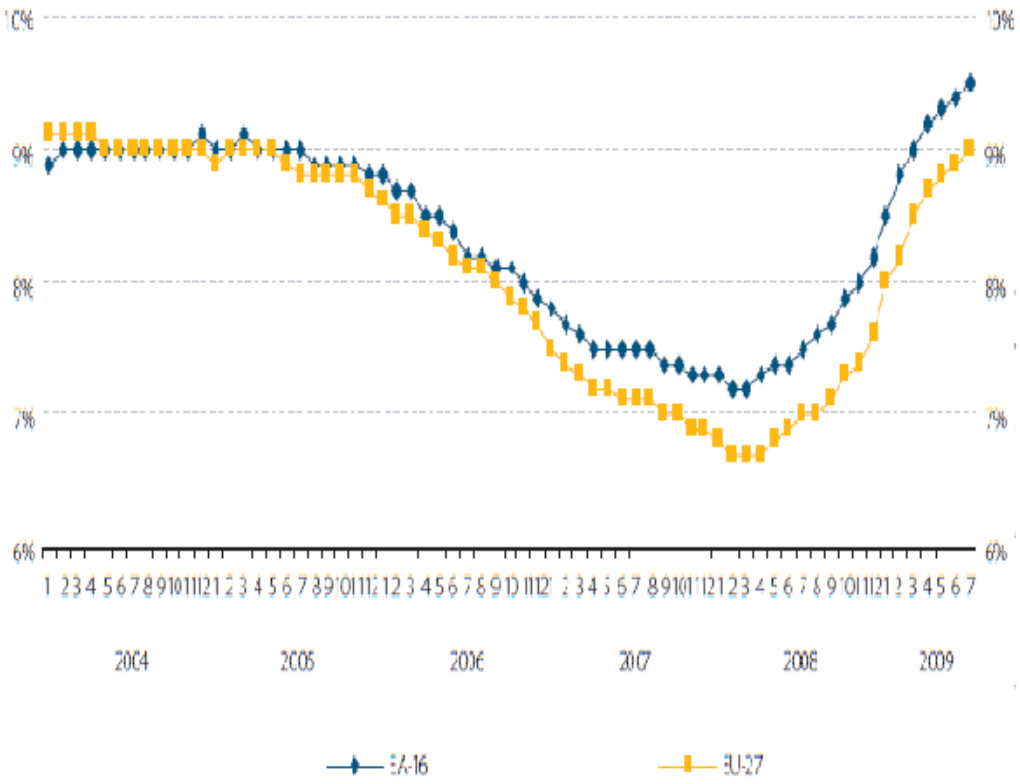
When the crisis began affecting EU/EMU in the second half of the 2007, the shock was little more than the usual turmoils in EMU. It was in the second half of the 2008, that the real bill of the crisis began to emerge, with banks calling for bailouts coupled with rising unemployment. Second half of 2008 also saw the breaking of the trend of increased public expenditure - an increase that was mostly caused by the availability of cheap credits in the market. (Eurostat, 2009a) On a related note, consumer confidence also declined, which signals a possible fall in demand, thus a longer recovery time

40 Using the Euro Group data calculated from the values of the table as an approximation to the whole EA.

(Eurostat, 2009a). [41]

Figure 16 gives the seasonally adjusted monthly unemployment rates of EU-27 and EA-16. Whereas before the crisis a trend can be seen towards lower unemployment, the figures rise sharply, more in case of EA, after the crisis; suggesting a vulnerability for the EA if the unemployment spells last long enough to result in productivity losses.

Figure 16. Unemployment Rates, %



Source: Eurostat (2009a, p.37)

Coupled with the afore mentioned rigidities in labour market, it may take some time before the markets are normalised again. With the added effect of the drop in consumption of the newly unemployed labour, the crisis may take a stronger hold in EA. The first option available to prevent such a feedback is to have an UI, which this thesis proposes to be managed in a federal manner, as per suggestions from fiscal

41 The consumer confidence fell below the Maastricht levels

federalism literature.

On May 2010, an additional rescue plan, European Financial Stability Facility (EFSF) came to life, a € 750 billions package (buttressed by the IMF, MSs and EU budget) easing the stress on risky countries of EMU (Maior, 2010). ECB, following the trend of this active intervention, committed itself to buy debt bonds in the secondary market, an act that is criticised by Gros and Mayer (2010a, p.2): "...ECB did not violate the letter of the Lisbon Treaty. However, they violated its spirit as central bank funding of government deficits is forbidden in the Treaty". Maior (2010) stress that this ECB action signalled that ECB may be losing political independence, since a few days before the Stability Mechanism was announced, ECB assured it would not buy public debt bonds.

Due to the widening of spreads of EMU members bonds (another asymmetry that was aggravated with the crisis), it is feared that high risk countries may not be able to borrow – or pay it back after borrowing – if their situations do not improve soon. De Grauwe and Moesen (2009) argue that a common Eurobond – issued by a single body with the participation of members by their equity holdings in the institution – would solve the problem. They argue that, this would be a pareto optimal movement to solve the sovereign bond issue. Kösters (2009) oppose the Eurobond suggestion, and other mechanisms like the European Monetary Fund (EMF) suggestion of Gros and Mayer (2010a), arguing that they will be violations of the treaty, as it would lead to bail outs. He cites von Hagen's (2009) argument for just letting the bankruptcy happen. De Grauwe (2010) argue that EA countries have the legal option to bail-out others[42], though it is dubious if the situation is purely "beyond its [member state's] control" if one remembers Greece's frauds on statistics[43].

42 He argues that Art. 103(1) implies a forced bail-out and opposes the no-bail-out by Art. 100(2): "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 a qualified majority on a proposal from the Commission, may grant, under certain conditions, Community financial assistance to the Member State concerned".

43 Eurostat (2009b) expresses uncertainities about data provided from Greece, and European Commission (2010) argued that Bulgaria's deficit amounting to 3.9 % of GDP does not confirm with reference value, implying Excessive Deficit Procedure for Bulgaria. The previous forecast for Bulgaria was 1.9%, coupled with a change in year 2010's forecast changes (from 0% to 3.8%) resulted in considerations of a methodological mission to be sent to Sofia (Euractiv, 2010)

The financial crisis showed that ECB's "one size fits all" mind-set wasn't as successful as thought to be. The non-convergence - especially with Greece announcing fraud - of Maastrich criteria, coupled with the non-existent enforceability of SGP, necessitated some significant recovery programs, and later on rescue packages for some MSs,. To deal with the aftermath of the crisis, and to buffer against future ones, the old ideas are revisited; two of them were mentioned briefly: Eurobond and EMF.

Both of them are concrete steps, if taken, towards a more federal EU/EMU, in line with the proposal of this thesis. The EU/EMU budget increase[44] that will accommodate such regimes though, is very dubious to pass through the usually highly politicized EU/EMU decision making. With the well documented aversion to budget increases, such measures are unlikely to bear fruit. The proposal of this thesis, however, with little budget increase is more likely to have a chance of start off. To lay the groundwork of why EMU needs such a federal mechanism, next chapter details fiscal federalism.

44 Though it can be argued that such mechanisms will not operate under usual EU institutions and therefore the usual EU/EMU budget, they will be under new EU/EMU institutions. The resources used to finance such mechanism will de facto result in an increase in EU/EMU budget

II. FISCAL FEDERALISM

This chapter begins with a definition of fiscal federalism, followed by part one in which the Decentralisation Theorem and the advantages/disadvantages of decentralisation are investigated. Part two discusses the bail-out problem, followed by part three, which argues for a federal mechanism – instead of an individual/national one – to offset an asymmetric shock in EMU

From the perspective of Politics, federalism is defined in Stanford Encyclopaedia of Philosophy as: "the theory or advocacy of federal political orders, where final authority is divided between sub-units and a centre. Unlike a unitary state, sovereignity is constitutionally split between at least two territorial levels so that units at each level have final authority and can act independently of the others in some area"[45]

For an economist however, as Oates (1999, p.1121) argues, nearly all economies are – to some extent – federal; irrelevant of the constitution. Put differently, different levels of government, i.e. federal, state, local etc., will provide at least some public goods that the other levels of government doesn't – or does so, but in a differentiated manner – whether the country is a federation, confederation or a unitary state.

The subject matter of fiscal federalism is, as Oates (1999, p. 1120) puts: "… to understand which functions and instruments are best centralized and which are best placed in the sphere of decentralized levels of government." It can be surmised from this expression that fiscal federalism deals with the problem of assigning public good

45 The usual cases of federation in history occurs via an agreement of sovereign states, which due to some common interests and expected benefits draw up a constitution, and bind themselves, creating a higher political entity. Though, for some cases, the need of a constitution is not necessary, since according to some, European Union, is a de facto federation. "…we compare the current structure of the EU to the concept of 'federation' as used in the literature on federalism, the EU looks like and behaves like a federation, except for two major features. First, the EU lacks 'taxing and spending' power. Second, the Member States continue to be masters of the constitutive treaties, at least formally speaking." (Börzel and Risse, 2000, pp.2). In a recent study, Turnovec (2009) finds that with the passing of Lisbon Treaty, EU has more federative elements when compared with after – and before – Nice treaty. Also see Burgess (1996) for an earlier assesment.

provision across levels of government. The need for such an assignment is to reach the "socially optimum" level of public good provision.

II.I. Fiscal Federalism: The Decentralisation Theorem

Following the earlier description of fiscal federalism, one may ask: which public goods are to be assigned to which level of government? The construction of a plausible answer begins by a quote from Oates (1972, pp35):

> "The Decentralization Theorem: For a public good–the consumption of which is defined over geographical subsets of the total population, and for which the costs of providing each level of output of the good in each jurisdiction are the same for the central or for the respective local government–it will always be more efficient (or at least as efficient) for local governments to provide the Pareto-efficient levels of output for their respective jurisdictions than for the central government to provide any specified and uniform level of output across all jurisdictions."

Before trying to answer the question posed above, the theorem must be further investigated, as Oates (2006) suggests, to point out some inconsistencies with the theorem and the real world. At the time when the theorem was formulated, it was incorporated in the theorem that there was absence of mobility, which is stated by Oates (1972, p.35) as: "For a public good–the consumption of which is defined over geographical subsets of the total population…" In other words, there is no mobility as a response to a fiscal change, i.e. tax levels or public goods provision. If the public were mobile, they would be able to seek the jurisdictions and choose the one that fits their preference best; they would, as Tiebout (1956) puts, "vote by their feet"[46] It is known that, generally speaking, there is no concept as total mobility or immobility, and that the real life lies somewhere in between. But even considering a system with totally immobile economic units, it can be expected that there will be some gains from decentralizing public good provision, since as Oates (1999) argues, the efficient output of a public good will vary from one jurisdiction to another. Angelini et al. (2002) argue that such differences in local jurisdictions' preferences can even result in secession.[47]

46 In the Tiebout Model, there is costless mobility as opposed to Decentralisation Theorem, which assumes total immobility.

47 Also see Besley and Coate (2003), who argue from political economy perspective, decentralised public good provision is preferred to centralised case.

A second point that must be addressed is that, the theorem suggests that central government would provide uniform goods. This, when taken as an independent variable, is most likely to result in high gains from decentralisation, due to different preferences of local jurisdictions. However, is it plausible to assume that central government cannot provide differentiated goods?

As was the case for mobility, the arguments against differentiated goods[48] are not as valid as they are made to be. The central government may choose to collect the necessary data for local preferences; it may not be as easy as it is for the local jurisdictions, and may incur some costs, but it is not impossible to do so. Breton and Salmon (2007) finds that in France, the prefects appointed by the central government have the ability to adapt the national policy to the local conditions. From a different perspective, Lockwood (2002) claims that when a minimum winning coalition is the central authority, the jurisdictions not in the coalition could be left out of the allocative aspects of the economy, showing that the centre doesn't necessarily provide same goods for every region. From a different starting point, the central government may affect the local jurisdictions by using various indicators to collect data about local jurisdictions, and apply the data to enhance sub-central government performance/efficiency.(OECD, 2008)

A third aspect that needs to be mentioned about the theorem is that there is no spill over envisaged. The benefits/costs from consuming the public good are limited to the ones that consume it within the jurisdiction[49]. The central government may be able to internalise such spillovers, but this may come at the cost of losing the closer touch between local jurisdictions and public. Seabright (1996) argues that -even when the differences in tastes are present- the accountability created by decentralisation may be a motivator towards decentralisation.

48 The basic argument against the case where central government provides differentiated goods consists of two parts as Oates (1999) argues: Firstly, the central government is too distant to be able to evaluate the public needs/wants, and therefore would choose to provide uniform goods.
Secondly, the national pressure for equal treatment, would make it hard for the central government's differentiated public goods to be accepted by the non beneficiary jurisdictions of such public goods. Also see: Sole-Olle and Esteller-More (2005)

49 As mentioned before, the theorem assumes there is no mobility, therfore no spillovers.

II.I.1. Advantages and Disadvantages of Decentralisation

As can be seen, the core of the theorem is decentralising public good provision. As long as the costs are lower than the centralized case, theorem suggests the public good provision to be executed by the local governments. The advantages of favouring such a decentralised system, as Oates (2006) suggests, can be summarized as follows:

1- The main benefit from decentralising public good provision is due to closer proximity of the local jurisdictions[50] to their citizens, when compared with the relation between the central government and the citizen.[51]
2- The increased competition of the local jurisdictions can provide benefits.[52]
3- Highly related with the second gain, experimentation effect of fiscal decentralisation can be counted as a benefit. [53]
4- As the fourth gain of decentralization, Weingast's (1995) market-preserving federalism[54] can be counted. [55]

McKinnon (1997) shows that for the individual states in U.S. the system was market

50 It should be stressed that jurisdictions are made of citizens of similar tastes under fiscal federalism.

51 An example from Oates (2006) for heterogeneity is the arsenic rule for safe drinking water. While based on national interest, the costs varied across jurisdictions, with heavily populated areas, i.e. New York City, paid $1 per household while the smallest jurisdictions faced a cost of approximately $300 per household. With a decentralised scheme, some jurisdictions might have rejected or changed the rule for their preferences.

52 The local authorities would act as a price taker in the market and act accordingly, and tax what should be taxed, and on the margin, since not doing so would mean losing the mobile sources to other jurisdictions. The jurisdiction than would have to impose self control to budget, and coupled with efficient taxing and spending, this may result in efficient allocation of public goods, and foster local economic prosperity. (Oates, 2006) Hamlin (1991) however, argues that the benefits from decentralisation due to competition can be artificially imposed.

53 In 1996 U.S. government decided to give more responsibility to States to govern their welfare programs. Before this date the system was coupled with generous federal grants and precise federal rules for the system. This act is, as Oates (1999, pp 1132) sees, "a recognition of the failure of existing programs and an attempt to make use of the states as "laboratories" to try to find out what sorts of programs can work"

54 For such a federalism to exist there must be some conditions met: (i) there must be a hierarchy of government with delineated scope of authority, (ii) there must be a common market with factor and labour mobility, (iii) local governments should have both local regulation of the economy and authority over public goods and service provision for the local economy, (iv) the authority should be institutionalized, and (v) local governments should have hard budget constraints. (Weingast, 2007)

55 Weingast (1995) argues if constructed right, federalism can limit the degree that political authority can usurp the markets. He links the successful past economic performance of UK in 18th century and U.S. in 19th century to having market preserving federalism. This gain is highly linked to gains from competition. The competitive jurisdictions would impose limits to themselves and would not intervene to the markets, the markets, then, would constraint the movements of the authorities by penalizing bad policy choices, with higher interest rates.

preserving; since they had to rely on the market to finance their projects, they had to keep hard budget constraints to provide a stable environment to attract creditors. Davoodi and Zou (1998) found fiscal decentralization to have no relation in developed countries – and negative relation in developing countries – to economic growth. As they stress, their measure of decentralisation (sub national government share of total government expenditure) may not reflect the actual situation. With other measures, for example ones argued by Stegarescu (2004), i.e. sub-central government taxing autonomy, it is possible to reach different estimations. Adam et al. (2008) finds that using Stegarescu's (2004) measures, fiscal decentralisation increases government sector efficiency. Gil et al. (2002) find that decentralisation, especially fiscal decentralisation, can help to reduce regional disparities/inequalities, a result parallel with Castles (1999) and Lessman (2006). Sorens (2008) in line with market-preserving federalism, suggests that fiscal federalism reduces government spending.

Against these advantages, decentralisation carries, as Rosen (2005) argues, some disadvantages:

1. Spillovers**:** As mentioned before, the theorem assumes that there are no spillovers but with mobility, there comes spillover issues. If there are externalities assigned to the public good, the good must be provided centrally, since the coordination generated by doing so may internalise the externalities.
2. Economies of Scale**:** Even though it can be argued that there are different scale economies for different goods (pure public goods like national defence vs. impure public goods like garbage collecting), it is clear that total decentralisation would erode the possible gains from economies of scale. To delegate provision of some public goods to higher authorities can result in higher gains due to economies of scale.[56]
3. Tax Systems: It is easy to see that different legislations have different tax systems, and therefore it is possible that some disadvantages would result from this. Consider a two state system in which the only difference among states is

56 In the same wave length, they may even form special districts. In contemporary U.S. these special governments are the largest category in local jurisdictions, and they are growing fastest. (Weingast, 2007)

the tax levied on capital[57] in a market where capital is limited but highly mobile. It is easy to say that the state that levies lower taxes to capital would attract more than the other state.[58]

The decentralised jurisdictions may also try to export their taxes to the other jurisdictions, which while may be desirable for jurisdiction A, would not be for the nation as a whole. Kind et al (2000) find that if the industry is concentrated heavily in one country that country may raise per capita welfare by taxing the capital more heavily.[59]

4. Equity: The maximisation of social welfare is one of the main concerns of the governments, especially in welfare states; therefore it is highly probable that some income transfers will be made to poorer parts of the public/region/country for income equalisation.[60] However such concerns could erode the expected gains of decentralisation.

It is clear that goods that create externalities, especially if the externalities are nation (federation) wide, must be left for central government.[61] Pure public goods, which the consumption by another person doesn't increase the cost, must be left to the centre; while local public goods should be managed by local authorities. However, there is always the case when the externalities just concern some neighbouring jurisdictions. A solution would be to integrate jurisdictions to a region, but this may result in a trade off between local tastes and economic efficiency. The gains of doing so, or not, will be the deciding factor in such cases, turning the system to a case-by-case examination, which

57 Capital is selected due to its highly mobile nature when compared with other factors of production.

58 Brooks (2002) as cited in Rosen (2005), finds that Alabama in a nine-year period provided nearly $700 millions in tax breaks to attract firms like Honda to set up their factories. If the tax was levied by the federal level, the tax breaks might not be as much as it was the case.

59 Another aspect of the problems of tax systems may arise from the disadvantage of economies of scale. The administration of the tax system may be too costly for one jurisdiction, a possible solution may be to create a collective system or let the central authority collect the taxes, i.e. in U.S. federal tax collected for unemployment is used to fund the administrative costs of the states' unemployment programs. (Rosen, 2005)

60 Like in the German system of horizontal fiscal transfers.

61 Ezcurra et al. (2008) find that EU regions have converged over time, and states: "our estimates raise the possibility of improving the relative situation of the less efficient regions by means of policies aimed at increasing their capital stocks or modifying their industry mix. In any event, the relevance of spatial effects observed suggests that policy-makers should not consider the various regions as isolated units when designing any public intervention in this context" (2008, p.1138), which can be interpreted as that EU - especially with the regional policy - not just the member states, has a role to play in the convergence of regions.

by definition would be tiresome. Another solution could be to punish the negative externalities while favouring the positive ones. Subsidies to projects that create positive externalities can be counted as a part of internalising the positive spillovers and increasing efficiency. However, this solution will again be a case-by-case evaluation process.

After detailing the theorem, and looking into the cost and benefits of decentralisation, a possible answer to the earlier question can be constructed, as Oates (1968) argues, by using Musgrave's (1959)[62] division of public goods:

The stabilisation components, namely the macroeconomic policy tools, should be centralised. Distribution components, especially if mobility of factors are considered, are also to be left to the central government. Allocation components however are problematic: regulatory functions can be argued to be centralised, though Oates (2006) shows with the "arsenic rule case" that, this may not be economically sensible[63]; state as a producer turns the problem to a case-by-case analysis: while pure public goods are easy to assign to central government, impure public goods needs further assessment, i.e. should waste management be done by jurisdiction A, or should a special district of AB undertake the job? [64]

As seen, the advantages are plenty, as are the disadvantages. The subject matter usually necessitates a case by case approach, making the policy makers' job more difficult. Aside from these concerns, the policy maker should also incorporate the bail-out problem to her/his decision, which is explained in the next part.

62 Cited in Musgrave (2008)

63 However regulations for the smooth operation of the market, i.e. competition regulations, are conducted better at a central level. One may even argue that some standards are globally needed, as in the case of slave and/or child labour. While employing child labour or owning slave labour may be economically sensible, in most countries it is penalized by law, thus showing how some regulations can be internationalised.

64 Even for cases that are economically sensible, the special district may not be realised: "A general reduction of costs along with a reduction in one or more of the services provided cannot be justified on economic grounds unless the social welfare function is known. For example, those who argue for a metropolitan police force cannot prove their case on purely economic grounds. … If one of the communities were to receive less police protection after integration than it received before, integration could be objected to as a violation of consumer's choice" (Tiebout, 1956, p.423)

II.II. The Bail-Out Dilemma

The bail-out effect of some instruments in a fiscal federal system are one of the most discussed problems of fiscal federalism. Such instruments vary over time and jurisdictions, from insurance schemes to clear cut grants. The main concern is that the local jurisdictions will grow lax due to such instruments, and would act irrational, i.e. continuous over-borrowing and accumulating unsustainable debt, having unsustainable budget deficits, etc., with the belief that they will be bailed out in a crisis situation by the central government[65]; thus decentralisation can lead to bail out problems. The grants are one of the most widely used sources of bail outs, and as a result this section will draw up from mostly grant bail out.

A basic game is useful to paint the picture of the no-bail-out interactions between levels of government (Wildasin (1997), Inman (2003)). The game begins with the central government announcing that it will not bail-out the jurisdictions that are running high debts/deficits and may default. The second part of the game is constructed upon the local jurisdictions' response to the central government's no-bail-out position. If the jurisdictions "buy" the statement, the game ends. However, the local jurisdictions may not believe in the centre's claim of no bail-out.

Wildasin(1997) argues that, there are spillover effects of the local jurisdictions, so that the centre feels the need to bail them out. Lockwood (1999) suggests that the central government will be pressured for a bail out, as an insurer, if the fiscal distress of the local jurisdiction results from external factors. Rodden (2002) adds to these reasons, suggesting that the central government may choose to bail the local jurisdictions out for its own benefit, i.e. an extra term of office. Oates (2006) argues that the local jurisdictions can shift the blame of fiscal distress to the central government, thus creating public pressure for a bail out.[66]

Whatever the reason, the downward path towards a bail-out begins with the local

65 Or as in the case of Greece, with the belief of a bail-out provided mostly by peers.

66 When the "rescue" of Iceland by various states is taken in mind, it is probable that local authorities may be more than willing to overspend, since if their own state is chivalrous enough to bail-out another state, they will do it for their own jurisdictions too.

jurisdiction applying soft budget constraints[67]. Then the question is: 'what creates this environment of soft budget constraints, so that the centre's claim of no bail-outs is disregarded?'. The reasons are numerous, i.e. a historical trend, uncertainty about the role of local/central government, etc.[68], and it is clear that some of them are hard to change in the short to medium term. With these conditions prevailing, it is predictable that the local jurisdiction would ask for bail-outs. As Rodden (2002, p. 684) summarizes:

> "Herein lays the dilemma of fiscal federalism and a more precise understanding of its dangers; for a variety of political and perhaps even moral reasons, the centre often gets heavily involved in the affairs of the subnational governments-so involved that it cannot credibly commit to ignore their problems. At the same time, the centre can be politically too weak, fragmented, or even beholden to certain subnational governments to censure them or change the basic fiscal and political institutions that create bad incentives. This is most often the case in federations with strong, disproportionate territorial representation, but by no means is the phenomenon limited to formal federations."[69]

The flypaper effect also plays an important role in grant evaluation. Literature suggests[70] that the effect of a grant to a jurisdiction is not equal to a set of grants to individuals. State and local spending is more responsive to grants than it is to an increase in own

67 As mentioned before, the soft budget problem was a key issue for the decentralisation to be market preserving. (Weingast 1995) If the jurisdiction doesn't follow a hard budget constraint framework, one can expect a "race to the bottom" scenario to hold true.

68 These can roughly be summmarized as Rodden (2003) argues:
- If there is uncertainty of which level of government should provide a good, there is a high possibility of soft budget constraints.
- If the local jurisdictions rely heavily on revenues rather than self-revenues, i.e. grants, it is likely to face with soft budget constraints.
- If the local jurisdictions have access to credit markets, the deficit is likely to be financed by borrowing from the market. In some countries, for example Argentina, it is observed that governments were selling bonds to state economic enterprises (SEEs) to finance their debts.
- An ineffective market also contributes to soft budget constraints. In a developed market, it would be difficult for a jurisdiction to borrow when in fiscal distress due to high risk premium raising the interest rate applied to said jurisdiction, whereas an underdeveloped market may not be able to assess the condition of the jurisdiction and fund it with relatively low interest.
- Another reason for soft budget constraints is the historical development. In U.S. where states were rejected for fiscal assistance by the federal government in 1840, it is more unlikely to see the jurisdictions to ask for a bailout.

69 Oates (2005) suggests that, even if there are hard budget constraints, the grants may not perform as efficiently as was foreseen by the normative theory. On a similar topic, Inman (1988) finds that the grants system functions through a political influence sphere rather than the economic reasoning one expects. McKinnon (1997) also argues that grants aimed at fiscal equalization may have hindered the incentive to converge via factor mobility. Rodden (2002) also suggests that German system of equalising fiscal transfers rewards poor fiscal performance.

70 See Oates (1999) for a survey.

revenues. The estimates suggest that a one dollar grant results in an increase of spending of 40 cents, while an additional one dollar of private income does so by 10 cents. (Rosen, 2005, p.537-8). However Lockwood (2002) and Seabright (1996) suggest that the authorities will not act in the economic sense when distributing the grants, but rather provide the grants to increase their chance of re-election; or to favour their coalition jurisdictions.

Bail-out problem is a serious issue, one that needs to be solved when trying to use a fiscal federalist approach to EMU issues, such as when designing measures to buffer against asymmetric shocks discussed in the previous chapter. Any scheme for EMU must be able to pass a test to show that it will not cause bail-outs. Before proposing such a scheme for the EMU however, the next part argues that there is a need for such a federal scheme for the EMU.

II.III. A Union-wide Federal Policy for Asymmetries

Now that it is clear that EMU can (and does) face asymmetric shocks, and the Union doesn't satisfy the most stressed upon OCA criteria – labour mobility and wage flexibility – fiscal policy integration can be the answer to the problem, which according to Kenen (1969) was a condition for benefiting from a currency area. What is stressed in this thesis is the automatic stabilization leg of the fiscal policy. Though it is widely accepted that fiscal policy may not work as good as it did in the Keynesian model, fiscal policy can at least buy time for the economy to adjust, which according to Krugman is nothing to sniff at (Hardtalk, 2009)[71]. He argues for an increase in crisis pack for 2008 recession, which is a clear application of fiscal policy, via transfers to the public, even though it would result in an increase in CA deficit.

The earlier example of De Grauwe (2005) (figures 6 and 7) of two countries A and B, forming a MU is useful to express how the shock absorption occurs. In addition to the earlier example, in this case the countries have delegated some of their budgets to a

71 In his interview at HardTalk (2009), Krugman also states that returning to the desired employment levels is indefinitely distant, and that U.S. government was already nationalizing some of the economy by backdoor lending before the crisis.

higher level of government. They are hit by an asymmetric demand shock, A being the country that is positively affected. The difference of this case from the earlier version is that the adjustment occurs as a result of fiscal transfers, namely social security transfers. In A, due to high demand, there will be willingness to produce more by the employers, meaning a rise in employers contribution to social security system, each additional employee would also contribute to the system by social security contributions levied on them, and each additional unemployed person that finds a job would decrease the cost of UI benefits. The boom is also reflected by an increase in income taxes and indirect taxes due to increased employment and consumption, in short an increase in the revenues of A.

On the other hand, B would suffer from unemployment, since there is no demand for the product b, there is no need to produce it as much as before. This would result in a decrease in social security contributions from both employees and employers (though employers may need to pay compensation to laid-off workers), income taxes and sales taxes would fall. Also new claims for unemployment benefits would rise, thus creating an additional expense while the revenues already shrunk due to the negative demand shock.

Since their social security programs are aligned, and Union has control over contributions and taxes (at least to some extent), the Union budget would act as an automatic stabilizer, transferring the excess revenue from A to the destitute B, softening the impact of the shock. If the case had been of a MU with independent fiscal policies of national states, as is the case for the EMU, country B would face a budget deficit to compensate for increased unemployment benefits with reduced tax base. Then B would have to borrow, from either public or from outside. In either case, the problem would be postponed to be dealt with by the future generations, or left to the other members if they perceive a possible default.

Catenaro (2000) argues against totally independent fiscal policies, and calls for either strong coordination, or public expenditure punishments. As an example to a problem in uncoordinated policy setting he states: "... for a given level of public expenditure in the

home country, an expenditure increase in the rest of the union results in a real exchange rate appreciation abroad, which – … – reduces the real product wages and increases foreign production. For the home country, however, this is equivalent to a real depreciation, with opposite on its output level." (2000, p.8). He also suggests that employment is linked to inflation surprises, spending surprises and expected tax distortions, which can be affected by fiscal policy, thus calling for coordination. Also higher coordination of fiscal policy can help ECB to conduct monetary policy, since there will be less asymmetries to take into account.

Bayoumi and Masson (1998) argue for a federal system as opposed to national policies, and suggest that the fiscal policies need not to be totally given up[72]. They state (pp. 1043-4) :

> "As pointed out by others, effective fiscal stabilisation is all the more important in the EMU, given the loss of the exchange rate instrument for that purpose-especially since other shock absorbers, like labour mobility, are unlikely to be very important. While monetary union will not reduce the effectiveness of existing national automatic stabilisers, such stabilisers can be expected to operate more efficiently if they are EU based, rather than operating solely at a national level."

To understand what federal insurance can offer, looking into other options - individual and national insurance - as argued in Bayoumi and Masson (1998) - can serve as a useful benchmark[73]:

The first option against an asymmetric shock is private insurance: a person can insure himself/herself via private markets. One can do that by participating in the financial markets. By higher participation in the financial markets, people diversify their risks, and compensate their loss due to slowdown in country B by the boom in country A. However, this is the case where financial market integration is high, and there is no home bias.[74] The essential question arises, however when one takes into the

72 Also one can take into consideration the desire of EU, and therefore EMU, to have social cohesion across the Union, in which fiscal transfers can play a role, as an addition to Structural Funds and CAP. In this line of thought the fiscal transfers can help to create the European demos.

73 Here it is assumed there is imperfect labour market flexibilty, so some additional measure is needed for an adjustment mechanism to shocks.

74 Also it can be argued that when home-bias left its place to Euro-bias, public would still not be able to compansate their loss, since they would miss the other opportunities lying beyond EMU or EU. De Santis and Gerard (2009) argue that EMU caused a trade diversion on British bond markets.

consideration of the poor people. The poor in country B is unlikely to have shares of company in A to curb some of his loses when he or she loses employment. A related search by Crossley and Low (2004) suggests that 25% of the job losers don't have access to the credit markets.

The second option is national insurance, used when countries have independent policies. In the earlier case, in country B, to cover for increased unemployment benefits, the government raises spending, while the revenues fall. This results in both an increase in budget deficit and public debt. This insurance happens automatically (an automatic stabilizing effect) and in the first part of the game, would be desirable. However, what if the shock continues longer than expected? Can the government continue to borrow? Or if the country was already in critical debt, is it sustainable to cover the losses from treasury? Also one should take into consideration of the rising cost of borrowing due to a rise in interest rates in the financial market as a result of continuous drawing and worsening credit ranking of the country. Would B be able to postpone the problem indefinitely? The rational answer to such questions would be negative.[75]

A third option is the federal insurance. In this case, the country having a positive shock transfers the excess revenues to the negatively affected country, i.e. transfers from A to B, as described before. This happens automatically and smooths the economies. Aside from the automatic stabilizing effect, another positive point of federal insurance against a national one arises from the fact that people live more than one period, and they base their choices accordingly; then a change in future disposable income would affect the consumers' present choices (Ricardian equivalence). As argued earlier, in a national insurance system, the problem is postponed to future generations. To curb the deficit the government would raise taxes in the future, and the rational consumer would foresee this manoeuvre and act accordingly, therefore eroding the expected gains from the national insurance, as von Hagen (1998, p.7) points:

> "Self-insurance implies that increased government spending during a recession is matched by a future tax liability. Rational, forward-looking consumers anticipate the future tax payments and reduce consumption

75 As seen the theoretical questiones posed then became revelant again with the Greek sovereign debt issue in the recent financial crisis.

> accordingly. Under intra-national insurance, in contrast, transfers paid to a depressed region do not increase that region's expected future tax liabilities, if the expected value of future asymmetric shocks is zero and the insurance scheme is balanced across regions."

On this matter, Rodano and Saltari (2001, p.30) states "If consumers expect that in the near future fiscal policy will not change, …, then the non-Keynesian effect of current policy (due to expected changes in permanent income) may well have the same sign as the Keynesian effect, which in turn will have the same sign as the policy itself". Bayoumi and Masson (1998) in this sense find that non-liability creating fiscal schemes (federal insurance schemes) are preferable to liability creating (national insurance schemes) in Canada[76].

Evers (2006) argue that a federal transfer scheme, consisting of household and intergovernmental transfers, provide perfect insurance against asymmetric preference and productivity shocks. De Grauwe (2006) argues for a central budget, capable of redistribution for the Union, to reduce the effect of asymmetric shocks. He also argues that a political union is desirable to offset the asymmetries born by political decisions of member states, i.e. Ireland's unilateral guarantee scheme that was conducted without discussing it with the other MSs.

The aftermath of the financial crisis also spurned some proposals in line with fiscal federalism. One such proposal is the EMF mentioned before. Gros and Mayer (2010a) propose the system to be financed by the excessive deficits and debts. The EMF, at least at first, would have the authority to borrow from the markets to meet the demand of funds from MSs. The use of funds would be tied to conditions, i.e. following an EMF approved plan for adjustment[77]. EMF can also provide an orderly default, which Gros and Mayer (2010a) suggest should be kept in mind for the Greek crisis.[78]

76 Canada is chosen in Bayoumi and Masson (1998) due to it's highly decentralised setting, which they argue resulted in fiscal indiscipline. With the provinces preference/ability of borrowing from outside Canada also makes the situation similar to EMU.

77 They also argue for punishments for rule breaking and propose that rule-breaking should result in a cut-off from first EMF funding then other EU fundings, i.e. Structural funds.

78 Gros and Mayer (2010b) also stress that in US, the treasury and the Federal reserve acted shoulder-to-shoulder, which was not the case in EU/EMU.

Another proposal is a common Eurobond to be issued. De Grauwe and Moesen (2009) argue that due to the widening of the spread of sovereign debt, the cost of borrowing for some MSs are increasing, and propose that a common Eurobond would benefit both the problematic states and the fiscally sound ones. Delpla and von Weizsäcker (2010) argue for an Eurobond, that is jointly guaranteed by the member states to cover up to 60% of MSs' GDP, thus leaving any bond issued additionally by the state out of a possible bail-out.

Another fiscal federalist scheme that has passed EU/EMU legislation is the EFSF. Prodi (2010) argues that this signals as a step towards a more federal EMU. Even though the mechanism is set up for 3 years, he argues such mechanisms are hard to abolish. With the backing of guarantees by MSs on its bonds, the EFSF is aiming to achieve a AAA credit ranking. (Stearns and Louis, 2010). With conditionality tied to using the funds from the scheme and guaranteed bonds, this scheme resembles the Eurobond and EMF suggestions mentioned above.

Even though the recent financial crisis has revived some of the old fiscal federal arguments for the EMU, the objections to a centralised fiscal policy are still alive. The case for a central fiscal policy in the EMU, therefore a federal transfer/insurance scheme, has been discussed in the past. Commission, in its report “One Market, One Money” (European Commission, 1990) argues that the Community budget will, for the foreseeable future, remain at its usual level, and therefore will not be fit to provide a federal fiscal policy. The report argues that “...governments should retain fiscal flexibility for stabilization and adjustment purposes, but as public debt monetization would be ruled out, the avoidance of unsustainable fiscal positions would become an absolute requirement.” (1990, p.48), thus advising independent but regulated fiscal policies.

Buti and van den Noord (2004) argue that in the EMU, the policy maker has to respect MSs differences in their economic set-up, and adhere to subsidiarity principle while designing fiscal policy rules; similar to the opinion voiced by European Commission (1990). However Commission also stresses the interdependence of fiscal policies and

possible free riding problems, thus calling for limits to individual fiscal policy tools, the earlier mentioned Maastricht Criteria and SGP.[79] The enforceability problem of the SGP was discussed before, showing that the Commission's estimation for sound public finances was not correct in this case. Also European Commission's (1990) expectations of increased economic integration is yet to be realised to the extent it was estimated: as shown in figure 12, there was no significant increase at intra-EMU trade shares, though officially no barriers exist for trade among MSs any more.

As discussed in the previous chapter, EMU is more financially integrated than before. The claims of EA financial institutions are highly based on the EA, showing a Euro-bias. However such a Euro-bias can lead to opportunity losses, just as home-bias can. Also the lack of comprehensive financial market/institutions regulation showed that, the system is open for further improvements[80]; however as Leiner-Killinger et al (2007) argues, such reforms to enhance the system may not be easy to establish.

France is yet to have the backing of other members to press for a more centralized fiscal policy[81], as seen in the crisis when Germany and UK argued for individual, but coordinated, rescue packages – a system in the end that was snubbed by Ireland's unilateral guarantee scheme a few days later. The Community budget aversion of MSs is also yet to disappear. However, the proposed scheme that will be explained in the next chapter asks for a small increase in budget, as opposed to some schemes proposed earlier.

It can be argued that the existing national fiscal systems in EMU can be used, maybe enhanced somehow, with more coordination, instead of a federal scheme. Such a

79 Another option mentioned by European Commission (1990) is the ability of the markets to discipline the MSs, however when the case of Greece fraud is taken into consideration, it is questionable if that option of discipline would have yield to better results with such information asymmetry.

80 One can count the establishment of Committee of European Banking Supervisors in 2009 as an improvement.

81 While France had been in favour of a more centralised fiscal policy, she has to make other MSs vote for a transfer scheme that may either result in rich MSs paying for poor MSs, or poor MSs contributing to offset problems in rich MSs. This, as Jones (2009) argues, resulted in both parties to choose a status quo. Also any absence of German support at this era can be attributed to the increased cost born by German unification. As Schmidt (2002) argues, with highly decentralised decision making it would be hard for central government to pass the bill when the rich länder are feeling burdened by the cost of unification.

scenario however, has its own difficulties resulting from Maastricht limitations coupled with the time-lag that comes with EU/EMU decision making procedures[82]; thus necessitating an autonomous decision making body for such a fiscal scheme.

The above mentioned spill-over effects also prevail under coordination, especially when the fact that coordination is already enshrined in the treaties is taken into account. The case of financial crisis, especially the early stages, showed there was a problem with coordination. The later stages, though more coordinated, still carry questions about the quality of individual fiscal packages and their sustainability. The overall debt/GDP ratio for the EA went from 66% to 77% in 2006-2009 periods, with 88% as a forecast for 2010, which clearly shows a worsening for the EMU. While a 66% debt ratio can be argued to be manageable with 1.6% budget deficit, 77% with 6.5% deficit and worsened employment situation and negative growth rates may not be so.

The earlier mentioned Werner Report (1970) and Delors Report (1989) argued for a centralised (at least to some extent) fiscal policy, however the Commission (European Commission, 1990) argues that the establishment of EMU would result in increased integration, and thus not necessitating a centralised fiscal policy.[83] However, it is also mentioned that fiscal policy will most likely evolve over time and that the MSs will become more interdependent, so that managing of fiscal policy at lower levels will become harder, thus in future there can be a more federal fiscal policy in the EMU. On this issue McNamara (2005) argues that only the currency unions that also formed fiscal unions were successful in the past, and states: "Some long-time official participants in the EMU project have stated privately that some form of fiscal federalism- that is, a more federal European structure with centralized redistributive policies of taxing, borrowing, and spending-is a necessity in the long run." (2005, p. 157). The financial crisis can act as a catalyst to achieve a fiscal federal scheme, as was observed for financial market supervision/regulation reforms.

82 There is double time lag in coordinated fiscal policy: first MS decides to use fiscal policy after analyzing the shock, and then she will have to run it with the other MSs to see if the policy will cause any spillovers.

83 European Commission (2006) argues in favour of monetary policy and that EMU would not necessitate any further centralisation/cooperation than it already has, an opinion in parallel with European Commission (1990)

As seen in the previous chapter EMU faces asymmetric shocks and is not integrated/flexible enough to overcome them. This chapter argued that fiscal federalism can be an answer to these shocks; the recent policy proposals (EMF, Eurobond) and the actual established institutions after the crisis are in line with fiscal federalism's recommendations. To see the extent of the benefit that EMU can enjoy from such a fiscal federalist recommendation, the next chapter proposes a federal insurance scheme against the asymmetries that EMU[84] faces, and may face in the foreseeable future. Such a federal scheme does not necessarily mean the abolishment of the existing national competences/mechanisms. The federal mechanism can be used to enhance the system's response to a shock, not to replace the national mechanism. It is most likely that the burden will still be mostly on national competences, with an effective EMU policy for stabilisation instead of a sum of EMU member policies that will pose information asymmetry and time lag problems. UI is chosen for such a scheme due to its direct link to economy via consumption - a fall in consumption of a magnitude of 22.2% when not covered by insurance as opposed to 6.8% when covered according to Gruber (1997), and indirect links via job searching and employment duration effects[85].

84 In US, inter-regional insurance works mainly by federal taxes and transfers and this insurance is achieved automatically (Sala-i Martin and Sachs, 1991). In US federal taxes collected from states can reach up to 20% of state's GDP, while transfers to state can amount to 31% of state's GDP.(Darvas, 2010) While such schemes were argued in the past for EMU, in this thesis an UI insurance is examined, since the achievement of a fiscal transfer system is a step further than UI when the political economy in EMU is considered. A fiscal tax-transfer system may necessitate unbalanced and bigger budgets, and this, as Fatas (1998) argues, is unacceptable in EMU. Use of UI is also in line with MacDougall Report (1977), which argues for an unemployment fund for the pre-federal EU/EMU stage. Also, as McKay (1999) argues, the lack of European demos will hinder a fullfledged fiscal harmonisation; thus the probability of UI in EMU would be higher than an even broader tax-transfer system.

85 See: Mortensen (1977a,b), Meyer (1990), Meyer and Katz (1990), Belzil (2001), Tatsiramos (2006)

III. EMU UNEMPLOYMENT INSURANCE SCHEME

This chapter builds up on the earlier arguments that EMU can benefit from fiscal federalism, and proposes an EMU-wide UI scheme to act as an asymmetric shock absorption mechanism. First part is dedicated to giving a brief review of the earlier proposals for a fiscal federal transfer/insurance mechanism for EU/EMU, followed by part two, in which an UI scheme is proposed for EMU.

III.I. Review of Proposals for Federal Insurance for EMU

As an earlier Union-wide fiscal transfer scheme for EU/EMU, one can count the proposals to the EU by MacDougall Report (1977), in which stabilization policy is proposed to be left to the federal state, and the budget of the community to be raised to 5-7% of the Community GDP to support the Monetary Union. Due to the report's inability to separate redistribution from stabilization, and not addressing the political and economic problems that European Fiscal Transfer Scheme may create, it was silently buried soon after its publication. (Goodhart and Smith, 1993)

Sala-i Martin and Sachs (1991) find the effect of federal fiscal transfer system redistributes roughly 40 cents to a $1 loss for US[86], while in Europe this amounts only to 0.5 cents. Von Hagen (1992) argues that Sala-i Martin and Sachs (1991) had actually calculated both the permanent redistribution and insurance against asymmetric shocks. He finds that the actual insurance effect is only about 10 %. Fatas (1998) argues that the estimations for Europe is too low, and argues that national policies provide insurance amounting to 50% of the shock.

Bayoumi and Masson (1995), find that the insurance against a shock is around 30% in U.S, and argue that EMU would need some centralised mechanism to provide such

86 This result is parallel to though higher than the estimations of the MacDougall Report (1977). An interesting fact they state in their work is the possibility of a financial crisis in Texas if there were no federal transfer. They state such transfers are not included in their data due to lack of time series data set for the states for such measures.

insurance. Fatas (1998)however argues that the insurance values provided by Bayoumi and Masson (1995) and Sala-i Martin and Sachs (1991) is 3 times more than the actual amount, as a result of the methodology used. He states: "The methodology used in these studies is to estimate the response of taxes and transfers to income fluctuations, ignoring the impact that these transfers have on the overall federal budget balance." (1998 p.166) and argues that when one takes into consideration the debt that will have to be paid in the future due to a fall in tax revenues in an economic downturn, the insurance coverage becomes less than the aforementioned studies suggest.

As for other countries, Bayoumi and Masson (1998) predict 14 % insurance for Canada, and they argue that non-liability creating fiscal transfers provide better insurance and suggest "We would interpret this evidence as providing another argument for Europe to consider expanding fiscal policy at the Union level, rather than relying on national fiscal policies to offset idiosyncratic shocks" (p. 1043)

Pisani-Ferry et al. (1993) who diverge from the others by using a simulation model find the stabilization effects of fiscal transfers account for 37.4% and 33.5 % of the shock for France and Germany respectively. Their simulation provides that stabilization done by unemployment benefits account for 9.9 % and 12.5% for the countries.[87] Their estimate for U.S. is around 17%. They suggest that it is more than von Hagen's (1992) estimate which was around 10%, since he didn't take the social contributions into consideration.

Italianer and Vanheukelen (hereafter I-V) (1993) argue that with an insurance mechanism based on unemployment figures, 18-19 % of the shock[88] can crudely be covered with annual payments amounting to 1% of GDP to the MS. Bajo-Rubio and Diaz-Rolden (hereafter BR-DR) (2000) use a similar method and find coverage around 10% for the affected countries. Melitz and Vori (1993) proposes a scheme to insure income per capita, rather than I-V (1993)'s insurance which was based on unemployment, since they believe UI would limit the covered individuals.[89]

87 They also do a simulation where they let German horizontal transfer system (Länderfinanzausgleich) work, and find that the the effect of stabilization of such scheme is 8,5%.

88 They also run a similar scheme with limiting the unemployment factor, and find around 12% coverage for the shock.

89 For discussion of shock absorption in EMU, also see: Majocchi and Rey (1993), Papaspyrou (1993)

Hammond and von Hagen (1998) use different econometric approaches, with varying degrees of complexity, and suggests that to match higher gains from a federal insurance system, EMU needs complex econometric formulas. Von Hagen and Wyplozs (2008) stress the need of complex formulas to avoid moral hazard[90], and argue that moral hazard cannot be eliminated totally, just mitigated. Schelke (2005) argues that political sanctions – such as losing voting rights in Economic and Financial Affairs Council (Ecofin) – instead of EDP sanctions, can reduce moral hazard more efficiently. Dullien (2007) argues that an UI scheme for EMU that avoids moral hazard can be constructed, by combining the MSs own system with an EMU system based on some key concepts of US UI system, i.e. extended benefits from the centre in times of need. De Grauwe (2006) argues for an EMU budget, capable of providing insurance in asymmetric shocks, and states that this budget doesn't have to be big. Dullien and Schwarzer (2005) argues that with a transfer scheme based on corporate tax and an unemployment scheme 15-20% of regional downturns in EMU can be offset.

Hammond and von Hagen (1998) propose some criteria[91], which as they state, unfortunately are not mutually compatible, that a good insurance system must satisfy. These criteria would be used to evaluate the scheme that will be proposed in the next section. Hammond and von Hagen's (1998, pp. 334-5) criteria can be listed as:

1. Simplicity: the system must be designed in such a way that the financing and distribution of the fund must be transparent to the public and easily understandable
2. Automaticity: the system must operate without the bureaucratic delays and discretions, but have clear expenditure purposes and automatic triggers

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For a survey of federal insurance mechanisms for EMU, see: Kletzer and von Hagen (2000), Majocchi (2003)

90 Centralised fiscal transfer schemes can result in moral hazard. The MSs can postpone real adjustments by using the transfers as a buffer, or use the transfers for other purposes rather than to decrease national risk (Persson and Tabellini, 1996). Von Hagen and Wyplosz (2008) argue that the problem of enforceability of SGP must be taken into consideration when designing centralised transfer mechanisms to avoid the moral hazard, since the historic perfomance shows that MSs do not abide rules.

91 Also see Schelke (2005) for a list of simplified criteria.

3. Temporary nature: the system must not create long-term re-distributional benefit payments, but must cover the members for asymmetric shocks
4. Avoid moral hazard: the system must be designed so that the members would not be able to coerce the system to their own benefits. The system must be restricted to unexpected shocks.
5. Budget neutrality: the system must be balanced in the community level and only negatively affected should receive funds
6. Wide coverage: the system must offset a relatively large part of the shock.
7. Non-regressive system: a decrease in income per capita should not result in a decrease in the benefits.

Before detailing the model for an EMU wide UI scheme, it is crucial to assess some of the counter arguments to a centralised fiscal policy in EMU. The official standpoint of the EU/EMU is that reforms aimed to increase labour market flexibility, like the ones at Lisbon Strategy are better ways to offset asymmetric shocks than central fiscal policies, and if the MSs adhere to SGP rules, they would have enough flexibility to counter asymmetric shocks with national policies. (European Commission, 2006). Bini Smaghi (2007) argues that the monetary policy of EMU is set to provide the macroeconomic stability, and thus there is no need for a central fiscal policy.

However, Dullien and Schwarzer (2005) argue that reforms, such as argued in Lisbon Strategy, will not be sufficient to help Germany and the Netherlands towards growth after economic downturns. And in 2010, it is widely accepted that the Lisbon Strategy was a failure. The non-enforceability of the SGP and it's critics stated before puts Commission's opinion about SGP on shaky grounds.

De Grauwe (2006) argues that the monetarist foundations of the EMU may not hold if the demand side shocks are the root of economic shocks. The pessimistic/optimistic tendencies of consumers/investors would need the extra element of a central budget, and that the central bank would need to pay attention to not only price stability but other aspects of the economy.[92]

92 He also states that the official arguments for the contemporary EMU set-up is very similar to the ones

The Community budget aversion of the MSs has also played a role to dismiss centralised fiscal policy in the EMU. As Börzel and Risse (2000, p.16) argue, the German federal model, if applied to EU, would call for a spending power of 20% of European GDP, thus "... it is inconceivable that the Member States would agree to such an enormous decline in their revenues".

The arguments rooted in the monetarist and real business cycle theories against the centralisation of the fiscal policy in EMU seems to have prevailed from the very beginning of EMU, as did the budgetary problems. However as De Grauwe (2006) argues, so did they in world before the Great Depression. The recent financial chanced the circumstances, as Stiglitz (2008) argues "We are all Keynesian now.", thus the crisis can thus play a role to usher in a fiscal federalist framework[93], as it did in an implicit manner by the creation of EFSF. This showed that when the situation called for, the MSs were able to act in order to create centralised schemes, even though EFSF has an official deadline. With the crisis then, a federal UI for EMU can be a viable project, as some of the aforementioned proposals show[94].

III.II. A Federal Unemployment Insurance Scheme for EMU

In this section a federal UI scheme is proposed to see how a federal insurance scheme would have helped to smooth the asymmetric shocks. The scheme asks for contributions from the member states, calculated yearly and pooled under an autonomous authority. The eligibility of member states are linked to the unemployment levels in the country and the Union as a whole. The methodology of the scheme is explained in the first subsection, followed by the description of the data used. The results are presented at the third subsection, with a special part devoted to an imaginary case in which Turkey is assumed to be in EMU. The last subsection discusses the results obtained and assesses

before Great Depression.

93 The same hope is voiced for a pan-European financial supervision by the authors of Larosiere Report. (Castle, 2009)

94 i.e. EFSF with EMU-wide backing guarantees that demands strict adherence to its recommendations is a de facto centralisation of some fiscal authority, in line with fiscal federalism literature, which can crudely be argued as a show of willingness for EMU to try fiscal federalist recommendations.

the model by using Hammond and von Hagen's (1998) criteria.

III.II.1. Methodology of the Model

Following I-V (1993), the change of unemployment rates of MSs and EMU is used to provide an automatic trigger[95]. The change in unemployment rate in country *i,* in month *t*, $dU_i(t)$, is calculated by subtracting the unemployment rate of month (*t-12*), $U_i(t-12)$, of country from unemployment in month *t*, $U_i(t)$.

$$\begin{aligned} dU_i(t) &= U_i(t) - U_i(t-12) \\ dU_{EMU}(t) &= U_{EMU}(t) - U_{EMU}(t-12) \end{aligned} \qquad (1)$$

For a country to be eligible to draw from fund, the difference of unemployment rate between month (*t*) and (*t-12*) must be positive. As a further precondition, the change in unemployment should be greater than the EMU average.

$$\begin{aligned} &dU_i(t) > 0, \\ &dU_i(t) > dU_{EMU}(t) \end{aligned} \qquad (2)$$

The proposed system aims to distribute a collected amount of funds to the negatively affected countries, in the case of an asymmetric shock. The model's financing is obtained from payments to the fund as a ratio of excessive debts and deficits – calculated as the difference between the actual debt/deficit and the Maastricht limits - as argued for EMF by Gros and Mayer (2010a). This would provide an additional incentive for the MSs to apply SGP rules to their government finance. The funding for the system, $F_{(t)}$ can be represented as in equation (3),

$$F_{(t)} = \alpha \sum_{i=1}^{n} \bar{d}_{i(t-1)} Y_{i(t-1)} + \alpha \sum_{i=1}^{n} \bar{b}_{i(t-1)} Y_{i(t-1)} \qquad (3)$$

in which $\bar{d}_{i(t-1)}$, $\bar{b}_{i(t-1)}$ represent the excessive deficit and debt of the country i in year (t-1), respectively. $Y_{i(t-1)}$ denotes GDP of country i, in year (t-1). To comply with Gros and Mayer (2010a), α, the percentage value of contributions, is set to 1, thus the contribution percentage equals to 1%. This funding is pooled at the end of each year to

95 Unemployment rates are chosen for the trigger since they are available in relatively short lags, and are calculated similarly in EMU countries.

be distributed in the next year.

Following BR-DR (2000), the fund is to be distributed evenly every month. The amount to be distributed in month k, $f(k)$, is then:

$$f(k) = F_{(t)} \div 12 \qquad (4)$$

The proportion of how much the country can get from the fund, as well as the calculation of the shock (equations 5-10) is obtained from BR-DR (2000).The proportion that the eligible country can draw from the fund is calculated by:

$$\beta_i(t) = \frac{\omega_i dU_i(t)}{\sum_{i=1}^{n} \omega_i dU_i(t)} \qquad (5)$$

in which ω_i represents the weight of the unemployment rate of country *i* in the unemployment rate in the whole EMU[96], and *n* representing the number of eligible countries.

The monthly amount to be distributed to country i, is then calculated by

$$B_i = f(k) \times \beta_i \qquad (6)$$

And to eliminate deficits and surpluses in the system, a limitation, shown by equation (7) is applied.

$$\sum_{i=1}^{n} \beta_i = 1 \qquad (7)$$

As can be seen from the framework of the system, the more asymmetric, i.e. the greater the difference of unemployment rates and the less number of countries affected would result in higher benefits from the system for the eligible countries

The coverage of the shock is estimated by using a the difference version of Okun's Law[97],

$$dU(h) = \gamma - \sigma g(h), \qquad (8)$$

where *g(h)* represents rate of real growth, in year *h*, and *dU*(*h*) representing change in unemployment rate in year *h* .

96 In this numerical example the weigh is calculated by using MSs GDP weights

97 Okun's Law estimates the relationship between unemployment and GDP. For a survey see: Knotek (2007)

By deriving equation (8), the size of the shock, *s*, is approximated by:

$$s(h) = [\frac{1}{\sigma} dU_i(h)] \times Y(h-1) \qquad (9)$$

Y(*h-1*) denoting GDP of the year (*h-1*).Then the coverage of the scheme for country *i* can be calculated by dividing the total amount in year *h* distributed to country *i* by the size of the shock.

$$\frac{\sum_{t=1}^{12} B_i}{s(h)} \qquad (10)$$

However as mentioned before, fiscal insurance schemes can result in moral hazard and turn to permanent transfer schemes.[98] To avoid this situation a limit is incorporated to the system, as argued in I-V (1993). A ceiling is applied to the eligible unemployment rate difference: if unemployment rate difference rises above a certain reference rate, ϕ, the estimations are calculated using the reference value, not the actual unemployment rate, in other words, the excess unemployment rate difference above the reference value is ignored. In the numerical example, reference value is 1.7[99], though this value is only for showing the shifts in benefit distribution, it is not based on an empiric calculation. Thus equation (5) is re-written as,

$$\beta_i(t) = \frac{\omega_i \phi}{\sum_{i=1}^{n} \omega_i dU_i(t)} \qquad (11),$$

and the other steps of the model are followed normally.

III.II.2. Data

Okun's law is estimated for the period 1984-2009 by using OECD data, while Eurostat data is used for monthly unemployment levels used for the numerical examples.

98 BR-DR's (2000) UI scheme is constructed on I-V's (1993) model, but in a more detailed way to estimate transfers and shock coverages. While I-V (1993) assume a 1% of GDP transfer to the beneficiary country, BR-DR (2000) calculates it by the country's weight in the system. While they also imply that a limit can be imposed to their system, they do not elaborate and leave it as a suggestion, thus the supplement of I-V's (1993) limited scheme to the system in this thesis.

99 The value 1.7, instead of the proposed 2 of I-V (1993), is chosen since it is the maximum value of du*emu* observed in the series (in March 2009).

For the case of Turkey, in which Turkey is considered to be an EMU member for the year 2008, the new EMU unemployment rate is re-calculated by using Turkey's unemployment figures and population, both taken from Eurostat, as well as Turkey's GDP to calculate it's weight in the system.

III.II.3. Results

In this section, the numeric examples built up on the model explained in the previous subsections are presented. The system is run for the year 2001, a relatively mild year, to act as a comparison, and 2008, when the global financial shock hit EMU severely. The shock coverage values of the scheme is given for only 2008, since in 2001, the coverage values for most of the countries couldn't be calculated, due to negative unemployment difference[100].

In year 2001 the total amount to be collected in the previous year amounts to €7810 millions. This yields to €650 million per month to be distributed. For the first four months none of the member states qualify the eligibility conditions set earlier, thus the amount is further distributed to the remaining months, increasing the monthly amount to be distributed to €975 millions. Table 9 shows the proportions (β) of distributions among the eligible member states.

Table 9. Proportions of Distribution, 2001

	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
βat	-	-	0,108829	0,196295	0,15034	0,093264	0,087352	0,109462
βbe	-	-	-	-	-	0,075263	0,112788	0,151432
βde	-	0,934279	0,891171	0,803705	0,820731	0,76371	0,715301	0,640255
βel	-	-	-	-	-	0,040902	0,030648	0,027432
βie	-	-	-	-	-	-	0,023722	0,035388
βpt	1	0,065721	-	-	0,028867	0,026861	0,03019	0,03603

Source: Own calculations

As mentioned earlier the benefits are greater when there are fewer countries eligible, for example in May, only Portugal is eligible to draw from the fund, therefore capturing 100% of the monthly quota, whereas in December, since every country benefits from

100For the shock coverage results for other selected years see: Appendix-I

the system, proportions are moderate. Table 10 shows the amounts to be received.

Table 10. Amounts to Received, 2001, € millions

	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AT	-	-	106,46	192,03	147,08	91,24	85,45	107,08
BE	-	-	-	-	-	73,63	110,33	148,14
DE	-	913,96	871,79	786,23	802,93	747,1	699,74	626,33
EL	-	-	-	-	-	40,01	29,98	26,84
IE	-	-	-	-	-	-	23,21	34,62
PT	978,25	64,29	-	-	28,24	26,28	29,53	35,25

Source: Own Calculations

Now the same exercises are employed for the year 2008. Total amount to be distributed is €10387 millions, with monthly amounts of €865 millions. For the year 2008, there is at least one eligible member state for every month. Table 11 shows the proportions of distributions among eligible member states, and table 12 gives the amounts received by the member states. As can be seen from the comparison of the two separate years, there are changes in who is eligible and the proportions of the member state.

Table 11. Proportions of Distribution, 2008

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
β_{be}	-	-	-	-	-	-	-	0,04	0,03	-	-	-
β_{es}	0,46	0,54	0,58	0,58	0,62	0,63	0,73	0,7	0,72	0,87	0,87	0,86
β_{ie}	0,03	0,02	0,05	0,03	0,05	0,07	0,09	0,1	0,1	0,12	0,13	0,13
β_{it}	0,51	0,44	0,37	0,39	0,32	0,29	0,17	0,15	0,14	-	-	-
β_{lu}	-	-	0	0	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01

Source: Own calculations

Table 12. Amounts to be Received, 2008, € millions

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
BE	-	-	-	-	-	-	-	33,54	24,05	-	-	-
ES	398,63	467,56	503,58	499,6	540,97	548,66	633,61	609,94	627,12	757,11	750,81	747,98
IE	22,47	19,16	40,54	28,16	42,21	59,71	80,35	84,93	90,62	105,31	111,78	114,32
IT	446,62	380,99	322,41	335,85	279,74	254,37	147,9	134	120,11	-	-	-
LU	-	-	1,18	4,11	4,79	4,98	5,86	5,31	5,82	5,3	5,12	5,42

Source: Own Calculations

In 2008, out of the eligible members of 2001, only Ireland and Belgium are in the list of eligible countries again. Belgium as in 2001 is receiving funds for limited months, while Ireland who had received for 2 months in 2001 is a net beneficiary for the whole period in 2008. The entry and exit of member states to the eligible list shows that the system is not a permanent redistribution scheme, but is responding to asymmetries in the selected segment (unemployment) of the common market. The entry and exit also provides the balanced contributions from members, their long term contributions may lead to zero.

However before continuing with the shock coverage results, for the year 2008, the mechanism can be upgraded by imposing a limit. As can be seen, in this particular year, Spain is receiving most of the funds in the second half of the year. A prominent cause of this occurrence is the slowdown of the Spanish economy and the bust of housing sector. If left free, the proposed scheme may be used to further indirect financing of crippled sectors. To lessen this problem the model is run by substituting equation (5) with equation (11).

Spain and Ireland are the two affected states of the limitation, Spain for the months following and including April ($dU_{ES}(dec)$ topping the charts by 5.8), and Ireland from July till the end of year[101] ($dU_{IE}(dec)$, topping the chart by 4)[102]. Table 13 and 14 shows the results of imposing such a limitation to the insurance model.

Table 13. Proportions of Distribution, 2008 (under limited scheme)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
β_{be}	-	-	-	-	-	-	-	0,06	0,05	-	-	-
β_{es}	0,46	0,54	0,58	0,54	0,52	0,5	0,59	0,56	0,56	0,8	0,8	0,8
β_{ie}	0,03	0,02	0,05	0,04	0,06	0,09	0,13	0,13	0,13	0,18	0,18	0,18
β_{it}	0,51	0,44	0,37	0,42	0,41	0,4	0,26	0,25	0,25	-	-	-
β_{lu}	-	-	0	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02

Source: Own Calculations

101 In 2008, Spain id December saw the highest unemployment rates in recent years, as did Ireland. Their dU values for December were 5.8 for Spain, and 4 for Ireland. In both countries, the rise in unemployment, and their respective dU values continued to increase in 2009.

102 For both cases, the high dU rates continue in 2009, with the maximum values of 7.2 and 5.4 for Spain and Ireland respectively in March

Table 14. Amounts to be received, 2008, € millions (under limited scheme)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
BE	-	-	-	-	-	-	-	53,25	43,03	-	-	-
ES	398,63	467,56	503,58	464,8	451,05	435,6	515,82	484,16	489,11	697,08	696	693,85
IE	22,47	19,16	40,54	30,82	53,83	80,87	116,28	109,15	110,26	157,15	156,9	156,42
IT	446,62	380,99	322,41	367,6	356,72	344,5	226,64	212,73	214,9	-	-	-
LU	-	-	1,18	4,5	6,11	6,74	8,98	8,43	10,41	13,49	14,81	17,45

Source: Own Calculations

As can be seen by comparing tables 12 and 14, the limitation does change the distribution. Spain in June, in the original scheme draws approximately €548 millions, while in the limited insurance this falls to approximately €435 millions, a change of more than €100 millions.

To calculate the shock coverage of the scheme, Okun's Law expressed in equation (9) is solved, using EA-12 data for 1984-2009 period, thus giving the result (with t-statistics in parenthesis):

$$dU(t) = 0.84 - 0.25g(t)^{103} \qquad (9)$$

(6.94) (-13.3)

This can be interpreted as the average growth trend in the Union was 3.3% (0.84/0.25), meaning that to sustain such unemployment figures the Euro zone must at least have a 3,3% growth rate. Any figure falling behind this will result in increased unemployment. With no real output growth then, it is expected that the unemployment rate would rise by 0.84 %. The shock coverage of the insurance scheme is calculated by using equation (10), with $\sigma = 0.25$ estimated by equation (9). The results of the shock coverage are presented in the table 15[104], showing that with the proposed model, approximately 8-17 % of the shock felt in year 2008 could be covered for the negatively affected MSs.[105]

103The equation also contains a negative trend.
104 Belgium is omitted due to negative unemployment growth in this particular year.
105For the shock coverage results for 2009 please see Appendix-II.

Table 15. Approximate Shock Coverage, 2008, % of shock

	Unlimited	Limited
ES	10	9
IE	16	19
IT	7	8
LU	9	13

Source: Own Calculations

III.II.3.i. The Case of Turkey

The benefits to be received for an enlarged EMU, now containing Turkey, for the year 2008 are recalculated. Since in 2007, Turkey doesn't have excessive deficits or debts, the financing of the scheme is the same as the previous example. In this year Turkey is eligible to benefit from the scheme. Table 16 and 17 gives the proportions of countries and the amounts to be received respectively.

Table 16. Proportions of Distribution, 2008 (enlarged EMU-under unlimited scheme)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
β_{be}	-	-	-	-	-	-	-	0,04	-	-	-	-
β_{es}	0,4	0,48	0,53	0,57	0,62	0,63	0,68	0,66	0,8	0,74	0,75	0,76
β_{ie}	0,02	0,02	0,04	0,03	0,05	0,07	0,09	0,09	0,12	0,1	0,11	0,12
β_{it}	0,45	0,39	0,34	0,38	0,32	0,29	0,16	0,14	-	-	-	-
β_{lu}	-	-	0	0	0,01	0,01	0,01	0,01	0,01	0,01	-	-
β_{tr}	0,12	0,11	0,09	0,01	-	-	0,07	0,07	0,07	0,16	0,14	0,13

Source: Own Calculations
Note: Countries are abbreviated as:TR: Turkey

Table 17. Amounts to be received, 2008, € millions (enlarged EMU-under unlimited scheme)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
BE	.	.	.	.	.	.	.	31,18	.	.	.	.
ES	347,72	415,45	455,02	490,74	538,95	546,61	584,99	567,04	695,68	637,17	647,22	654,59
IE	19,6	17,03	36,63	27,66	42,06	59,49	74,18	78,95	100,53	88,63	96,35	100,05
IT	389,58	338,52	291,31	329,9	278,7	253,42	136,55	124,57	.	.	.	.
LU	.	.	1,07	4,03	4,77	4,96	5,41	4,94	6,45	4,46	.	.
TR	107,58	93,48	80,45	12,15	.	.	63,35	57,79	61,81	134,22	120,91	109,85

Source: Own Calculations

As can be seen, the entrance of Turkey to the insurance scheme changes the situations, both the distributions and the eligibility of the members. After incorporating Turkey to the system, both Belgium and Italy lose the funds for September and Luxembourg for November and December. The change in distributions and eligibilities are again observed, when a limit is employed to the insurance system, as was done in the earlier section. Again the limit, ϕ, is set to 1.7. Table 18 and 19 give the proportions of countries and the amounts to be received, under the limited scheme, respectively.

Table 18. Proportions of Distribution, 2008 (enlarged EMU-under limited scheme)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
β_{be}	.	.	.	.	.	.	.	0,06	.	.	.	.
β_{es}	0,4	0,48	0,53	0,53	0,52	0,5	0,53	0,5	0,69	0,57	0,58	0,58
β_{ie}	0,02	0,02	0,04	0,03	0,06	0,09	0,12	0,11	0,16	0,13	0,13	0,13
β_{it}	0,45	0,39	0,34	0,42	0,41	0,4	0,23	0,22	.	.	.	.
β_{lu}	.	.	0	0,01	0,01	0,01	0,01	0,01	0,01	0,01	.	.
β_{tr}	0,12	0,11	0,09	0,02	.	.	0,11	0,1	0,14	0,28	0,29	0,29

Source: Own Calculations

Table 19. Amounts Distributed, 2008, € millions (enlarged EMU-under limited scheme)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
BE	.	.	.	.	.	.	.	47,63	.	.	.	.
ES	347,72	415,45	455,02	455,96	449,37	433,98	458,35	433,1	595,96	496,88	502,47	502,47
IE	19,6	17,03	36,63	30,23	53,63	80,57	103,33	97,64	134,35	112,01	113,27	113,27
IT	389,58	338,52	291,31	360,6	355,39	343,22	201,39	190,29	.	.	.	.
LU	.	.	1,07	4,41	6,09	6,72	7,98	7,54	12,68	9,61	.	.
TR	107,58	93,48	80,45	13,28	.	.	93,43	88,28	121,48	245,98	248,74	248,74

Source: Own Calculations

The results underline the importance of weight, and unemployment rate difference, in determining the benefits to be distributed. Even though Turkey more than doubles Ireland in the weight multiplier, Ireland closes the gap by the high unemployment rate difference, and thus nearly equals the amounts to be distributed. Under the limited insurance scheme, the effect of an additional eligible member was observed more clearly. While there wasn't such a radical change in the original EMU case – Spain lost approximately 0.06 of her designated benefits – for the enlarged EMU the extra member under limited scheme resulted in significant differences: Turkey more than doubles her benefits for December, and Spain losing approximately 0.23 of her designated benefits. The coverage of the shock in an enlarged EMU is given in Table 20 reflecting the changes seen in the new distribution.

Table 20. Approximate Shock Coverage, 2008 ,% of shock (enlarged EMU)

	Unlimited	Limited
ES	10	9
IE	15	19
IT	5	6
LU	6	9
TR	5	8

Source: Own Calculations

III.II.4. Discussion of the Results

In this section of the thesis, an insurance mechanism was run to see the possible effect of a Union-wide insurance scheme, which yielded in moderate shock coverage values. The shock coverage estimated in the proposed model resulted in coverages amounting to 8-19% of the shock for individual countries, and 6-19% of the shock in an enlarged EMU which Turkey is a member. These estimations are in range of former studies mentioned.[106]

Now, returning to the Hammond and von Hagen's (1998) earlier mentioned criteria of a good insurance scheme - simplicity, automaticity, temporary nature, moral hazard avoidance, budget neutrality, wide coverage and non-regressive system- the proposed system is assessed:

It can then easily be argued that the proposed system is acceptable, since it is simple enough for the public to understand and it triggers automatically. The scheme doesn't result in permanent payments, as the change in eligible countries have shown[107], reduces moral hazard, and thus bail-out problem[108], by limitations to the borrowing (the limited insurance scheme). By covering the shock up to 19% of the shock in some countries, it can be argued that the scheme has relatively wide coverage. The system's financing costs around 10% EMU budget, thus it is lower than McDougall Reports (1977) and I-V 's (1993) requirements.

The system is balanced in the Community level, with the limit imposed in equation (7) resulting in the total use of the fund. By using the Community average unemployment rates, only the countries that were affected worse than the Community average can benefit from the shock, thus insuring that only negatively effected countries would have

106 The insurance provided by the federal fiscal transfer systems range between 10-40% of the shock.See Kletzer and von Hagen (2000) for a survey.

107 i.e in the period of 2001-2009, Germany was eligible for 2001-5 but not for 2006-9, just as the Netherlands. Eligibility of Germany to benefit from the system can also be counted as another positive attribute of the system, since this may result in increased acceptability of the system by Germany.

108 With the moral hazard lowered the countries would have less incentive to apply soft-budget rules, therefore the scheme would lower bail-out problems. Also the scheme is of moderate size, so that the MSs would not see the mechanism as a bail-out option, but just as a relief for troubled times.

benefits from the system.

A fall in GDP and therefore GDP per capita, unfortunately may result in a drop of benefits,. As Hammond and von Hagen (1998, p.335) argued, not all the criteria are mutually compatible. However as the system has shown, the severity of the shock mattered more than GDP weight of the countries. If the shocks severity for a country increases, the fall in GDP and its negative effect on the distribution of the funds may be offset.

Before closing this section, it should be born in mind that the scheme proposed here could be used for other purposes than providing just UI. The limited insurance program may give a clue. If a limit is imposed, for example, after continuous drawing from the fund for 6 consecutive months[109], the funds that the eligible member ought to receive for the reminder of her eligibility period should be transferred for Lisbon Strategy objectives, such as life-long education and continuous vocational training (CVT).

A back on the envelope calculation suggests that for Spain and Ireland, the CVT cost was around approximately €819.5 million and €259 million respectively, using 2004 and 2005 data from Eurostat. Such a transfer from a 6 month limitation in 2008 then would pump approximately €3575million and €805 millions for CVT to Spain and Ireland, respectively. As mentioned before, these are just approximations to show that the fund system can be used for other purposes and contribute to shock recovery. Table 21 gives participation figures in lifelong learning. The difference of people attaining a formal educational programme, according to their working status paints a clear picture.

109Another kind of limitation for redirecting the funds, i.e. after the country exceeds a limit of a predetermined amount, can be employed. The excess funds after the limit is imposed can be redirected to other facilities and/or countries. BR-DR (2000) proposes a limit similar to this, arguing that the MSs should receive a percentage of their benefits after benefiting from the fund for a determined period, with the percentage falling to zero eventually.
Since both methods are arbitrary, the example of a month limitation scheme is chosen, even though an empirically sound ratio type limitation would be more suitable, since even if the country received a miniscule amount in 6 months, it will lose eligibility for UI funds, whereas like in 2001 example of Portugal can use the whole (or a bigger share) amount distributed in one month, and continue to do so for 6 months.
Also in the example of year 2001, it was seen that for some months there were no eligible member to benefit from the scheme. This money can also be used for purposes other than increasing monthly payments for the other months.

An additional influx of money from such a transfer system may be used to provide training to the unemployed, so that they may qualify for more jobs. By this extra training they may be able to find more satisfying jobs - rather than accepting part-time low payment jobs that is a rising trend in the European labour markets – which can result in more job duration. (Tatsiramos, 2006)

Table 21. Participation in formal education, by working status (1000s people)

	Employment	Unemployment
BE	145	20
ES	69	5
IE	587	119
IT	622	108
LU	-	-

Source: Eurostat

Another policy consideration for this scheme is that it may not need to be a permanent fixture at the EMU political/economical arena. As OCA theory argues, EMU needs increased flexibility and/or integration. If such situations occur, then the expected gains from the UI mechanism are likely to decline as Fatas (1998) argues. Thus the scheme can be either integrated to another scheme i.e. Social Cohesion Funds, etc., or can be scraped off the book totally, if the other options, i.e. increased risk sharing due to integrated financial markets, etc., are found acceptable by the public to provide effective insurance.

CONCLUSION

EU, thus EMU is founded upon liberal economic views that increased trade will result in gains for all, and that greater integration would follow the increased trade. However, the recent financial crisis showed that the achieved range of integration in EMU is not able to overcome severe shocks. With its unique design of centralised monetary policy with independent fiscal policies of MSs, EMU is trying to survive it's first major test since its foundation. The negative spill-overs created by further integration, especially after the Greek sovereign debt crisis, are increasing the risk of breaking the pact of solidarity among MSs.

Commission's argument that MSs will have enough fiscal tools to offset asymmetric shock has lost its spark; after continuous years of breaches, SGP is put to shelf for the time being. ECB, once claimed as the most independent central bank is buying government bonds from the secondary markets, weeks after it announced it will not buy any government debt instrument to bail-out the MSs. The MSs have established the EFSF to help the strained member states for the next three years. These among many other developments clearly show that EMU is under serious strain.

The main purpose of the thesis was to assess how effective a fiscal federal scheme can be in asymmetric shock absorption in EMU, and to this end four study questions were constructed: (i) “Does EMU face asymmetric shocks and does it constitute an OCA?”; (ii) “How did the recent financial crisis affect EMU?”; (iii) “What are the fiscal federalist proposals for the EMU; and if there were proposals in the past, why weren't they applied?”; (iv) “Can a fiscal federalist scheme be used in asymmetric shock absorption in EMU; and if it can, to what extend?”

The first chapter gave the answer to two first two questions of the thesis: When investigated, EMU doesn't constitute an OCA. Flexibility and integration – the tools envisaged by the OCA criteria to offset asymmetric shocks – are lacking in the EMU. While greater integration in financial markets were observed – though far from perfect

integration as the supervision problems showed – this improvement wasn't reflected in other aspects of economic integration. Labour market rigidities still exist, creating barriers to labour mobility; the wages are rigid, thus slowing the adjustment to the shocks. The fiscal rules put to place were not adhered to. The recent financial crisis proved that EMU faces economic asymmetric shocks, which can be coupled with political asymmetric shocks, i.e. Ireland's unilateral guarantee scheme for bank deposits.

The financial crisis, though symmetric in origin, acted in different severity in MSs, thus played the role of an asymmetric shock. It is clear that all MSs were affected negatively: slow or negative growth, coupled with increasing unemployment. However the MSs who had relatively better fiscal positions were able to offset the shock with relative ease, whereas the countries in bad fiscal shape were forced to call for outside help. If the Commission's argument that the EMU would resemble an OCA after its formation was realised, it was not up to the standards to overcome such a crisis. The unique set up of EMU with independent fiscal policies further aggravated the situation by uncoordinated rescue measures.

After establishing that EMU faces asymmetric shocks and doesn't constitute an OCA to offset these shocks, the second chapter reviewed the fiscal federalism literature to see the possible benefits from a more fiscal federalist EMU. The unique set up of the EMU with independent fiscal policies is in contrast with the fiscal federalism literature, which argues that macro policies should be assigned to central/federal level, which relates to a supranational fiscal authority in EMU. While it is doubtful if such an ambitious assignment of fiscal policies will happen in the near future, the idea has merit, if applied to some of the fiscal policies.

The chapter reviewed some of the proposals made in the past – some of which are being reviewed as fiscal rescue tools – arguing that a more federal approach could have helped EMU to offset asymmetric shocks. These proposals, however, were not applied due to mostly political reasons, i.e. aversion of MSs to delagate more power to EU/EMU. The success of the monetarist theory further reduced the desire to have a centralized fiscal policy in EMU. However as the financial crisis has shown, Keynesian thought is yet to

become obsolete, and thus fiscal federalism can be of use to EMU.

Along this mindset, in the third chapter a federal scheme was proposed to see the potential benefit from such a fiscal federal scheme in offsetting asymmetric shocks. A mathematical model was set up to provide EMU-wide UI. The model was set to operate with an automatic trigger – unemployment rates – in which the MSs have to exceed the EMU unemployment levels to benefit from the system. The pooled resources from excessive deficits and debts collected from MSs were distributed to the negatively affected countries.

To serve as a basis of for comparison the years 2001 and 2008 were presented. While in 2001 the shock coverage values couldn't be calculated due to negative unemployment growth in MSs who were eligible to benefit from the system, some findings are important to assess the model. While in 2001, Austria, Belgium, Germany, Greece, Ireland and Portugal were eligible to benefit from the scheme, only Ireland and Belgium from this group were eligible in 2008, suggesting that the system doesn't provide permanent transfers. The eligibility of Germany in 2001 can also be interpreted as an attractive aspect of the system, since this shows Germans can be beneficiaries of the system too, thus increasing the possibility of acceptance of the scheme by a major MS.

In 2008, a relatively more turbulent year due to the financial crisis, the shock coverage of the limited scheme for eligible individual countries amounted to 8-19% of the shock, with Italy and Ireland having the lowest and highest coverage, respectively. These results are in range of the previous studies, suggesting that the creation of EMU hasn't reduced the ability of the federal schemes to provide insurance, which is parallel to the earlier finding that EMU is mostly at a status quo for most of the OCA criteria.

In 2008, the model was also run for a special case when Turkey was in EMU. The results suggest that in this scenario Turkey would have been eligible to benefit from the system, the scheme providing 8% coverage for the shock for the limited model. In this enlarged EMU, the shock coverage for the individual MSs ranged between 6-19%, with Ireland having the highest coverage, while Italy has the lowest coverage.

The system, when tested against the criteria set for a successful fiscal insurance mechanism (Hammond and von Hagen, 1998), satisfies most of the criteria: (i)the system is simple for the public to understand with a set up of non-complex formulas, and (ii) it operates automatically. In different years, the beneficiaries of the scheme changes, thus (iii) the system doesn't necessarily result in permanent transfers – while Germany was able to benefit from the system in 2001, it wasn't eligible in 2008. The system has (iv) low moral hazard, since the system has built in limits and the benefits are at moderate level. The mechanism is (v) budget neutral: it is balanced at the Community level, only negatively affected countries benefit from the system. The shock coverage values are in range of former estimations and has relatively low financial burden, thus it can be argued that the scheme has (vi) wide coverage. However, as mentioned before the criteria are not mutually compatible: since the weight of the countries are calculated by GDP in the model, the system may not be (vii)non-regressive: with slow or negative growth, ceteris paribus, the weight of the country might be lower. However this situation will also depend on the size of the shock as well as how asymmetric it is.

As mentioned before, the political side of the issues are not covered in this study, however it is impossible not to touch them, though not strictly in an academic matter. One main argument against the centralisation of the fiscal policies was voiced as a concern for sovereignty. It was argued that the fiscal policy was the only tool the MSs have after EMU, thus a symbol of sovereignty, which shouldn't be left to the EU/EMU. Leaving aside to what extent the policies are independent in EMU, the set-up of the proposal is open to improvements, and as argued before, can be used as a supplement to the MSs already existing mechanisms, rather than being a substitute to them, thus lowering the concerns of sovereignty of MSs.

Another arguments against such a fiscal scheme arises from the monetarist theory, suggesting that fiscal policies are not fit for long term stabilisation of the economy. While it is widely accepted that fiscal policy is not as successful as it was theorized in Keynesian thought, the financial crisis has shown that it can at least buy time till the

necessary reforms are well on their way.

Following Commission's opinion that EMU would result in more flexibility and integration, it can be argued that the scheme proposed can be of little use in the long run. If the financial integration in EMU is taken as an example, it is probable that this view would be realised. However, as examined, the other OCA criteria are still lacking in EMU, thus providing a window of opportunity for the scheme. The scheme can be set to operate until such a time that EMU resembles an OCA more than it does now or the public is satisfied with the insurance provided by the market.

The choice of UI as the core of the scheme can be criticised by arguing that it will result in moral hazard, so that the unemployed would not look for jobs as long as they are covered by the scheme. While there is evidence that confirms this notion in the literature, another approach argues that by providing the means to search for a job that suits the unemployed person's preferences, UI results in higher job satisfaction and duration. Thus it is not easy to come to a concrete conclusion on this issue. However the problem of moral hazard can be further reduced at state level: though not discussed explicitly for the scheme, some of the punishment proposals mentioned in the thesis can be of use; the scheme can be buttressed by imposing fines if there is a breach of solidarity among members, the MSs can be cut off from the benefits for a certain period, or lose voting rights in Ecofin if the breach continues without any improvements in MSs' behaviour. To not face such punishment the governments would have the incentive to supply correct data and to not influence in the system that may result in a breach of solidarity.

The results of this thesis suggest that EMU has yet to become an OCA, and in case of an asymmetric shock, a federal insurance mechanism can provide moderate shock coverage for the negatively affected countries. While there is little doubt that with increasing integration, the insurance provided by the market forces would increase too, but until such a time – or till the public is satisfied with the insurance levels provided by the market – a federal insurance can help EMU to absorb asymmetric shocks.

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APPENDIX -I

Shock Coverage Results of the Model for Various Years

As stated the coverage values for 2001 couldn't be calculated for the whole set of the countries due to 0 or (-) yearly unemployment growth. To see if the shock coverage values for 2008 is significant for , the test is run for several years. The results of the years of which most of the shock coverage values can be calculated - 2002, 2003,2004 and 2005 - are given in the following tables[110]. In none of the years presented the limit set for the scheme, ϕ, was operated due to moderate unemployment increases in MSs.

Table A1. Approximate Shock Coverage, 2002 (% of the shock)

AT	7
BE	9
DE	6
ES	8
LU	6
NL	5
PT	8

Source: Own calculations

Table A2. Approximate Shock Coverage, 2003 (% of the shock)

AT	7
BE	5
DE	7
IE	9
LU	8
NL	8
PT	8

Source: Own calculations

110In 2002 Greece, and in 2005 France and Luxembourg are the countries which also benefited from the mechanism, but due to (-) yearly unemployment growth, their coverage values couldn't be calculated.

Table A3. Approximate Shock Coverage, 2004 (% of the shock)

AT	10
BE	12
DE	7
FR	7
GR	10
LU	9
NL	10
PT	13

Source: Own calculations

Table A4. Approximate Shock Coverage, 2005 (% of the shock)

AT	13
DE	9
NL	18
PT	16

Source: Own calculations

As can be seen, aside from the lower values in 2002, the coverage values for the system is not so different to the 2008 values presented in the main text, thus suggesting the values for 2008 are significant for the whole period. Also the change of countries eligible for the fund in various years signalls that the fund doesn't necessarily lead to permanent transfers.

APPENDIX – II

Results of the Model for 2009

Year 2009 was the actual period in which EMU felt the toll of the financial crisis. The proposed UI scheme , while providing moderate insurance under normal circumstances, is may not able to absorb the effects of the financial crisis to the same effect. To see the possible insurance coverage of the scheme, the model is run for the year 2009.The proportion of distribution and the amounts to be received are given in tables A5 and A6 respectively.

Table A5. Proportions of Distribution, 2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
βcy	-	-	-	-	-	-	-	0,01	0,01	0,01	0,01	0,01
βes	0,87	0,86	0,86	0,84	0,83	0,84	0,73	0,69	0,71	0,64	0,61	0,58
βel	-	-	-	-	-	-	0,06	0,06	0,06	0,07	0,07	0,08
βfi	-	-	-	-	-	-	-	0,05	0	0,05	0,06	0,06
βie	0,13	0,14	0,14	0,16	0,17	0,16	0,14	0,13	0,14	0,13	0,14	0,14
βpt	-	-	-	-	-	-	0,05	0,05	0,06	0,06	0,06	0,07
βsi	-	-	-	-	-	-	-	-	-	0,01	0,01	0,01
βsk	-	-	-	-	-	-	0,02	0,02	0,03	0,03	0,04	0,04

Source: Own calculations

Table A6.Amounts to be Received, 2009, € millions

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CY	-	-	-	-	-	-	-	6,28	7,7	7,89	8,73	8,74
ES	897,32	890,4	887,31	873,12	863,23	866,37	756,81	710,76	733,42	660,19	629,93	601,86
EL	-	-	-	-	-	-	64,13	61,1	65,92	67,52	74,73	85,01
FI	-	-	-	-	-	-	-	53,26	-	56,18	62,18	63,99
IE	136,84	143,76	146,86	161,05	170,94	167,8	141,36	130,04	140,29	136	142,01	145,37
PT	-	-	-	-	-	-	53,36	50,84	57,34	61,29	65,01	70,73
SI	-	-	-	-	-	-	-	-	-	11,53	12,19	14,52
SK	-	-	-	-	-	-	18,49	21,87	29,5	33,57	39,39	43,95

Source: own calculations

As can be seen, when compared with 2008, the number of MSs who are eligible has increased. This as mentioned before would result in a fall of coverage, since the shock became less asymmetric. The maximum dU_{emu} equals to 2.2 in September 2009, which is the new limit used to calculate the limited model for 2009, thus ϕ=2.2. The

proportions of distribution and amounts to be received under the limited scheme are given in tables A7 and A8 respectively. As were in 2008, the limit results in changes in proportions and thus amounts to be received.

Table A7. Proportions of Distribution, 2009 (under limited insurance scheme)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
βcy	-	-	-	-	-	-	-	0,01	0,02	0,01	0,01	0,01
βes	0,82	0,82	0,82	0,82	0,82	0,82	0,57	0,49	0,56	0,48	0,48	0,49
βel	-	-	-	-	-	-	0,15	0,13	0,14	0,12	0,13	0,13
βfi	-	-	-	-	-	-	-	0,12	0	0,11	0,11	0,1
βie	0,18	0,18	0,18	0,18	0,18	0,18	0,13	0,11	0,13	0,11	0,11	0,11
βpt	-	-	-	-	-	-	0,13	0,11	0,13	0,11	0,11	0,11
βsi	-	-	-	-	-	-	-	-	-	0,02	0,02	0,02
βsk	-	-	-	-	-	-	0,03	0,03	0,03	0,03	0,03	0,03

Source: Own calculations

Table A8.Amounts to be Received, 2009, € millions (under limited scheme)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CY	-	-	-	-	-	-	-	14,12	15,97	13,88	13,89	14,03
ES	843,92	843,92	843,92	843,92	843,92	843,92	585,37	509,58	576,33	500,85	501,36	506,09
EL	-	-	-	-	-	-	150,97	131,43	148,64	129,18	129,31	130,53
FI	-	-	-	-	-	-	-	119,77	-	112,37	112,48	102,73
IE	190,25	190,25	190,25	190,25	190,25	190,25	131,96	114,88	129,93	112,91	113,02	114,09
PT	-	-	-	-	-	-	131,33	114,33	129,3	112,37	112,48	113,54
SI	-	-	-	-	-	-	-	-	-	23,07	22,04	23,31
SK	-	-	-	-	-	-	34,53	30,06	33,99	29,54	29,57	29,85

Source: Own calculations

The results of the scheme is given in table A9. When compared with the 2008 values, the coverage in 2009 is low. This has two main reasons: the rise in beneficiaries of the system and exponential increase in unemployment rates.

Table A9. Approximate Shock Coverage, 2009 (% of shock)

	Unlimited	Limited
CY	3,5	6,0
ES	3,5	3,0
EL	2,5	5,0
FI	2,0	3,5
IE	4,5	4,5
PT	3,0	4,5
SI	2,0	3,0
SK	3,0	3,0

Source: Own calculations

These low coverage values – 3 - 6% of the shock – suggest that the proposed scheme is not fit to provide significant insurance when faced with extraordinary shocks caused by the recent financial crisis. However the results show that the MSs like Greece and Portugal became eligible in 2009, thus showing that the negatively affected countries would be covered by the mechanism.

The financial crisis is an exceptional situation, mostly compared to the Great Depression. The rescue packages therefore, were exceptional in their content. This signals the necessity of some adjustments in the proposed scheme. In this section the schemes funding is increased via different methods to provide better insurance, and the coverage values are recalculated.

The scheme, as mentioned before, aims to provide insurance with minimal financing. However as the financial crisis has shown, the usual approaches fell short to give the desired stabilisation, thus the creation of measures like EFSF. Parallel to this increase in funds available to the MSs, the financing of the scheme can be increased too; a percentage of EFSF can be used to finance the scheme for the year 2009. Approximately, EFSF would amount to € 750 billions. Using 1% of this fund would provide the scheme with additional € 7.5 billions, thus the fund available to the scheme would approximately be € 20 billions for 2009. Using this additional funding with the original scheme, the coverage values are given in the table A10.

Table A10. Approximate Shock Coverage, EFSF funding, 2009 (% of shock)

	Unlimited	Limited
CY	5,6	9,5
ES	5,6	4,8
EL	4,0	8,0
FI	3,2	5,6
IE	7,2	7,2
PT	4,8	7,2
SI	3,2	4,8
SK	4,8	4,8

Source: Own calculations

With the additional EFSF funding the coverage values are slightly better than the case when the original scheme was used, 5-9,5%. These results, while better than the original scheme, are still lower than 2008 values.

To raise additional funding, following BR-DR's (2000) argument, a percentage contribution of value added tax (VAT) revenues of member states can be used. For 2009, the additional funding would amount to €6205 millions. Since this value is lower than the EFSF contributions, the resulting coverages would be lower too, as shown in table A11.

Table A11. Approximate Shock Coverage, VAT funding, 2009 (% of shock)

	Unlimited	Limited
CY	5,3	9,0
ES	5,3	4,5
EL	3,8	7,5
FI	3,0	5,3
IE	6,8	6,8
PT	4,5	6,8
SI	3,0	4,5
SK	4,5	4,5

Source: Own calculations

The financial crisis necessitated extraordinary rescue measures, and thus in this section such measures were applied to supplement the insurance mechanism proposed earlier. The original scheme resulted in low coverage for the financial crisis, due to extreme increase in unemployment in MSs, coupled with the increase of beneficiaries of the system[111]. However, in the crisis period, extra funds were made available for the MSs in

111As mentioned before, the more asymmetric the shock is, the more successful the coverage of the

distress by various schemes. Following this trend, the scheme was supplemented with additional funding.

Two methods were used to increase funding of the scheme: use of 1% of the EFSF resources; use of 1% VAT revenues of the MSs. Using such increased financing helped the scheme to catch up to its shock coverage values in 2008, though still lower at 5-9,5% range. It should be stressed before closing this section that the additional funding options examined should be applied only at extreme crisis times, like the recent financial crisis. Allowing this increased funding to stay at this high levels would cause long term undesirable effects. While the original scheme has low moral hazard due to moderate shock coverage, with such additional funding the shock coverage values would nearly triple, and may replace the market adjustment mechanisms, thus preparing the background for a future crisis. It was argued for the original scheme to help the stabilisation of the economies until EMU resembles an OCA and the public is satisfied with the insurance provided by the mechanism, as such the additional funding should be made available just for extreme situations.

scheme will be.