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THE DEVELOPMENT OF PUBLIC FINANCES AND ROLE OF FISCAL CONSTRAINTS IN A MONETARY UNION

Example eurozone

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Table of contents

List of figures

List of tables

1 INTRODUCTION

One of the most discussed subjects in the economic circles during the last few years has been the fiscal performance of the eurozone. In 1999, eleven members of the European Union joined in a common monetary union, which aimed to introduce a new currency in the near future. Greece joined the group as the 12th member in 2001, thus creating the original twelve users of euro as their currency. Seven more members have since joined the monetary union. The signatories have thereby transferred their monetary control to the European Central Bank, based in Frankfurt am Main in Germany. Although maintaining the national central banks as supervising offices in respective member countries, the ECB effectively functions as the sole monetary authority for the 19 eurozone member countries. The fiscal side of the national budgetary measures, however, remains in the hands of the national governments. One of the most recent discussions concerns the need for a common fiscal union as well, although this option, if implemented, is still in the early stages of consideration.

We have also read about worsening debt and deficit ratios in the media, while the effects of the prolonged financial crisis still prevail, and the European Central Bank maintains its stimulation trend. Financial collapse, originating in the subprime lending procedures among financial institutions, started in 2008 and led to numerous shutdowns and takeovers. Many sovereign nations were obliged or chose to take control and aid these troubled institutions. Partly due to these measures, the national debt and deficit levels deteriorated significantly, with many eurozone countries as famous examples. As the role of the ECB is quite exceptional in the world, and without an equivalent entity, the concept of common monetary policy is facing a severe test. After all, for a currency union of this scale, a helpful precedent case is hardly available. A fruitful ground for widespread research and writing, the crisis is proving to be a lesson that provides important experience in light of all future monetary cooperation.

The financial crisis provides a significant turn of events in this thesis, but is only one side of the coin. The crisis has put some enormous stress on national budgets, yet the national policy makers and treasuries are obliged to follow the common fiscal rules of the monetary union. As stated before, the management of the fiscal architecture has been the task of respective union members. The restrictions are mostly based on the Maastricht Treaty, effective since November 1993. The Treaty was later supplemented by the Treaties of Amsterdam in 1999, Nice in 2003 and Lisbon in 2009, as well as the Stability and Growth Pact (SGP) in 1998. All dates refer to years of the Treaties becoming effective. The Treaty of Maastricht provides several so-called convergence criteria, which aim to guide national fiscal policies. Of these criteria, this thesis include the restrictions on national debt and deficit, which we get to know better in the next chapter.

Other criteria that the Treaty defines are commitments to Harmonized Indices of Consumer Prices (HICP), cooperation in the exchange rate mechanism (ERM and ERM II) and interest rates on government bonds.

Derived from these first words, we aim to answer the following question in the thesis: How have the national debt and deficit levels developed before and after the monetary union membership, and have the fiscal restrictions been followed? Moreover, we complement this with an additional question: Has the development and handling of public debt and deficit in the eurozone given indication that the fiscal restrictions should be stressed even further? In addition to debt and deficit paths, we supplement this question by providing factors and answers behind the direction of the debt and deficit paths. The research question, as well as this work, is divided in three parts. The first one, in form of chapter two, comprises the theoretical frame of reference behind the Economic and Monetary Union. After a short introducing part, we take a closer look at the Maastricht Treaty and its message, as well as the Stability and Growth Pact that was designed to create better and more distinct fiscal complement for the member nations. The part of guiding Treaties is concluded by the Fiscal Compact, the most recent larger agreement from 2013. In the first actual chapter we also view some theories that aim to provide rationale for the fiscal restrictions. We consider these theories to the extent they suit the subject of the thesis. Although having its intentional origins within the Delors Commission in the 1980s, we consider it useful to view the euro area as a general theoretical currency area as well.

The second part of the thesis consists of empirical observations based on data accumulated from the Eurostat database. We have gathered observations regarding debt and deficit values for each Eurozone country, which we observe through important dates and events in the timeline of European monetary cooperation. The observations mainly focus on the period of membership in the eurozone, but some years prior to the entry have also been included as a means of comparison. For the twelve members, the period of observation starts from 1993 when the Treaty of Maastricht became effective, signaling increased attention to the details of the Treaty. For the seven newer members the observations start from a later date, but also include some years before the entries. After all, it is these values from earlier periods which draw attention in terms of eligibility to participate. Furthermore, we also consider some European Union members which have the potential to become eurozone members in the near future. No official entry dates have been set, but some EU members have expressed interest in joining the EMU around the year 2020, as also described in the ERM.

The thesis is summed up by chapter four, which aims to interpret the results and draw an opinion on the usefulness of the fiscal constraints. The purpose of this work is to also provide better insight for the reader regarding European fiscal and monetary framework. We aim to clarify the rules and procedures behind the Eurosystem, and the

mechanisms that require the currency area to function the way it does. After reading this thesis, the reader hopefully understands better the attention given to the debt and deficit discussion, not only in the media, but also on the level of national politics and decision making.

2 OVERVIEW OF THE ECONOMIC AND MONETARY UNION

The Economic and Monetary Union of the European Union is the supranational expression of the unified European monetary area. Whereas the monetary guidance and authority has been placed upon the European Central Bank (ECB), the fiscal policy making rests on the shoulders of the individual national governments. This division forms the main theme and point of attention of the thesis, since conducting independent fiscal policy provides certain different opportunities, depending on how the monetary authority conducts its tasks. This chapter, namely chapter 2, forms the theory part of the thesis as we get to know the fiscal features of the Economic and Monetary Union. The fiscal and monetary tasks were divided when the common currency area began to form, with the currency area authorities aiming to provide codes of conduct for the fiscal side as well. These guidelines come in the form of different Treaties and agreements, which we shall look over in the first subchapter. We take a look at the Maastricht Treaty, the Stability and Growth Pact, as well as the most recent addition, the Fiscal Compact, which entered into force in 2013. The Fiscal Compact is the fiscal part of the new Treaty on Stability, Coordination and Convergence (TSCG). The second part of the first chapter consists of two models that we hope will clarify the role of fiscal restrictions in the eurozone.

The eurozone itself consists of 19 members, out of 28 that currently participate in the European Union. At the time of the ratification of the Maastricht Treaty in 1992, the union consisted of the following twelve members:

Table 1: Original signatories of the Maastricht Treaty in 1992. Source: Author's own work based on European Union, About the EU (2016).

Member	Joined	Currency	Euro	Member	Joined	Currency	Euro
Belgium	Founder	Belgian franc	yes	Italy	Founder	Italian lira	yes
Denmark	1973	Danish krona	no	Luxembourg	Founder	Luxembourgish franc	yes
France	Founder	French franc	yes	Netherlands	Founder	Dutch guilder	yes
Germany	Founder	German mark	yes	Portugal	1986	Portuguese escudo	yes
Greece	1981	Greek drachma	yes	Spain	1986	Spanish peseta	yes
Ireland	1973	Irish pound	yes	United Kingdom	1973	Pound sterling	no

Table 2: Countries that have joined the European Union after the ratification of the Maastricht Treaty. Source: Author's own work based on European Union, About the EU (2016)

Member	Joined	Currency	Euro	Member	Joined	Currency	Euro
Austria	1995	Austrian schilling	yes	Latvia	2004	Latvian lats	yes
Bulgaria	2007	Bulgarian lev	no	Lithuania	2004	Lithuanian litas	yes
Croatia	2013	Croatian kuna	no	Malta	2004	Maltese lira	yes
Cyprus	2004	Cypriot pound	yes	Poland	2004	Polish zloty	no
Czech Republic	2004	Czech koruna	no	Romania	2007	Romanian leu	no
Estonia	2004	Estonian kroon	yes	Slovakia	2004	Slovak koruna	yes
Finland	1995	Finnish markka	yes	Slovenia	2004	Slovenian tolar	yes
Hungary	2004	Hungarian forint	no	Sweden	1995	Swedish krona	no

The union has since been complemented by additional sixteen members, illustrated in the table 2 above. The 19 EMU members are the main focus of the thesis, with the behavior of their debt and deficit levels in the center of the study. In the end, we intend for the passage of these variables to provide us an opinion on the need of fiscal restrictions, viewed before and after the respective entries of the member states.

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2.1 FISCAL TREATIES OF THE MONETARY COMMUNITY

Fiscal policy is a governmental act to guide the national economy using different options. This usually comes in the form of taxation and government spending, with which the political decision maker intends to influence the economy, often with the purpose of stabilizing economic activity in case of a business cycle.

As noted in the introduction, the national governments remain in charge of fiscal policymaking, with a periodically elected body of politicians usually in charge of decisions. Being a vast and powerful tool that carries far-reaching effects, it is clear that some form of coordinated rules for fiscal policy are needed. In the following, we view the most important ones in the EMU, namely the Maastricht Treaty, the Stability and Growth Pact, and the Fiscal Compact, in order to better perceive the fiscal restrictions that concern the common European monetary stage.

2.1.1 The Maastricht Treaty

Named after the Limburg capital, the Maastricht Treaty is the pre-eminent contract that guides fiscal policy-making in the eurozone. The Treaty was signed by the then twelve member states of the European community on February 7th, 1992, and entered into force on November 1st, 1993. Of the twelve signatories, Denmark and the United Kingdom would eventually continue with their respective currencies, whereas the eurozone would go on to accommodate nine new member states. Later, Sweden also chose not to participate. As of 2015, the 19 member states form an economic powerhouse of over 9 trillion euros in terms of GDP and 340 million inhabitants. The Maastricht Treaty is also known for creating the original three-pillar structure that led to the formation of the European Union, but in this chapter we focus mainly on the fiscal policy side. The Treaty is famous for its criteria, which every European Union country is obliged to follow in order to be eligible to adopt the euro as their currency. We take a short look at the Treaty, since it provides us with a clear framework of how the applicants should conduct their fiscal policy in order to be eligible for the euro.

As Baskaran (2009, 331) points out, the path to monetary integration was characterized by varying degrees of enthusiasm and expectation. Notably, as France favored monetary integration as a means to influence the politics of the German Central Bank, Germany feared that its main target of inflationary discipline would be ignored in the future currency union.

Figure 1: Inflation rates for selected Eurozone countries before the ratification of the Maastricht Treaty. Source: OECD Data (2015)

Germany famously preferred inflation target as the main objective, whereas the monetary union would include many countries with a high level of inflation. Presented above is a table of inflation rates for selected countries before the implementation of the Maastricht Treaty over a five year period. We are able to conclude, that even though the inflation rate of Germany itself was slightly higher in the years before the Treaty, the rate was generally lower than many other future EMU countries. Greece, along with some other southern European countries suffered from high inflation rates in the past. To ease the anxiety of turbulent inflation rates, the Maastricht Treaty provided several convergence criteria which the European Union member states had to achieve before the start of the third phase of the EMU, namely the introduction of common currency. (Baskaran 2009, 331)

In the center of the treaty are the Maastricht criteria. The criteria consist of five main sections that impose restrictions on national fiscal policies. In the Frankfurt based monetary authority, the national governments are tasked with maintaining a sustainable and healthy fiscal policy. The aim of the much debated criteria are to coordinate these fiscal policies, and this way ensure that the monetary cooperation is as smooth as possible. The five convergence criteria, as depicted in article 109(j) of the Treaty, are as follows. (Baskaran 2009, 331 & De Grauwe 2005, 143.):

1) Inflation rate of the applicant must not be higher than 1,5% above the average of the three lowest inflation rates in the European Union member states.
2) Long-term interest rate of the applicant must not be more than 2% higher than the average of these three low-inflation member states.
3) The applicant country has to join the European Monetary System exchange rate mechanism and has not experienced a devaluation of its currency in the two years before entrance to the union.
4) Budget deficit of the government must not be higher than 3% of the country's Gross Domestic Product (GDP). However, if the deficit is higher, an exception can be made if it is continuously declining and approaching the 3% value. An exception can also be made if the deviation from the required value is exceptional and temporary (Article 104c (a)).
5) Government debt must not exceed 60% of GDP. Again, an exception is available if the value is decreasing and approaching the required level at a sufficient speed (Article 104c (b)).

Let us take a quick note of why these criteria were gathered and what they hold inside. As De Grauwe (2005, 142) observes, the Maastricht Treaty was unique in a sense, that it was carefully formulated and took a number of years to produce an acceptable document. In addition, it took ten years for the common currency to access circulation

after the ratification. For example, when the two Germanys united, it only took about six months for the Eastern part to merge into the Western counterpart. Let us note, however, that the Germanys were quite similar in many ways, even though the political system differed somewhat. The European melting pot consists of numerous languages, identities, cultures and systems.

In the preparation process, the designers heavily stressed macroeconomic factors. The background for this procedure is the fear that the future union would have to combat a serious inflationary threat. With Germany on the controls, the inflation convergence was added so the interested participants would have to accept it as well. A monetary union is about forming a common central bank, which obviously implicates that the union contains preferences from every participating party. In a union of multiple members, a country with lower inflation target has a chance to be in a minority position. A low-inflation country sacrifices some of its welfare by accepting a higher-inflation country as its partner. Do note, that a monetary union also holds gains, such as lower transaction costs and reduced risk. A participating country must carefully weigh, if the welfare losses indeed are lower than the efficiency gains. If this applies, it might be agreeable to form a monetary union with a higher-inflation country. In this light, the Maastricht Treaty is now clearer. A candidate must come forward with evidence, that they intend to battle inflation like the German Bundesbank. They also succeeded in doing so, by bringing down their inflation rates at the expense of a temporary increase in unemployment. (De Grauwe 2005, 144-146.)

The budgetary convergence requirements (3% deficit and 60% government debt) can be discussed in a similar manner. A high government debt tempts a national government to raise inflation. The reason is that some of the high-inflation country's government bonds are of long term type. The interest rate of these bonds are fixed from earlier period, with forecasts on the coming inflation taken into account. If the member government now suddenly creates inflation, the real values of the bonds take a downturn and the bondholders suffer unacceptably. On the other side, the government gains. Derived from the previous section, a monetary union prompts a dilemma for the low-debt country. In the union, the low-debt country is accompanied by a high-debt country who has an incentive to raise inflation. This could be the case even if the countries have the same objective of lower inflation. Hence, as long as one country has a higher debt-to-GDP ratio, it is tempted to create a sudden rise in inflation. In conclusion, the lower-debt member is on the losing side and will demand that the higher-debt member reduces its debt before admission to the monetary union. To achieve this, the indebted country must reduce its budget deficit. When the deficit is cleared, the incentives to create sudden inflation disappear. This was the focus when the Maastricht Treaty was being drafted, since one of the main concerns of the coming union were the differences in the structures of potential members. (De Grauwe 2005, 146-148.)

Other reflections have also been brought to light, especially in the wake of the recent Eurozone crisis. Governments with a significant amount of debt are more likely to default than their lower-debt counterparts. This often leads to a threat of bailout if a default crisis occurs. Hence, the Maastricht Treaty also includes a no-bail out clause. The clause states that neither union members nor the ECB can be forced to bail out failing member countries. (De Grauwe 2005, 147.)

The devaluation convergence is easy to interpret. If a country preforms a devaluation shortly before the admission to the union, it gains a depreciated exchange rate and therefore increases its competitiveness. Hence, joining the union requires the member to fulfill the criterion of not performing a devaluation in the two years before its admission. Rigidity regarding the fulfillment of the criterion has, however, changed significantly after the Treaty was signed. This derives from the unusual way the devaluation condition is presented in the Treaty. As De Grauwe (2005, 148) presents: "According to the Treaty, countries should maintain their exchange rates within the normal band of fluctuation (without changing that band) during the two years preceding their entry into the EMU. At the moment of the signing of the Treaty, the normal band was 2 x 2,25%. Since August 1993, the normal band within the EMS was 2 x 15%, a considerably larger band of fluctuation." In case one of the outsiders, namely the United Kingdom, Sweden and Denmark, decides to join the union, the criterion will be much like for them, but not entirely identical to the above (De Grauwe 2005, 148).

Last, we observe the interest rate rule. It is easy to understand the requirement, since large differences in interest rates before admission to the union are likely to cause significant profits and losses. For example, country A is about to enter the union with an average long-term government bond rate of 5% while the equivalent for the Eurozone is 4%. This leads to a situation where the rate between the euro and country A's currency becomes fixed, creating tempting opportunities for arbitrage. Because the exchange rate is fixed, it is clear that obtaining higher profit currency A bonds and selling lower profit euro bonds would hold no risk. As an outcome, the arbitrage continues until the profit on euro and currency A bonds is equal. Furthermore, the decrease in the price of euro bonds and increase in the price of currency A bonds continue until the profits are even. As a significant number of euro bonds are owned by Eurozone banks, they also suffer harder. On the other side, the holders of currency A bonds, largely institutions from country A, make large profits. This quite likely leads to disorders in local capital markets. (De Grauwe 2005, 148-149.)

2.1.2 The Stability and Growth Pact

After the implementation of the Maastricht Treaty, it quickly became apparent that additional measures were needed in order to control national budgets. Origins of the Pact lie in the German financial sector, which deemed that the political union in Europe would not be complete without some form of Maastricht follow-up. (Segers & van Esch, 2007, 1089-1090.) The success of the Pact can be regarded as contradictory, but it is useful to review it as well, since it supplements the original requirements laid down in the Maastricht Treaty. Together they outline the original fiscal stipulations of the deepening European cooperation.

In the heated years after the Maastricht Treaty, political and economic parties argued a stricter version of the Maastricht Treaty. Whereas the German Bundesbank and Germany's then minister of finance Theodor Waigel preferred stricter budgetary rules and additions to the Treaty, France and Italy opted for a more lenient way. Originally, the German proposal consisted of increasing the budget deficit clause to a single percentage point of the GDP and an automatic penalty on members who did not achieve the 3% limit. The penalty would have included a 0,25% sanction for every exceeding percent. The member would only be refunded if it managed to return to 3% limit in two years time. The proposal was ultimately unsuccessful, as the European Council has, as laid down in article 104C of the Maastricht Treaty, the final word over determining of the deficit rule. (Segers & van Esch, 2007, 1101-1103.)

The Stability and Growth Pact is built on two components, namely the surveillance and dissuasive parts. First one is the surveillance part, which aims to intervene at the very beginning, if a member country shows signs of excessive deficit. The surveillance part consists of few features, which are worth mentioning. A member of the Eurozone is required to deliver a so called Stability Program, which reviews the actions of the public policy makers. It also presents a design to bring the budget back to balance or surplus. Furthermore, a revision of how this is achieved is included as well. (De Grauwe, 2005, 229.)

Programs submitted by the national policy makers are closely studied by the European Council, which in turn gives its statement after consulting the European Commission. The verdict is based on the national budgetary measures. The main focus is, whether these measures provide satisfactory safety margins to avoid significant deficits or not. The provided national programs are closely followed by the Council, which can propose necessary corrections if the member country's medium-term budgetary outlook differs substantially from its target. (De Grauwe, 2005, 229.)

If a member country fails to deliver results, the dissuasive part of the SGP is activated. This could also come into question if significant deficits happen unexpectedly. The

concept of excessive deficit derives from the Article 104 of the Maastricht Treaty. As mentioned before, the Article defines the deficit to be excessive if it surpasses the required value of 3% of GDP. An exception is that the deficit has happened suddenly and unexpectedly. In addition, the deficit value stays close to the required level. The Maastricht Treaty, however, does not provide further clarifications to what is exceptional. This has been, to some extent, further explained in the Stability and Growth Pact. (De Grauwe, 2005, 229.) Also from De Grauwe's work (2005, 229), a budget deficit can be regarded as exceptional if:

1) The deficit is caused by an uncommon event that the member country has no control upon, such as a natural disaster.
2) The deficit is caused by a significant economic downturn. This condition is filled if the decline in GDP is more than 2% during a single year. If this is the case, the Council concludes that the excessive deficit condition has no ground and the dissuasive policy is halted. If the single-year decrease in GDP is between 0,75% and 2%, the member in question is able to submit reasons why the deficit happened and this way rationalize the deficit. If the decrease in GDP is less than 0,75%, the member is not advised to appeal to the exceptionality clause.

The Commission is again consulted by the Council, and a decision on whether there is excessive deficit or not, is given. If the Council concludes that excessive deficit has proof, a strict schedule follows. A serious counsel is made to the member state in question, which states that measures to correct the deficit need to be taken in the following four months. If the country is unsuccessful, the Council issues a notice where it provides two more months to accept the needed measures. If the member is still unsuccessful, sanctions are imposed within the next two months. Sanctions in question come in the form of non-interest bearing deposits to the Council. The sum of the deposit is obtained from the following formula. (De Grauwe 2005, 229):

$$Deposit = 0{,}2 + 0{,}1 \times (Deficit - 3)$$

All variables above are displayed as percent of Gross Domestic Product. Suppose an example where the member country is running a 5% deficit, the deposit penalty would be as follows:

$$Deposit = 0{,}2 + 0{,}1 \times (5 - 3) = 0{,}4$$

The country in question would have to provide a deposit of 0,3% of its GDP. The largest possible deposit is 0,5% of GDP. It is easy to see, that in case the sanction could be imposed effectively, the amount required is substantial. For example, if France generates a GDP of around $2,85 trillion a year (2014), in case of unjustified 5% deficit it would be sanctioned a remarkable 11,4 billion. Furthermore, the sanction has a follow-up rule. The country running a deficit has two years to correct its budget, otherwise the sanction becomes a permanent fine. If the member manages to bring its budgetary measures back to required level within two years, the initial deposit will be returned to the member. Even as a temporary measure, the fine would draw difficult consequences. (De Grauwe 2005, 229.)

The beginning of the SGP proved to be problematic, leading to the Pact being reviewed in 2005. The main focus of the revision was to intervene with the pro-cyclical fiscal behavior of the members, including requiring the budgetary correction to be judged through its effects on the structural balance. Furthermore, public debt and sustainability gained more attention in the revision, along with structural reform. One major component was also the medium-term objective (MTO) of public finance, concerning budget balance at the end of the stability and convergence schedule, which was changed to process members individually. The programs vary from the minimum of -1 % of GDP for less indebted countries that possess high chance for economic growth, to budget balance or surplus in case of high-debt countries that lack potential for growth. (Beetsma & Giuliodori, 2010, 609.)

The SGP has also been condemned for being arbitrary and insufficient, because it largely ignores the systematic differences among the various EMU member states. Other subjects of criticism have emerged as well, including inflexibility concerning the 3% threshold and its role in regionwide policymaking. The limit is mostly independent of a specific country's cyclical position, hence the SGP struggles to fulfill its stabilizing task. As remembered, the monetary policy can only be used to balance the EMU economy as a whole, not individually for each member. A member suffering from a downturn and a large deficit could even be forced to reduce the extent of fiscal policy as a result, even though an expansion would be more favorable. The criticism of the SGP also attains to automatic stabilizers, which many think should be allowed to function freely. This pertains to aggregate demand depending on disposable income. (Beetsma & Giuliodori, 2010 625-626.)

If the SGP's medium-term objectives are complied with, this usually indicates that the automatic stabilizers could function freely, with the 3% deficit limit staying intact as well. The economic crisis has, however, seriously complicated these efforts, or led to the members being even further from their targets. This in turn indicates that the margin for automatic stabilization, in addition to stabilization in the shape of fiscal policy,

should have been more restricted. Has this been the case in reality, remains somewhat a question. (Beetsma & Giuliodori, 2010, 626.)

2.1.3 The Fiscal Compact

The newest addition to the network of fiscal guidelines is the Fiscal Compact, the fiscal component of the new Treaty on Stability, Coordination and Governance (TSCG), which became effective in January 2013. The new agreement focuses mainly on strengthening the corrective part of the Stability and Growth Pact, derived from the lesson provided by the financial crisis. Members are now required to provide a so-called Stability and Convergence Program (SCP), in addition to committing to reducing debt levels the way the European Commission deems most suitable. Members that are part of the Excessive Deficit Procedure (EDP) are required to deliver their budgetary calculations and structural reform programs to the Commission, as well as to the European Council. These two will then provide advice and carefully supervise the usage of the budgets in question. (Menguy 2015, 228-229.)

Moreover, the member states that surpass the 60% debt limit, are required to commit to a progression towards a predefined level. These countries can be seen to progress sufficiently, in case they have advanced towards the target a rate of 5% a year during the course of the last three years. In addition, every member state in the Excessive Deficit Procedure is given a transitional period of three years following the amendment of the excessive deficit program, in order to avoid sudden alterations in the newly found positive debt paths. A more rigid institutional system was needed as well, in order to prevent speculative attacks against the indebtedness of certain eurozone countries. (Menguy 2015, 228-229.)

Fiscal discipline was again stressed as a means to conduct common monetary interests in the currency area, since the political decision makers were still unwilling to formally coordinate national budgetary measures. In the aftermath of the financial crisis, these indirect actions based on fiscal discipline were also seen to provide more room for long-term debt adjustments, and not only budget deficits. The new Fiscal Compact has also drawn criticism, since it appears to be quite ambitious in case of certain member states. Failure of these policy coordinations could prove to be harmful for the economy of the entire union. (Menguy 2015, 229.)

Menguy (2015, 253) presents in her work, that the needed budgetary surplus for a country is an increasing function of its public debt level, fluctuation of the interest rate

of national bonds, the country's relative size and the interest rate of foreign benchmark bonds. On the other hand, the needed surplus is a decreasing function of the country's growth rate, the fluctuation of interest rates of foreign bonds and the foreign debt levels. A feature unique for a monetary union, it is difficult for a member to start conducting a more sustainable debt path, in case it has more debt than its partners in the first place. The same goes for a history of risky public bonds with a larger variance of past interest rates. If there is a given public target for debt levels, it is not automatically solid or self-corrective for the member of a currency union, but instead needs to be low enough because of the stability of the debt path. A public debt target is solid only in the case of countries that have higher growth rates than the interest rate of public bonds for the union's benchmark member. Similarly, a smaller debt target is more reasonable for a large country that has an unstable and risky financial situation. (Menguy 2015, 253-254.)

2.2 THEORETICAL FRAMEWORK FOR FISCAL RESTRICTIONS

In the previous subchapter, we viewed some of the limitations imposed on the member states of the Economic and Monetary Union. In the second, and final subchapter of the first chapter, we provide a rationale and a theoretical framework for proposing these restrictions. This comes in the form of two theories, which aim to illustrate how the team play between the respective actors of the monetary union works. After the subchapter, we move to empirical illustration of the debt and deficit levels, in chapter 3.

2.2.1 A Model by Beetsma and Giuliodori

A frequent phenomenon among the Economic and Monetary Community has been the different ambitions between the community actors. Most common occurrence arises between the goals pursued by the central bank and the national fiscal policy makers. Often we have also read about adverse fiscal spillovers that cross borders and affect other member countries. These two disorders could provide the incentive to call into play the fiscal limitations on national policies. (Beetsma & Giuliodori, 2010, 616.)

The original OCA theory presented by Mundell mostly omits the effects of monetary union on the fiscal decision making. As already mentioned, the fiscal side remains the

task of national governments, which may proceed to conduct this policy in a way that is most suitable for them. Joining a currency union produces a blend of fiscal and monetary policies that affect each other, with outcomes that also affect the macroeconomic side. Therefore, it is not surprising that a common setting for conduct among the monetary and fiscal authorities in the European monetary community is needed. Main constituents in the European blend include the respective interests of different authorities, their capacities to carry out decisions in a cooperative way and the timing of these decisions, as well as the possibility for the European Central bank to include the budget restrictions in its policymaking. (Beetsma & Giuliodori, 2010, 616.)

As the friction between the central bank and national fiscal authorities becomes apparent every now and then, it is useful to view some options of how the policies could, in fact, be matched so that everyone ends up better off. The question is especially relevant in the eurozone, since the ECB is famous for setting the inflation target at a low level. On the other hand, the national authorities are more focused on achieving enduring and large-scale economic activity. On many occasions, the members have requested the central bank to ease its monetary policy and lower the interest rates. The disagreements between the ECB and the fiscal authorities regarding key issues could end up worse for each party, providing ground for the fiscal constraints to be introduced. (Beetsma & Giuliodori 2010, 616.)

The dispute is presented in the model by Beetsma and Giuliodori (2010, 616), providing reasoning for fiscal constraints and marching order in a monetary union. The illustration is based on the 2001 and 2003 versions by Dixit and Lambertini. Their model, in turn, is a form of the 1983 model by Barro and Gordon (Dixit & Lambertini 2003, 238). Assume that a monetary union consists of *n* members. The output supply equation for a country i (i = 1, … , n) could then be formed as:

$$y_i = \psi(\pi - \pi^e) + \sum_{j=1}^{n} \phi_{ij} x_j \, , \, \phi_{ii} \neq 0$$

The x_j in this context is the fiscal instrument. Inflation is assumed to be the same for every member of the union, and therefore holds no subscript. This equation can also be considered as the net effect for an inflation shock after the leveled off cross-border effects have annulled. A higher value for x_j points to a more expansive level of fiscal policy. For instance, this could be interpreted as larger government consumption or a cut in distortionary taxation. This fiscal policy could exercise a positive or a negative effect, in which case the ϕ_{ij} is unrestricted. The existence of these direct fiscal spillovers, however, does not have any qualitative significance over the outcome. (Beetsma & Giuliodori 2010, 616-617.)

Deriving furthermore from Beetsma's and Giuliodori's (2010, 617) work, the inflation level is defined by the monetary instrument μ and the national fiscal policies in conjunction:

$$\pi = \mu + \gamma \sum_{j=1}^{n} x_j, \ \gamma \neq 0$$

The parameter γ could be either positive or negative. A supply-part fiscal expansion pulls down the inflation level ($\gamma < 0$), whereas the demand-part generates the exact opposite ($\gamma > 0$). Furthermore, the loss functions for the fiscal policymaker (F) in member i and the common monetary policymaker (M) are:

$$L_i^F = \frac{1}{2}[(\pi - \tilde{\pi}_i^F)^2 + \alpha_{4i}(y_i - \tilde{y}_i^F)^2]$$

and

$$L_i^M = \frac{1}{2}[(\pi - \tilde{\pi}^M)^2 + \sum i \, \alpha_{5i}(y_i - \tilde{y}_i^M)^2],$$

$$\alpha_{4i}, \alpha_{5i} > 0.$$

Among the most important aspects regarding eventual results, and the consideration of fiscal restrictions, is whether or not the different policymakers are able to reach unanimity on output and inflation levels. In case they are able to reach consensus, that is, $\tilde{\pi}^M = \tilde{\pi}_i^F$, ∀i, and $\tilde{y}_i^M = \tilde{y}_i^F > 0$, ∀i, it produces (n+1) objectives (n levels for output and one for inflation), as well as an even amount of policy instruments. Each of the best possible response functions intersect at the same point, with the ideal levels for output and inflation coming out as equilibrium outcomes. The outcome is gained in every case, even if the central bank fails to carry out the procedures they have declared. If the central bank does not perform, the gain is also achieved despite the timing of the authorities' actions in placing policy acts, and whether or not the actions are coincident or happening successively. (Beetsma & Giuliodori 2010, 617.)

The central bank, however, foresees that the fiscal policies could always be adjusted to meet the targets for output, and as the first mover adjusts the money growth so that the inflation meets its target value. These adjustments of course take into account the expected selections of fiscal policies. The central bank is also able to adjust its monetary policy to meet the inflation target in case it is the last mover. On the other hand, aware

of the expected inflation level, and foreseeing the central bank's choice in policy, the national fiscal decision makers always pick their policy so that the output targets are fulfilled. The presence of cross-border spillovers does not, however, directly mean that fiscal coordination problems arise. All of the objectives are achieved, even if the national fiscal policymakers are not able to organize their cooperation properly. (Beetsma & Giuliodori 2010, 617.)

The aforementioned favorable result becomes irrelevant, if the authorities fail to reach agreement regarding outcomes in their policies. In a more realistic manner, assume that the European Central Bank acts more conservatively than any of the respective fiscal authorities. In other words, the favored national output level for each fiscal policymaker is higher than for the ECB ($\tilde{y}_i^F > \tilde{y}_i^M$, ∀i) and the favorable level for inflation is lower for the ECB than any of the fiscal policymakers ($\tilde{\pi}_i^F > \tilde{\pi}^M$, ∀i). Furthermore, assume that $\alpha_{5i} < \alpha_{4i} / n$, ∀i, and γ and ϕ_{ii} are positive. With these parameters taken into consideration, and the expectations on inflation constructed, the respective actors are now moving concurrently. The result is a Nash game, where one party is conducting fiscal expansion that targets larger output, and the other focuses on monetary control in order to flatten the effect of fiscal expansion on inflation, and vice versa. The game results in a situation where all the actors are well worse off than their desired positions. Output for each of the fiscal actors is above the preferred level, whereas the inflation is lower than the ECB's preferred level. Needless to say, this result is socially unacceptable. If output remains on a too high level, the economy may end up overheated, which in turn causes instability in macroeconomic circumstances. On the other hand, if the inflation level remains too low, the risk for deflation is present. If the parties disagree about the objectives regarding policies, this broadens the amount of targets that lie beyond the amount of instruments that are actually available. This in turn suggests that some targets are unreachable. (Beetsma & Giuliodori 2010, 617-618.)

Different means to avoid extreme outcomes in policy can be perceived, however. Among these is the better orientation of targets between the monetary and fiscal policymakers. Better orientation is relatively easy for the central monetary authority, whereas it is considerably harder for the fiscal authorities. National governments often have to operate in interaction with the voters and interest groups, which in turn favor a high level of economic drive. One possible solution, and a more realistic one, is to appoint either the monetary or the fiscal authority as the game's leader. The leading side foresees the action of the second mover, and chooses a more moderate approach. This encourages the second mover to choose a more moderate approach as well. It is useful, however, to consider the European Central Bank to assume the leader position. From this, a third and supplementary option can be obtained. The option comprises of implementing fiscal constraints on the national fiscal policies, which in turn persuades the fiscal authorities to choose a more moderate policy position. This also exempts the ECB

from its need to conduct contractionary policy. In effect, by applying fiscal limitations on the national authorities, the central bank can effectively be placed in the leader's status. This is also a component that has been considered for the Stability and Growth Pact to assume. (Beetsma & Giuliodori 2010, 618.)

2.2.2 A Model by Chari and Kehoe

Varadarajan V. Chari and Patrick J. Kehoe (2007) have also studied fiscal constraints in their work, with the emphasis being on the commitment of the central monetary authority. They stress, that in case the monetary policymaker is able to commit to its promises, the possible fiscal limitations will not enhance welfare. On the other hand, the constraints increase welfare in case the monetary authority fails to commit to its objectives. Another of the principal features of their work is the time inconsistency problem. If present in the monetary decision making, it may lead to a fiscal free-rider problem. The roots of this problem lie in the monetary authority's incentive to inflate nominal debt. If the monetary decision maker does not commit to its future objectives, the optimum procedure for a benignant monetary authority is to place the inflation target higher when the debt levels of the members are high, and lower when the corresponding debt levels are low. The residents of all the member states affect the cost of the inflation. As the fiscal policymaker in a member country is preparing to issue debt, it has to take into account that the monetary authority increases the inflation rate when the debt level rises. The fiscal authority also bears in mind that the costs of the altered inflation affect its own citizens, but dismisses the costs this action may have on the other members of the union. This so-called free rider problem causes inefficiency, as each of the fiscal policymakers ends up issuing too much debt, and at the same time, the inflation rate keeps climbing higher. Hence, declaring constraints on the debt levels that each member may issue, all members end up in a better position. (Chari & Kehoe 2007, 2400.)

In case the time inconsistency problem could somehow be resolved, the free-rider problem would disappear as well. This, in turn, indicates that the fiscal constraints decrease welfare. In the model, the authors assume that the only way to clear the time inconsistency problem is to presume that the monetary authority can commit to its proposals. The concept that different groups, for example the actors of the common currency union, have problems with free riding in either static or commitment models, is not exactly a new innovation. The authors, however, express a new way of free-riding, a feature that only arises when time inconsistency is present. This problem could be solved by setting a relevant limitation on debt level. The consistency of how these limi-

tations could counter the problem quite clearly advocate the fiscal limitations made by the drafters of the EMU Treaties. (Chari & Kehoe 2007, 2400.)

The outcome is enlightened in a setting that includes a reduced-form benchmark model that consists of two periods. In the first section, the fiscal authorities of the member states issue nominal debt to risk-neutral lenders that do not live in the union. In the second phase, the central monetary authority of the currency union declares the inflation target. The output in the second phase is presumed to be a diminishing function of the inflation value. This means that the monetary authority must balance between the advantage of nominal debt devaluation and the costs of reducing output. As discussed earlier, the monetary authority intends to set the inflation target in relation to the amount of debt. The high rate of inflation materializes, in case some procedure to control public debt is unavailable. Therefore, if the monetary authority fails to commit, all other members are worse off when one of the members decides to issue more debt. The problem indicates, that debt levels in an equilibrium that does not cooperate, are dissimilar to those in an equilibrium that cooperates. The problem again vanishes when the monetary authority is able to commit to its objectives. (Chari & Kehoe 2007, 2400.)

The theory aims to provide a sensible ground for fiscal limitations in the EMU. One could interpret, that based on the pacts of the union, the monetary policy in the eurozone is conducted successively by majority rule. In a position like this, the time inconsistency problem could be difficult, which in turn makes the existence of fiscal limitations desirable. The analysis of the authors accompanies the developers of the monetary union in the view that commitment to monetary policy could prove to be difficult. Hence, including the debt constraints as vital parts in the statutes was a good decision. From another point of view, the number one goal for the central monetary authority, the price stability, secures commitment to coming monetary policy, and this way also settles the time inconsistency problem. From this point of view, the debt limitations are unreasonable and detrimental. (Chari & Kehoe 2007, 2401.)

The model also provides a new perspective regarding the analysis of the countries where governments operate under significant freedom of setting the national fiscal policy. The theory proposes, that in monetary unions like these, unsettled time inconsistency issues lead to high inflation rates and wasteful fiscal decisions. The authors mention Argentina as one significant example, where the time inconsistency problem causes issues. The monetary policy becomes erratic, as the central government is unable to place binding restrictions on the provincial equivalents. The provincial authorities run excessive deficits continuously, which end becoming liabilities for the central bank. In 1991, the Argentine Currency Board pegged the peso to the United States dollar in the hopes of decreasing wasteful fiscal behavior. In the end the plan was not successful, even though some proof that the deficits among the Argentine provincial governments

fell, was found. In this case, the changes in law were not able to settle the time inconsistency problem. (Chari & Kehoe 2007, 2401.)

Consider the government of a member country i (i = 1,…,n) that maximizes utility $u(C_{i1}) + u(C_{i2})$ of its represented consumers. This comes over the consumption levels C_{i1} and C_{i2} in periods 1 and 2, and is relative to the following budget constraints:

$$C_{i1} = Y_1 + B_i, \text{ and}$$

$$C_{i2} = Y(\pi) - (1 + R_i)B_i/(1 + \pi)$$

In the above, the Y_i is the initial benefaction, R_i is the nominal interest rate and B_i is the amount of government issued debt that is not indexed. The model contains no discounting, and the initial price level is normalized to unity. This in turn implies that B_i also represents the real amount of debt issued in period 1. Moreover, $Y(\pi)$ is three times continuously differentiable and strictly concave, with the maximum reached at zero inflation level. Therefore, $Y'(\pi) < 0$ when $\pi > 0$. Notice, that Y_1 is sufficiently greater than Y(0), in order for the governments to borrow in period 1. The real debt with interest repayment is represented by the last term of the second period consumption expression. Profits are minimal due to the large amount of risk-neutral investors buying the debt. Therefore, they are willing to buy debt if:

$$(1) \qquad (1 + R)/(1 + \pi) = 1$$

where $R \equiv R_1 = \ldots = R_n$ represents the common rate of interest. (Beetsma & Giuliodori 2010, 621.)

The model is next solved in a backwards fashion. First, as the central bank is not able to commit, it moves last and maximizes with a given R over π the average second period utility in the currency union:

$$\max_{\pi} \frac{1}{n} \sum_{i=1}^{n} u\ [Y(\pi) - (1 + R)B_i / (1 + \pi)]$$

We assume a symmetric equilibrium, and the first-order condition using (1) is:

$$(2) \qquad Y'(\pi) + \bar{B}/(1 + \pi) = 0, \text{ where}$$

$$\bar{B} = \frac{1}{n} \sum_{i=1}^{n} B_i$$

From (2) it can be seen that the inflation rate is growing in average union debt, represented by $\bar{B}$. Therefore, $\pi = \pi(\bar{B})$ can be written with $\pi' > 0$. Significantly, the effect

caused by an increase in any specific country i's debt on currency union's inflation is reduced by the size of the union n, representing the origin of the fiscal free-riding problem. (Beetsma & Giuliodori 2010, 621.)

Getting to know the game more thoroughly, the government i maximizes $u(Y_1 + B_i) + u[Y(\pi(\bar{B})) - B_i]$ over B_i. This suggests that:

$$(3) \qquad u'(Y_1 + B_i) = [1 + \frac{1}{n}\Gamma(\pi)] \times u'(Y(\pi) - B_i)$$

Here, $\Gamma(\pi) \equiv Y'(\pi)/[Y'(\pi) + (1 + \pi)Y''(\pi)]$, using the expression for $\pi'(\bar{B})$ derived from (2). For given inflation rate, B_i is growing in the size of the union n. Moreover, with $Y''(\pi)$ and $Y'''(\pi)$ sufficiently close to 0, it is clear that a larger currency union indicates larger average debt and higher inflation rate in the equilibrium. (Beetsma & Giuliodori 2010, 621-622)

An individual government usually plays down any negative spillovers, and comes to realize that the cost for an individual fiscal expansion, measured by higher inflation and lower national output, is smaller in a larger currency union. Derived from this, fiscal policy is more expansive and inflation higher in a currency union, and even more in a large union, compared to the national side conducting independent monetary policy. The result is, that if the central monetary authority does not commit to its objectives, setting restrictions on public debt levels is favorable, since the effects of free riding could this way be effectively eliminated. (Beetsma & Giuliodori 2010, 622.)

Continuing further, the governments now move last and choose debt in order to maximize for given inflation rate $u(Y_1 + B_i) + u(Y(\pi) - B_i)$, taking into account the imposed (1). This way debt becomes the function $B_i(\pi) = (\frac{1}{2})(Y(\pi) - Y_1)$ of inflation. Along with (1), the central bank take this into account when maximizing its target function over inflation:

$$(4) \qquad \frac{1}{n}\sum_{i=1}^{n}[u(Y_1 + B_i(\pi)) + u(Y(\pi) - B_i(\pi))]$$

$$= 2u[\frac{1}{2}(Y_1 + Y(\pi))]$$

In the above, the optimum is reached at $\pi = 0$. In case of commitment, the chosen debt level $B_i(\pi)$ is no longer a function of the size of the union, disabling the free riding problem in the process as well. The debt is now chosen last, and as a function of inflation it has the same level as in the case of autonomy. This indicates that also inflation in the currency union is the same as under autonomy. Note that the first order condition for maximizing (4) accords to the equivalent condition in case of autonomy, thus assuming that commitment stands. As a result, since in case of commitment the only existing distortion has been eliminated, social welfare in terms of utility of the representative con-

sumer gains its highest level, rendering debt restrictions needless. (Beetsma & Giuliodori 2010, 622.)

3 REVIEW OF DEVELOPMENT IN DEBT AND DEFICIT LEVELS

Joining a common monetary union includes certain deeds and responsibilities, the Eurozone being no exception. In order to be eligible for a monetary union, an applicant needs to provide results of fiscal convergence. These convergences in question were clarified in the previous chapter in terms of the Maastricht criteria. These requirements provide a solid basis for this chapter, in which we review the fiscal performance of the member and applicant countries in relevant fields. First, we observe the government deficit and debt levels, which in contemporary media and literature tend to raise most discussion. A breakdown of the chapter also includes the twelve original users of the euro glanced separately from the seven newer participants. The original members in this context were Germany, France, Italy, Spain, the Netherlands, Greece, Belgium, Portugal, Austria, Finland, Ireland and Luxembourg, whereas Slovakia, Lithuania, Latvia, Estonia, Slovenia, Cyprus and Malta joined the union later. The twelve original members began using the euro as their circulating currency in January 2002, with the first of the newer countries, Slovenia, transferring to euro in January 2007.

3.1 THE ORIGINAL TWELVE SIGNATORIES

3.1.1 Government deficit

A nation interested in participating in the global loan markets has to pay attention to two main features, namely the interest rate value that it is required to pay to its debtors and the measures it has to go through to obtain enough export revenue to repay its debt. This brings us to the golden achievement of the European monetary community, in terms of lower debt costs, that makes it more lucrative to borrow than before the monetary membership. Greater integration in goods markets, in turn, results in a more flexible demand for the nation's goods. This lowers the price cuts needed in the future, and this way has a similar kind of effect. As a result, following greater integration the borrowing countries will want to increase their borrowing. Distribution in current account balances therefore expands, as lending countries would obviously want to lend more. (Blanchard & Giavazzi 2002, 149.) A commonly referred cause for the crisis in the Eu-

rozone is the high amount of debt and deficit following the common monetary union. The global crisis worsened the issue, with a serious problem in the peripheral countries eventually spreading to the entire euro area (Allen & Ngai 2012, 7).

The 1990s was generally a decade of good fiscal performance, as the budget deficits systematically improved in the years after the implementation of the Maastricht Treaty. As we explained in chapter 2, the Maastricht Treaty brought a requirement that limited the budget deficit level to 3% of the GDP. The 1990s was, however, a period of major fiscal improvements in many advanced economies. As a consequence, the weight and role of the Maastricht Treaty in refining the European fiscal framework at the time remains somewhat a question. It is not considered far-fetched either that many countries aimed to improve their fiscal approach in light of the upcoming monetary union. The economic pace was, however, very desirable from the EMU point of view. This, along with the fears that some members would misuse the system, lead to the creation of the Stability and Growth Pact, aimed to control the national budget imbalances on an even larger scale. Although there has been much speculation that the Pact has been an unsuccessful case, there is evidence that the Pact has managed to be a valid reference point for the smaller member countries. (Lane 2006, 62.)

The latter part of our analysis is characterized by the still ongoing financial crisis. Cynically put, the euro was at the height of its success in the mid-2000s, at least so far. A thorough bond market along with much alike government debt spreads and the status as a major reserve currency deemed the euro a prominent success story. Popularity and interest towards the monetary community was widespread in the European Union. A change came in the form of the financial crisis, which started in 2007. A significant turn of events came with the collapse of Lehman Brothers in September 2008, which lead to major recessions and fierce budget deficits across the continent. Many banks were facing difficulties after property bubbles burst in Ireland and Spain, to name a few. At the end of 2009 it became clear that Greece was facing serious problems, and in May 2010 it became the first euro country to look for help from the IMF and European Union. Ireland followed soon after in November 2010, as did Portugal in April 2011. In 2012, these were followed by Spain and Cyprus. (Allen & Ngai 2012, 6.)

Presented in tables 3 and 4 below are the government deficits and surpluses, as percentage of GDP.

Table 3: Government deficit and surplus from 1993 to 2003, as percentage of GDP. Source: Eurostat.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Belgium	-7,7	-5,3	-4,5	-4,0	-2,3	-1,0	-0,7	-0,1	0,4	-0,2	-0,2
Germany	-3,0	-2,3	-9,5	-3,4	-2,8	-2,3	-1,6	1,1	-3,1	-3,8	-4,2
Ireland	:	:	-2,2	-0,3	1,3	2,1	2,5	4,9	1,0	-0,3	0,4
Greece	:	:	-10,2	-7,4	-6,6	-4,3	-3,5	-3,7	-4,5	-4,9	-5,7
Spain	:	:	-7,2	-5,5	-4,0	-3,0	-1,3	-1,0	-0,6	-0,3	-0,3
France	-6,5	-5,5	-5,5	-4,0	-3,3	-2,6	-1,8	-1,5	-1,7	-3,3	-4,1
Italy	-10,0	-9,0	-7,4	-7,0	-2,7	-2,9	-2,0	-0,9	-3,2	-3,2	-3,6
Luxembourg	1,7	2,8	2,4	1,2	3,7	3,4	3,4	6,0	6,1	2,1	0,5
Netherlands	-2,8	-3,5	-9,2	-1,9	-1,2	-0,9	0,4	2,0	-0,3	-2,1	-3,2
Austria	-4,5	-5,0	-5,9	-4,1	-1,9	-2,5	-2,4	-1,8	-0,2	-0,9	-1,7
Portugal	:	:	-5,4	-4,8	-3,7	-3,9	-3,1	-3,3	-4,8	-3,4	-3,7
Finland	-8,2	-6,7	-6,1	-3,4	-1,3	1,7	1,7	7,0	5,1	4,2	2,5
Average			-5,9	-3,7	-2,1	-1,4	-0,7	0,7	-0,5	-1,3	-1,9

Table 4: Government deficit and surplus from 2004 to 2014, as percentage of GDP. Source: Eurostat.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgium	-0,2	-2,6	0,3	0,1	-1,1	-5,4	-4,0	-4,1	-4,1	-2,9	-3,1
Germany	-3,8	-3,3	-1,7	0,2	-0,2	-3,2	-4,2	-1,0	-0,1	-0,1	0,3
Ireland	1,4	1,6	2,8	0,3	-7,0	-13,8	-32,3	-12,5	-8,0	-5,7	-3,9
Greece	-7,4	-5,6	-5,9	-6,7	-10,2	-15,2	-11,2	-10,2	-8,8	-12,4	-3,6
Spain	-0,1	1,3	2,2	2,0	-4,4	-11,0	-9,4	-9,5	-10,4	-6,9	-5,9
France	-3,6	-3,0	-2,3	-2,5	-3,2	-7,2	-6,8	-5,1	-4,8	-4,1	-3,9
Italy	-3,6	-4,5	-3,6	-1,5	-2,7	-5,3	-4,2	-3,5	-3,0	-2,9	-3,0
Luxembourg	-1,1	0,0	1,4	4,2	3,3	-0,5	-0,5	0,5	0,2	0,7	1,4
Netherlands	-1,8	-0,3	0,2	0,2	0,2	-5,4	-5,0	-4,3	-3,9	-2,4	-2,4
Austria	-4,6	-1,8	-2,5	-1,3	-1,4	-5,3	-4,4	-2,6	-2,2	-1,3	-2,7
Portugal	-4,0	-6,5	-4,3	-3,0	-3,8	-9,8	-11,2	-7,4	-5,7	-4,8	-7,2
Finland	2,3	2,7	3,9	5,1	4,2	-2,5	-2,6	-1,0	-2,1	-2,5	-3,3
Average	-2,2	-1,8	-0,8	-0,2	-2,2	-7,1	-8,0	-5,1	-4,4	-3,8	-3,1

Analyzing tables 3 and 4 provides us with a few noticeable features. First, an evident pattern can be distinguished during the initial years of the monetary cooperation. From 1993 to the physical creation of the euro in 1999, the deficit levels decreased significantly. Whereas in 1995, the first year of available data for every original member, the average deficit was -5.9%, in 1999 the corresponding figure was -0.7%. Even though the figure was slightly higher when the euro started circulating in 2002, it would not be beyond satisfactory in terms of criteria and rules accepted during the previous decade. The members were generally able to reach satisfactory ratios at the time of the implementation of the euro.

A few noteworthy cases can be distinguished from the era of build-up to the euro. A special notion can be given to Belgium which was able to continuously reduce its deficit ratio from 1993 to 2001, and reached the acceptable limits on every year of our observation before 2009. The progression is similar in case of Belgium's debt-to-GDP ratio. Another conspicuous feature is Greece's situation. The table implies that the deficit-to-GDP ratio was never even close to the required 3% level. Indeed, a lot can be attributed to the fact that the Greek officials continuously understated the country's debt and deficit levels. This played a crucial role during the EMU qualification years, as well as the initial years of the Economic and monetary Community. Hence, it is nearly impossible to distinguish actual effects of the Stability and Growth Pact on the Greek records, both before and after it joined the Economic and Monetary Community. (Buiter 2006, 690, 703.)

In 1995, values as high as -10.2% were measured in case of Greece. Countries such as Germany and the Netherlands were running a deficit worse than -9%, and many countries experienced a deficit level of -5% or lower. In 1995, only Ireland and Luxembourg met the criterion of excessive deficit. Of these, Luxembourg was the only country to accumulate surplus. However, as mentioned before, the latter part of the 1990s was a period of steady economic growth and positive outlook. By 1999, the heavy deficits were largely gone, and many countries were instead running surpluses. In 1999, Ireland, Finland and the Netherlands had joined the surplus club. In addition, Greece and Portugal were the only countries not able to reach the deficit criterion. Partly because of the miscalculated records provided, Greece was permitted to join the third stage of the euro as the twelfth member in 2001.

At the time of the physical implementation of the euro in 2002, the situation was for the most part unaltered. Even though the numbers were not greatly above the limit, Germany, France and Italy were running excessive deficits. This was annoying especially from Germany's point of view as the new central bank, along with its guiding rules, was largely founded on the basis of the former German Bundesbank. As Buiter (2006, 703) writes: "Embarrassment among one's peers in Ecofin or in the Eurogroup is an especially weak deterrent if one has company." In the end, measures provided by the

Stability and Growth Pact were stretched to enable the three largest euro countries to continue with their domestic agendas (Buiter 2006, 703).

Whereas the turn of the millennium and subsequent years proved to be a slight downturn, the years between 2005 and 2007 provided an improvement in deficit ratios. As more tranquil years before the hard-hitting financial crisis, the average deficit value improved from -1.8% in 2005 to -0.8% in 2006, and further to -0.2% in 2007. By 2007, only Greece was running excessive deficit, and many countries had accumulated surpluses. In addition to Greece, Portugal, France, Austria and Italy had deficits in the first place.

2008 saw the first surge in deficit levels, as the effects of the financial crisis began to take their toll. Only Luxembourg, the Netherlands and Finland had surpluses. Portugal, France, Spain, Greece and Ireland had a deficit level of worse than -3%. Notably, the year 2008 was the first major downfall year for Ireland with a digit of -7%, as it was suffering heavily from the burst of the property bubble. Spain followed soon after, as did Portugal. From 2009 to 2012, Spain recorded values of around -10%, with 2009 being the highest with a value of -11%. Portugal had similar figures, with a high of -11.2% in 2010. Greece was also on its usual path, with double-digit figures on every year from 2008 to 2011, as well as in 2013. Ireland has the questionable honor of having the worst deficit of any euro country in history with a figure of -32.3% in 2010, resulting from the bailout packages assembled for the Irish financial institutions. Ireland has, however, recovered well after the collapse, since the deficit level had improved to -3.9% in 2014.

The crisis hit every member country severely, and in 2014, Luxembourg was the only member not to have violated the deficit rule since the ratification of the Maastricht Treaty. In 2014, Finland experienced its first breach of the deficit rule since 1996. Even though the situation has improved substantially since the beginning of the crisis, many countries, most notably Spain and Portugal, were facing high deficit levels and continue to do so. In case of the larger euro countries, the situation was slightly more restrained. Germany experienced a deficit of -4.2% in 2010, but after that it has had relatively quiet series of near-zero deficits and surpluses. Of the larger countries, France had the biggest deficit, -7.2% in 2009. After that, the pattern has been improving every year. Italy experienced a deficit of -5.3% in 2009, but after that its values have been very close to the 3% threshold. On average, the deficit levels have continuously dropped on five straight years since 2010, similar to a situation in the 1990s when Europe was preparing for the new currency union.

In the introduction, we presented a research question of how the requirements in the Maastricht criteria have changed after a country joins a monetary union. After the analysis, we can now proceed to answer in terms of national government deficit. The deficit values were generally improving in the 1990s, before experiencing a slight setback in

the turn of the millennium, as the euro was being physically introduced. The situation was again improving in the first half of the 2000s, before experiencing a significant turn to worse due to the financial crisis. The situation has once again improved in the recent years, with the average values improving on a yearly basis. In 2014, every country among the original members except Portugal had a better deficit value than their corresponding values in 1993, at the time of the Maastricht Treaty. Of the time frame observed, the situation was best in the year 2000. During the years between the start of circulation and financial crisis, the deficit levels seem to have developed positively.

3.1.2 Government debt

Another widely observed feature in government activity is its consolidated gross debt. A direct consequence of running a governmental budget deficit, this cause and effect relationship forms an integral part of a monetary union. Assume that a member country chooses to run a path of deficit instead of making corrective adjustments to its budgetary policy. The member ends up creating negative spillovers, which affects other members in the monetary union. A country with a worsening debt-to-GDP ratio has to increasingly rely on capital markets, which in turn raises the interest rate for the entire monetary union. This leads to a pressure in other member countries' debts as well. If other members choose to run consistent debt-to-GDP ratios, they need to conduct more reserved fiscal policy. Hence, if one country chooses to run a higher debt-to-GDP ratio, it compels the other members to conduct a more deflationary policy. (De Grauwe 2005, 230.)

Following are tables 5 and 6, which contain debt-to-GDP ratios for the twelve members of the original start date of 2002. As in the previous subchapter, the data has been collected from Eurostat. As could be predicted, similar occurrences to the deficit levels recur here as well. The guiding themes are again improved levels after the Maastricht Treaty, relative stagnation around the turn of the millennium and worsening debt levels after the global recession began in 2007.

Table 5: Government consolidated gross debt from 1995 to 2004, as percentage of GDP.
Source: Eurostat.

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Belgium	130,5	128,0	123,2	118,2	114,4	108,8	107,6	104,7	101,1	96,5
Germany	54,8	57,6	58,8	59,4	60,0	58,9	57,7	59,3	63,0	64,7
Ireland	78,5	69,9	61,6	51,5	46,7	36,1	33,2	30,6	29,9	28,2
Greece	:	:	:	:	:	:	:	:	:	:
Spain	61,7	65,6	64,4	62,5	60,9	58,0	54,2	51,3	47,6	45,3
France	55,8	59,7	61,1	61,0	60,2	58,7	58,2	60,1	64,2	65,7
Italy	116,9	116,3	113,7	110,8	109,6	105,1	104,7	101,9	100,4	100,0
Luxembourg	8,1	8,0	7,9	7,6	6,7	6,1	6,6	6,5	6,4	6,5
Netherlands	73,1	71,2	65,6	62,5	58,2	51,4	48,7	48,2	49,3	49,6
Austria	68,0	68,0	63,2	63,6	66,4	65,9	66,5	66,3	65,5	64,8
Portugal	58,3	59,5	55,2	51,8	51,0	50,3	53,4	56,2	58,7	62,0
Finland	55,1	55,3	52,2	46,9	44,1	42,5	41,0	40,2	42,8	42,7
Average	69,2	69,0	66,1	63,3	61,7	58,3	57,4	56,8	57,2	56,9

Table 6: Government consolidated gross debt from 2005 to 2014, as percentage of GDP. Source: Eurostat.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgium	94,6	90,9	86,9	92,4	99,5	99,6	102,2	104,1	105,1	106,7
Germany	66,9	66,4	63,6	65,0	72,5	81,0	78,4	79,7	77,4	74,9
Ireland	26,1	23,6	23,9	42,4	61,8	86,8	109,3	120,2	120,0	107,5
Greece	:	103,5	103,1	109,4	126,7	146,2	172,0	159,4	177,0	178,6
Spain	42,3	38,9	35,5	39,4	52,7	60,1	69,5	85,4	93,7	99,3
France	67,2	64,4	64,4	68,1	79,0	81,7	85,2	89,6	92,3	95,6
Italy	101,9	102,5	99,7	102,3	112,5	115,3	116,4	123,2	128,8	132,3
Luxembourg	6,3	7,0	7,2	14,4	15,5	19,6	19,2	22,1	23,4	23,0
Netherlands	48,9	44,5	42,4	54,5	56,5	59,0	61,7	66,4	67,9	68,2
Austria	68,3	67,0	64,8	68,5	79,7	82,4	82,2	81,6	80,8	84,2
Portugal	67,4	69,2	68,4	71,7	83,6	96,2	111,4	126,2	129,0	130,2
Finland	40,0	38,2	34,0	32,7	41,7	47,1	48,5	52,9	55,6	59,3
Average	57,3	59,7	57,8	63,4	73,5	81,3	88,0	92,6	95,9	96,7

Let us again start from the beginning of the deepening integration, in other words the halfway point of the 1990s. Looking at the tables 5 and 6, we can explain that the average debt level was decreasing on eight consecutive years from 1995 to 2002. A general economic upturn can be attributed to this case as well, as can be the increased political attention to the criteria of the Maastricht Treaty (Lane 2006, 61-62). However, the average debt level was not within the acceptable 60% range of the GDP before the year 2000. In 1995, Luxembourg, Finland, Germany, France and Portugal satisfied the 60% criterion. On average, the situation was best in the year 2002, when the average amount of debt was 56.8% of the GDP. In 2000 and 2001, all countries except Belgium, Italy and Austria met the criterion. Again, a special praise can be attributed to a few nations for conducting sustainable fiscal policy. Both Belgium and Ireland were able to continuously decrease their debt ratios from 1995 to 2006, and Belgium in 2007 as well. Also decreasing its debt significantly was Italy, from 116.9% in 1995 to 100.0% in 2004, and 99.7% in 2007. Greek data is missing between 1995 and 2005, but Buiter (2006, 701) presents that the level was over 100% of the GDP on every year of the above-mentioned time range. Furthermore, Frankel (2015, 429) presents that the debt level was never decreasing towards the required 60% of the GDP level.

The period between the implementation of the euro and the beginning of the financial crisis was, again, sustainable from the fiscal point of view. On average, the debt levels were within the acceptable limit from 2000 to 2007. The debt levels generally decreased or stayed roughly the same from 2002 onwards, but a few exceptions can be distinguished. Adapting to their deficit values, the debt levels of France and Germany were rising during the first years of the euro as a physical currency. The values recovered only a few percentage points before the outbreak of the financial crisis. The Netherlands, Finland and Spain were able to reduce their government debt levels more significantly, with Spain reducing its debt level from 51.3% in 2002 to 35.5% in 2008, a reduction of over 15 percentage points during that period.

The outbreak of the financial crisis in 2007 saw a fierce rise in national debt levels, similar to the worsening deficit levels. The year 2008 was already beyond the acceptable limit of 60%, with the average debt level nearing 100% in 2014. In 2008, Finland was the only nation able to reduce its debt from 2007. Hardest hit were Luxembourg and Ireland, which saw increases of 100% and 77.4% in a single year, respectively. Experiencing its low of 23.6% in 2006, Ireland witnessed its debt increase to over fivefold in 2012 and 2013, before turning to decrease again in 2014. Other countries, especially in southern Europe, also suffered greatly from the recession. Spain, having an honorable level of 35.5% in 2007, saw its debt increase to 99.3% of GDP in 2014. Italy, experiencing a significant decrease from 1995, witnessed an increase of over 30 percentage points to 132.3% in 2014. Portugal, not among the gainers during the first years of the monetary union, also had a soaring debt during the period from 2007 to 2014. Its debt level

increased from 68.4% to 130.2%. The worst suffering was again Greece, where the government debt increased from 103.1% in 2007 to 178.6% in 2014.

Small signs of hope can be distinguished, however, during the most recent years. The change in average debt level from 2013 to 2014 was around 0.8%, whereas the change in 2013 was 3.6%, and 5.2% in 2012. Besides Ireland, also Germany and Luxembourg were able to decrease their general government debt level from 2013 to 2014. In addition to Luxembourg, only Finland had a debt level below 60% in 2014, though only by margin of a few decimals. During the period of our review, the debt levels have generally followed the pattern set by the deficit levels, excluding the most recent years. The debt ratios had a downward direction after the Maastricht Treaty, up until the euro began circulating. On average, the ratios stayed around the same from 2001 to 2007. From 2008 onwards the rise in debt ratios has been swift, due to the ongoing financial crisis.

3.2 THE NEWER AND POSSIBLE FUTURE MEMBER COUNTRIES

The second subchapter provides us a view of the seven newer euro countries mentioned in the introduction of the chapter. It has been argued, that in addition to the economic side, the enlargement has an even more important feature. It is very important on a political level, as it is seen to end the political separation in Europe (Breuss, Fink & Haiss 2004, 770). Indeed, the seven new member countries have a population totaling around 15 million (2012) and combined Gross National Income of about $265 billion (2012), which constitute around 4,5% and 2% of the Eurozone total, respectively. On the other hand, on the political side the official languages of the euro area increased by 6. Following are tables 7 and 8, which summarize the government debt and deficit levels for the seven new EMU member countries.

Tables 7 and 8: Government deficit and surplus from 2003 to 2014, and government consolidated gross debt from 2003 to 2014 for the seven new members, both as percentage of GDP. Source: Eurostat.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estonia	1,8	2,4	1,1	2,9	2,7	-2,7	-2,2	0,2	1,2	-0,3	-0,1	0,7
Cyprus	-5,9	-3,7	-2,2	-1,0	3,2	0,9	-5,5	-4,8	-5,7	-5,8	-4,9	-8,9
Latvia	-1,6	-1,0	-0,4	-0,6	-0,7	-4,1	-9,1	-8,5	-3,4	-0,8	-0,9	-1,5
Lithuania	-1,3	-1,4	-0,3	-0,3	-0,8	-3,1	-9,1	-6,9	-8,9	-3,1	-2,6	-0,7
Malta	-9,1	-4,4	-2,7	-2,6	-2,3	-4,2	-3,3	-3,2	-2,6	-3,6	-2,6	-2,1
Slovenia	-2,6	-2,0	-1,3	-1,2	-0,1	-1,4	-5,9	-5,6	-6,6	-4,1	-15,0	-5,0
Slovakia	-2,7	-2,3	-2,9	-3,6	-1,9	-2,3	-7,9	-7,5	-4,1	-4,2	-2,6	-2,8
Average	-3,1	-1,8	-1,2	-0,9	0,0	-2,4	-6,1	-5,2	-4,3	-3,1	-4,1	-2,9

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estonia	5,6	5,1	4,5	4,4	3,7	4,5	7,0	6,6	5,9	9,5	9,9	10,4
Cyprus	63,5	64,5	63,2	59,1	53,9	45,1	53,9	56,3	65,8	79,3	102,5	108,2
Latvia	13,9	14,3	11,8	9,9	8,4	18,7	36,6	47,5	42,8	41,4	39,1	40,6
Lithuania	20,4	18,7	17,6	17,2	15,9	14,6	29,0	36,2	37,2	39,8	38,8	40,7
Malta	69,1	72,0	70,1	64,6	62,4	62,7	67,8	67,6	69,8	67,6	69,6	68,3
Slovenia	26,7	26,8	26,3	26,0	22,7	21,6	34,5	38,2	46,4	53,7	70,8	80,8
Slovakia	41,6	40,6	33,9	30,8	29,9	28,2	36,0	40,8	43,3	51,9	54,6	53,5
Average	34,4	34,6	32,5	30,3	28,1	27,9	37,8	41,9	44,5	49,0	55,0	57,5

Observing tables 7 and 8 give us a good view of development in case of the newer countries. Note that unlike with the original twelve members, the seven newer adopted the euro separately from each other. All of the newer countries became members in January, with the entry years being different. As noted in the chapter introduction, Slovenia was the first new member in 2007, five years after the euro began its circulation. Cyprus and Malta joined in 2008, Slovakia in 2009, Estonia in 2011, Latvia in 2014 and Lithuania in 2015. We observe the debt and deficit levels starting from 2003. The tables indicate a distinct message, as the newer member countries follow the rest of the world in terms of financial difficulties as well.

On average, the debt and deficit levels decreased from 2003 until the beginning of the crisis, reaching the best figures around 2007. The debt and deficit figures differ from 2007 onwards. Average deficit level reached its highest value of -6.1% soon after in 2009, whereas the debt values have continued to climb ever since the beginning of the crisis. Difference between the old and new countries is also apparent. The deficit values have been around the same for the past few years, and while on a steady rise recently, the debt values on average are considerably better for the newer countries.

Some specific cases among the new members can be distinguished as well. For example, Estonia can be considered a good example of responsible fiscal policy. During the period of our observation, Estonia has not run excessive deficit, and its debt-to-GDP level only surpassed 10% in 2014. For the majority of the period, Estonia was running surplus. As a matter of curiosity, Estonia has run excessive deficit only once during its entire time as an independent nation, a modest figure of around -3.5% in 1999.

On the other side of the table, excessive deficit and debt-to-GDP values of over 60% have been common among other new member states. The worst deficit value of -15% was experienced by Slovenia in 2013. A near double-digit figures were also experienced by Latvia in 2009 and 2010, Lithuania in 2009 and 2011 and Malta in 2003. Among the debt-to-GDP ratios, Cyprus had the highest value, 108.2% in 2014. Apart from Cyprus and Malta, the debt values have been quite modest among the new members. In 2014, Slovenia was also running unacceptable debt ratio of 80.8%, having risen rapidly from the value of 53.7% in 2012. Hence, of the new members, the Baltic states and Slovakia were meeting the debt and deficit criteria in 2014. A less surprising fact is that like the original members before, every new member also focused on the deficit target before their respective entries. Taking into account their entry dates, every applicant had a moderate deficit ratio, or were even running surpluses before the following January.

As mentioned before, three earlier members of the European Union opted to remain outside of the Eurozone. These are the United Kingdom, Denmark and Sweden. As of 2016, no official statement has been given by these countries to join the euro in the near future, even though referendums are under consideration. Other European Union members have, however, expressed interest in joining the euro sometime in the future.

Tables 9 and 10: Government deficit and surplus from 2005 to 2014 and government consolidated gross debt from 2005 to 2014 for the possible members, both as percentage of GDP. Source: Eurostat.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bulgaria	1,0	1,8	1,1	1,6	-4,1	-3,2	-2,0	-0,6	-0,8	-5,8
Czech Repu	-3,1	-2,3	-0,7	-2,1	-5,5	-4,4	-2,7	-4,0	-1,3	-1,9
Croatia	-3,7	-3,2	-2,4	-2,7	-5,8	-5,9	-7,8	-5,3	-5,4	-5,6
Hungary	-7,8	-9,3	-5,1	-3,6	-4,6	-4,5	-5,5	-2,3	-2,5	-2,5
Poland	-4,0	-3,6	-1,9	-3,6	-7,3	-7,5	-4,9	-3,7	-4,0	-3,3
Romania	-1,2	-2,2	-2,9	-5,6	-9,1	-6,9	-5,4	-3,2	-2,2	-1,4
Average	-3,1	-3,1	-2,0	-2,7	-6,1	-5,4	-4,7	-3,2	-2,7	-3,4

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bulgaria	26,6	20,9	16,2	13,0	13,7	15,5	15,3	17,6	18,0	27,0
Czech Repu	28,0	27,9	27,8	28,7	34,1	38,2	39,9	44,7	45,2	42,7
Croatia	40,7	38,3	37,1	38,9	48,0	57,0	63,7	69,2	80,8	85,1
Hungary	60,5	64,7	65,6	71,6	78,0	80,6	80,8	78,3	76,8	76,2
Poland	46,7	47,1	44,2	46,6	49,8	53,3	54,4	54,0	55,9	50,4
Romania	15,7	12,3	12,7	13,2	23,2	29,9	34,2	37,4	38,0	39,9
Average	36,4	35,2	33,9	35,3	41,1	45,8	48,1	50,2	52,5	53,6

No official adoption dates or targets have been set, but some of these members could join the euro around 2020 at the earliest. This, of course, means that their currency must be pegged to the Exchange Rate Mechanism two years prior to the official entry date. Potential future members have been assembled in tables 10 and 11, which show the debt and deficit values for these nations.

Interpretation of tables 9 and 10 becomes slightly different, as these potential members lack the monetary union entry date. A common feature with the actual members can be distinguished, however. As with many others, these countries were also affected by the financial crisis. The figures follow the universal trend of worsening ratios from 2007-08 onwards, with the leveling off during the last few years in the most cases. Of the countries presented in the tables, Czech Republic and Romania have the best overall performance regarding monetary union entry in the coming years, as both countries satisfied the debt and deficit criteria. On the other hand, Croatia has emerged as the most unsatisfactory candidate with a deficit ratio of -5.6% and a debt ratio of 85.1%. Expressing anything conclusive is, however, premature as joining the euro in 2020 would require membership in the ERM in 2018 at the earliest.

3.3 SUMMARY

Taking into account the countercyclical nature of the debt-to-GDP ratio, the ratios have tended to rise during economic downturns and lower when an upturn takes place (Cafiso, 2012). In fact, public finances are often likely to worsen in case of a recession because of the existence of automatic stabilizers. These stabilizers, mostly in form of alterations in government spending and taxes, work to smoothen the negative effects on the economy. One good example is the income tax: When an individual loses his or her job, the dual effect consists of lost income tax, as well as a larger social benefit for the person recently unemployed. Other sectors of the economy, in form of corporations and consumption, are affected too when a recession takes place. Gains from enterprise taxation decrease as profits diminish and companies close down, and value-added taxes lower through smaller consumption. All of these features prominently affect national fiscal policies. (Holland, Barrell, Fic, Hurst, Liadze, Orazgani & Whitworth 2010, F13.)

Jacopo Cimadomo (2011, 24) discusses about the potential causes for fiscal problems. First of these, namely fiscal counteractions implemented by policy makers, deepens the effects of the automatic stabilizers. The size of these fiscal packages, coordinated by the European Economic Recovery Plan (EERP), rose to around 1.1% of GDP in both 2009 and 2010. This, however, leaves out the effects made at the European Union

level. The third point in the author's article stresses other factors that not necessarily depend on the contemporary cycle. These include, among others, trends in consumption and unforeseen shortfalls in revenues.

While the aforementioned three factors form the main point of attention, Cimadomo (2011, 24) also mentions the packages aimed to rescue troubled financial institutions. The effects of these packages mainly affected the national debt-to-GDP ratios, with the effects rising to 2% of GDP in 2008 and 2.5% in 2009. Most famous cases of financial sector support packages included the bailout of Royal Bank of Scotland by the British government in 2008, financial aid to multiple institutions in Ireland by the Irish government in 2008, and the takeovers of Freddie Mac and Fannie Mae by the United States federal government in 2008. Financing troubled banks and other institutions has been, as presented before, one reason that the national debt ratios have increased faster than the deficit values would have us presume. One must also remember, that a country might be able to sell its shares in financial institutions, even with a margin of profit, if the institution manages to regain profitable levels of operation (Attinasi, Leiner-Killinger & Slavik 2010, 49).

Large deficits and public debts have a rich history in the eurozone. In many cases, it was the oil crisis of the 1970's that started the trend of worsening debt and deficit ratios. Combined with limited and poor behavior of the national ruling parties, this has often been cited as one of the main reasons behind the deterioration of public finances. Since political defectiveness takes place in practically any country, one could ask why fiscal restrictions were introduced only in the process of the introduction of the common currency (Beetsma & Giuliodori 2010, 618.) In the same work, the authors discuss that the answer is the already poor conduct of fiscal policy. In this case, the unification would make the negative spillovers even worse, or possibly cause completely new spillovers and problems.

Other reasons behind poor public finances can be distinguished as well. For example, Portugal was running a serious deficit in the 1970's and the 1980's, which had even deeper roots in history. The country was suffering from the collapse of its dictatorship, as well as the independence of its former colonies in Africa. These factors, along with poor political procedures were essential reasons in losing the control of national fiscal policy. The budget deficit at this time was exceeding 12% of the GDP. The deficit was only removed after the national currency, the escudo, was devalued by more than 60% between the years 1980 and 1987. (Blanchard & Giavazzi 2002, 147.) In many cases, the public debt has been in continuous increase during the last 30 – 40 years (Fincke & Greiner 2012, 3717).

In any case, the outlook of public finances in Europe is in a serious situation. With the continuously increasing debt, sustainability can hardly be proclaimed. Taking into account the figures we viewed in this chapter, the reasoning for fiscal restrictions seems

obvious. Even though the average deficit has been improving since 2011, the value is still in excess of the needed 3%. Even if the countries in trouble managed to gain surplus from now on, it would take years, possibly even more to get the finances in a satisfactory situation. The importance of fiscal restrictions, as stated before, cannot be judged against, and the content of the restrictions hardly either. Even though the 60% debt restriction seems to originate from the average debt around the time of the drafting of the Maastricht Treaty, and therefore holds no official scientific foundation (De Grauwe 2005, 148), a relatively strict and earnest debt rule is in place. The following chapter summarizes the fiscal restrictions in the eurozone.

4 INTERPRETATION AND CONCLUSIVE REMARKS

The aforementioned authors, Attinasi, Leiner-Killinger and Slavik also planned an interesting scenario (2010, 49-51) aiming to forecast future debt and deficit levels with three different possible outcomes. The scenarios are presented below in figures 5 and 6, with the time frame up until the year 2030. The purpose of the forecast is to perceive the extent of the work needed in order to get the national fiscal balances back in order.

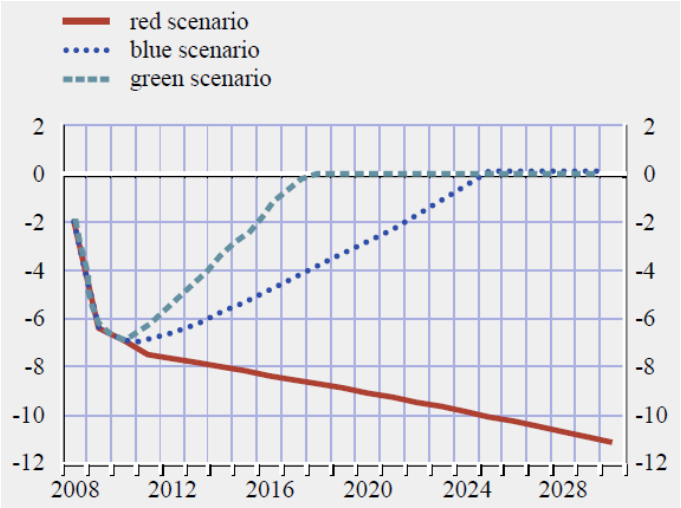

Figure 2: Three possible scenarios of overall budget balance for the euro area, as percentage of GDP. Source: Attinasi, Leiner-Killinger & Slavik, (2010, 50)

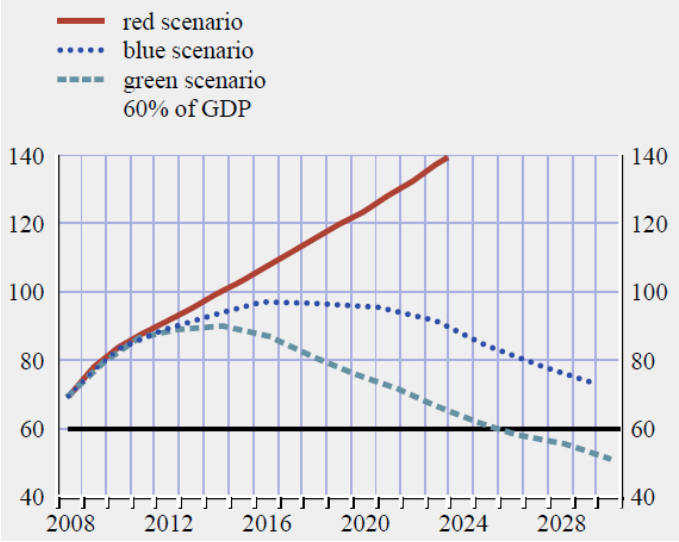

Figure 3: Three possible scenarios of overall government debt for the euro area, as percentage of GDP. Source: Attinasi, Leiner-Killinger & Slavik, (2010, 50)

The possible outcomes are highlighted in different shapes and colors in the graphs. The green line, also sorted by dashes, supposes a swiftly stabilizing fiscal balances. The green scenario supposes a primary balance improvement of one percentage point per year, until a balanced fiscal stance is achieved in 2018. The blue line, sorted by dots, assumes a less successful path. In this option, the primary balance improves by 0.5 percentage points per year, until reaching the target in 2025. The red and smooth line, on the other hand, assumes no stabilization efforts at all. The balance remains at -3.7%, at the time the forecast for year 2010. (Attinasi, Leiner-Killinger & Slavik 2010, 49-51)

The options presented in figure 5 lead to the results observable in figure 6. In option green, the debt levels peak at around 89% of GDP in 2013, while the blue option reaches its high of 97% of GDP in 2017. Furthermore, while the green option is the only one that eventually reaches the target level of 60%, the blue one also results in a more sustainable and strengthened path in fiscal conduct. The red option, a highly undesired one, leads to a firm increase in government debt values. (Attinasi, Leiner-Killinger & Slavik 2010, 49-51.)

Armed with contemporary hindsight, it is quite obvious to state that the green option did not materialize. Even if we would decide to follow the blue path, a lot will need to be done to achieve this. As we remember from section 3.1.2. Germany was the only major economy in Europe to have a debt-to-GDP ratio that seemed to have turned to better. Even though the blue option is achievable, at the moment the red option seems more probable. In addition, we must consider the differences between the euro members. Many of the members had high debt ratios and are more prone to larger deficits than other countries. The path to fiscal stabilization is also endangered by negative feedback, if higher government debt-to-GDP values lead to higher real interest rates and this way hamper economic recovery (Attinasi, Leiner-Killinger & Slavik 2010, 49-51).

4.1 TREATMENT OF PUBLIC DEBT AND DEFICIT AND POSSIBLE SOLUTIONS

The conduct of fiscal policy has so far offered little aspiration. As illustrated in the following figures 4 and 5, and discussed in the earlier section, the public debt levels have been high in the historical context. The introduction of the euro in 1999 and 2002 seemed to have little impact on the debt levels at the time, but the ratios have begun to climb in the aftermath of the financial crisis. The factual effects the monetary union has had on the member countries is almost impossible to declare, but the trend of the debt has been clear.

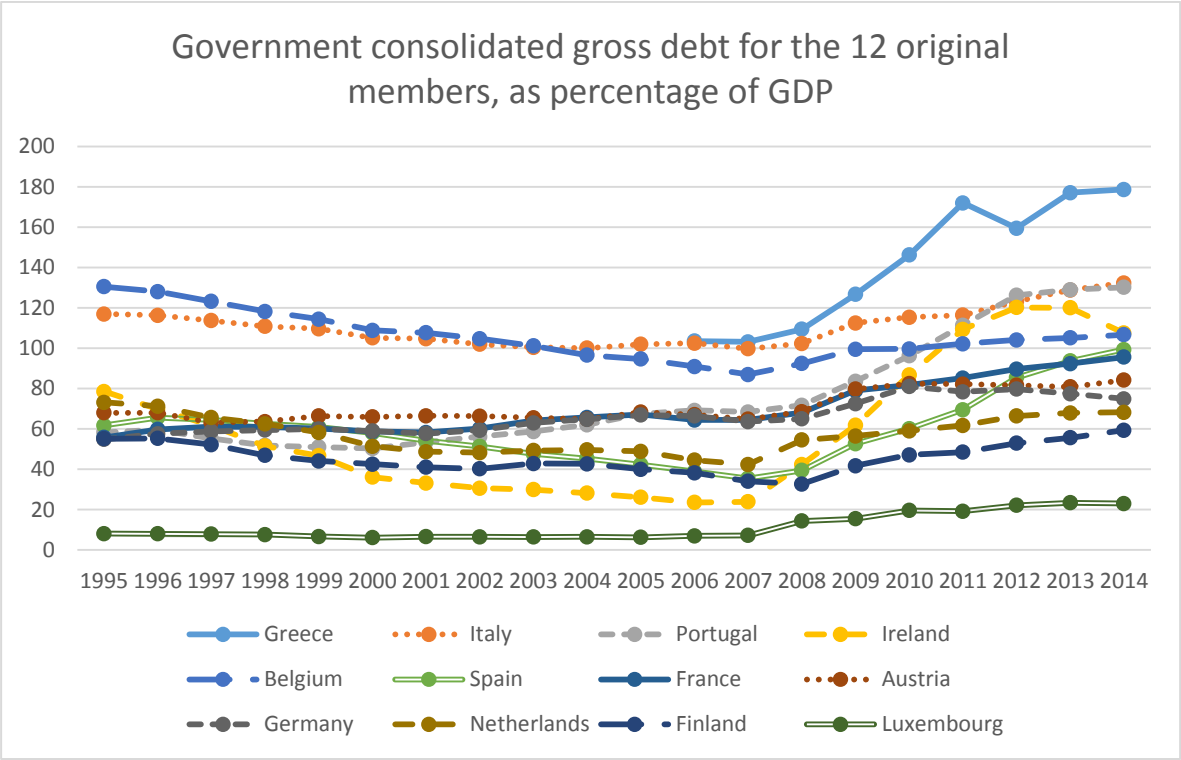

Figure 4: Government consolidated gross debt for the 12 original members, from 1995 to 2014. Figures are presented as percentage of GDP. Source: Eurostat.

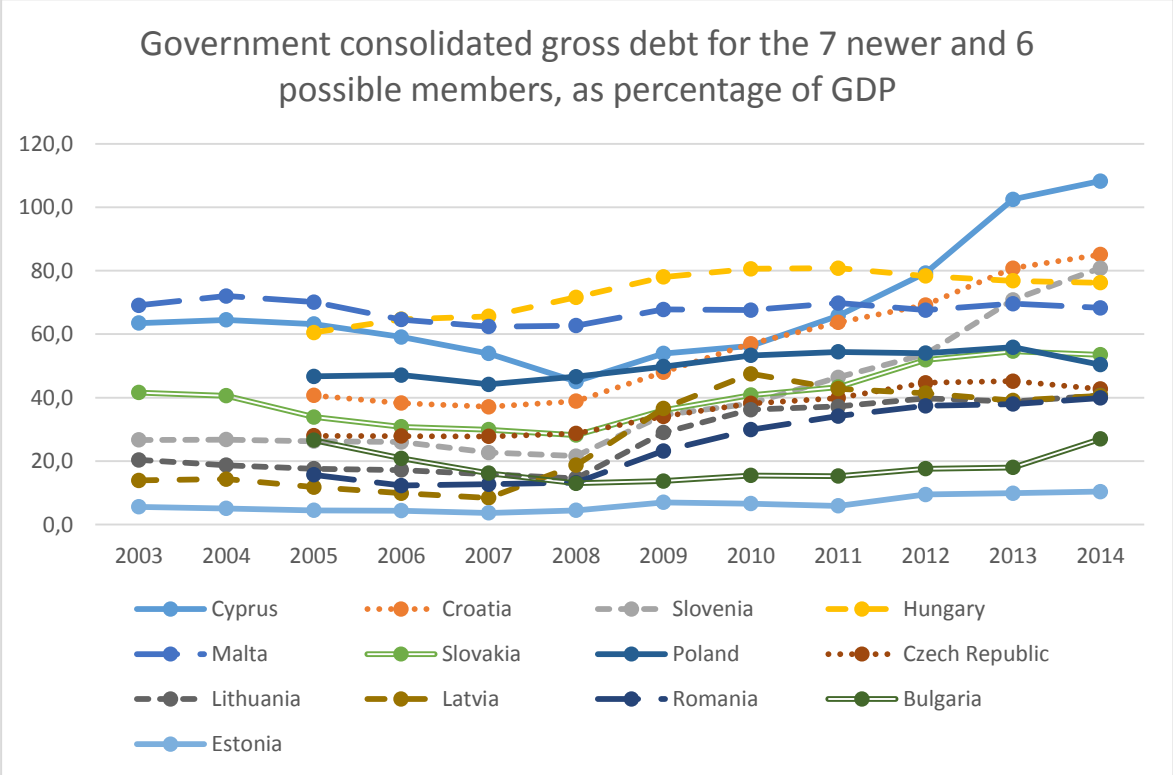

Figure 5: Government consolidated gross debt for the 7 newer and 6 possible members, from 2003 to 2014. Figures are presented as percentage of GDP. Source: Eurostat.

Jeffrey Frankel (2015, 429-433) presents three main reasons for the deterioration of public finance after the monetary unification, which work as possible solutions as well. First, Europe needs to deepen its cooperation among sectors that still work in the absence of monetary independence. Many economists had doubts over the monetary unification in Europe, as the members were letting go of their capacity to react to asymmetric shocks. Competitiveness in the peripheral areas of the union is crucial in order for the union to survive. A common problem in the periphery, especially during the first years of the monetary union, was the rising wages and unit labor costs in relation to the bigger and more central members. On the other hand, trade and current account balances accordingly worsened. At the time, growing deficits were explained with new capital flows, instead of badly worsening competitiveness. Crucial for the peripheral countries is to somehow cancel the trend of worsening unit labor costs, which for example could be done with wage reduction and productivity growth. Another option, using so-called "fiscal devaluation", consists of raising Value Added Tax while at the same time the income tax would be lowered. This, however, could prove to be difficult. Increase in productivity would be difficult as well, since it could require a number of changes. These include for example demolishing existing bureaucratic obstacles and liberalizing labor markets. As a "positive" notion, these are features that should have been done in the first place, but were never implemented because of the crisis. Keynesians tend to point out that these supply sector changes usually take a long time before having any effect, but for example letting groceries stay open longer could have an immediate positive effect on employment. (Frankel 2015, 431-433.)

Another solution has to do with better bank supervision, which only came to light when the financial crisis struck, since the drafters of the 1990's Treaties paid very little attention to it. Whereas Greece is an example of fiscal catastrophe, Ireland could be considered a good example of banking crisis victims. Ireland's struggle originates in the property bubble, which after bursting led the banking sector in trouble. Ireland was in need of a stricter monetary policy, but was unable to do so because of the common monetary supervision. The crisis was aggravated by the Irish government's decision to bail out domestic banks, effectively transforming the crisis into a fiscal one as well. The banking supervision is the problem that has probably best been dealt with, since the supervision was eventually moved from national observers to the ECB, starting in 2012. Another good feature were the 2014 stress tests conducted by the European Bank Authority, as well as the supplementing Asset Quality Review. (Frankel 2015, 429-431.)

The third and probably the most difficult problem to fix is the fiscal moral hazard problem. A surprising fact in the early stages of the drafting of Maastricht Treaty was the attention paid to the fiscal limitations of the agreement. These were, as discussed before, the 3% and 60% limits on deficit and debt, as well as the bailout ban and subsequent Treaties, such as the Stability and Growth Pact. The drafters clearly had a vision

of how the new monetary union on the old continent could function, since the fiscal restrictions at that time were rarely mentioned in corresponding literature. As we have seen, the limitations still have had little or no effect on the fiscal behavior of the member states. The criteria have been continuously breached by practically every member at some point, indicating that the SGP had little authority. Furthermore, as the spreads in the Mediterranean persisted in relation to Germany, the markets quite clearly believed that the central bank would in fact bail out any country that ended up in debt difficulties. In other words, even though the moral hazard problem was widely acknowledged, it was not focused on well enough. As many predicted before the worsening phase of 2009-10, the recession was eventually harder because of fiscal austerity programs. Because of this, instead of improving, the debt ratios worsened even further. For some countries, the burden became so heavy that debt reductions were needed. One such example is the write-down that was recently performed for Greece. Even this many years after the financial crisis struck, debt levels remain high, and colossal surpluses would be needed to bring the levels back to satisfactory. (Frankel 2015, 429, 433.)

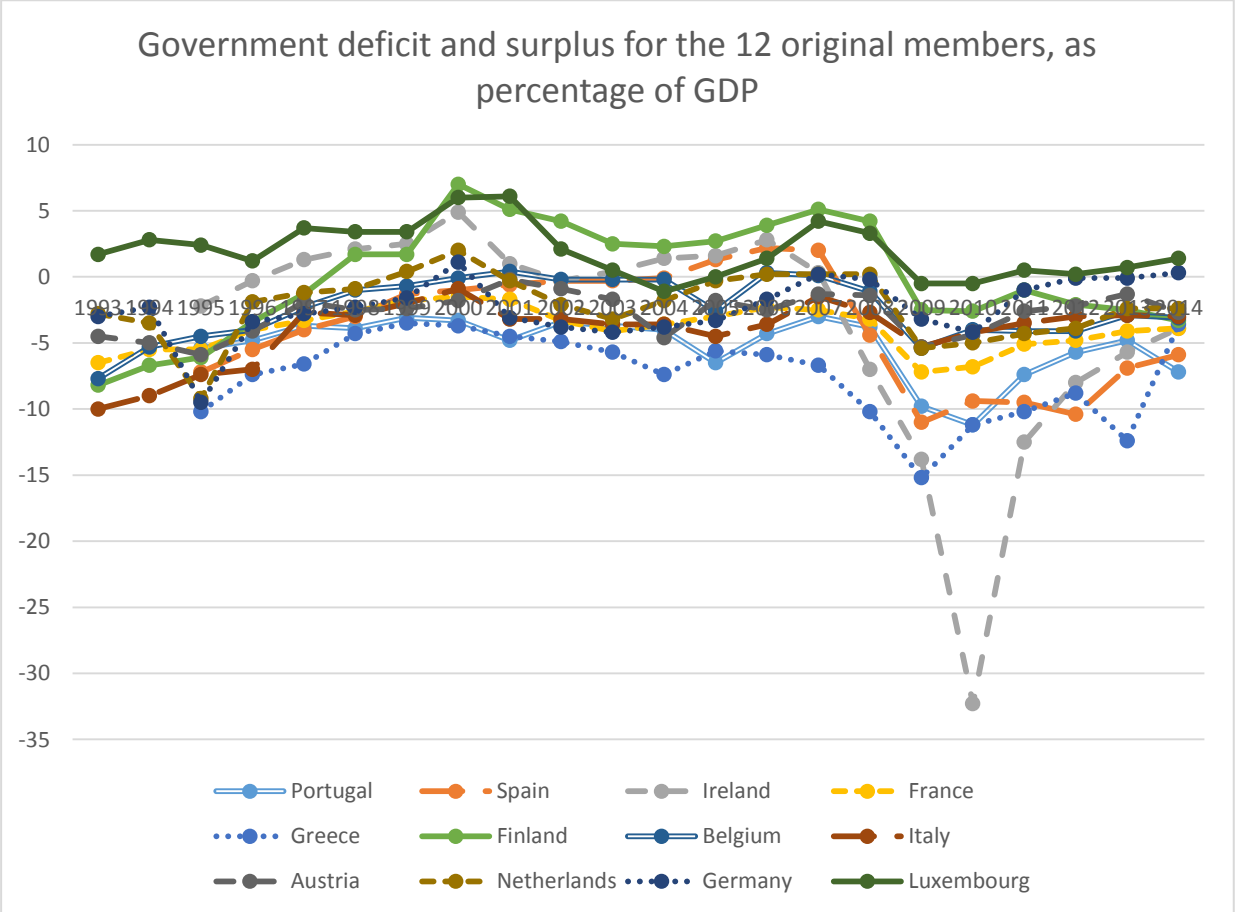

Figure 6: Government deficit and surplus from 1993 to 2014 for the original 12 members, as percentage of GDP. Source: Eurostat.

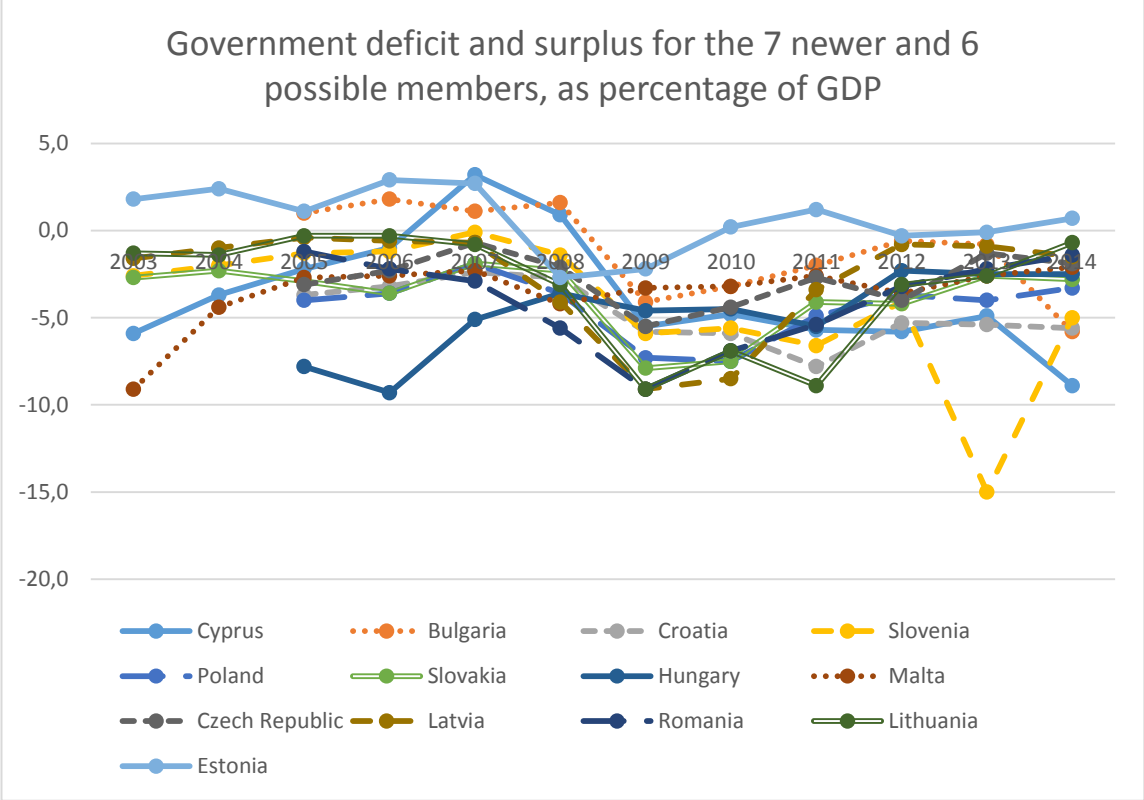

Figure 7: Government deficit and surplus from 2003 to 2014 for the 7 newer and 6 possible members, as percentage of GDP. Source: Eurostat.

4.2 THE ROLE OF FISCAL RESTRICTIONS

In the last subchapter, we ponder the role of the fiscal restrictions in the eurozone. We see no problem in a well-defined limitation with scientific background and material, which aims to guide fiscal policy. A political agenda changes often when an election is held, with different policy makers in charge from time to time. A permanent precept that reminds of a sustainable fiscal policy is in place, a good example being the debt limit of 60% that has prevailed ever since the Treaty of Maastricht was first seen in the drawing table. A more prominent problem, however, is the execution of procedures that are to be activated whenever a member breaches the rules, and shows no intention of returning to sustainability. As seen in the previous chapter, many members remain on the worse sector of the fiscal restrictions of 3% and 60%, yet no country has been fined (Feldstein 2015, 424).

The eurozone remains a substantially diverse and frail economic zone, despite the fact that the area has seen countless alterations and improvements since the beginning of the financial crisis. One of the most prominent factors is the unique feature of a monetary union, the common bond market after monetary unification. De Grauwe & Ji (2015) found evidence, that financial markets are more likely to treat monetary union member countries with more severity than others when facing difficulties. As discussed before, in addition to the financial sector, the institutions of the monetary union also impose limitations on the member states. Economic difficulties are also made more severe because of the defectiveness of automatic stabilizers, which in turn is caused by panic that exacerbates austerity. This panic that may cause overreaction, usually happens during a time of recession and bad economic performance. De Grauwe & Ji (2015) found that the austerity was present in the eurozone, whereas in their sample of comparison countries the phenomenon did not occur. (De Grauwe & Ji 2015, 413.)

The path of austerity for currency union members itself is not complicated at all, but may turn out to be so in case panic and fear are the driving factors behind the decisions and outcomes. It goes without saying, that economy should be conducted from purposes other than primitive senses. Another implication is, that in case the markets force the euro area to adopt austere measures every time a recession takes place, the social and political foundation of the union could face a severe test. The procedure could also potentially cause dissatisfaction among the citizens of the member states, since austere treatment only because you are part of a monetary union may feel unfair. (De Grauwe & Ji 2015, 413.)

The two variables used in this thesis are the debt and deficit values, calculated as percentage of Gross Domestic Product (GDP). When the debt-to-GDP ratio grows, the amount of debt grows as well and the cost of debt, in other words the loan servicing cost increases likewise. This in turn increases the risk of default for a sovereign state. A riskier investment insists a larger risk premium, which the investors gain in form of a larger spread. Hence, an increase in the debt-to-GDP ratio hints at a larger default risk, therefore justifying a limitation on the value. A similar effect can be derived from alterations in current account balance, represented by the deficit-to-GDP ratio. A deficit in current account means a net foreign debt of the member state in question. For the following cause, a worsening deficit-to-GDP ratio may be an indication of default as well: In case the net foreign debt is increasing because of the overspending of the country's private sector, it obviously suggests that the private sector suffers from an increased default risk. This could prove to be detrimental for the policy makers as well, since problems in the economic activity lowers the governmental income. In other words, government revenues could turn to deficits if the economic scene suffers significantly. On the other hand, if the increase in net foreign debt derives from governmental overspending, the

government's debt servicing costs are affected directly. This is another way to increase the national default risk. (De Grauwe & Ji 2014, 353.)

Financial markets obtained vast responsibility in the process of European monetary unification, being able to push the monetary union members close to default during hard times. A significant change in the countries' economic structure enabled the self-fulfilling crises in liquidity to become more severe. In form of an own central bank, the countries were hard to push to limits before the monetary unification. De Grauwe & Ji (2014, 359) state in their work, that in a way, the monetary union members became emerging nations again, with the ability to issue debt gone. Another topic in the field of financial market effects is the loss of automatic stabilizers. A form of loss in independent policy making, the member states were forced to turn off the stabilizers when pressured by the financial markets. This phenomenon became more visible in 2009, with the peripheral countries the most affected. When in dire need of balancing fiscal policy during a difficult time, this measure was also largely out of order. De Grauwe & Ji (2014, 359) reach a conclusion in their work, that the amount of fiscal discipline in the eurozone has been excessive. They state, that in a union where monetary power has already been transferred to someone else, also fiscal policy has been tightened considerably. This exercise of excessive fiscal monitoring has been prevalent from the start of the financial crisis. (De Grauwe & Ji 2014, 359.)

The most prevalent understanding so far has been the thought, that a monetary union member must follow stricter budgetary discipline than a non-member. Two basic features can be found behind this notion. The first one is the idea of moral hazard, or fiscal free riding. A monetary union member has an option to be financially bailed out by the central monetary authority. A special possibility like this thus requires special fiscal monitoring, that ensures proper fiscal conduct. The second feature is the common loan market, in which the member governments operate as equals. In this case, the gains from a lower interest rate may tempt the members to issue more debt than would be fiscally sound. In this case, fiscal restrictions would be useful as well. These procedures have ultimately led to the creation of well-designed fiscal agreements, such as the SGP. The financial crisis has further caused the pacts and agreements to be tightened. The so-called two-pack and six-pack legislative practices have received increased control measures, while the member governments have agreed to include balanced budget sections in the national legislature. (De Grauwe & Ji 2014, 348-349.)

A peculiar fact about the financial crisis is, that little evidence exists about the government inadequacy being the driving force in the crisis before 2008. As also suggested by our data from chapter 3, the government average debt was actually on the decrease back then. On the other hand, the household equivalent was climbing sharply. In this light, the creation of the common currency union did not cause the kind of spending spree that many experts and theorists predicted. Another peculiar fact is the absence of

all the fiscal control contracts, in addition to the SGP being much more lenient. Government conduct regarding fiscal policy was not monitored so closely during that time, yet the debt-to-GDP ratios were improving. The households, on the other hand, took care of the fiscal profligacy. (De Grauwe & Ji 2014, 349.)

It was eventually noticed, that the main cause for the debt-to-GDP ratios to climb sharply was the private sector's aspiration to rid itself of excessive debt it had accumulated. Governments were forced to take control of the excessive debt in order to escape debt deflation dynamics. Nevertheless, the new budget measures focused more on the view that bad behavior of the governments was the main cause for the recession. De Grauwe and Ji (2014, 349) also point to the fact that the composition of the national governments' debt character changed drastically. An independent monetarily before, the member was suddenly forced to issue debt in a currency that it couldn't control. This led to a substantial change in the budget limitations of the members, but according to the authors, has not played any significant role in the discussion of monetary unions. (De Grauwe & Ji 2014, 349.)

Severine Menguy (2015, 254) describes the budget outlooks for various eurozone members in her work, coming to different conclusions on the countries. She points to the low amount of debt for Finland and Luxembourg, describing these countries as quite fiscally healthy. Also Germany, Austria and the Netherlands are on the verge of satisfying the criteria mentioned in the Fiscal Compact. Moreover, Ireland, Belgium and France still have work to do in order to accomplish the targets. Italy, Spain, Portugal and Greece face the most difficult challenges. The author argues that very high growth rates are needed for these most indebted countries, in case one could even imagine the target to be achieved. The European restrictions and targets therefore appear quite far away in case of some members. An already perilous budgetary situation is hazardous when joining a monetary union, with the situation worsening even further. On the other hand, joining a monetary union would strengthen the situation of an already stable country. The author comes to a conclusion, that the austerity means taken by the Fiscal Compact could lead to a reduced growth, especially in the case of the smaller peripheral countries. In this situation, achieving sustainable and stable growth rates is the most crucial and important target in the eurozone. (Menguy 2015, 254.)

Barry Eichengreen (2015, 416) discusses the possibility of restructuring debt in Europe, as already seen in case of Greece in 2012. Restructuring appears the only possibility, since running huge surpluses ten years straight seems quite far-fetched at this point. In fact, exceptional surpluses have been achieved only in special conditions during history. This includes the period of at least 10 years and surplus of at least 5%. Only three countries of the author's sample, namely Belgium, Norway and Singapore, were able to achieve this, taking place in the 1990s and 2000s. Three features are prominent on actors that achieve these feats. First, they experience heavy pressure from the outside, fo-

cusing on fiscal consolidation. Second, they feature strong institutions that are able to take care of common pool problems. Third, and most significantly, they are capable of maintaining economic growth, even in case they need to execute difficult fiscal consolidation projects. The possibility of being able to devalue one's currency has been an integral part of this in history (Eichengreen 2015, 417.)

Debt restructuring was prominent, for example, in the case of Brady Plan in the 1980's, which ended the Latin American debt crisis at that time. Apart from Greece, which saw its debts restructured and transferred to the private sector back in 2012, the possibility of restructuring has not gained widespread popularity in the old continent. Even in the case of Greece, the authorities have declined to rearrange the part of Greek debt that is held by the European Union institutions, most prominently the European System of Central Banks, as well as bonds that are in the sphere of foreign governing law. In case the debts remain the way they are, Europe is quite likely to suffer from ill economic growth and weak levels of investment for a long time to the future. (Eichengreen 2015, 417.)

In a nutshell we could state, that at least the eurozone does not suffer from too ignorant fiscal supervision. The monetary union has been learning the hard way, but on the bright side, the experience is sure to give new perspective and writings on matters that are crucial in the everyday lives of the eurozone citizens. Even though the role of fiscal negligence in the recent surge of public debt is somewhat vague, we could conclude that the European monetary community is in need of fiscal limitations. By these limitations, I mean guidelines that are based on scientific evidence and experience, in addition to providing important backup in case a country or its current political decision makers become unaware or indifferent about the fiscal situation. The limitations should include exceptions, in case they threat the healthy growth that the currency area needs. To answer the supplemental research question presented in the introduction, the role of fiscal restrictions is sufficient, with an additional flavor of situational awareness in place.

5 CONCLUSION

In this thesis, we viewed the development of public debt and deficit, as well as the fiscal restrictions in the eurozone. We progressed through handling of the agreements and contracts that guide fiscal decision making in the currency union, namely the Maastricht Treaty, Stability and Growth Pact and the Fiscal Compact. The latter became effective in 2013, aimed at tightening the fiscal restrictions in the aftermath of the financial crisis. We then viewed a couple of theories that focused on the need of fiscal restrictions, before turning our attention to the development of debt and deficit in the Economic and Monetary Union. The thesis was concluded by the interpretative part which summarized the development of debt, deficit and the need of fiscal restrictions.

The paths of public debt and deficit have had a two-edged development in the eurozone. The figures were developing in a positive manner after the Maastricht agreement in the early 1990s and the early stages of the new millennium, but turned to a sharp decline after the financial crisis. The cause of the crisis lies in the private sector, yet the largest burden came upon the national governments. The governments suffer not only in terms of lost revenue, but also in terms of paying for the rescue of troubled institutions. After the introduction of the euro, the figures had a relatively positive path, but turned to worse because of the crisis. Some countries were hit harder than others, but all need to pay attention to keeping the fiscal figures in balance.

The outcome clearly shows that the euro area is in a turning point, which deserves attention. The debt levels have climbed ever since the crisis started in 2008, with no end in sight. The EMU authorities keep tightening the fiscal limitations, while the continent is still in the early stages of rediscovering its lost economic growth. The fiscal conduct deserves guidelines in order to avoid a disaster of the same scale that still prevails in Europe. A harmonious result between the respective actors is needed. It is a dilemma that certainly requires addressing in the coming years.

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