

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics



Diploma Thesis

Scenarios of future Eurozone development

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Objectives of thesis

The goal of the thesis is to analyze possible future scenarios of the Eurozone. Current Debt situation in the most of countries in Europe suggest that Europe will be forced to do economical based decision instead of political. Present unstable situation in the Europe indicates that future of Eurozone might be in danger. Except from political pressures, states of EU will have to face the reality of inhomogeneity of their economies. The bottom line is that same currency is most likely not advantageous for Germany on one side and Greece on the other. For how long are the states of Eurozone willing to pay the price for mostly political project of European Union leaders?

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Declaration

I declare that I have worked on my diploma thesis titled "Scenarios of future Eurozone Development" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 3.31.2017

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Scenarios of future Eurozone development

Abstract

It has been more than 15 years since the implementation of single European currency (in its non-cash form). However we can still see certain problems and doubts concerning euro. The difficulties presented themselves during the economic depression of late years as well as the opinions that the crisis might mean the end of Eurozone as we know it. Present unstable situation in Europe indicates that future of Eurozone might be in danger. Except from political pressures, states of EU will have to face the reality of inhomogeneity of their economies. The economic troubles of Greece are far from being resolved, and situation in the Italian banking sectors has brought the attention of markets and is furthermore far from long-term solution. There is also glorious debt hovering over European Union as well as over United States of America and China, where credit bubble might burst every moment.

The bottom line is that same currency is most likely not advantageous for Germany on one side and Greece on the other. 5 scenarios of potential development will be created. Every of them concentrates on different possible outcomes in the future. The reasons for such development will be analysed on the base of economic theory and previous experience of the author. The same can be said about the consequences of the potential outcomes. For how long are the states of Eurozone willing to pay the price for mostly political project of the Eurozone? Is it currently advantageous for the Member States of monetary union to have the same currency?

Keywords: Eurozone, euro, monetary union, government debt, trade balance, ECB, GDP, unemployment, currency, scenario

Scénáře budoucího vývoje Eurozóny

Abstrakt

Je to více než 15 let od doby, kdy byla zavedena evropská jednotná měna (ve své nehotovostní podobě. Nicméně stále můžeme vidět určité problémy a pochybnosti, které se týkají Eura. Problémy se ukázaly býti reálnými během ekonomické deprese posledních let, stejně jako názory, že krize může znamenat konec Eurozóny, jak jí známe. Současná nestálá situace v Evropě ukazuje, že Eurozóna může být ve značných problémech. Kromě politických tlaků, země Evropské unie budou muset čelit realitě nehomogenosti svých ekonomik. Ekonomické potíže Řecka jsou daleko od vyřešení, stejně jako situace v Italském bankovním sektoru, která přitáhla pozornost trhů a je rovněž daleko od dlouhodobého řešení. Také zde máme obří dluh, který se vznáší nad Evropskou unií, stejně jako nad Spojenými státy a Čínou, kde hypoteční bublina může prasknout každou chvílí. Sečteno a podtrženo, stejná měna pravděpodobně nebude výhodná pro Německo na jedné straně a pro Řecko na straně druhé. Bude vytvořeno 5 scénářů možného vývoje. Každý z nich se bude soustředit na jiný možný vývoj v budoucnosti. Důvody pro takový vývoj budou analyzovány na základě ekonomické teorie a předchozích zkušeností autora. To samé může být řečeno o důsledcích a potencionálních výstupech. Jak dlouho ještě budou státy Eurozóny ochotny platit cenu za většinově politický projekt Eurozóny? Je to v současnosti výhodné pro členské státy měnové unie, aby měli totožnou měnu?

Klíčová slova: Eurozóna, Euro, měnová unie, vládní dluh, obchodní bilance, ECB, HDP, nezaměstnanost, měna, scénáře

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1 Introduction

It has been more than 15 years since the implementation of single European currency (in its non-cash form). However we can still see certain problems and doubts concerning Euro. The difficulties showed themselves during the economic depression of late years as well as the opinions that the crisis might mean the end of Eurozone as we know it. It has been shown that the close monetary union cannot continue without connection with integrated macro-economic policy, especially fiscal policy. Nevertheless nowadays EU and Eurozone are facing the opposite phenomena. There are political movements in almost all member states that are calling for leaving the EU altogether and these movements are acquiring more and more followers. Near future will show, what trend Europe will follow in the years ahead. The Last five years were marked by strengthening influence of euro-sceptical voices and incompetence of Brussels administration. The economic troubles of Greece are far from being resolved, and situation in the Italian banking sectors has brought the attention of markets and is furthermore far from long-term solution. There is also glorious debt hovering over European Union as well as over United States of America and China, where credit bubble might burst every moment.

Only a blind man would not see social tension rising inside the European Union which was only accelerated by migration crisis with its peak in the summer of 2015. Since then the flow of migrants has decreased to approximately one fifth of previous numbers. Majority of migrants are people from different cultural circle and their integration has proven difficult for now.

The last of many European problems that will be looked on with greater attention is the alienation of political elites from the common citizens of EU countries. Problems that common people truly care about are not being addressed by political representations, who have become the agents for the narrow group of people. Their goal is to postpone decisions and remain the status quo for as long as possible.

Since the beginning of the economic depression in 2008 we have seen only attempts to postpone the real solutions and decisions to all troubles mentioned above. They will all represent the KEY elements influencing the future of Eurozone and also the European Union as whole. As the Czech golden rule of the old says: "Do not postpone what you can do today!" Mark these words because the price we are going to pay in the future might very well be too high for some to pay...

2 Objectives and Methodology

2.1 Objectives

The goal of the thesis is to analyse possible future scenarios of the Eurozone. Current debt situation in the most countries in Europe suggest that Europe will be forced to do economic based decisions instead of politic. Present unstable situation in Europe indicates that future of Eurozone might be in danger. Except from political pressures, states of EU will have to face the reality of inhomogeneity of their economies. The bottom line is that same currency is most likely not advantageous for Germany on one side and Greece on the other. For how long are the states of Eurozone willing to pay the price for mostly political project of European Union leaders? Thesis will provide answer for this question and will analyse potential causes and consequences of selected scenarios.

2.2 Methodology

First step in making of the Diploma Thesis will be the preparation of Theoretical part of thesis. It will be focused on economic theory, which correspondents with macroeconomic topics. Fiscal and monetary policy will serve as the base of the Theoretical part. Some part will be also provided for the theoretical bases of monetary union. Last section of Theory will be focused on history and development of the Eurozone itself.

The practical part is based on the outputs of econometric model, which was created inside the Gretl software. The results of the model will serve as the base for further creation of potential scenarios of Eurozone. Attention will be focused especially on the significant variables which arise from the result. 5 scenarios will created. Every of them concentrates on different possible outcomes in the future. The reasons for such development will be analysed on the base of economic theory and previous experience of the author. The same can be said about the consequences of the potential outcomes. Final conclusion will be a aggregated result for all of the scenario and will provide answer for hypothesis and research question.

2.3 Hypothesis

“Eurozone is not advantageous organization for most of the countries that are Member States of the monetary union.”

2.4 Research question

“Is single currency advantageous for the Member States on Eurozone?”

“Is it currently advantageous for some Member States of Eurozone to return to their original currencies?”

3 Theoretical part

3.1 Fiscal policy

The theory of fiscal policy owes much to northern European economist such as Jan Tinbergen, Bent Hansen, Leif Johansen and others who five decades ago came up the definition. In spirit, if not in characteristics, Richard Musgrave could be positioned among this group. There were obviously contributors from North America, such as Alvin Hansen, Lawrence Klein, Abba Lerner, Robert Solow, Paul Samuelson and others, however, in their works, they focused mainly on the stabilization role of fiscal policy because this role was understood the most significant in the 1950s and 1960s. However, Keynesian stabilization policy in just a part, though a clearly significant part, of the modern theory of fiscal policy. In the formation of this theory, especially well advanced in Musgrave`s (1959) and Johansen`s (1965) agreements, the goals of fiscal policy cover more stabilization ideas because fiscal tools can be used also for redistributing income and reallocating resources in preferred ways. The theoretical part of fiscal policy will start with a sketch of the most essential elements and outline the assumptions implicit in it. At this stage we will ignore the modifications made to it in the recent decades. The thesis will argue that the reality can be far removed from this theory, and in some countries more than in others. In contrasting the theory with the reality, there will be used Italian examples. Policy-makers are presumed to have no other objectives but the promotion of the “social welfare”, or the “public interest”, of the nations. Social welfare cannot be detected directly – it does not depend on any chosen variable or indicator. Rather it hinges on several indicators, some of an economic environment and some of a social environment. The way in which policy-makers rank these indicators certainly changes with time or with the government in the authority. In representative democracies this ranking by the government in the authority is presumed to reflect the preferences of the citizens and the alterations in those preferences.

Examples of *economic* indicators are: GDP, growth in employment growth in productivity, the level of inflation, income distribution and unemployment among specific groups. Examples of *social* indicators are: life expectancy, level of crime, literacy rates, and the quality of the physical environment and the occurrence of illnesses. Naturally, economic indicators effect social indicators and vice versa. (Hansen, 2009)

The base for the fiscal policy is the budgetary system.

The budgetary system (simply budget) is the framework of the public budgets, which represents the creation and use of centralized monetary funds of the government (including public service on the local levels) for certain period.

The foundation for the budgetary framework is the state budget. Further we can include local budgets (budgets of cities and villages), different state purpose funds – for example fund for traffic infrastructure, etc. (Brčák and Sekerka, 2010)

The policy-makers accountable for *economic* policy focus on *economic* indicators. They have certain perception of the weight that each of these indicators, y_i , has on the welfare role, W . Thus we can write equation: (Hansen, 2009).

$$W = f(y_1, y_2, \dots, y_n)$$

The policy-makers are aware that the indicators, y_i can be influenced by fluctuations in particular policy instruments, x_j . These tools are the “instruments” available to the policy-makers to transform the social welfare and to steer it toward an optimum. Therefore, each indicator is a function of the policy mechanisms. Thus, we can select the equation: (Hansen, 2009).

$$Y_i = f(x_1, x_2, x_3, \dots, x_j)$$

Budgetary incomes:

- taxes
 - direct, which are linked to certain income or property (tax of income, tax of heritage, tax of donation and road tax, etc.);
 - indirect, like the value added tax (VAT), consumption tax, tariffs, etc.;
- accepted interests, incomes from rented property;
- incomes from the selling of property;
- accepted subsidies (significant especially with local budgets). (Brčák and Sekerka, 2010)

Budgetary expenditures:

- expenditures of social character in form of the transfer payment (support, benefits and contributions);
- government purchases represent for instance financing of usual and investment expenditures of government in education, healthcare, military, police, justice, etc.;
- transfer payments to companies in form of subsidies in areas such as transportation, agriculture, support of export, etc.;
- and also the interests from the public debt. (Brčák and Sekerka, 2010)

Frequently a particular instrument x_i is particular in influencing a specific indicator y_i . Efficiency in such context refers to the modification in an instrument, Δx , necessary to modify an indicator y by a specified amount, Δy . If a *small* or *realistic* change in an instrument can produce a *major* change in an indicator, then the instrument is considered efficient with respect to that indicator. When efficient instruments are existing to promote desirable objectives, economic policy becomes easier and improved results can be achieved in terms of social welfare. Examples of policy mechanisms are: different taxes, particular features of taxes such as exemptions, deductions and tariffs, various classes of expenditures and particular features of expenditures. Fiscal deficits can also be understood as *indirect* mechanisms to pursue stabilisation policies. They are determined by changing taxes and spending which are the *direct* mechanisms that governments can manage. Non-fiscal economic mechanisms include the exchange rate, the interest rate, specific regulations, etc. The non-fiscal economic mechanisms also effect socio-economic indicators but they will be overlooked in this discussion, which is focused on fiscal policy. If certain technical conditions are satisfied, then the understood system of equations, formed by the relationships revealed above, can be resolved for the values of the instruments that would maximise the social welfare,. This mathematical solution might require excessive changes in the mechanisms. However, if the mechanisms are efficient, the result of the equation will require changes in their principles that would be technically or politically achievable. Stripped to the bare bones, this is the theory of fiscal policy. It has provided the essential theoretical background or framework for much of the fiscal work in the past half century. As mentioned earlier, over the years there have been many qualifications to this theory in order to categorize the circumstances and the establishments that would make it more realistic. (Hansen, 2009).

3.1.1 Functions of budget

Fiscal developments over the previous two decades can be summarized by four remarks. First, many countries experienced a deficit bias, reflected in the steady worsening in public finances; a current reversal, in numerous cases, is mainly attributable to convergence under budgetary rules. Second, efforts to capture this deterioration with short or medium term discretionary acts have succeeded in a relatively small number of countries. Third, opposing to previously held conventional knowledge – generally derived from Keynesian tradition – fiscal modification, if underpinned by structural reform, need not induce a recession. And finally, fourth, a critical ingredient to successful correction is prolonged commitment to budgetary discipline. (Kopits and Symansky, 1998)

1. **allocation function** – it secures focus of the financial means on certain actions for example the solution of defense questions, transportation, etc.;
2. **redistribution function** – is the tool for solution of unwanted disproportions and imbalances
3. **stabilization function** – it marks out the influencing function of main macroeconomic variables; influencing is happening through the fiscal policy in the close connection. (Brčák and Sekerka, 2010)

3.1.2 Tools of fiscal policy

Have fiscal rules been connected with better fiscal performance? A number of present studies focusing on European countries have shown that the presence of budgetary rules could help moderate spending and procyclical bias. Here is the short overlook of what instruments fiscal policy is capable of using. (Cordes et al., 2015)

1. **Expansive fiscal policy**
 - a. growth of government expenditures G ,
 - b. growth of transfer payments TR ,
 - c. reduce of taxation,

2. Restrictive fiscal policy

- a. decrease of government expenditures G ,
- b. decrease of transfer payments TR ,
- c. growth of taxation (Brčák and Sekerka, 2010)

3.1.3 Barriers of effectiveness of fiscal policy:

1. **time delay** – significant delay measures especially in the discrete policy – for example financing of the investment development from budgets, delay during tax reforms, etc.;
2. **displacement effect** – in the consequence of expansive fiscal policy we can see the growth of demand for money, which causes the growth of interest rates, it has the result of decrease of private investments, etc.;
3. **public debt** – maintenance of it. (Brčák and Sekerka, 2010)

3.1.4 Deficit of state budget

Depending on the source of the deficit, we distinguish between structural and cyclic deficit.

- **Cyclic deficit** – is the compensation of surplus of state incomes over expenditures in the years of economic boom. Effect of displacement of private investments is than changed with the effect of contracting private investments in the years, when the budget indicates the budgetary surplus. In the long term, during the economic cycle, is the state budget being balanced, displacement effect is balanced by the effect of contracting private investments so the cyclic deficit does not have influence on the economy in the long term. (Brčák and Sekerka, 2010)
- **Structural deficit** – is on the other hand not balanced by surpluses of state budget in following years. It causes only displacement effect with its negative impacts. It creates the growth of interest rates, decrease of private investments expenditures with following of the long-term depreciation of the real product a decrease of employment with the growth of price level. (Brčák and Sekerka, 2010)

3.1.5 Assumption of the theory

Most theories are based on assumptions. Occasionally the assumptions are explicit, often they are not. Many times they are realistic, many times they are not. Of course the assumptions may be more realistic for specific situations and less for others. What are the important assumptions implicit in the theory of fiscal policy? And how accurate are they within the context of specific countries? Let us see the major ones. (Hansen, 2009)

First assumption: The existence of a “nerve centre”, that is of an office or a place where that slightly abstract concept that we call the “government” selects which policy instruments to use to effect the economic objectives that it reflects important to support and to maximise social welfare. The existence of a nerve centre indicates to a large range: (a) a single form of government; (b) a single budget; (c) a prime minister, president of finance minister with the political influence to set the preferred objectives and to change the policy mechanisms in the preferred direction and by the desired magnitude. Apparently this assumption relates to a large degree to the explicit institutional arrangements that may exist in some countries and not in others.

This first assumption suggests the existence of an all-inclusive budgetary procedure. No public finance decision is prepared outside the budget; or, at least, all decisions, whether in or out the official budget, are directly or indirectly controlled by the nerve centre. There can be no fragmentation of decision-making either because of different levels of government, each with sovereign power, or because of policy dissimilarities among ministries or between agencies. This also shows that the budget limitation for sub-national governments, or for additional-budgetary institutions, must not be a “soft” one. When there are dissimilarities in objectives or in the use of mechanisms among policy-makers, they must be flattened *within* the nerve centre. This assumption deals fundamentally with political influence and administrative controls and with how separated political influence is and how effectively it can be implemented. Apparently, political influence is partially the outcome of the support that the government receives from the voting public and partly the product of institutional arrangements determined by a country’s laws and constitution. It also partially the result of the actual as eminent from formal control that the government has over the administration and the legislature. (Hansen, 2009)

Second assumption: Those who embody the government have only the public interest of the nations in mind when they make the policy judgements. They are not influenced by their individual interests or by the special interests of specific groups or geographical areas. There are not any *effective* lobbies operating outside the election process and there is no scope for corruption, rent pursuing or “state capture”. Policy-makers avoid “populist” policies that go against the public interest even when these strategies have short run appeal that could help them win the next voting. Thus, the voting cycle play no role in budgetary decisions. (Hansen, 2009)

Third assumption: When it makes budgetary verdicts, the government has accessible to it the best economic analyses that it is possible to get given the existing resources. These analyses must be based on reliable data, on unbiased forecasts and on recognized economic bases that have established links between changes in policy mechanisms and changes in policy goals. From these analyses the policy-makers have to be able to resolute, with a reasonable degree of precision, that a given change in a policy mechanism is anticipated to cause a given change in a chosen objective. These analyses exclude policy choices based on “good feelings”, impressions, ideology, wrong data, biased forecasts, electoral promises, and pressures from lobbies or simply hatred toward previous governments. (Hansen, 2009)

Fourth assumption: Because fiscal policy instruments are commonly rooted in legislation they can only be changed by ratifying specific new laws or by modifying current laws. The bills submitted to parliament and the accepted laws are expected to be clear and specific and to contain as few irrelevant and exogenous provisions as possible. They must not generate asymmetric information, or problems of different explanations, between the government, on one side, and the citizens, on the other; or even among the policy-makers and those public servants who create the law, on one side, and those who must enforce or manage them, on the other. A law has to be identifiable, as much as possible, with particular policy mechanisms. It must be feasible and easy to determine which mechanism a particular law wants to change and which policy goals it wants to effect. (Hansen, 2009)

3.2 Monetary policy

For understanding the functioning of every economic system is the question, what the money are, very important, but satisfying answer itself is not enough. We also need to know the relations between money and other economic elements, the ways of emitting money into the circulation, ways of measuring a ways of regulating the amount of money in the economy and the meaning of money for decision making of subjects in various areas of economic systems.

Money has their influence on the economic activities, behaviour, character and property of almost every subject in the economy. The importance of money in this sense is constantly growing in time. From the macroeconomic point of view is the majority of Economists of the opinion that money has the influence on development of aggregate price level, aggregate output and employment and other macroeconomic elements. If we used the words of Milton Friedman, the laureate of The Nobel Prize for economy in the year of 1976, “money matters”. The influence of money on development of economic elements can be retroactively applied on the value of money for every single individual. *The level of importance* is dependent on the type of economy, but money has already overcome “boundaries” of particular economies and their importance is being internationalized or globalized.

Money can be theoretically considered as **any kind of asset, which is generally accepted in the process of payment for goods and services or when paying the debts.** Important aspect is generality. When the asset is not accepted by all of the economic subjects of given society, we are not talking about money, but only about its non-artificial and usually simply limited substitute. The generality at the same time presumes *credibility* of money. It means that money is also asset in which people believe, that will be accepted by other people during the process of payment. The subjects that emit money reckon money as a **liability**. In the past it was connected with the duty of reverse purchase of emitted money for precious metals.

Nowadays there are functions of money where we can see for instance payment cards or some kinds of securities taking place. The most significant amount of transactions is realized thru “invisible” non-cash money as numbers on the accounts. The question of essence of money is getting closer to what function this asset represents. (Revenda, 2011)

3.2.1 Definition of monetary policy

Monetary policy refers to the branch of economic policy handled by the central bank of selected country. It is concerned with the super vision of the money supply, interest rates and financial situations. It attempts to achieve the broad economic objectives of both government and the central bank such as low unemployment, steady economic growth and low inflation. Specifically, monetary theory focuses on the effect of money and interest rates on aggregate demand, price level, unemployment and economic growth. (Rabin and Stevens, 2002)

- Monetary circulation and the market of money
- Loan system and the market of capital

State organs must have the opportunity to enter on the money market and capital like one of the participants. This is the reason why another assumption for monetary policy is the existence of central bank, which has be located inside the ownership of the state and which has the ultimate authority, considering the emission of money. Central Bank can execute two main types of monetary policy: **expansive**, in other words - increase the supply of money; restrictive, in other words – decrease the supply of money. (Brčák and Sekerka, 2010)

3.2.2 Banking system

Banking is ranked, in every advanced open market economy, between sectors with the highest dynamics of development. Without properly working banks there is no possibility to think about significant economic development. There is a mutual relationship between banking sector and the rest of the sector of the economy. Advanced economy requires advanced banking system and the other way around.

Banks are ranked among the institutions, whose most important area of expertise is the operations and money transactions. Money is currently institutionally connected with the existence and proper function of the banks. In every economy, from multiple reasons; arise a group of subjects with the temporary free buying potential and other group of subjects who temporary lack sufficient financial means. Banks accept temporary free financial means and redistribute them, which they also become the mediator between the offer of

financial savings and demand for them. It goes hand in hand with foundation and development of non-cash money the banks also create (emit)

Some authors date the birth of banking into the period around the year of 2300 B.C., when the Chalds mediated payments and offered loans under the terms of business operations. First banks began to arise in the 12th century in the area of nowadays Italy, in times, when the role of money was represented by coins made of precious stones. Banks were established by the groups of exchangers, which created groups of money changers in the way that they provided specific operations with coins for payment – they exchanged various kinds of coins, examined them from the perspective of authenticity, proper weight etc. At the same time they accepted coins into custody and eventually borrowing them to other businessmen. These kinds of banking operations – deposit and credit – in time they have become the main business of exchangers and other kinds of banks. Banking, as a specific sort of business, has started to develop fast since the 17th century in the connection with the birth of bills, checks and paper money. Another eminent impuls, in the end of the 19th century, has become the creation of non-cash (account) money. The fast expansion of banking was furthermore supported by the advancement of large-scale production and arrival of capitalism. The fastest development and improvements of banking can be seen since the second half of the 20th century. (Revenda, 2011)

3.2.3 Two-tier banking system

In the absolute majority of market economies we can encounter the two-tier banking system. System has functionally separated central a commercial banking, where central bank, with the exceptions, does not perform operations, which belong to the area of business and other banks – it especially *does not credit commercial sector and does not manage the processing of other banks*.

Commercial and remaining banks do business with money in order to achieve profit (resp. maximization of market value of its shares) in relatively widely defined framework aimed by the rules of regulation. Their operations are not directed by any central described plan – banks are very well independent in their decision process. The Freedom of decision making comes hand in hand with the responsibility for the operations of the bank and the results of economic activities directly influencing their existence, including potential bankruptcy.

In the two-tier banking system there are many differences between individual market economies, sometimes even very important ones. The most significant difference is between specialized and universal systems. The next major dissimilarity is the diverse levels of the openness of the economy.

Universal banking systems are such systems, where commercial banks have the option to carry out operations with securities without greater limitations. Investment banks can accept primary deposits from the public. Legal modification of the universal banking is associated with the states of European Union.

Specialized banking systems strictly separate operations of commercial and investment banks. Commercial banks, which accept primary deposits from the public, cannot carry out operations with shares and some securities on their own account and at the same time investment banks, specialized on the operations with shares, must not accept primary deposits from the public.

The openness of the local banking systems in contradiction of the foreign banks is higher in the countries of European Union than in Japan and USA, which create regulation barriers in this area. There exist very equal conditions for local and foreign banks in the European Union. (Revenda, 2011)

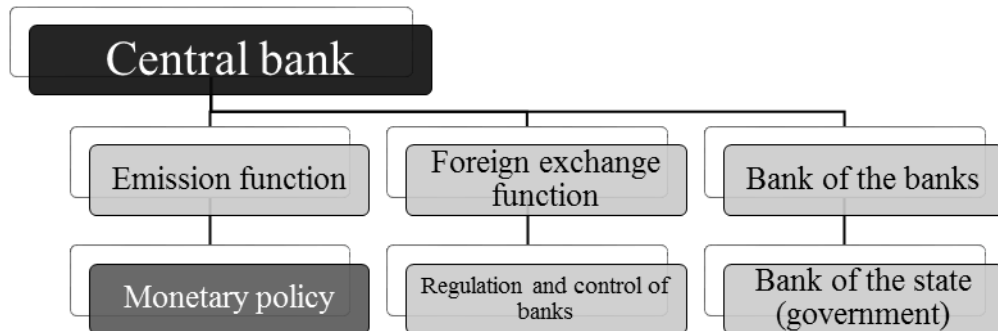
3.2.4 The tools of monetary policy

If the economy meets stated conditions, the state organs have the ability to use different instruments of the monetary policy. These tools can be divided on the direct (administrative) and indirect (market orientated). (Brčák and Sekerka, 2010)

Before the beginning of describing the functions of central banks, it is necessary to remark, that the presentation will not take any minor differences and specifications between individual central banks into the account. Central bank does secure the basic operations with cash money, performs the monetary policy, operates with exchange means, regulates and manages the banking system, where it also stands as the “Bank of banks” and the bank of the state (government). It also secures even some further actions. Performing the functions is the main reason of the existence of the central banks nowadays. They are mutually connected and they develop in time – as the example we can mention the prohibition to directly finance the state or the strengthening the independence in the area of monetary policy. We can also say that one of the main goals of central banks

is the support of stable monetary development a security, efficiency, reliability and credibility of banking system of given country. The status of central bank is currently irreplaceable in the majority of advanced market economies. (Revenda, 2011)

Figure 1: Function of central bank



Source: Centrální bankovníctví, (Revenda, 2011)

3.3 Monetary union

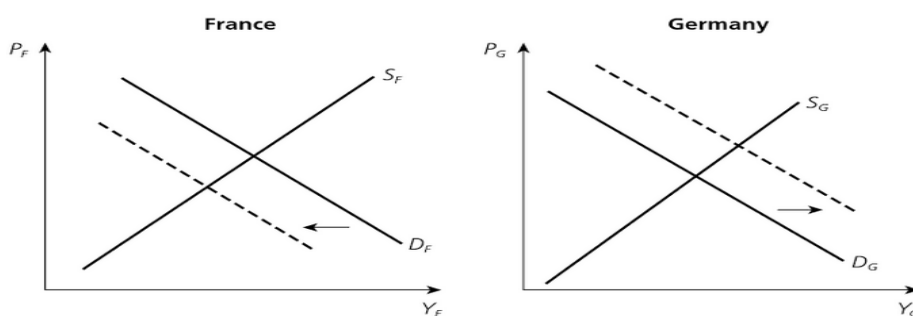
The costs of monetary union develop from the reality that when a county relinquishes its national currency, it also gives up the instrument of economic policy, i. e. it loses the ability to conduct a national monetary policy. In other words, in a complete monetary union the national central bank either ceases to exist or will have no factual power. This indicates that a nation joining a monetary union will no longer be able to change the price of its currency (devaluation or revaluation), to determine the quantity of the money in the circulation, or to modify the short-term interest rate.

One could rise the question here of what good it does for a nation to be able to conduct an independent monetary policy (meaning changing the price of its currency). There are many situations in which these decisions can be very useful for a single nation. The exchange rate is valuable as a policy instrument, for example, because nations are different in some significant senses, requiring changes in the exchange rate adjustments. (Grauwe, 2016)

3.3.1 Theory of optimum currency areas

This theory, which was pioneered by Mundell (1961), McKinnon (1963), and Kenen (1969), has focused on the cost side of the cost-benefit analysis of a monetary union. Consider the scenario of a demand shift developed by Mundell (1961) in his celebrated article on optimum currency areas. Let us presume first that two countries, which we call France and Germany, create a monetary union. By that we have in mind that they have given up their national currencies and started using a common one, the euro, which is managed by a mutual central bank, the European Central Bank (ECB). Let us assume further that for various reasons consumers shift their preferences towards to German-made products and away from French made. We can observe the effects of this asymmetric shock in aggregate demand. (Grauwe, 2016)

Figure 2: Aggregate supply and demand in France and Germany



Source: The economics of monetary integration, (Grauwe, 2016)

The curves in Figure 1.1 are the typical aggregate demand and supply curves in open economy seen in the most macroeconomics textbooks. The demand curve is the negatively sloped line which indicates that when the domestic price level increases the demand for the local output declines (the substitution effect of a price increase.). The supply curve represents the idea that when the price of the domestic output increases, domestic firms, in a economical environment, will increase their supply in order to profit from the higher price. In addition, each supply curve is drawn under the condition that the nominal wage rate and the prices of other inputs remain constant (*ceteris paribus*). Changes in the prices of mentioned inputs will shift these supply curves.

The demand shift is symbolized by the upward movement of the demand curve in Germany, and a downward movement in France. It is important to realize whether these

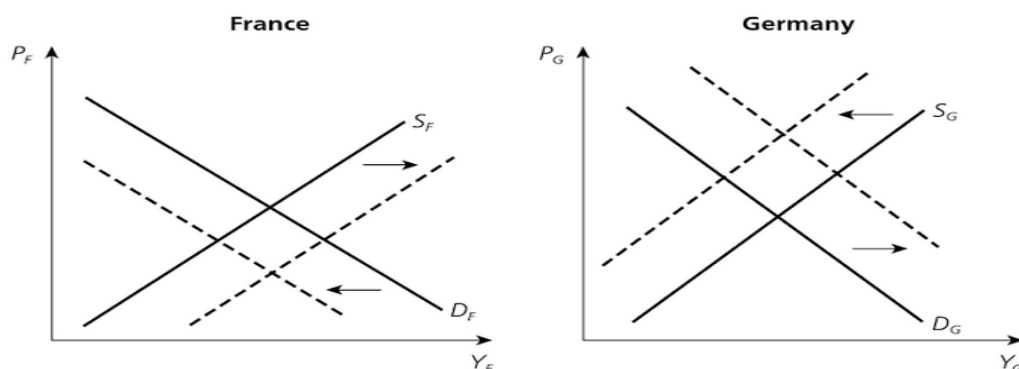
demand shifts are permanent or temporary. For the moment we assume that these shifts become permanent, e. g. due to change in customer preferences. The result of these demand shifts, then, is that output declined in France and growths in Germany. This is most probably to finish with additional unemployment in France and a decline in unemployment in Germany.

Both countries will have the adjustment difficulties. France is hit with reduced output and higher unemployment. Germany experiences an expansion, which also leads to upward forces on its price level. The question that rises is whether there is the instrument that leads to spontaneous equilibration.

The answer is optimistic. There are two instruments that will automatically bring back equilibrium in the two countries. One is focused on wage flexibility, the other on the mobility of labour.

1. *Wage flexibility.* If wages in Germany and France are elastic the following scenario will take place. French workers who are unemployed will lower their wage requirements. In Germany, the excess demand for labour will push up the wage level. The effect of this modification instrument is shown in Figure 1.2. The reduction of the wage level in France shifts the aggregate supply curve downwards, and on the other hand the wage in Germany shifts the aggregate supply curve upwards. These changes lead to a new equilibrium. In France, the price of output declines, making French goods more competitive, and stimulating demand. The opposite occurs in Germany. (Grauwe, 2016)

Figure 3: The spontaneous adjustment process



Source: The economics of monetary integration, (Grauwe, 2016)

Notice also that the second-order effects on aggregate demand will reinforce the equilibrating instruments. The wage and price rises in Germany making the French goods

more competitive. This ends in the upward shift in the French aggregate demand curve. Similarly, the drop in French costs and prices makes German goods less competitive and shifts the German aggregate demand curve downwards.

2. Mobility of labour. A second instrument that will lead to a new equilibrium includes mobility of labour. This movement of labour removes the need to let wages decline in France and grow in Germany. Thus, the French unemployment difficulty disappears, whereas the inflationary wage pressures in Germany disappears.

Thus, in principle the adjustment difficulty for France and Germany will vanish spontaneously if wages are flexible and/or if the mobility of labour between the countries is high enough. If these conditions are not met, however, the adjustment difficulty will not disappear. Suppose, for instance, that wages in France do not drop despite the unemployment situation, and the French workers do not transfer into Germany. In that case France is stuck in the imbalance situation illustrated in Figure 1.1. In Germany, the excess demand for labour creates upward pressure on the wage rate, producing an increasing shift of the supply curve. The adjustment to the disequilibrium must now pass completely through price rises in Germany. These German price rises create French products more competitive again, leading to an upward shift in the aggregate demand in France. Thus, if wages do not drop in France the adjustment to the imbalance will take the form of inflation inside Germany.

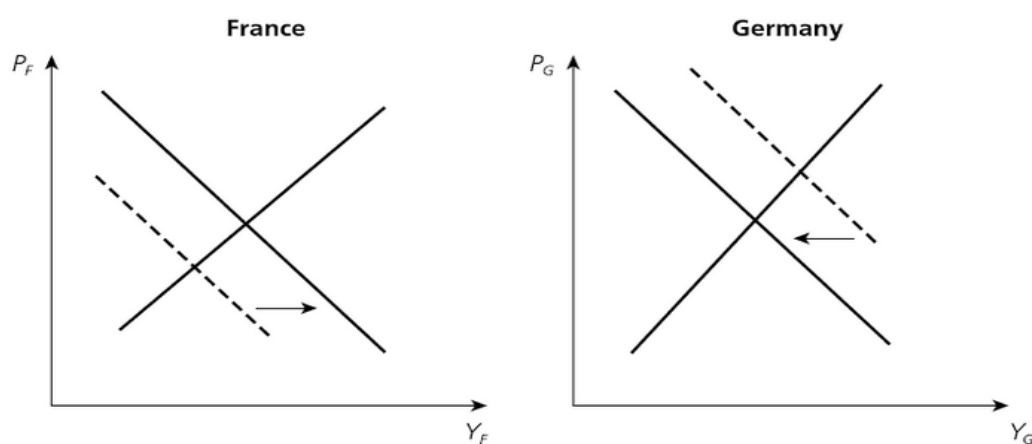
What would have changed if the two countries had not been in the monetary union? In that case they would have been free to use their national monetary policy instruments to adjust to the asymmetric shocks. There are several ways in which countries that preserve their monetary policy can use their monetary independence tools. We differentiate two methods here that are connected to the exchange rate regime that countries use. In a first regime, these countries keep their exchange rates flexible, very close to what the US, the UK, and Japan continue in doing. In that case, they have the possibility to change their monetary policies (through changes in the domestic interest rate and/or the money distribution) to achieve a specific objective. In the second regime, countries pin their exchange rate to another currency, e. g. Denmark to the euro, or few Latin American economies to the dollar. In this situation they can devalue or revalue their currencies.

Presume first that France and Germany had chosen a flexible exchange rate regime. In that situation, France could have dropped its interest rate, thereby stimulating aggregate demand, while Germany could have increased its interest rate, thereby lowering aggregate

demand. These monetary policies conducted by France and Germany would most likely have led to a depreciation of the French franc and the appreciation of the German mark, thereby making the French goods sold in Germany for cheaper prices. Both the interest rate and exchange rate would have inclined to boost aggregate demand in France and to lower aggregate demand in Germany. If France and Germany had chosen to pin their exchange rate, France would have been able to devalue the franc to the mark, and in that achieving similar effects on aggregate demand. The devaluation of the franc would have enlarged the competitiveness of the French goods, thereby stimulating the demand coming from Germany.

The effects of these national monetary policies are described in Figure 1.3. The expansionary monetary policy in France (or in the other regime, the devaluation of the French franc) shifts the French aggregate demand curve up. In Germany, the opposite takes place. The restrictive monetary policy in Germany (the appreciation of the mark) decreases aggregate demand in Germany, so that the demand curve swings back to the left side. (Grauwe, 2016)

Figure 4: Properties of monetary expansion in France and restriction in Germany



Source: The economics of monetary integration, (Grauwe, 2016)

The properties of these demand shifts are that France solves its unemployment difficulties and Germany avoids the need to accept inflationary pressures. This significant feat is achieved using just one mechanism. (The Reader may get the feeling for this to be too good to be true. And it indeed is. However for the moment we just discuss Mundell's theory. This problem will be discussed later.

In contrast, when France is part of a monetary union with Germany it surrenders control over its monetary policy. If it is saddled with a sustained unemployment problem, that can only vanish as a result of deflation in France. In this logic, we can say that a monetary union has a cost for France when it is challenged with a negative demand shock. Similarly, Germany will find it expensive to be in a monetary union with France, because it will have to accept higher inflation that it would prefer.

Let us recapitulate the main ideas developed in this section. If wages are rigid and if labour mobility is imperfect, countries that form a monetary union will find it more difficult to adjust to asymmetric demand changes than countries that have kept their own national money and that can devalue (revalue) their currency. (In Box 1.1, we examine whether this conclusion stands when demand shocks are symmetric.) In the case of countries that have maintained their own currencies, national monetary policies, including the exchange rate, add some flexibility to a system that is excessively rigid. Put otherwise, a monetary union between two or more states is optimal if one of the following circumstances is satisfied: (I) there is sufficient wage flexibility; (II) there is adequate mobility of labour.

(Grauwe, 2016)

Box 1: Symmetric and asymmetric shocks matched

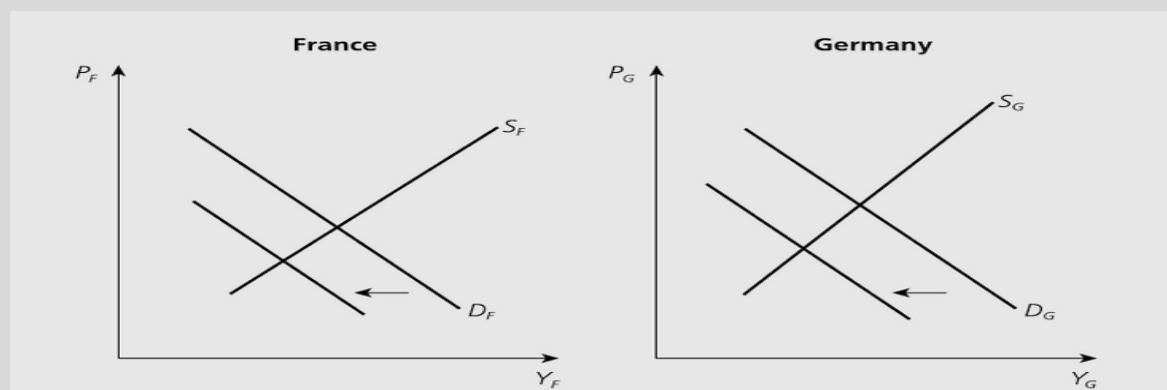
We have observed that the occurrence of asymmetric shocks produces costs of adjustment in a monetary union if there is an absence of flexibility in the labour markets. Things are very different when symmetric shocks arise. We demonstrate this using the same two-country model of aggregate demand and supply as in Figure 1.1. We now presume that the demand shocks are symmetric. More specifically, we presume that in both France and Germany the demand curve shifts to the left in identical amounts. The outcome is shown in Figure 1.4. Can France and Germany deal with this undesirable demand shock when they are in a monetary union? The answer is positive, at least in theory. In a monetary union, monetary policy is consolidated in the hands of the union central bank. We shall it European Central Bank (ECB). In addition in a monetary union there is just one interest rate as the currency markets are completely integrated. The ECB can now decrease the interest rate, thereby stimulating aggregate demand in whole monetary union. This reflexes significantly with the case of asymmetric shocks. There the ECB will be close to being paralysed, because it has only one mechanism to deal with two complications. If it decreases the interest rate so as to stimulate aggregate demand in France, it increases inflationary force in Germany. On the other hand, if it increases the interest rate so as to

deal with the inflationary pressure in Germany, it decreases aggregate demand in France, and increases problems in France.

It is also curious to analyse what would happen if the two countries that face a symmetric shock were not members of one monetary union. Would devaluation then be smart policy decision? The answer is no. Assume that France were to devalue. This would fuel aggregate demand in France, at the expense of Germany. In France, the aggregate demand curve would swing to the right. However, the French devaluation would swing the German aggregate demand curve further to the left. The French would fundamentally solve this problem by exporting it to Germany. It is probable that the latter would react. The threat of a spiral of devaluations and counter-devaluations would be realistic. In the end the effectiveness of changing the exchange rate would be significantly reduced. In order to avoid such a spiral the two countries would have to coordinate the actions, which is difficult among sovereign nations. In the monetary union, by contrast, this monetary assistance is institutionalized. We presume that a monetary union is a more seductive monetary regime than a regime of sovereign monetary authorities if shocks that hit the countries are symmetric. When shocks are asymmetric this advantage of a monetary union vanishes.

It should be noted that we have assumed that the ECB can influence aggregate demand in the union. There are reasons to have confidence that the effectiveness of monetary policy in raising aggregate demand is limited. The same criticism, however, applies as far as the effectiveness of devaluations is mentioned. When countries are sovereign and they use the exchange rate as an instrument to deal with asymmetric shocks, they face similar limitations on the effectiveness of exchange rate policies. (Grauwe, 2016)

Figure 5: Symmetric shocks



Source: The economics of monetary integration, (Grauwe, 2016)

In an integrated global economy, macroeconomic conditions in one country influence economic conditions in other countries; that means, they cause spillovers on other economies. Economic externalities are the properties of the decisions of one agent on other agent's preferences or welfare. In the perspective of integrated economies, spillovers between states lead to economic externalities since they outcome in the transmission of the properties of policies in one economy to other economies. The key perception of the literature is that synchronization of policies among countries that take into account these externalities, may lead to higher welfare for all sides. Starting with this elemental perception, the modelling of international policy organization has moved in different directions. The literature considered between others:

- the techniques to enforce international agreements,
- the roles that uncertainty and information sharing represent in the coordination process, and
- the measurement of the gains from policy organisation. (Grauwe, 2016)

In general, the need for coordination arises if the following two conditions take place: (I) there is interdependence among the different economies and (II) the non-coordinated action of the numerous countries would produce suboptimal results.

Let us have a look at the first point. Economic interdependence between different economies implies that shocks in one country, including those caused by government actions, have consequences in other countries. These consequences, called economic externalities, can be positive or negative.

The need for cooperation obviously emerges from the existence of spillovers and economic externalities. Policy struggles that create a motivation for policy coordination are of two key types:

1. *Ongoing conflicts are permanent*; they take place even if markets are perfectly flexible. Ongoing conflicts arise when states have inconsistent objectives such as dissimilar desired values for the bilateral present account or different desired values for the real exchange rate among two currencies.
2. *Stabilization conflicts are temporary*; they appear because of apathy of nominal variables and eventually vanish as these nominal variables adjust; stabilization

conflicts can occur as a result of either outside shocks or policy changes. (Carlberg, 2010)

The main source of stabilization conflicts are outside shocks. We provide attention to three basic configurations of shocks that enter economies at the identical time:

1. *Symmetric shocks* are shocks that hit all countries at the identical time and way;
2. *Asymmetric shocks* (also mentioned to as *idiosyncratic* or *country-specific shocks*) enter only a specific country (or group of countries) and not the remaining countries;
3. *Anti-symmetric shocks* (or perfectly asymmetric shocks) enter specific states in an equal but opposite manner. (Carlberg, 2010)

Following Meyer et al. (2002), oil price shocks can be considered as example of symmetric shocks for most industrial economies in the 70s. The simultaneous fiscal expansions in the United States and contraction in Europe and Japan in the early 1980 can be seen as an asymmetric shock for monetary establishments. The early 1985 appreciation of the dollar can be understood as an anti-symmetric shock that raised the demand for dollar assets and decreased the demand for assets denominated in the other major currencies. Finally, the German reunion in the early 1990s and the crisis of the Japanese (fixed) assets in the opening of the 21st century are decent examples of country-specific shocks.

Stabilization conflicts on monetary policy may arise because of initial circumstances that one or more economies regard as suboptimal and changes in fiscal policy that are driven by political or different non-stabilization considerations such that they effectively become exogenous. Suboptimal initial circumstances and exogenous changes in fiscal policy can be divided into symmetric, asymmetric and anti-symmetric initial circumstances. E.g. inflation rates in Western European countries in the early 1980s can be considered as symmetric suboptimal initial circumstances.

Regarding the suboptimal outcomes, how can they develop in the presence of economic externalities? As any situation of strategic interdependence, the effects of international economic externalities may be understood in terms of the tools provided by game theory. (Carlberg, 2010)

3.4 Eurozone

All European Union Member States are part of Economic and Monetary Union (EMU) and harmonise their economic policy-making to support the economic goals of the EU. However, a number of Member States have taken a move further by swapping their national currencies with the single currency – the euro. These are the Member States of the euro area. When the euro was first presented in 1999 – as 'book' money –, the euro area was created by 11 of the then 15 EU Member States. Greece joined in 2001, just one year before the cash exchange, followed by Slovenia in 2007, Cyprus and Malta in 2008, Slovakia in 2009, Estonia in 2011, Latvia in 2014 and Lithuania in 2015. Today, the euro area consists of 19 EU Member States. Of the Member States outside the euro area, Denmark and the United Kingdom have 'opt-outs' from connecting laid down in Protocols annexed to the Treaty, although they can join in the future if it is their wish. Sweden has not yet met the requirements to be part of the euro area. The remaining non-euro area Member States are between those which acceded to the Union in 2004, 2007 and 2013, after the euro was introduced. At the time of their accession, they did not meet the essential circumstances for entry to the euro area, but have committed to joining as and when they meet them – they are Member States with a 'derogation', such as Sweden. Andorra, Monaco, San Marino and the Vatican City have accepted the euro as their national currency by virtue of specific monetary agreements with the EU, and may issue their own euro coins within certain boundaries. However, as they are not EU Member States, they are not part of the Eurozone. (The European Commission, 2017)

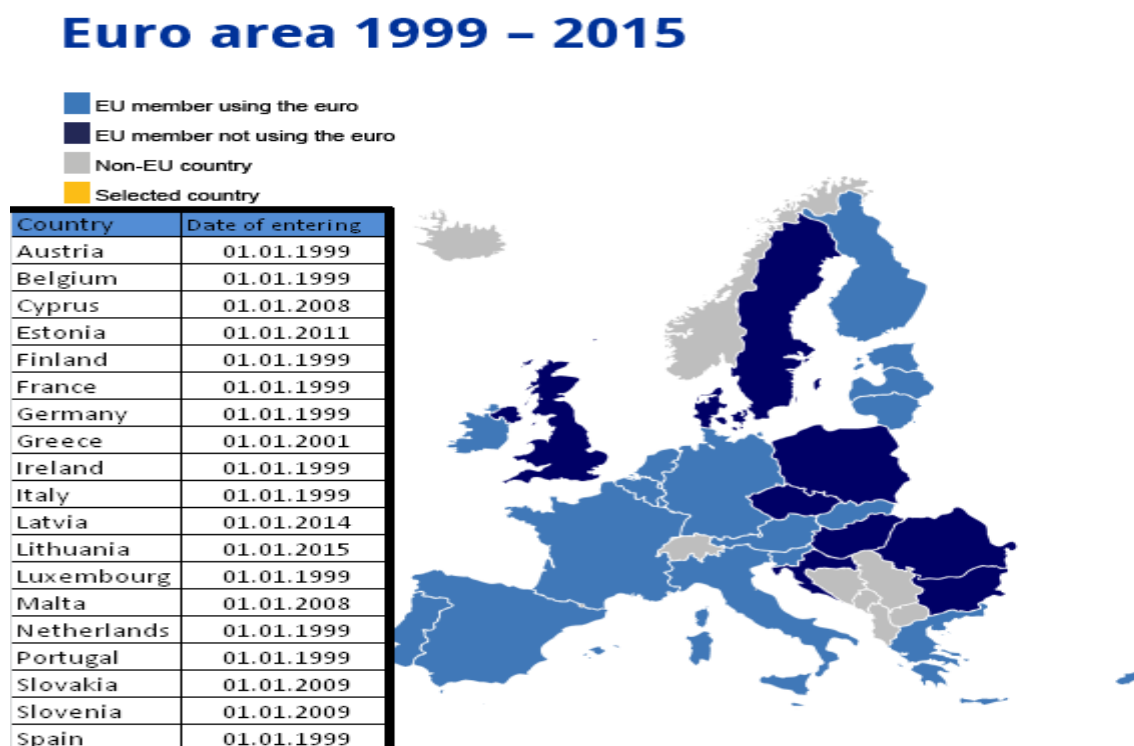
3.4.1 History of economic and monetary union

Economic and monetary union (EMU) is the outcome of progressive economic integration in the EU. It is an extension of the EU single market, with common product regulations and free movement of goods, capital, labour and services. A common currency, the Euro, has been presented in the Eurozone, which currently comprises 19 EU Member States, All 28 EU Member States – with the exception of the United Kingdom and Denmark – have to adopt the Euro after a minimum of two years of participation in ERM II and fulfilment of the convergence conditions. A single monetary policy is established by the European Central Bank (ECB) and is complemented by harmonized fiscal and synchronized economic policies. Within EMU there is no single organization

responsible for economic policy. Instead, the responsibility is allocated between Member States and several EU institutions. (Verbeken, 2016)

Early changes on the road to European integration were a product of the immediate post-war period. The European ruling class needed to stabilize its rule following the popular uprising and radicalizations at the time of liberation, especially in France and Italy. The answer was Marshall Aid which revealed the economic hegemony of the post-Yalta USA and the supremacy of the dollar as a global currency. In 1951 the European Coal and Steel Community was established. It had six member states: Belgium, France, Germany, Italy, Holland and Luxembourg. It was both a reorganization of Western Europe against the East, and an effort to enmesh a damaged West Germany into a European framework, which would hopefully avoid further European conflicts. A European Court of Justice was established in 1953. France strongly supported the Coal and Steel Community, but was opposed to NATO since it intended to build a Europe independent of the USA. De Gaulle therefore refused to join NATO and France established its own sovereign military capabilities, including nuclear weapons. (Thornett, 2002)

Figure 6: The graphic projection of Eurozone



Source: <https://www.ecb.europa.eu/euro/intro/html/map.en.html>

The Treaty delivers for EMU to be introduced in three stages.

- Stage 1 (from 1 July 1990 to 31 December 1993): the free movement of capital among Member States;
- Stage 2 (from 1 January 1994 to 31 December 1998): convergence of the economic policies of the Member States and strengthening of cooperation among national central banks of Member States. The coordination of monetary policies was institutionalized by the foundation of the European Monetary Institute (EMI), whose task was to reinforce cooperation between the national central banks and to carry out the necessary preparations for the introduction of the single currency. The national central banks were to become autonomous during this stage;
- Stage 3 (under way since 1 January 1999): The continuing introduction of the euro as the single currency of the Member States and the application of a common monetary policy under the control of the ECB. Conversion to the third stage was subject to accomplishment of a high degree of durable convergence measured against a number of conditions laid down by the Treaties. The budgetary rules were to become obligatory and a Member State not fulfilling with them was likely to face penalties. A single monetary policy was announced and entrusted to the European System of Central Banks (ESCB), compounded of the national central banks and the European Central Bank. (Verbeken, 2016)

3.4.2 The Treaty of Rome and the EEC

In March 1957 the Treaty of Rome was signed, forming the European Economic Community (EEC) known as the Common Market. The Treaty extended the writ of the Community to agriculture and founded a common customs union. Competition would be the foundation of all economic and industrial activity and that all difficulties to it would be removed. Britain applied to join the EEC in 1961, beside with Denmark and Ireland, without a referendum or democratic mandate. De Gaulle opposed the application of Britain. He did not want what he saw as a possible American Trojan Horse as a member state. He was also troubled that divisions within the British ruling class over the EEC would disturb the Franco-German alliance which dominated it.

In 1962 the controversial Common Agricultural Policy was founded. International customs duties were abolished and a joint external tariff was eventually announced. The European Court of Justice was given jurisdiction to the member states.

The Common Agricultural Policy was, and remains to be, an instrument for destroying agricultural production in third countries by compensating out huge subsidies to EU producers. These subsidies outstrip third world producers even when they are working on starvation salaries.

In 1963 De Gaulle vetoed the membership of Britain in the EEC, and Britain was kept out at that point. In any case Britain still looked to a world role and its so-called exceptional relationship with the USA.

In 1965 the so-called Merger Treaty was signed, merging the governing bodies of the EEC through the formation of the Council of Ministers and the European Commission with executive powers.

The Council of Ministers turn out to be the supreme law making body of the EEC able to prevail the existing laws of the member states. It met in secrecy and consisted of a minister from each member state. The democratic deficit was being established. (Thornett, 2002)

3.4.3 Britain joins the EEC

By the early 1970s French thinking on British membership was shifting. It was now more and more seen as a possible counterweight to the growing strength of Germany. On the back of this the prime minister at the time, Edward Heath, was capable to take Britain into the EEC in 1973, along with Denmark and Ireland, and also without a democratic mandate. In 1974 Edward Heath was replaced by Labour politician Harold Wilson. The official policy of the Labour Party was for withdrawal from the EEC so in 1975 Wilson called a referendum on remaining membership of Britain – with a recommendation for acceptance. Wilson won the vote to stay in against a No campaign reinforced by the whole of the left: most of the Labour left, and majority of the trade unions, and led by Tony Benn, Michael Foot and Peter Shore. It was a great defeat for the left and the unions and was immediately followed by the imposition of Wilson for the pay policy.

In 1975 a directly elected European Parliament was established, with the first elections to take place in 1979. It would make insignificant difference to the democratic deficit of the EEC, however, since executive powers would stay with the Council of Ministers and the European Commission. (Thornett, 2002)

3.4.4 The battles to regulate the currencies

In 1971 the Bretton Woods system – which had preserved fixed currency exchange rates (against gold) in the post-war period – collapsed and a shift back to floating currencies took place.

This was a threat to EEC stability since the currencies of its member states were now fluctuating dangerously against each other in an increasingly unsteady market. It was the start of a series of efforts to keep the European monetary system under control. The first such effort was in April 1972, with the foundation of the so-called “snake” under which participating countries agreed to limit the boundary of fluctuation among their currencies to 2.25 %. It was crisis-ridden from the beginning, however, and both Britain and Ireland were rapidly forced out by the relentless growth of the Deutschmark. The next effort at stability was the European Monetary System (EMS) which replaced the snake in July 1978 after pressure from Germany and France. The EMS started a virtual currency in the mold of the European Currency as the nominal EEC currency unit – based on an average of the numerous currencies weighted against GDP. It was controlled by the notorious Exchange Rate Mechanism (ERM) which set acceptable fluctuations at 2.25 %. Governments were obliged to intervene if their currency touched a warning threshold of 75 % of the adequate deviation.

This was in effect the first actual step towards a single European currency though not existing as such at the time. It also recognized the Deutschmark as the anchor currency of the EC.

In Britain, the Thatcher government originally stayed out of the ERM but then joined in October 1990 with eventually disastrous consequences. The Pound was driven out in September 1992 (black Wednesday) after the Bank of England spent £18bn trying to preserve its value. Italy was forced out soon after Britain while Spain and Portugal followed in 1995.

The scale of the problems produced by locking the European currencies together, even within agreed margins of fluctuation, was getting painfully clear. (Thornett, 2002)

3.4.5 The Single European Act

The Single European Act signed in 1986 was the next step on this track. It reinforced the Commission, presented qualified majority voting in the Council of Ministers and removed lingering obstacles to free trade. It was a significant step towards a political rather than an economic project to meet the new circumstances. This situation was also created by changes in the economic situation of the mid-1970s with the end of the post-war boom and the onset of more unsteady and competitive economic circumstances. European capital was involved into increasing competition with Japan and the USA: More and more the EEC was taking the shape of a rival power block planned to defend Europe's economic power. The comparatively small EU states required bigger and more stable markets and greater freedom for the movement of capital if they were going to succeed. The EEC also required the ability to act politically in its own interests and to speak with one voice. This implied a centralized political guidance on the lines of that provided by the USA in North America and Japan in the Pacific Rim. Thatcher signed the Single European Act because of the deregulation on proposal. She soon regretted it, however, when the speed of integration accelerated and she has been attacked by the Tory right for it ever since. Big business interests have been in the front position of this agenda from the start. This took its most systematized form in the establishment of the European Round Table of industrialists in 1983 – initially by the chief executive of Volvo and seventeen other top executives. The companies represented have a joint turnover of £600 billion. Its goal was to improve the global competitiveness of the EEC through additional deregulation within Europe. The route they preferred was the introduction of a single European currency, and swift moves towards political union. The Round Table was therefore the major force behind the next main development—the Maastricht Treaty. The EEC was also becoming bigger. Greece had signed in 1981, Portugal and Spain joined in 1986, and Sweden, Austria and Finland in 1995, building up to the 15 founding member states. (Thornett, 2002)

3.4.6 Maastricht: an instrument of neoliberalism

The Treaty of Maastricht signed in 1991 was created to address both the necessities of European capital in competing with North America and the Pacific Rim and the aftermath of the breakdown of Stalinism. The Berlin wall had collapsed, Germany was re-unified on a capitalist basis, and the East European governments had fallen, as had the Soviet Union itself. What was modeled was how to assimilate the possible markets of the East European and ex-Soviet bloc countries into the EEC and into NATO. Maastricht was also an effort by the most powerful sectors of European capital to shift the balance of power even further in its favor and against the European working class in order to improve the rate of profit lost during the mid-1970s economic crisis. It was an instrument for the methodical introduction of the neoliberal agenda. Under Maastricht, the EEC changed its name, turning into the European Union (EU) in the greatest step yet toward a European super-state. A common European citizenship and a common EU passport were announced and the Commission increased its powers—including requirements for the development of a common foreign and defense policy and the Social Chapter. The most significant extent of Maastricht, however, was the single European currency. The prerequisite for creating the single currency was the locking together of the exchange rates of the contributing countries, possibly even more difficult than with the snake or the Exchange Rate Mechanism. The emerging currency would come in as a virtual currency on 1 January 1999 and would be used on the streets as notes and coins a year later. To oversee the new currency the Maastricht Treaty established the European Central Bank (ECB). It alone was authorized to print notes and mint coins, and to set interest rates in the zone covered by the new currency; a measure, which weakened the capability of the member states to conduct their own fiscal policy. The ECB was obligatory to maintain price stability. Its independence was guaranteed by the Statute of Autonomy, which made it entirely unaccountable – more so than a national bank since it was more shielded from common political pressure. The requirement for membership of the new currency was membership of the ERM and compliance with the convergence criteria. This set a limit of 3% of GDP on government deficit and obligatory limits on inflation. The member states sustained free to put up taxes, of course. In practice, however, they would cut public expenditure, particularly welfare. (Thornett, 2002)

3.4.7 Maastricht criteria

The criteria of nominal convergence, which were formulated in the protocol about joining the Treaty about European Union, signed in year 1992 in the city of Maastricht, Netherlands (this is where Maastricht Treaty and Maastricht criteria come from). They represent set of indicators which are necessary to be accomplished and followed for given reference period in order for the candidate state to be permitted to accept the single currency.

Convergence criteria consist of three monetary and two fiscal criteria, which compliance during the given period of time will suggest fulfilment of the formal requirements of readiness by the candidate country to become the member of Eurozone. (Lacina, 2010)

Box 2: Maastricht convergence criteria

1. The Member state shows long-term sustainable price stability and average rate of inflation, observed during one year before research, which does not exceed three best performing member countries of Eurozone in the area of price stability, more than 1,5 percent points.
2. The member state abides normal spread defined by the mechanism of exchange rates of European monetary system without significant tension during at least two last years before research. Especially during this period, the candidate state does not depreciate bilateral exchange rate of its currency to any other member`s state currency of its own initiative.
3. The average long-term nominal interest rate of the member state does not exceed the interest rate – maximally three – member states that have performed the best results in the area of price stability during one year before research.
4. The Budget deficit of the member state does not exceed by more than 3 % of GDP (with the exception of those cases, when the debt has significantly decreased, or has continued to decrease, until it has approached 3 % of GDP, or when the exceeding was only rare and also close enough to the recommended level).
5. The Public debt of the member state does not exceed 60 % of GDP (excepting the cases when is adequately reducing and approaches the recommended level).

Source: Lacina a Kol. (2007, kap.6)

3.4.8 Welfare, strikes and single currency

It was a direct test to the post-war agreement on welfare provision and any remaining devotion to the notion of full employment. European employers have long considered welfare as a millstone around their necks since North America and the Pacific Rim countries commonly do not have it. The Round Table have defined welfare as “a time bomb threatening Europe’s competitiveness”. After the implementation of the new currency, the convergence criteria would change into the Growth and Stability Pact—as the supervisor of currencies on an ongoing basis. The 3% of GDP limit on government deficit would endure, and any breach of it would attract fines of up to 5% of GDP. Once the currencies of the EU were locked together, economic oscillations between the different member states would be reflected directly in rising unemployment and cuts rather than in deviations in the relative value of currencies. In a Europe of the single currency, the free movement of Labor is essential if depressed regions and countries are to be evaded. Economic, social and cultural barriers make it problematic for huge numbers of people to move around to the degree that takes place for example in the USA. The large-scale movement of people does therefore not exist as an economic regulator. As soon as the Maastricht treaty came into power, the race was on among the member states to succeed for membership of the single currency. Budgets were cut and austerity programs presented to get deficits below 3%. These attacks were typically carried out by social democratic governments, which were entirely embracing the neoliberal agenda and were in power in an increasing number of EU countries. The attacks intensely increased the level of trade union and other forms of protest across Europe as the workers’ movement challenged this offensive. There were significant strikes in Italy in 1994 against austerity actions but what set the scene for the second half of the 1990s were the mass strikes and demonstrations against an austerity package brought in by the Juppé administration, which trembled France at the end of 1995. Millions of workers took action in a strike wave that in many ways exceeded the great events of May/June 1968. The Juppé government was taken down activating the biggest wave of struggles across Europe for decades. During the following year of 1996, there were huge strikes in Italy, Portugal, Belgium, Greece and Spain. (Thornett, 2002)

3.4.9 The Amsterdam Treaty: implementing the single currency

The Amsterdam summit of June 1997 was held with this wave of militancy continuing and the European Marches organized a 50,000 strong protest at the summit. Despite this, however, the summit was prosperous from the point of view of European integration. Qualified majority voting was presented into a number of new areas: customs, research, data protection, health policy, unemployment, equal chances and social policy. The pre-eminence of EU law over national law was strengthened. The Schengen agreement (the base of Fortress Europe) converted into a part of the basis of the EU. The role of Europol (an EU police force) was reinforced and further moves made towards a mutual foreign and security policy through the creation of an embryo Foreign Office. During the passage of 1997 millions of workers were again involved in movements across the EU, generally against the convergence criteria. Two million workers went on protests in Spain. In Greece 80,000 small farmers cut the republic in half by blocking the roads with their tractors, demanding subventions and tax concessions. Most of Italy came to a pause when millions took protest actions in support of engineering employees demanding higher wages. In Germany, 150,000 metalworkers took part in the biggest workers' demonstration since World War II, their strike forcing the Kohl Government to remove proposed cuts in welfare. The single currency, however, was hurt but not crushed. By the middle of 1998 11 of the 15 EU countries had qualified (by a combination of austerity and creative accounting) to join the take-off of the single currency on January 1st 1999. Greece qualified later making the total number - 12. (Thornett, 2002)

3.4.10 Further expansion

The euro started to be the new currency for many Europeans. During the decade more and more countries accepted the euro. 11 September 2001 became synonymous with the 'War on Terror' after stolen airliners were flown into buildings in New York and Washington. EU countries began to work much more closely together to fight organized crime. The political divisions between east and west Europe were finally stated healed when no fewer than 10 new countries joined the EU in 2004, followed by Bulgaria and Romania in 2007. A financial crisis hit the worldwide economy in September 2008. The Treaty of Lisbon is approved by all EU countries before entering into force in 2009. It provided the EU with modern institutions and more efficient working methods. (European Commission, 2017)

3.4.11 Challenging decade

The global economic crisis stroked hard in Europe. The EU helped numerous countries to confront their problems and establishes the 'Banking Union' to establish a safer and more reliable banking sector. In 2012, the European Union was awarded the Nobel Peace Prize. Croatia became the 28th member of the EU in 2013. Climate change are still high on the agenda and leaders agreed to reduce harmful emissions. European elections were held in 2014 and more Eurosceptics were being elected to the European Parliament. A new security policy was recognized in the wake of the annexation of Crimea by Russia. Religious extremism increased in the Middle East and numerous countries and regions around the world, leading to unrest and wars which resulted in countless people fleeing their homes and seeking refuge in Europe. The EU has not only confronted with the dilemma of how to take care of them, but also found itself the target of several terrorist attacks. (European Commission, 2017)

3.4.12 Shaky foundations

It seems that we have overcome the crisis. Germany is celebrating from the rapid growth of tax incomes, growing employment and the growth of the export. However this is the false illusion and euphoria is premature, because the euro crisis is far from over. It still grows and its destroys the life chances of young people in the countries of Southern Europe affected by the crisis, same as the significant part of the German wealth. In the Southern Europe we can still see enduring mass unemployment. The level of industrial production in Spain, Greece and Italy remains catastrophically low, because these countries are caught in the trap of euro and they do not have the possibility to devalue their currencies. The scars have been taken by France as well, which is the important exporter into the states of Southern Europe and also their main creditor. Germany is similarly as some countries of Northern Europe is being stuck inside of guarantees, because they still have to by new promises help to buy out investors from all over the world, who have invested their money into the countries of Southern Europe. The coordinator of European rescue actions is the European Central Bank (ECB). She takes the German taxpayers as a creditor (without his knowledge) and actively provides generous loans for the Southern countries of Europe. The German parliament and

government get themselves into the situation without almost no alternative decisions. Only the federal constitutional court has the opinion that ECB is usurping more authority than it belongs to it and thus degrades the national parliaments of the EU on simple executors of decisions that have been made by ECB.

Even today we are drowning in the pool of euro guarantees, into which we have let ourselves gotten dragged in recklessly. Until today we have great obligations to the Southern countries of Europe, which we are uneasy to be cancelled. We cannot let ourselves get softened by sweet words of European politicians and administrators of EU.

When there was 20 years ago signed the Maastricht treaty, euro was no scientific object. This treaty has defined the condition that no country will be responsible for debts of the other country. In that time most of us believed that these rules will be ultimate. This clause about no help in the situation of trouble is called “no bailout”. (Sinn and Dyba, n.d.)

The establishment of euro was the first of seven levels of the drama, in which has the Eurozone evolved. It would be a mistake to believe that article 125 of Maastricht Treaty will be taken seriously. If the investors took this ban as a decisive one, they would calculate from the beginning with the possibility that their investment in the Southern Europe and Ireland has the added risk of loss and they would demand high interest bonus. It would discourage these countries from excessive deficit budgeting, which have led to the inflation bubbles, which have stripped them of their competitiveness

If the true intention of Maastricht Treaty was for them to be follow, the treaty would have to signed again with the rules for bankruptcy of the individual states and capital markets would get direct signal that the commitment to the rules is absolute. Then the investors of Southern countries and Ireland would have no doubts that the money they are lending, can disappear in the thin air in case that the situation inside these countries does not go as planned. It would be enormously reasonable for the countries of Eurozone, on which it was usual to look at as safe only after the elimination of exchange rate risk, thus they absorbed large amount of capital, which would not dare to enter these countries in previous preriodes. (Sinn and Dyba, n.d.)

4 Practical part

4.1 Econometric model of Eurozone

4.1.1 Economic model

Model observes how the GDP of Eurozone per capita in euros is dependent on the annual (if data were not available for single years, then the data were transformed through the weighted average. Where the data on the other were not available for the whole EU, then the data were aggregated through adding data of Member States of the Eurozone) data of selected variables. As the most significant variables for the Eurozone were selected following – unemployment rate (in % of total citizens, who are willing to work), labor productivity (per hour worked), government debt (in % compared to the GDP of the current year), inflation rate (annual change), interest rates of the ECB (in %, calculated through weighted averages), trade balance in millions of euros (aggregated through adding individual trade balances of the Member States), long term bonds of Eurozone (in %, aggregated numbers of individual Member States) and finally the monetary pair of Euro compared to Dollar (1 Euro is worth x dollars), which represents the monetary strength of the euro currency.

$$y_1 = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8)$$

where:

y_{1t}GDP per capita in euros

x_{1t} unemployment in % of total citizens, who are willing to work

x_{2t}labor productivity per hour worked

x_{3t} government debt in %, compared to the GDP of the current year

x_{4t} inflation rate – annual change in %

x_{5t}interest rates of the ECB in %

x_{6t}trade balance in millions of EUR

x_{7t}long term bonds of Eurozone in %

x_{8t}EUR/USD

During last 15 years there has been seen rapid growth in government debt. The author has many times before during his studies warned that keeping high government deficits, which increase total government debt will cause significant trouble in the future. Keeping deficits

can be only reasoned when the economy is in the depression. Keeping unreasonably high deficits during conjunction phases of the economy will create short-term wealth but it is on the expense of future generations. Financial crisis during 2009 followed by the debt crisis of many countries of Eurozone, for example PIIGS (Portugal, Ireland, Italy, Greece and Spain) have proven this assumption to be correct. Other expected significant variables are expected to be trade balance, which determines whatever country exports more than it imports, which represents the effective use of resources (Land, labor and capital) of the selected country. Last expected significant variables is the unemployment rate which represents the use of the labor force of selected country. High unemployment might suggest that county has structural problems or unnecessary high monetary value of its currency which does not allow significant usage of its labor force.

4.1.2 Econometric model

When the stochastic parameter “u” is added to the model we gain econometric model. Stochastic parameter includes the errors in measuring or misrepresentation, emerging from the inappropriate choice for the model and also effects of the other variables which are not included to the model.

$$y_{1t} = \gamma_0 + \gamma_1 x_{1t} + \gamma_2 x_{2t} + \gamma_3 x_{3t} + \gamma_4 x_{4t} + \gamma_5 x_{5t} + \gamma_6 x_{6t} + \gamma_7 x_{7t} + \gamma_8 x_{8t} + u_{1t}$$

Table 1: Data set for econometric model

var/years	y1t	x1 t	x2t	x3t	x4t	x5t	x6t	x7t	x8t
2001	22900	8,4	115,1	67	2,3	2,25	82512	4,8	0,8956
2002	23600	8,6	114,5	66,9	2,2	2,25	143722	4,6	0,9456
2003	24100	9	113,5	68,1	2,1	1,5625	110995	4,4	1,1312
2004	25000	9,3	112,4	68,4	2,1	1	100564	4,1	1,2439
2005	25800	9	112,8	69,2	2,2	1	48657	3,9	1,2441
2006	27000	8,3	112,8	67,4	2,2	1,6875	15427	3,6	1,2556
2007	28400	7,4	112,7	65	2,1	2,6875	36297	3,4	1,3705
2008	28900	7,5	112,3	68,6	3,3	3,125	-22638	3,5	1,4708
2009	27800	9,5	112,9	78,4	0,3	0,458333	49271	3,7	1,3948
2010	28500	10,1	111,7	83,8	1,6	0,25	33093	4,2	1,3257
2011	29200	10,1	111,9	86,1	2,7	0,520833	21029	4,7	1,392
2012	29200	11,3	111,5	89,5	2,5	0,125	126225	5,9	1,2848
2013	29500	12	112	91,3	1,4	0	191821	6,1	1,3281
2014	30000	11,6	112,1	92	0,4	-0,091667	218001	6	1,3285
2015	30900	10,9	111,7	90,4	0	-0,208333	286322	5,6	1,1095

Correlation matrix

	var/years	y1t	x1 t	x2t	x3t	x4t	x5t	x6t	x7t	x8t
var/years	1									
y1t	0,957549	1								
x1 t	0,74942	0,538432	1							
x2t	-0,83727	-0,86885	-0,55912	1						
x3t	0,908667	0,760427	0,932018	-0,68634	1					
x4t	-0,51865	-0,37873	-0,54401	0,210006	-0,53207	1				
x5t	-0,72024	-0,52816	-0,92322	0,61259	-0,86947	0,649558	1			
x6t	0,438623	0,234622	0,686461	-0,12545	0,567198	-0,66729	-0,564	1		
x7t	0,571768	0,351968	0,873741	-0,26522	0,790697	-0,38468	-0,66334	0,812771	1	
x8t	0,54117	0,685097	0,116269	-0,73838	0,294812	0,029512	-0,17554	-0,38769	-0,20839	1

Variables on the main diagonal of the correlation matrix are equal 1. Other variables of the matrix represent pair coefficients of the correlation between exogenous variables. In another words numbers lying on the diagonal will always symmetrically lay beneath it. These coefficients provide the information of the multicollinearity between explaining variables.

The limit of 0,9 is exceeded in two cases between government debt and the GDP per capita which does not represent problem for the model. On the other unemployment rate and interest rates show clear sings of multicollinearity. On the other hand we have to realize that unemployment rate and interest rate are definitely not (by every macro-economic theoretic book) vastly related. In this case the thesis will continue with the creation of model because this is the clear case of indirect correlation with no obvious causality.

4.1.3 Parameters estimation using OLSM in Gretl

Model 1: OLS, za použití pozorování 1905/06/23-1905/07/07 (T = 15)

Závisle proměnná: Y__GDP_pre_cap

	Koeficient	Směr. chyba	t-podíl	p-hodnota	
const	185194	78729	2,3523	0,05688	*
x1__unemployme	-1856,33	1139,4	-1,6292	0,15439	
x2__nominal_la	-1470,45	672,744	-2,1858	0,07149	*
x3__GD_____of_	211,052	83,2001	2,5367	0,04428	**
x4__inflation_	-875,234	711,418	-1,2303	0,26464	
x5__Interest_r	471,438	1061,72	0,4440	0,67258	
x6__trade_bala	-0,00119854	0,0104714	-0,1145	0,91261	
x7__long_term_	1335,51	1346,01	0,9922	0,35941	
x8__EUR_USD	3552,83	3640,66	0,9759	0,36682	

Střední hodnota závisle proměnné	27386,67	Sm. odchylka závisle proměnné	2515,343
Součet čtverců reziduí	2023650	Sm. chyba regrese	580,7538
Koeficient determinace	0,977154	Adjustovaný koeficient determinace	0,946692
F(8, 6)	32,07830	P-hodnota(F)	0,000226
Logaritmus věrohodnosti	-109,8768	Akaikovo kritérium	237,7536
Schwarzovo kritérium	244,1261	Hannan-Quinnovo kritérium	237,6857
rho (koeficient autokorelace)	0,036553	Durbin-Watsonova statistika	1,910236

The Result of this model obviously do not represent economic reality. Swift look on the result shows that decrease of nominal labor productivity would cause the increase of GDP, decrease of price level would lead to growth in GDP, and growth in trade balance would also lead to growth in GDP which are mildly said to be nonsense. The initial data will have to be modified.

4.1.4 Modified econometric model

Labor productivity and government debt data were transformed into annual changes between selected years – in other words differences between following years.

Table 2: modified data set for econometric model

var/years	y1t	x1 t	x2t	x3t	x4t	x5t	x6t	x7t	x8t
2001	22900	8,4	0,9	67	2,3	2,25	82512	4,8	0,8956
2002	23600	8,6	0,2	66,9	2,2	2,25	143722	4,6	0,9456
2003	24100	9	0,2	68,1	2,1	1,5625	110995	4,4	1,1312
2004	25000	9,3	1,5	68,4	2,1	1	100564	4,1	1,2439
2005	25800	9	0,6	69,2	2,2	1	48657	3,9	1,2441
2006	27000	8,3	1,4	67,4	2,2	1,6875	15427	3,6	1,2556
2007	28400	7,4	1,1	65	2,1	2,6875	36297	3,4	1,3705
2008	28900	7,5	-0,4	68,6	3,3	3,125	-22638	3,5	1,4708
2009	27800	9,5	-2,7	78,4	0,3	0,458333	49271	3,7	1,3948
2010	28500	10,1	2,7	83,8	1,6	0,25	33093	4,2	1,3257
2011	29200	10,1	1,4	86,1	2,7	0,520833	21029	4,7	1,392
2012	29200	11,3	-0,5	89,5	2,5	0,125	126225	5,9	1,2848
2013	29500	12	0,3	91,3	1,4	0	191821	6,1	1,3281
2014	30000	11,6	0,6	92	0,4	-0,09167	218001	6	1,3285
2015	30900	10,9	1,0	90,4	0	-0,20833	286322	5,6	1,1095

Source: own making, (Eurostat, 2017)

Correlation matrix

	var/years	y1t	x1 t	x2t	x3t	x4t	x5t	x6t	x7t	x8t
var/years	1									
y1t	0,957549	1								
x1 t	0,74942	0,538432	1							
x2t	-0,04226	-0,0183	-0,01505	1						
x3t	0,908667	0,760427	0,932018	-0,02359	1					
x4t	-0,51865	-0,37873	-0,54401	0,190435	-0,53207	1				
x5t	-0,72024	-0,52816	-0,92322	-0,02155	-0,86947	0,649558	1			
x6t	0,438623	0,234622	0,686461	-0,01686	0,567198	-0,66729	-0,564	1		
									-	
x7t	0,571768	0,351968	0,873741	0,006083	0,790697	-0,38468	0,66334	0,812771	1	
										-
x8t	0,54117	0,685097	0,116269	-0,15254	0,294812	0,029512	0,17554	-0,38769	0,20839	1

The results of correlation matrix remain identical.

4.1.5 Modified parameters estimation using OLM in Gretl

Model 2: OLS, za použití pozorování 1905/06/23-1905/07/07 (T = 15)

Závisle proměnná: Y__GDP_pre_cap

	Koeficient	Směr. chyba	t-podíl	p-hodnota	
Const	12758,2	7950,3	1,6047	0,15967	
x1__unemploye	-2696,93	1338,65	-2,0147	0,09057	*
x2__nominal_la	158,764	184,009	0,8628	0,42139	
x3__GD_____of_	317,842	80,1063	3,9677	0,00739	***
x4__inflation_	246,524	531,234	0,4641	0,65897	
x5__Interest_r	-695,351	1120,45	-0,6206	0,55768	
x6__trade_bala	0,0161671	0,007618	2,1222	0,07804	*
x7__long_term_	409,718	1591,22	0,2575	0,80541	
x8__EUR_USD	10203,6	2913,96	3,5016	0,01280	**

Střední hodnota závisle proměnné	27386,67	Sm. odchylka závisle proměnné	2515,343
Součet čtverců reziduí	3233769	Sm. chyba regrese	734,1400
Koeficient determinace	0,963492	Adjustovaný koeficient determinace	0,914815
F(8, 6)	19,79352	P-hodnota(F)	0,000896
Logaritmus věrohodnosti	-113,3924	Akaikovo kritérium	244,7848
Schwarzovo kritérium	251,1572	Hannan-Quinnovo kritérium	244,7169
rho (koeficient autokorelace)	0,097335	Durbin-Watsonova statistika	1,786642

Modified numbers bore fruits. The model now represents economic reality in most of the parts. At least the significant variables do represent reality. More about the economic verification will be written further, the central point is that thesis may continue with this model.

$$y_{1t} = 12758.2 - 2696.96 x_{1t} + 158.764 x_{2t} + 317.842 x_{3t} + 246.524 x_{4t} - 695,351 x_{5t} + 0.0161671 x_{6t} + 409.718 x_{7t} + 10203.6 x_{8t} + u_{1t}$$

4.1.6 Economic verification

Economic verification considers intensity and direction effecting exogenous variables on the endogenous variable. Due to the model, yearly consumption of eggs is influenced:

$$y_{1t} = 12758.2 - 2696.96 x_{1t} + 158.764 x_{2t} + 317.842 x_{3t} + 246.524 x_{4t} - 695,351 x_{5t} + 0.0161671 x_{6t} + 409.718 x_{7t} + 10203.6 x_{8t} + u_{1t}$$

- When the unemployment rises by one %, GDP per capita will decrease by 2696.96 Euros.
- When the labor productivity raises by one point, GDP per capita will raise by 158.764 Euros.
- When the Government debt increases by one percent, GDP per capita will raise by 317.842 Euros.
- When inflation raises by one percent, GDP per capita will raise by 216.524 Euros.
- When trade balance will raise by one million, GDP per capita will raise by 0.0161671 Euros.
- When the prize of long term bonds will raise by one percent, GDP per capita will raise by 409.718 Euros.
- When Euro appreciates by 100%, GDP per capita will raise by 10203.6 Euros.

The First assumption is greatly supported by the results of this model. Most significant variable is government debt, which influences the model by more than 90 %. Trade balance is the second most important variable. Unemployment also shows great influence on the economy, which is to be understood. However last two were decisively exceeded by the strength of monetary Euro value, which also represents the economic reality.

4.1.7 Statistical verification

Model 2: OLS, za použití pozorování 1905/06/23-1905/07/07 (T = 15)

Závisle proměnná: Y___GDP_pre_cap

	<i>Koeficient</i>	<i>Směr. chyba</i>	<i>t-podíl</i>	<i>p-hodnota</i>	
Const	12758,2	7950,3	1,6047	0,15967	
x1___unemploye	-2696,93	1338,65	-2,0147	0,09057	*
x2___nominal_la	158,764	184,009	0,8628	0,42139	
x3___GD_____of_	317,842	80,1063	3,9677	0,00739	***
x4___inflation_	246,524	531,234	0,4641	0,65897	
x5___Interest_r	-695,351	1120,45	-0,6206	0,55768	
x6___trade_bala	0,0161671	0,007618	2,1222	0,07804	*
x7___long_term_	409,718	1591,22	0,2575	0,80541	
x8___EUR_USD	10203,6	2913,96	3,5016	0,01280	**
Střední hodnota závisle proměnné		27386,67	Sm. odchylka závisle proměnné		2515,343
Součet čtverců reziduí		3233769	Sm. chyba regrese		734,1400
Koeficient determinace		0,963492	Adjustovaný koeficient determinace		0,914815
F(8, 6)		19,79352	P-hodnota(F)		0,000896
Logaritmus věrohodnosti		-113,3924	Akaikovo kritérium		244,7848
Schwarzovo kritérium		251,1572	Hannan-Quinnovo kritérium		244,7169
rho (koeficient autokorelace)		0,097335	Durbin-Watsonova statistika		1,786642

4.1.7.1 Significance of estimated parameters

P-value informs us of the level of significance α on which the null hypothesis is rejected for the statistical insignificance of parameter. In case of the level of significance $\alpha = 0.1$ Gretl output show, that P-value for unemployment and trade balance is met. The level of significance $\alpha = 0.05$ is met by the monetary pair of EUR/USD and finally the government debt meets even the most rigorous condition by reaching under the level of significance $\alpha = 0.01$. The remaining half of the variables appears to be statistically insignificant.

4.1.7.2 Tightness of dependence

The Coefficient of determination informs us of the tightness of dependence. This coefficient states in %, of how many percent are the changes in the endogenous variables dependent on the changes of the exogenous variables. The model 2 has the value of 96.35 %. In other words – very strong dependence.

4.1.7.3 Durbin – Watson test

Durbin-Watson test determines the presence of autocorrelation of residuals or mutual dependence of random parts of chosen observations on the endogenous variable in the model.

For the DW test stands:

d	$<$	d_L	Positive autocorrelation
$d_L < d$	$<$	d_U	Unclear
$d_U < d$	$<$	$4 - d_U$	Absence of autocorrelation
$4 - d_U$	$<$	$d < 4 - d_L$	Unclear
d	$>$	$4 - d_L$	Negative autocorrelation

Critical value of the model: $k = 10$; $t = 15$

d_L	0.17531
d_U	3,21604
$4 - d_L$	3.82469
$4 - d_U$	0.78396

The value of DW test in the model is equal 1,786642. The –equation $d_L < d < d_U$ stands - the autocorrelation in the model is unclear.

4.1.8 Application of the model

a) If the government debt decreases by 3 %, how would it affect the GDP per capita in Eurozone?

$$317.842 * (-3) \Rightarrow \hat{y} = - 953.526$$

The GDP per capita in Eurozone would decrease by 953.526 Euros.

b) If the government debt increases by 5 %, how will it affect the GDP per capita in Eurozone?

$$317.842 * 5 \Rightarrow \hat{y} = 1589.21$$

The GDP per capita in Eurozone would raise by 1589.21 Euros.

c) If the euro loses 2 % of its value compared to dollar, how would it affect GDP per capita in Eurozone?

$$10203.6 * (-0,02) \Rightarrow \hat{y} = - 204.072$$

The GDP per capita in Eurozone would decrease by 204.072 Euros.

d) If the euro gained 6 % of its value compared to dollar, how would it affect GDP per capita in Eurozone?

$$10203.6 * 6 \Rightarrow \hat{y} = 612.216$$

The GDP per capita in Eurozone would raise by 612.216 Euros.

e) If the government debt raised by 4 % and euro would lose 3 % of its monetary value in comparison to Dollar, how would it affect the GDP per capita in Eurozone?

$$317.842 * 4 + 10203.6 * (-3) \Rightarrow \hat{y} = 1271.368 - 306.108 = 965.26$$

The GDP per capita in Eurozone would raise by 965.26 Euros.

4.2 Scenarios of future Eurozone development

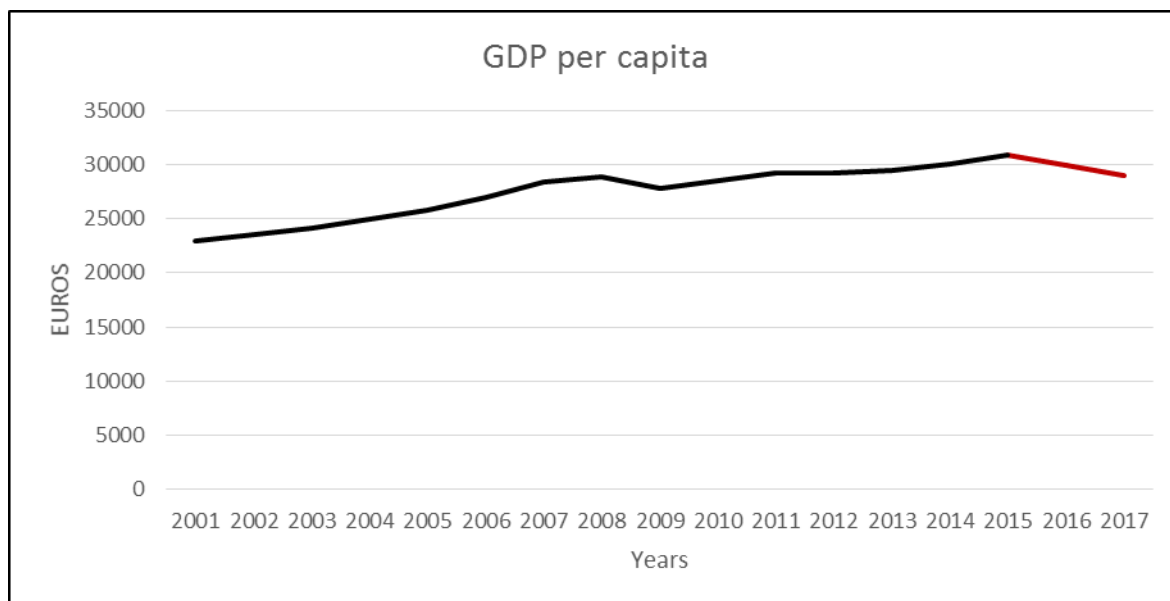
In this following chapter the thesis will examine possible future scenarios based on the results of the econometric model. The main focus will be given to the causes of the results of the econometric model and possible consequences of these results. We could also bring it down to the most basic of scientific methods – cause and effect. The thesis will look for potential cases of the results of econometric model based on economic theory, previous experience of the author with real economy, social factors and political pressures. These three categories are the base of the author's decisions made about economical-political issues. Due to changing conditions, there has to be added a new player, or a new category for decision making process and that is the mainstream media (MSM). They have huge influence on decision making process especially of the politicians. They have no real responsibility, which allows them to comment the economical-political issues with the “more idealistic” point of view. On the other hands, politicians hold the responsibility to the people of their electorate. Politicians usually draw wrong conclusion that the opinion of the MSM represents the voice of the people. The reality of these shows us, that this conviction is being challenged more and more with coming years. Which lead us to the last “non-economic” category which represents the common people – social factors. The democracy is built on the rule of the majority. This obviously still remains to be true in Europe. However we are starting to face a new phenomenon – the disproportion between the opinions of the medial elites, who represent the MSM and the common people. Especially when it comes to the social problems, we can see these two groups facing each other with opposite ideas on how to solve the raising issue. We are getting into the stage where elites (people who have executive, decision-making or any kind of influence in the public life) make decisions and common people have to bear the consequences of the decision.

One is clear – European Union and by that Eurozone as well have gotten into the situation when they have divided society into the major parts and few minor “bubbles” (social group, which accepts only the ideas of its members, other opinions are wrong and are not worth reading, discussing about and presented at all). This situation is very disturbing for every nation and even more for multinational association as the European Union.

4.2.1 Scenario A – decrease of government debt by 3 %

If the aggregated government debt of Member States of the Eurozone would decrease by 3% the GDP per capita would decrease by **953.526 Euros**.

Figure 7: GDP per capita prediction for rise of GD by 3 % a year



Source: own making, (Eurostat, 2017)

This result represents the situation that Eurozone is trying to achieve for some time – Significant decrease of government debt. However, as we can see in Table1 below, the situation is not exactly improving even though we have seen growth in the general GDP of most of the countries, the government debt does not follow the trend of Keynes's theory – government's fiscal expansive policy during economic depression and budgetary surpluses when the economy encounters the growth periods of economic cycle. (Brčák and Sekerka, 2010).

Table 3: Government debt of EU, Eurozone and its Member States (in % to GDP)

GEO/TIME	2010	2011	2012	2013	2014	2015
European Union (27 countries)	78,5	81,2	83,8	85,7	86,7	85,0
Euro area (19 countries)	83,8	86,1	89,5	91,3	92,0	90,4
Belgium	99,7	102,3	104,1	105,4	106,5	105,8
Denmark	42,9	46,4	45,2	44,7	44,8	40,4
Germany	81,0	78,7	79,9	77,5	74,9	71,2
Estonia	6,6	6,1	9,7	10,2	10,7	10,1
Ireland	86,3	109,6	119,5	119,5	105,2	78,6
Greece	146,2	172,1	159,6	177,4	179,7	177,4
Spain	60,1	69,5	85,7	95,4	100,4	99,8
France	81,6	85,2	89,5	92,3	95,3	96,2
Italy	115,4	116,5	123,3	129,0	131,9	132,3
Cyprus	55,8	65,2	79,3	102,2	107,1	107,5
Latvia	47,4	42,8	41,3	39,0	40,7	36,3
Lithuania	36,2	37,2	39,8	38,7	40,5	42,7
Luxembourg	19,9	18,8	21,8	23,5	22,7	22,1
Malta	67,6	70,0	67,6	68,4	67,0	64,0
Netherlands	59,3	61,6	66,4	67,7	67,9	65,1
Austria	82,8	82,6	82,0	81,3	84,4	85,5
Portugal	96,2	111,4	126,2	129,0	130,6	129,0
Slovenia	38,4	46,6	53,9	71,0	80,9	83,1
Slovakia	41,2	43,7	52,2	54,7	53,6	52,5
Finland	47,1	48,5	53,9	56,5	60,2	63,6

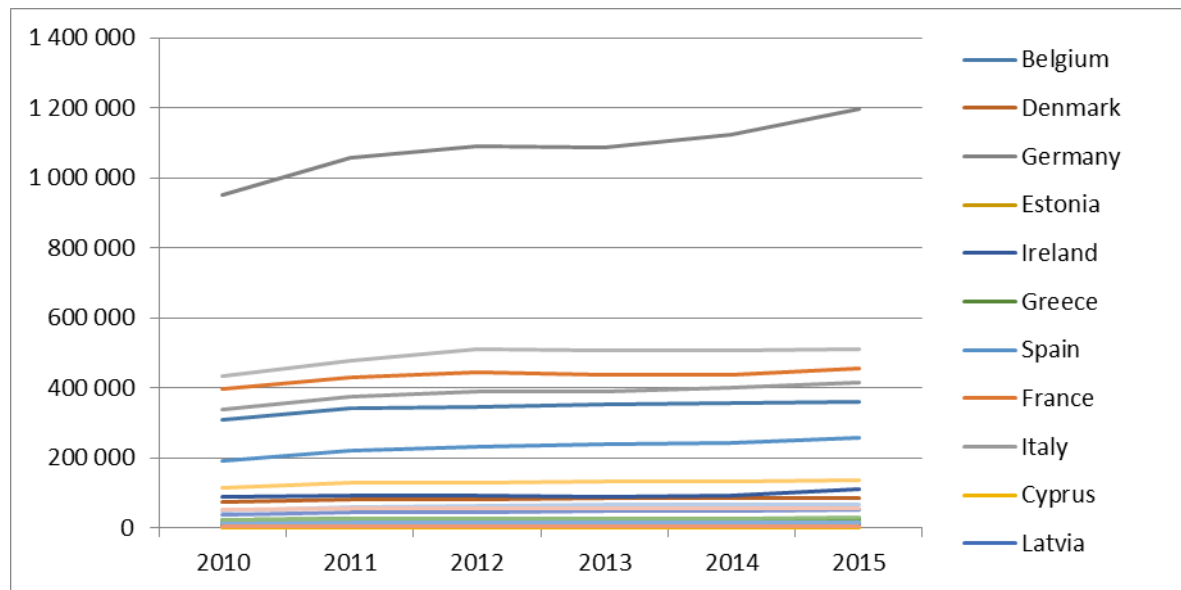
Source: own making, (Eurostat, 2017)

Data from Table 1 show us that Eurozone has used “better” years to erase something of its debts, but truth is, that most of this positive trend has been accomplished by Germany, Ireland and Denmark between the years 2014 and 2015. The remaining countries have stagnated in their effort or have even increased their government debt in the years when global economy was set towards growth. The previous years have been affected by the financial crisis in 2008 which started with the fall of Lehman Brothers and debt crisis which followed a year later. The three year period 2011-2013/14 was affected by these two previous crisis and subsiding effects. What is even more disturbing is that we can see no greater improvement in the most problematic countries of PIIGS – Portugal, Ireland, Italy, Greece and Spain. Only Ireland has gone thru necessary structural reforms which allowed it to significantly improve its situation. We can see enormous decrease in government debt between years 2014 and 2015. Almost 30 % of its government debt compared to GDP of the current years has been erased inside this period. This is extraordinary performance which could lead as a superior example for southern countries of Eurozone, but if we

wanted to resolve this problem, we would have to look closer at the social climate inside mentioned countries. Ireland has realized its problems and started taking actions on the way to improvement, on the other hand, southern countries were not able to come up with the necessary economic and social measurements which would lead to improved situation. Instead of that they still roll the same problems in front of themselves. No necessary structural measurements has been done inside Greece, Italy and Spain and not much has been done in Portugal as well. As we look closer and the debt numbers of mentioned states we can see that they all far exceed one of the main fiscal conditions stated in the Maastricht criteria – The public debt of the member state does not exceed 60 % of GDP (excepting the cases when it is adequately reducing and approaches the recommended level) (Lacina, 2010). In fact when considering this condition of the Maastricht criteria than only Estonia, Latvia and Luxembourg would have passed this one on the end of the year of 2015. Germany and Lithuania and Denmark are on the right course but the rest, which makes more than half of the population of Eurozone and more than half of its member states, would not even pass the initial number to be accepted into the Eurozone. This is one of the extremely weak part of the European integration and that is the incompetence to fulfill the terms and conditions.

Let's start looking for the potential causes of decrease of government debt. The first thing that comes to mind is the raise of the GDP itself. It would have to be caused by enormous trust of consumers and companies for the economy. We are talking about Eurozone which does not suggest great amount of domestic consumption or investments. So the only possible impulse for the growth of the GDP would be export – in other words – higher trade balance, which would influence the final level of GDP. We can look at the graph of exports for individual countries of Eurozone which is directly below.

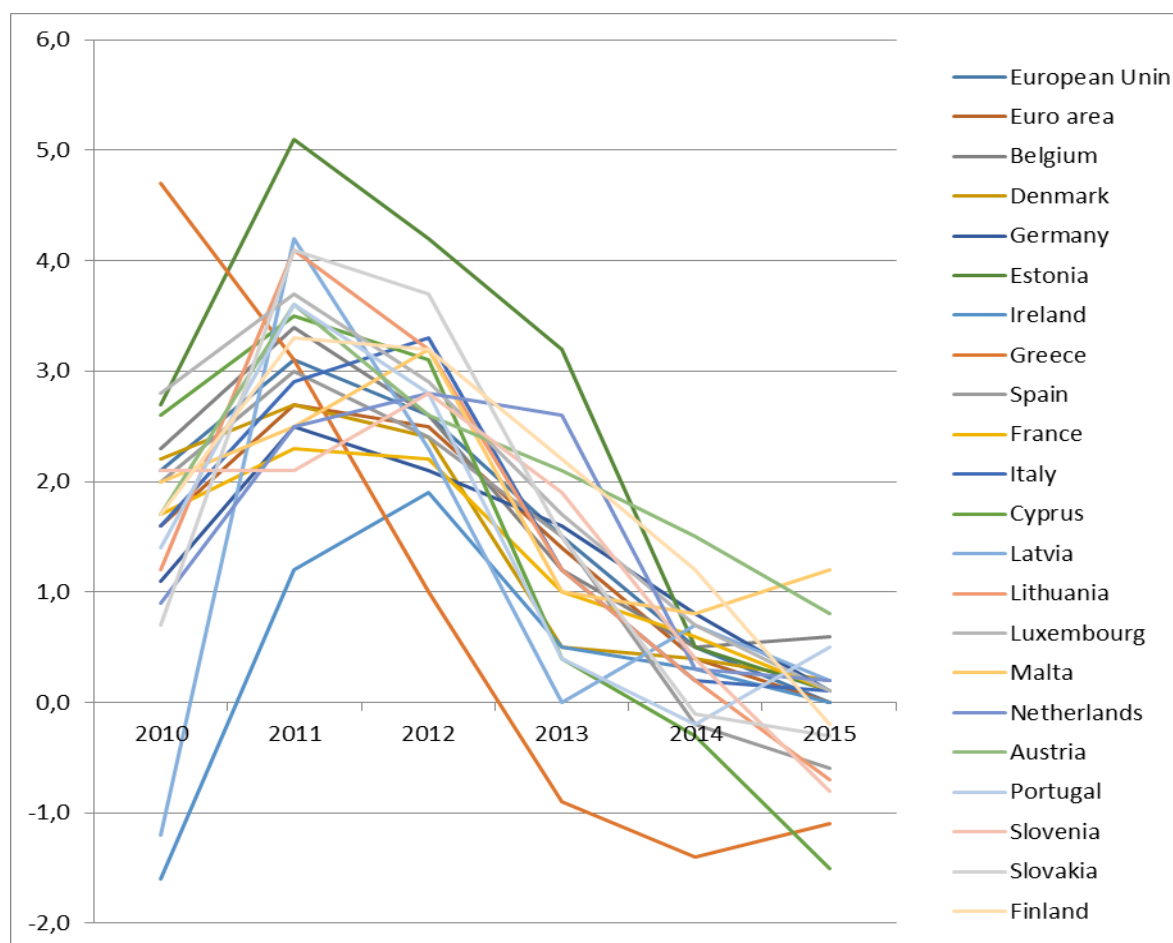
Figure 8: exports of individual states of Eurozone in millions of Euros (2010-2015)



Source: own making, (Eurostat, 2017)

When we watch the graph above, we can see one of the most painful places of the whole project of the single currency. Euro is too weak for Germany and maybe few other minor states (Netherlands, Luxembourg), but it is most definitely too strong for remaining Member States. The value of euro is one of the reasons why all the southern countries are struggling with the current situation. They cannot devalue their currency to the suitable level on which the countries of the south would be able to produce something with lower labor costs and become competitive again. The strength of Euro blocks the efforts of all other Member Countries. The adequate answer for such development would be the deflation in declared countries but as we can see from the Graph n. 2 – deflation is nowhere to be seen.

Figure 9: Inflation in Eurozone between 2010-2015 (in %)



Source: own making, (Eurostat, 2017)

When we come to analyze the data concerning price levels, we can see that deflation has come to Greece in the middle of the year of 2012. Which is more than 3 years after the beginning of the both of the crisis. The graph also shows that price levels of Member States of the Eurozone are bound together. Which is understandable in the end, when the common central bank is concerned – European Central Bank (ECB). The goal of the ECB is the price stability in all of the Member States of the European Monetary Union, which includes Greece. This is another weak spot of monetary integration. Every member state would need different monetary approach to benefit its economy the most. The easiest way to achieve that would be through monetary devaluation. It this is not clearly possible because of the single currency there at least have to be the possibility of lowering the price level inside the weakened, which would substitute the effect of monetary devaluation. When none of these instruments is not available there is only one last possibility that could help and that would be the movement of labor force. Here we once again meet the

imbalance between theory and reality. It is true, that many people from southern countries pursue work in northern states, especially in Germany, but Germany cannot provide labor for all of the Europe and there are still several boundaries for working abroad. Knowledge of the language of chosen country as well as cultural differences, social differences which make the labor movements far more difficult than in theory.

The situation in the United States of America (USA) does not suggest that demand should come from USA. As new president of USA – Donald Trump has said many times, he prefers the USA with protectionist policy – in other words, as many products and services produced inside the USA, the better. This policy will make it more challenging for companies from the Eurozone to enter the market of the USA. There will be political pressure for American companies to lower their prices and there will still be tariffs and there is also the possibility that they will go up, instead of down, when there has been the TTIP (Transatlantic Trade and Investment partnership) in the game.

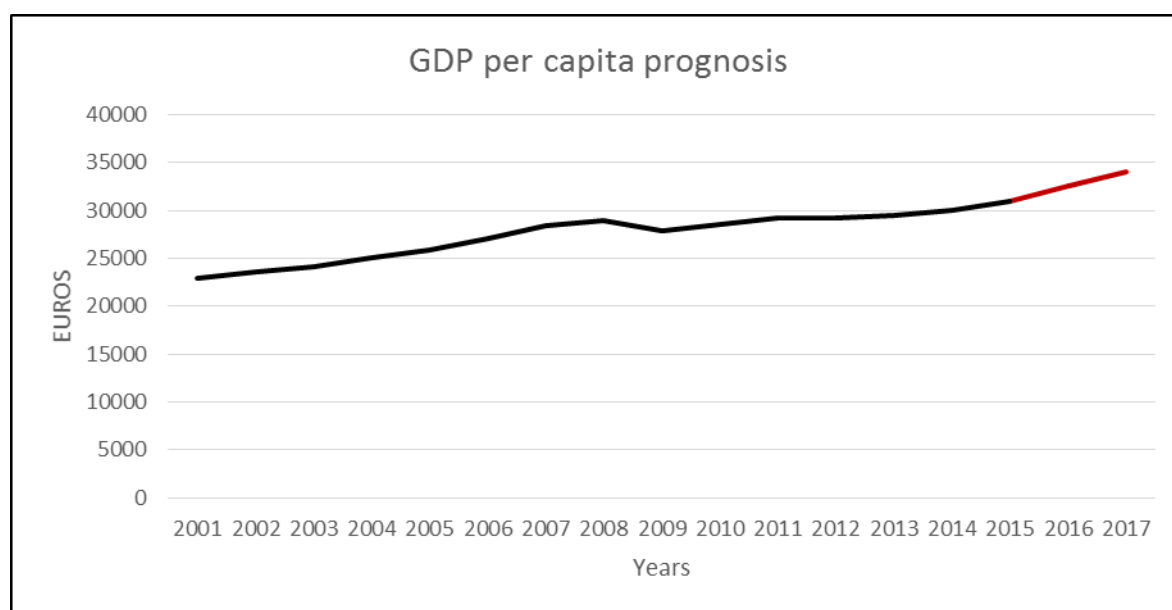
With USA most likely out of the question Eurozone could turn only to the east - Russia and China. There is a significant tension between EU and Russia, after Russian annexation of Crimea. There have been economic sanctions imposed on Russia by EU and Russia answered with sanctions of their own – hitting most of the economic sectors inside EU as well, but especially food and financial industry. One of the ways how to increase GDP of Eurozone would be the cancellation of the economic sanctions from both sides. Even though the author is supporter of economic sanctions, there is no denying that sanctions negatively influence the GDP of Eurozone. And we can also look even further east – to the China.

China, especially, in the future will be one of the single biggest markets in the world. However China has a major task in front of itself – transforming its economy from the emerging economy into the developed economy with its own market, which will supply its aggregate demand. When this happens, China will present enormous opportunity for the companies of the Eurozone. So far, China is still developing country with enormous debt on its government, as well as its companies. The major problem with China is that most of its debt is located inside the households and state-controlled companies and public companies. The main argument suggesting China possibly faces a crisis is that other countries that experienced a equally rapid increase in debt suffered a financial crash or economic recession (Scarr, Still and Wu, 2017).

4.2.2 Scenario B – increase of government debt by 5 %

If the aggregated government debt of Member States of the Eurozone would increase by 5% the GDP per capita would increase by **1589.21 Euros**.

Figure 10: GDP per capita prediction for rise of GD by 5 % a year



Source: own making, (Eurostat, 2017)

The whole Eurozone is trying to consolidate its fiscal situation due to the high government debts of the majority of Member States of Eurozone. So when we are trying to think off reason for such enormous rise in the government debt, the most likely reason for this should be some kind of economic or financial crisis. We are talking about situation when the trust for the global economy will significantly decrease. As we mentioned in the previous chapter – for instance escalation of debt situation in China or we do not have to go that far for possible causes of potential crisis. During this very year has increased unsatisfying situation inside Italian Banks. It is definitely worth it to have a closer look on this situation.

Italy's banking crisis at the present time pivots around fate of Banca Monte dei Paschi di Siena (MPS). The bank spent 2016 struggling to shed 28 billion euros in non-performing loans (NPLs), which account for 36 % of the loan portfolio of the bank that is the top proportion of NPLs of any bank in Italy. As a result, investors and depositors started withdrawing their money, compounding the financial crisis of the bank by creating a

liquidity difficulty. Last week, MPS proclaimed that its remaining 11 billion euros in liquidity would only last until April 2017. The effort of the bank to privately solve its financial problems failed, leaving the Italian government as the only remaining resource of the bank. MPS spent the fourth quarter of 2016 looking for 5 billion euros of capital and a fund to underwrite it. The bank failed to accomplish its Dec. 22 deadline, after the biggest backer of the deal pulled out at the last minute causing the plan to fall through. With the private sector and outside financial institutions unwilling to help, MPS officially asked for aid from the Italian government. On Dec. 23, the Italian Cabinet declared that the bank would be saved with a 20 billion euro fund approved by Parliament earlier in the week. The following obvious question is will 20 billion euros be enough to solve problems of the MPS? While the sum would address immediate needs of MPS, projected at about 8.8 billion euros, many autonomous researchers believe Italy's current 20 billion euro fund is not enough to rescue the bank in the long run. Goldman Sachs estimations are that positive recapitalization would require 38 billion euros, while a senior market analyst at London Capital Group advises the number could be closer to 52 billion euros.

(Ligon and Fedirka, 2016).

At the current there is no other possible reason for such growth of the government debt than some kind economic depression or crisis. There are two more inner reason that could cause the crisis to start. One of them is called Greece.

Greece's debt to GDP ratio hit about 100% in 2000, with the country preparing to substitute the Drachma with the Euro. Debts began increasing in the later part of the decade. When creditors finally noted that Athens could be in a bit over its head back in 2009, Greece's debt to GDP ratio was about 127%. Today Greece owes around \$320 billion and its debt to GDP ratio is approximately 174%, second in the world only to far richer Japan. The debt relief being argued would only drop that by about 20 points—by 2060! (Bandow, 2017).

Greece – the aching heel of the whole European Union. The problem that does not seem to have end. This is the supreme demonstration how economy is going to react when their debt is excessively large and bad times strike you. The Author always imagined well-kept state budget as the first line of defense against the upcoming crisis. You could also imagine it as a wall, which protects you from the city you live in from flooding. Greece – let's put it bluntly here – did live over its possibilities for a long time and then the crisis came and Greece did not have the imaginary wall to protect it. All city of Greece has been flooded.

Now its time for Greece to realize that only thing they need to do and they will eventually need to do, because there is no alternative than austerity and hard work. If one gets a consumer loan he will need to pay eventually. This WILL happen in Greece as well. What we see nowadays is only buying of time - postponing the inevitable. Supplying Greece with money from Troika is a white elephant. The life situation of Greeks is far from improving. The truth is that it will take a lot of time before the situation will improve, but the worst part is that the situation has not even started changing! The phase of hard work and austerity has not even begun. Pragmatic politician or economist does not look for the ones to blame. However, in this case exception can be made. The rest of Eurozone (Germany) is afraid to take action, because they are afraid of the consequences of Greece leaving Eurozone, which is the only way out of the troubles – especially for Greece. The major fear is focused on the trust of investors and public for the project of euro. If one falls the other will follow and there is a great risk of increased financial expenditures for government bonds if the trust of the investors is in jeopardy. Also, if Greece left Eurozone it would be a sign to the people of the EU that another project of integration has failed. It is the price that EU and Eurozone cannot afford to pay at the moment, when the trust for the project of EU in current form is the lowest that has ever been. On the other hand Greece is not willing to tighten the belt anytime soon. One of the big issues with democracy is the possibility to make promises u do not intend to meet and then blame the other side for it. This itself would not be that tragic. The tragic part comes that people (voters) in fact can and do believe that. This creates situation that Greece is not willing to take even part of the blame for their enormous debt situation. The bottom line is that no one forced the Greeks to accept the loans from anyone. This is the argument that makes the whole situation much easier to understand. The Greeks decided to live the high life and they are the ones who are responsible for paying the price. On the other hand the investors do undertake the risk that Greece will not pay their money back. The difficulty comes when we realize that most of the investors share the same currency as the debtor and the fall of Greece would hardly influence the investors – Catch -22.

The last of the potential cases is not focused on the internal factors influencing the Eurozone. It has the inner consequence but the cause is the slowing demand from outside of the Eurozone. It is especially focused on Germany. As we have seen in the figure 8, Germany is the major exporter of the Euro area. Its exports are higher than French and

Italian exports together. One of the biggest imbalances in the Europe may turn against Germany and the rest of the single currency union as well.

Germany's export-dependent economy is extremely vulnerable as China slows down and a crisis of exporters clarifies. Let's have a closer look at one the main German industry companies – Daimler. It points to an even more severe struggle for economy of Germany. The first quarter of last year report from Daimler indicates that German exports may be struggling to adjust to a global economic slowdown and may be using unmanageable business adoptions to keep export volumes high in the near period.

Table 4: Daimler financial data

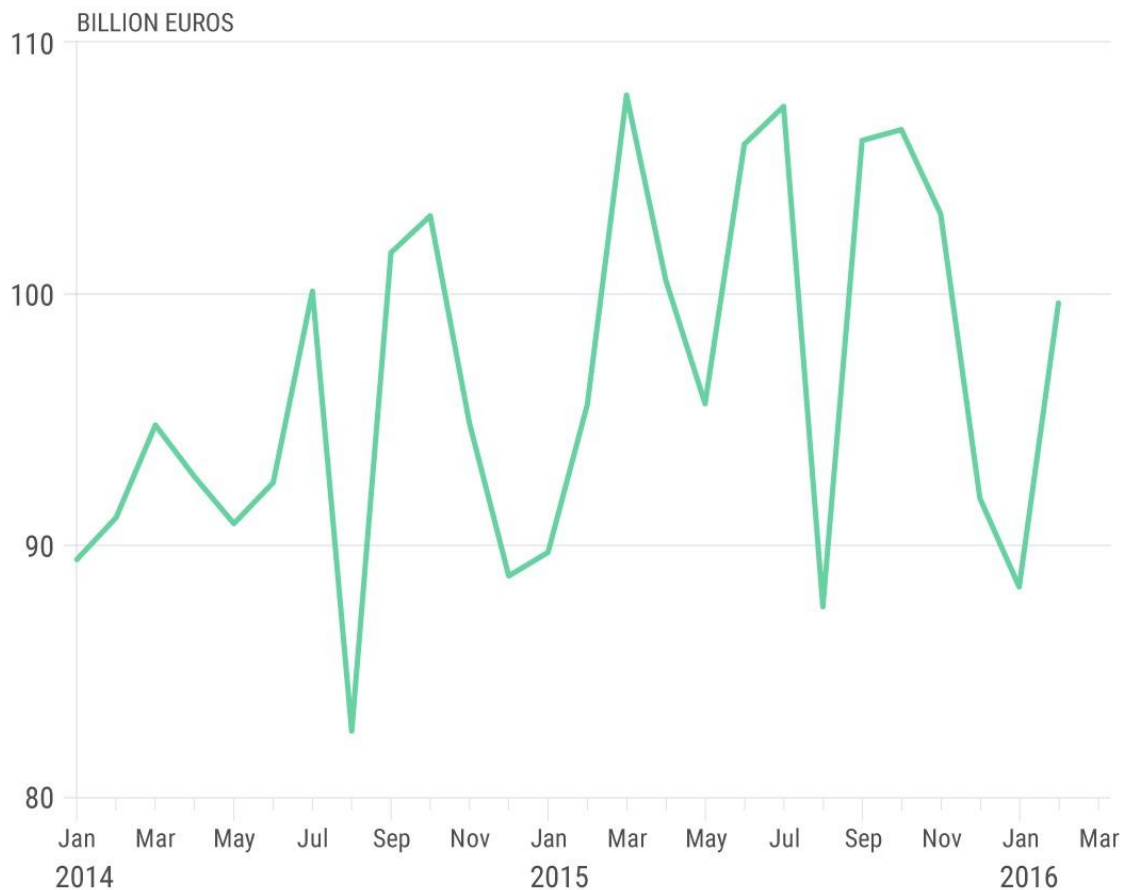
MILLION EUROS	2ND QUARTER		3RD QUARTER		4TH QUARTER		1ST QUARTER		
	2014	2015	2014	2015	2014	2015	2015	2016	CHANGE
UNIT SALES (IN UNITS)	628,857	714,759	637,423	720,016	713,906	776,625	641,614	683,885	+7%
REVENUE	31,544	37,527	33,122	37,276	35,749	40,428	34,236	35,047	+2%
EBIT	3,095	3,718	3,732	3,661	2,138	2,901	2,906	2,148	-26%
NET PROFIT, GROUP	2,196	2,372	2,821	2,415	1,187	1,874	2,050	1,400	-32%
PROFIT ATTRIBUTABLE TO SHAREHOLDERS OF DAIMLER	2,104	2,269	2,735	2,385	1,096	1,807	1,963	1,353	-31%
DEPRECIATION AND AMORTIZATION	1,228	1,286	1,227	1,323	1,326	1,408	1,367	1,335	-2%
R&D EXPENDITURE TOTAL	1,316	1,621	1,414	1,596	1,599	1,821	1,526	1,724	+13%
EXPENSED R&D COSTS	1,073	1,189	1,129	1,132	1,254	1,313	1,126	1,238	+10%
CAPITALIZED DEVELOPMENT COSTS	243	432	285	464	345	508	400	486	+22%
AMORTIZATION ON CAPITALIZED DEVELOPMENT COSTS	306	311	293	310	302	324	300	314	+5%
CAPITAL EXPENDITURE TOTAL	1,350	1,827	1,565	1,820	2,076	3,313	1,599	1,784	+12%

Source: <https://www.daimler.com/dokumente/investoren/berichte/zwischenberichte/q1/>

According to the World Bank, exports amount to about 45 percent of German GDP. Last year, Germany was somehow capable to compensate for falling demand in economies like China with enlarged exports to European markets and the U.S., as well as with internal demand. But there are now growing indications that internal demand and exports to

alternative locations are no longer protecting Germany from the global crisis of exporters. Official data from German Ministry for Economic Affairs has indicated that in February factory export orders fell 2.7 % compared to the previous month. Particularly, orders from the rest of the monetary union dropped by 3.7 %. Domestic orders rose only 0.9 %. At the same time, German businesses are starting to grasp the amount of the challenges facing the economy of the country, with a business environment index compiled by the Ifo Institute for Economic Research displaying that confidence has fallen for four out of the past five months of the beginning of the year of 2016. (Bayer, 2016)

Figure 11: German Exports since 2014 in billion Euros (monthly data)



Source: Statistisches Bundesamt, Wiesbaden 2016

With almost half of the German economy is dependent on exports, the impact of falling profits will resonate not only inside Germany, but across the whole Eurozone. Germany is the biggest economic powerhouse of Europe, and its economy and banking sector are

closely connected with those of other European Union members. Germany is a dominant investor across the bloc- Furthermore, numerous countries, especially in Central Europe, are strongly tied to the German economy because they export car parts and other components that are used in exports of German economy. As a leading economy of the EU, Germany contributes disproportionately the budget of EU. In 2014, rendering to the European Commission, Germany funded 14 billion euros more to the EU budget than it received from the budget. A crisis of German exports would not stay only a German struggle for long, but it would swiftly become a European problem. Europe is already very separated, and economic challenges are escalating in Italy, Greece and elsewhere as was mentioned before. A potential crisis in Germany would worsen both the economic and political fragmentation of the monetary union.

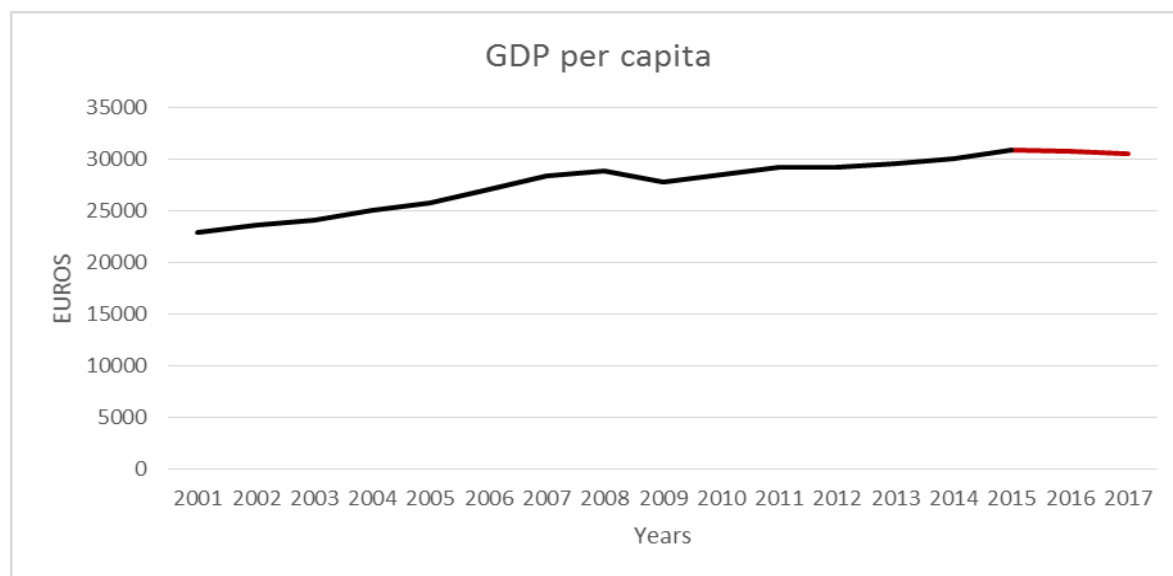
The economic future of Germany and its stability and position on the Continent depends in large amount on the financial good fortune of their exports. It remains to be understood whether German exporters other than Daimler are maintaining export capacities while experiencing shrinking net profit values. Export capacities are crucial to observe, but the underlying financial health of most important exporters is key.

This is the summary of potential causes of the growth in the government debt in the countries of Eurozone. Now its time to go thru expected outcomes of such evolution of the situation. The almost certain outcome would be decrease in the trust of the investors and creditors of Eurozone. One of the variables of the econometric model – long-term bonds would increase in numbers. The whole membership would face increased expenditures on the financing of their debt services. There are countries – especially in the Southern Europe that would bear consequences of such increase more than uneasily. The countries with already too high a debt would face economic struggles which could lead to the problems across the whole monetary union. The economic difficulties would have two solutions. Germany and fiscally stronger countries of Eurozone would have to donate the weaker countries or they would be let to fall in bankruptcy. Uncontrolled bankruptcy is unlikely we would have most likely faced controlled one. IF this possibility came into light we would finally see massive changes inside the whole Eurozone and EU.

4.2.3 Scenario C – 2% decrease in the Value of Euro in comparison to Dollar

If the euro loses 2 % of its value compared to dollar, the GDP per capita in Eurozone would decrease by **204.072 Euros**.

Figure 12: GDP per capita prediction for decrease of value of Euro by 2 % a year

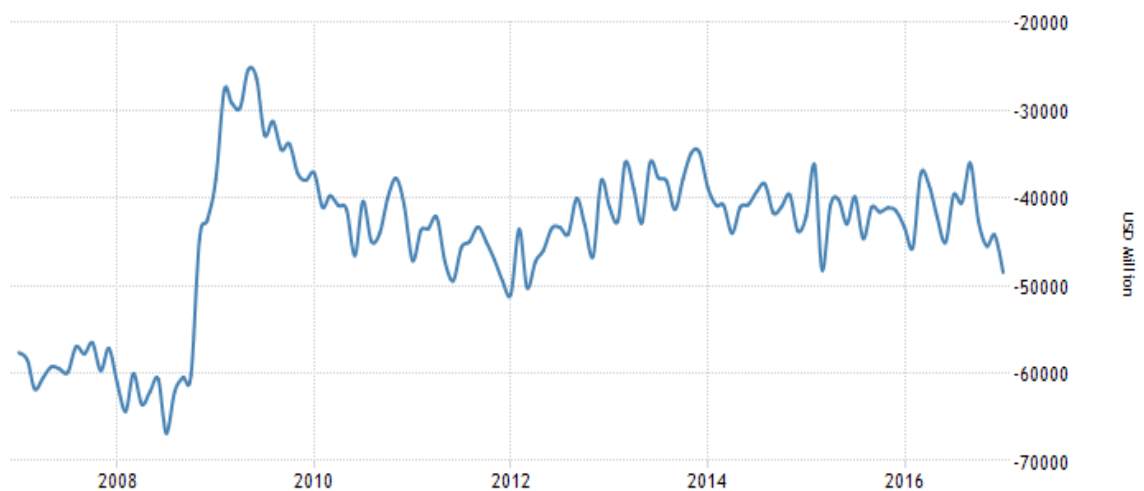


Source: own making, (Eurostat, 2017)

ECB has the goal to keep inflation rate around 2 %. That is the main goal of ECB and otherwise the value of the euros is flexible, so the main players who are deciding whatever the euro will depreciate or appreciate are individual investors. ECB could step into the process but only if the process was going too far away from interest of the Eurozone. Decrease of 2% of its value would be hardly considered as a major bump and ECB would most likely not react. This conclusion leaves us only with two options. Decreased trust for the economies of Eurozone and its weakening potential and second option which represents the opposite side - the improved condition of the economy of the United States of America (USA). As we know from previous weeks, the markets have responded generally positively. New president of the USA – Donald Trump supports the protectionist economic policy for his country. Which indeed have resulted in the increased trust of the markets for American economy. He also approached several American companies that intended to start producing in Mexico (lower labor costs) and was successful in persuading them to stay inside USA and employ the citizens of USA.

It perhaps seems premature but Trump might even be possible to create pro-export orientated USA. It might be a long shot, but on the other hand it is not impossible. If main companies of USA will stay inside the country and Trump will be able to persuade the other to start producing in the state again then it might even lead to increased exports from the United States and to the reduction of negative trade balance, which is the election theme for a long time in USA. 10 year history of trade balance deficits can be seen in the figure 13 below.

Figure 13: US trade balance in millions of USD



Source: www.tradingeconomics.com

Another reason that is connected to the USA is the fall of TTIP. This zone of free trade could have provided economic benefits for both major players interested in the deal – EU and USA. The estimates are talking about the increase of 0.5 % GDP of EU for the European Union and growth in GDP of USA by 0.4 % of American equivalent. (Czech Ministry of Industry and Trade, 2017)

This simple math shows us that the deal would be little bit more advantageous for EU than USA. Trump, who focuses especially on American issues takes this indicator as a threat to economic situation from the USA. It seems to be one of the first steps towards “deglobalization” or regionalism which both seem to be “the sound of the Future” in the world. Every part of the world is starting to focus on domestic issues, so let’s have a look at the most sore place of Eurozone that could threaten its monetary value. That might be the reason why Trump cancelled the deal. (Edmunds, 2017)

As we have discussed in the previous chapter, the most urgent trouble of Eurozone is the Italian banking sector. Italy's banking crisis at the present time pivots around fate of Banca Monte dei Paschi di Siena (MPS). The bank spent 2016 struggling to shed 28 billion euros in non-performing loans (NPLs), which account for 36 % of the loan portfolio of the bank that is the top proportion of NPLs of any bank in Italy. As a result, investors and depositors started withdrawing their money, compounding the financial crisis of the bank by creating a liquidity difficulty. (Ligon and Fedirka, 2016)

The important matter here is that problems of MPS are not only problems of Italy but also the problem of the whole Eurozone. Uncertainty inside the Italian market could lead risk avoiding investors to stray further from Italian assets, and thus the euro, impacting its value. Additionally, should MPS or other big Italian financial institutions fail, Italy would descend into a national economic crisis that would have substantial systemic effects on the value of the euro. This would have negative consequences for other economies inside the Eurozone.

Italy, theoretically, also have to comply with regulations of the EU. The divergence among national needs of Italy and the need of the EU has made finding an answer acceptable to both parties enormously problematic. Italy wishes to shield its taxpayers while the EU desires depositors to accept the burden of debt instead of the ECB. The answer thus far has been to support a plan in which Italy appears to be meeting EU regulations, but which offers enough wiggle space to defend the domestic investors of the bank.

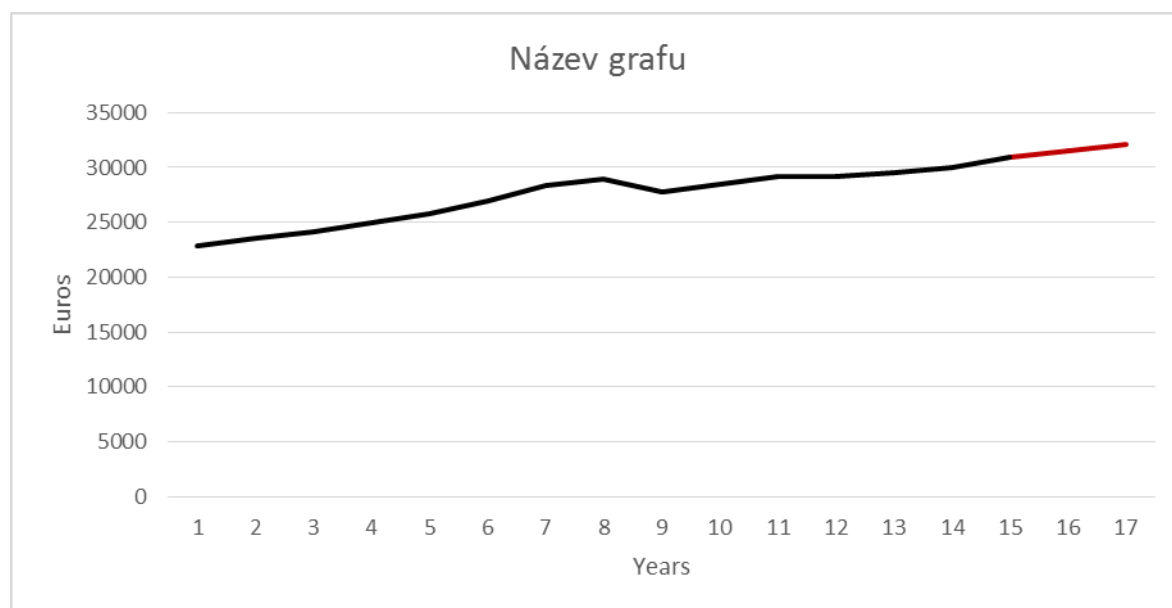
This is also one of the main reasons why Eurozone does not function properly. There is no institute of European citizen. Some may feel like Europeans but most of the population in EU feels like Germans, Italians or French. French do not care that much about Italian problems and Germans do not trouble themselves with French problems. Even though monetary troubles of one will seriously hurt the other (except for Germany which would again benefit from devaluated currency). Here is the question we need to ask – Is EU ready for single currency, when we have counties so different from one other and we have treaties that Member States do not follow from the very beginning (Maastricht criteria)?

The answer is no - for now. The idea of European and monetary integration is based on rational thought, but the reality of integration itself seems to be dragging behind.

4.2.4 Scenario D – 6% increase in the Value of Euro in comparison to Dollar

If the euro gained 6 % of its value compared to dollar, GDP per capita in Eurozone would raise by **612.216 Euros**.

Figure 14: GDP per capita prediction for increase of value of Euro by 6 a year%



Source: own making, (Eurostat, 2017)

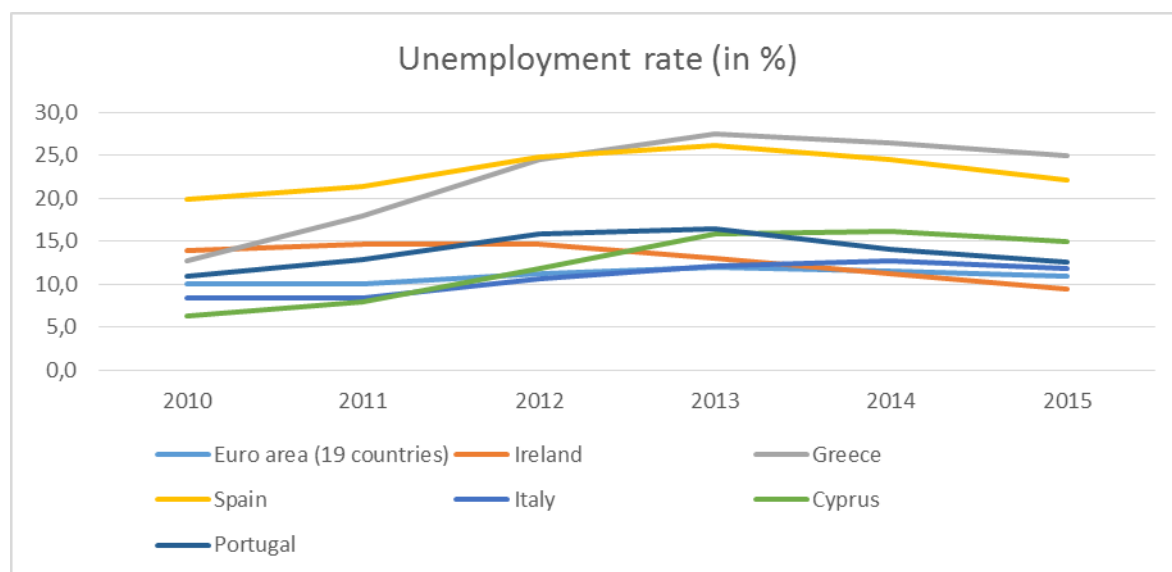
Just like in the previous scenario we can look for internal and external reasons for such strengthening of Euro. Let's start with the inner ones. It was mentioned before that Euro is mainly a currency with a floating exchange rate, which means that the value is mostly dependent on the trust of the investors. So only promising data from Eurozone or information about crucial structural reforms in the southern part of the monetary zone. One of the possible reasons for the appreciation of the Euro might be mentioned structural reforms especially in the south.

When we focus on the situation in the southern countries of the Eurozone we can see enormous government debts. This is a factor that has been solved above. But let's have a look on another aching spot of southern economies – unemployment.

When country is in the state of crisis and is not able to employ its citizens there is really no way out, unless we would talk about going through bankruptcy and restoring the economy again from the ashes. If the state does not want to see its citizens on streets with empty stomachs it also needs to provide them with at least basic funds for them to obtain the necessary

items for survival – food, shelter, clothes, etc. So, this creates “extra” expenditures for the state. It creates expenditures and on the other hand, state does not use one of its free sources of wealth – labor. And also the citizen that is employed pays taxed, so it is a double difficulty for the state to have large amount of unemployed people. Let’s have a look at the number of PIIGS in Figure 15.

Figure 15: Unemployment in the countries of PIIGS (in %)



Source: own making, (Eurostat, 2017)

If one said that the situation in Greece and Spain is critical, he would not be far from Truth. Countries where more than every fifth applicant for job is not able to find one – that is a way to economic stagnation at its best. At least Greece has quite reduced its number of public employees from 936,000 in the year 2011 to 567,000 at the end of 2016. (Chrysopoulos, 2017)

Italy and Portugal are a curve ahead but their situation is far from optimal. We need to have in mind the glorious debts of these countries which do not seem to decrease. Ireland on the other hand has flown through crisis and the following years as a skilled sailor. The decrease of price level and necessary structural reforms bore fruit. Cyprus as a relatively small country does not play that great role but 15 % of unemployed people is a high number for a holiday center as Cyprus. If the Eurozone was to appreciate its currency in given time, the south would have to go through significant structural changes, decrease its price level for increased competitiveness, reduce the number of state employees and attract investors.

If there were external aspects involved we would have to look once again on the USA and China. Only their possible troubles could improve trust for Euro. Then again Eurozone is interlocked with these economies on such level that the fall of one would cause the fall of the other. Especially in China scenario, so the attention again falls to the west. United States face the greatest government debt in their history. Only this could influence the fall of Dollar. The possible cause could be found inside the USA – The notorious Obamacare. Its goal is to provide access for more than 48 million uninsured Americans to cheap but also quality healthcare. (Holan, 2017)

The Obamacare could suck the lacking funds from the economy. Increased debt could warn the investors that USA is not the place to have investments at the moment and dollar could start falling. Only inside factors apart from Obamacare could possibly cause such drop in the exchange rate.

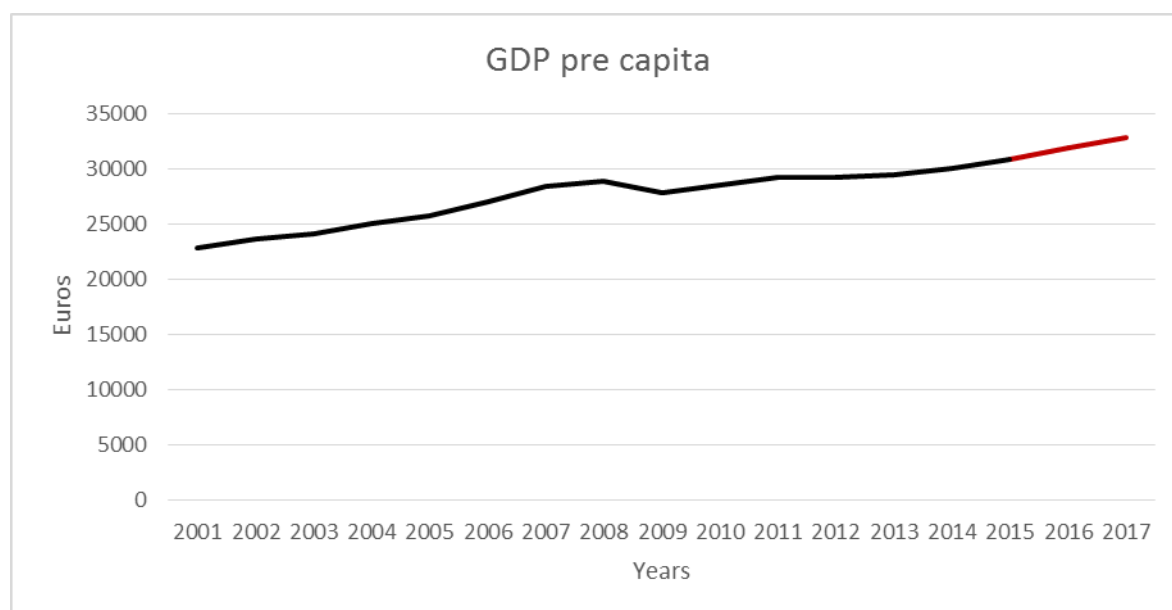
The consequences of such appreciation of the currency would not do any good to Eurozone. Most of the states that are still struggling desperately need weaker currency for the improvement of their competitiveness and decrease of unemployment. The Only part of that could benefit from this appreciation would be the northern states of Europe. Fiscally and economically strong members of the union, such as Germany, Finland, Austria, Netherlands or Luxembourg. Eurozone is only as strong as its weakest member. Meaning of this sentence is that Germany and other well-organized states of Eurozone do not need help with their economies. What they do need is not to take care of the weaker states of the union, which only slow them down.

The ruling class of Brussels wants to believe that there is only one Europe. The fact that from the economic point of view there are at least two Europes. The richer, more disciplined and better organized north and poorer, frivolous and unorganized south. The fact that EU is divided on the West and the East is the matter for different thesis.

4.2.5 Scenario E – 4% increase in government debt and decrease by 3 % in the value of Euro

If the government debt raised by 4 % and euro would lose 3 % of its monetary value in comparison to Dollar, GDP per capita in Eurozone would raise by **965.26 Euros**.

Figure 16: GDP per capita prediction for increase of GD by 4% and decrease of euro by 3 %.



Source: own making, (Eurostat, 2017)

This is the “dark scenario”. Empirically there at least one crisis during every decade. There is no reason to think that this decade is going to be different. In the previous chapters we have gone thru many possible reasons where could the black swan fly from. Chinese public debt, greatest debt in the history of the United States, never-ending economic depression of Greece, condition of Italian banks, unemployment in the southern part of EU, Islamic terrorism, social unrest in Europe and United States and economic difficulties of Russia which have not yet been mentioned. Russia is almost exclusively dependant on the exports of Oil and Gas. The fall of the oil prices stroke the Russian economy hard. Common Russian are struggling for living or not being able to live properly with the resources they have. This itself would not be critical but Russia also has one of the biggest armies in the world and when situation inside Russia in not kosher, Russia tends to point on the external enemy. The situation in Ukraine has proven the potential eastern danger.

No matter where one looks. World at the moment looks like a giant tinderbox – all it takes is someone to light the match. There are so many unresolved and ongoing problems in the world that one cannot say, which one is more severe. This scenario works with the possibility that the crisis would begin with chain reaction all over the world. Many economist expect such collapse. Unfortunately, the author of this thesis is among them.

Let us skip the potential cause of this crisis and get to the consequences. Eurozone would survive another significant crisis as well as EU. In one of the previous chapter we have imagined well-kept fiscal budgets as a wall protecting the economy. The wall has been destroyed during the last crisis and has not been rebuilt since then. So when the crisis hits there will be escape. The economies will go thru uncontrolled bankruptcies one after another. One of the disadvantages of global economy is that everything is connected with everything. China depends on Europe, USA depend on China, China depends on Europe and USA and Russia depends on the prices of oil. One falls and the others go like domino pieces.

All economies would go close to the point zero. The things that extremely increased its value would be commodities, energy, natural resource, weapons and military material and everything that has real value for humans. The expendable goods would lose their value for 95 % of the people. Goods that would provide improved protection, food self-sufficiency and reasonable living conditions would be almost invaluable. For instance Farms would need people for protection, states would be forced to increase their expenditures for safety on the regular bases – increased number of policemen and soldiers because there would be a lot of people who would have nothing to lose and if one has nothing to lose he is capable of anything. Healthcare would be paid and enormously expensive there would be no or minimal pensions. Child deaths would increase and general age of the population would significantly decrease worldwide.

Yes, it is only a “dark scenario”, but on the other hand it is not that far happening. I do hope it would not came to that, but if do continue on the current course then no one can guarantee that it will not came to that. It should serve as a great warning for those who are trying to avoid atrocity and hard work, because without these, there might not be bright future ahead. Most of us feel that something is not correct with the world. Rising military expenditures and number of terror attacks is the clear proof of that.

5 Conclusion

When all the outputs of the individual scenarios are brought together, there are few conclusion that can be made.

Eurozone is very far even from sufficient situation. Southern countries of Eurozone (Portugal, Italy, Greece and Spain) are still struggling with uncompetitive economies, enormous unemployment, not decreasing price level and all together no way out in the boundaries of the monetary union. Monetary union in current number of member does not make sense. Germany and Greece cannot use the same currency with a single central bank. To be precise Germans can, Greeks cannot. The difficulty with solution is that Eurozone has become more political than economical union. I believe that most of the politician see that the only way out is return to national currencies, at least for some Member States. However, it is the nature of politicians to postpone decisions for as long as possible. It is important to remind that longer one wait, the bigger costs he will pay. I support the project of Eurozone and EU, but we have failed in present and previous steps. We cannot continue on the same course. It is essential to take few steps back that we might ever go forward again. Because if we do not we might not walk on the same path again. Economically and politically divided Europe is far from my ideal choice. However life usually does not offer perfect choices. It offers best choices at the current circumstances. The best current option is to disintegrate Eurozone for some time. Some problematic countries (economies) need time to heal. They cannot heal as a part of the bigger unit. The best solution is the return of sovereign monetary policy to countries that desperately need it. The more successful countries may continue on the highlighted road together if they desire so or they shall walk alone for some time. Because it is better to have divide willingly and with the knowledge that it is necessary at the moment than clinging to unrealistic way, which would only lead to chaotic breakdown. Then there would be absolutely no certainty that we would ever walk together again. It is better to be divided as friends than walking together as enemies.

Eurozone has no economic rational future at the moment. It would be in the best interest of all Member States to decrease number of members to those who can handle single currency. The others should be given the chance to promote their own monetary policies which could lead to the true solutions. Situation might be chaotic and harsh in the beginning but it could lead to real recovery in the long term.

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