Is Euro Area an Optimal Currency Area and What Barriers Could Obstruct Its Future Development?

Je eurozóna optimální měnovou oblastí a jaké překážky by mohly bránit jejímu budoucímu vývoji?

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Abstract

European monetary integration has been a really ambitious project since the very beginning and during last decade it succeeded in many areas. The euro was launched without serious problems and since then the European Central Bank has managed to achieve a low inflation rate in the whole euro area. The European Union and the euro experienced the world economic crisis in 2008 and dealing with the impacts of this crisis was a real challenge for the EU, for all the member states, single monetary policy and the euro area and also for the whole integration process. In our paper we will proceed from the Optimal Currency Area model (OCA, developed by Robert A. Mundell, Peter Kenen and Ronald McKinnon) to conditions of the euro area and European currency integration process. The paper will summarize the OCA model and test the criteria for OCA in European conditions and identify barriers to the OCA as imperfect mobility of the labour market, an unfinished single market, insufficient coordination and cooperation in common macroeconomic areas within the euro area, asymmetric shocks and others. The findings will show us that euro area does not exactly meet majority of criteria for OCA model but due to strong political will of European states is the euro project going to continue. This paper also discuss the perspectives of European monetary integration.

Keywords

euro, euro area, monetary integration, European Union, Optimal Currency Area theory, single currency, single monetary policy

JEL Codes

E42, N14

Abstrakt

Evropská měnová integrace byla skutečně ambiciózní projekt od samého začátku evropského integračního procesu a během posledního desetiletí byla v mnoha oblastech jistě úspěšná. Euro bylo zavedeno bez vážných problémů a od té doby se Evropské centrální bance podařilo dosáhnout nízké inflace v celé eurozóně. Evropská unie a euro zažily světovou ekonomickou krizi v roce 2008 a řešení dopadů této krize bylo skutečnou výzvou nejen pro EU samotnou, pro všechny členské státy, jednotnou měnovou politiku a eurozónu, ale také pro celý integrační proces. V naší stati jsme vycházely z modelu optimální měnové oblasti (OCA, vyvinutého Robertem A. Mundellem, Peterem Kenenem a Ronal-

dem McKinnonem) v podmínkách eurozóny a evropské měnové integrace. Článek shrnuje model OCA, jehož kritéria testuje v evropských podmínkách a identifikuje překážky OCA jako nedokonalou mobilitu na trhu práce, nedokončení jednotného trhu, nedostatečnou koordinaci a spolupráci ve společných makroekonomických oblastech v rámci eurozóny, asymetrických šoků a další. V závěru shrnutí dat ukáže, že eurozóna sice nesplňuje většinu kritérií pro model optimální měnové oblasti, ale díky silné politické vůli evropských států je tento projekt stále životaschopný. Tento článek se rovněž zabývá perspektivami evropské měnové integrace.

Klíčová slova

euro, eurozóna, měnová integrace, Evropská unie, teorie optimální měnové oblasti, jednotná měna, jednotná měnová politika

Introduction

European monetary integration was a really ambitious project from the very beginning and more importantly without any historical precedent. Monetary integration in Europe between numerous independent countries is a new issue in world economy with quite a daring goal – a single currency for a single European market.

Optimal Currency Area (OCA) theory is a part of international economics trying to understand conditions and optimal circumstances for monetary integration between countries with their own currencies. OCA models are trying to state crucial criteria that should have been met before single currency was implemented in order to ensure future smooth economic growth and development. There are a few theoretical presumptions for OCA models stated by different economists, for example a high degree of production factors mobility, openness of member economies, political will or fiscal cooperation between the members.

This paper is going to focus on these criteria and compare current development and conditions of European Economic and Monetary Union (EMU) and its members with theoretical approach to OCA models. The primary goal of the paper is to decide whether EMU is meeting any of the criteria for an OCA model and if European monetary integration is able to deal with major economical problems. So the question of the paper stands: Is the Euro area an Optimal Currency Area as defined by the OCA models? The main hypothesis of the paper is going to be: *"Euro area is not an optimal currency area and does not meet the majority of OCA models criteria."* as we presume EMU not to be an optimal currency area and we are going to focus on the OCA criteria while trying to approve or decline the hypothesis. The real data about economic performance and real and nominal economical variables of euro member states are going to serve as a base for comparison with OCA models and as a starting point to analyze real conditions of currency integration in Europe.

Although real convergence inextricably links with the nominal convergence, it is necessary to consider both approaches in parallel as an evolving process. Understanding of both nominal and real convergence, however, is not among the authors unambiguous, it always depends on the economic theories that the survey is based on. Nominal convergence can be understood as the convergence of economies in terms of nominal

variables (such as inflation, interest rates, GDP per capita, etc.), real convergence, taking into account the level of economic development, usually measured by GDP per capita. In our paper, however, we consider only nominal convergence, which reflects the success of the single monetary policy.

1 OCA as a theoretical approach to monetary integration

There are a lot of different approaches (originally the idea of OCA came from Mundell in 1961) that examine if the floating exchange rate between the currencies of individual countries would lead to a compensatory process and wonder if in some circumstances it would be better to create a single currency area (or the area of fixed exchange rates). The argument for the use of either floating rates or single currency must therefore be based on economical characteristics of concerned area and conditions for economical growth. The optimal currency area is then the region that is able to meet the criteria. The main criteria were originally stated by Mundell as a high degree of mobility in labour and capital (Mundell, 1968).

Mundell´s theoretical model of OCA was accepted by many of latter economists and mainly broaden by them with other criteria. This chapter is going to summarize these criteria. The idea behind the OCA models is simple. What criteria should be met if two countries decide to implement a single currency and a single monetary policy? With the decision of implementing a single currency the countries lose their independence in monetary affairs and their control over flexible exchange rate as a part of macroeconomic policies. The criteria for OCA are then the conditions that allow stable growth for the economies while exchange rates are fixed and cannot be used as part of government policies.

The emergence of macroeconomic imbalances can at least be partially eliminated by the following assumptions, according to theoretical OCA models developed by different economists there are different criteria for successful monetary integration:
- high degree of mobility of production factors between economies,
- wages and price flexibility,
- size and openness of the national economy,
- variety in production, consumption structure and export diversification,
- nominal and real convergence of national economies,
- political integration and political will of member countries,
- fiscal integration and coordination.

The basics of OCA theory were involved by Canadian economist Robert A. Mundell. His basic assumption was high mobility of labour and capital, if prices and wages are fixed. A prerequisite for an optimal currency area is also a synchronization of economic cycles so that in the case of macroeconomic instability (demand or supply asymmetric shocks) in the single currency area, the countries would be able to respond in one effective way with a complex solution. As a main factor for monetary integration Mundell saw high mobility of labour as movements of workers can balance the missing exchange rate mechanism during economic disbalancies.

McKinnon extended the theory to the criteria of an open economy, which he defined as the ratio between tradable and non-tradable goods in relation to domestic production and consumption and its impact on the balance of external and internal economic process. Large amount of internal trade within the concern area with a single currency is then the main presumption for successful monetary integration (McKinnon, 1988) as the single currency will bring more benefits than disadvantages.

Peter Kenen later introduced a factor of production and concluded that countries with a high degree of diversification of production are suitable for membership in the monetary union even at low labour mobility between countries. Kenen argued that the area with sufficiently diversified production is able to face any economical shocks better even when a single currency within the area has been implemented. A diversified economy with a wide range of export products is able to trade with more diversity and so in the case of asymmetric shocks this area can reduce negative consequences. A country may face, on the one hand, a decrease in demand for a product of a wide range of exported goods, and on the other hand, may increase demand for other goods. In consequence the countries with little diversified production should opt for a floating rate.

More important Kenen states a so called "optimum policy mix". Currency and fiscal policy need to go hand in hand. As Kenen states (1969) the main purpose of fiscal policy is to balance differences between regions and use the both side of common budget to diminish these differences. Single fiscal policy can serve as the most important factor for successful single currency integration and common tax system and state transfers can balance any other lacking OCA criterion.

Friedman was in fact the first one to consider exchange rates regimes in a group of states (Friedman, 1953). Friedman argued that the more the wages and prices are flexible the more convenient is to introduce a fixed exchange rate between states. He also stated that if the wages and prices are highly flexible then the stabilizing exchange rate mechanism between two states is not needed. It is mainly important in the short run following a shock as the economies can then adopt new conditions faster and in a more effective way. However, he still favored a flexible exchange rate.

Nominal and real convergence of national economies is quite an important characteristic for OCAs as the more countries are similar to each other the more single monetary co-operation and policies can be effective. Similar inflation and interest rates can minimize problems for a country while adopting a single currency. The more the countries converge the better and more effective the single monetary policy could be.

Some authors argued that all the real and nominal characteristics of countries within a single currency area are important but there are some factors that can balance the unfavorable conditions for example missing mobility of labour or rigid prices in the area. If for example countries also decide to enter a fiscal union with fiscal transfers between the members than these transfers could serve as an establishing economical mechanism as a replacement for missing flexible exchange rate (Kenen, 1969). The same goes for political integration as the political will of the single currency area members can replace some

missing economical characteristics stated by OCA theory and the political will to integrate is probably the most important agent for a monetary integration process.

1.1 Endogeneity Theory in OCA models

This theory was developed by Jeffrey Frankel and Andrew Rose in 1998. The hypothesis is based on the idea that the criteria for OCA stated by the theory are not necessary to meet before entering the monetary union but can be met after joining. In a way this theory presumes that the single currency integration process is going to start some changes in the economies that can eventually cause member economies to converge and the area of single currency will gain characteristics of OCA during some period. The authors highlight the significant influence of the single currency on international trade and investment flows. Correlation of business cycles and other changes in OCA member economies are seen as a result of growth of international trade within the internal market of the single currency area. Based on this theory, business cycles and trade intensities of twenty industrialized countries, between 1959 and 1993, were analyzed and positive statistical relation between these two variables was found. Frankel and Rose said that more intensive economic integration is associated with tighter synchronization of business cycles between members. The most important thing is if the currency area has the potential to create an optimal currency area in the future.

The methodology and the findings

We are going to use available data of economic variables to describe a current situation within the euro area of 17 states (which differ in size, degrees of openness and structure of economy) and compare it with the OCA model presumptions and criteria for optimal currency integration. In the context of OCA models we will follow casual connections and contrasts while focusing on the macroeconomic phenomenon of the euro currency area. To analyze its supranational conditions and coherency we will compare the optimal conditions of OCA models with the real imperfections of the current euro area.

In this chapter we are going to evaluate the theoretical criteria for OCA on real data of the period of ten years between 2001 and 2011 and we will try to conclude whether or not is EMU an optimal currency area. As EMU is not a single isolated process we will also put European currency integration to wider circumstances and we will evaluate the EMU as a part of European integration process.

1.2 Labour Mobility

Mundell sees the mobility in production factors (labour and capital) as one of the main stabilizing mechanism in a single currency area. Increasing mobility in capital is considered to be an instant feature of the world economy during the last globalization decades. No exception in Europe, European capital is highly mobile and European financial markets are strongly integrated, so this chapter is going to focus on labour mobility as a main factor. Free movement of persons is one of the four freedoms of EU and also a core part for a European single market.

Unfortunately Europe is not as mobile as the European Commission would like it to be. We can look on the latest statistics about the migrating population of Europe. Figure 1 illustrates the total numbers of how many citizens of the European Union are living in EU member state other than their own by origin. You can see from Figure 1 that there are almost 3.5 million EU-foreigners living (and working) in Germany. Other countries with significant large amount of EU-foreign-inhabitants are Spain, France, Italy and UK (not part of euro area).

Figure 1: Total amount of EU foreigners living in specified country in 2010 or (1) 2009, data for each country of EA17
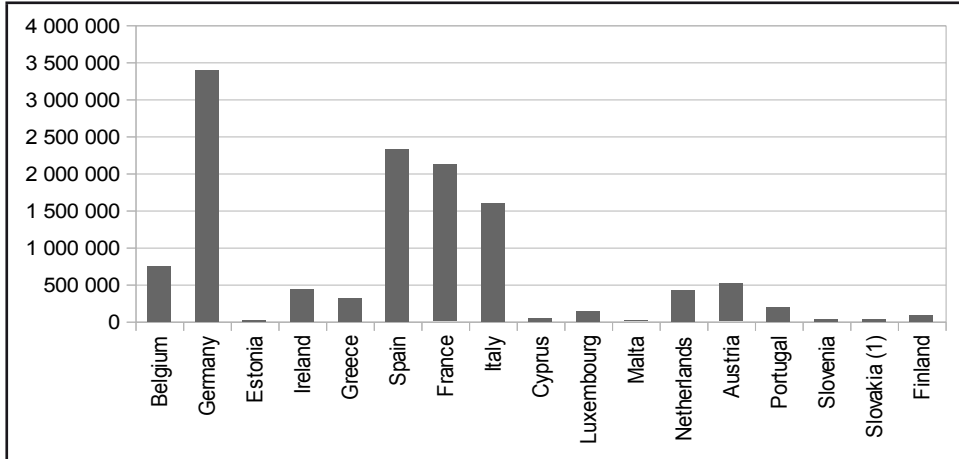
Source: Eurostat (2012a).

In Figure 2 we will look at the same data but this time as a percentage rate of total number of EU citizens (domestic + other EU-member citizens living in a state). You can see a high rate in case of Luxembourg or Ireland. So in fact there are a lot of EU-foreigners working in Germany in absolute numbers but compared to a total number of German inhabitants and labour force the value of 4.5% is merely just a little more than the European average and in fact not so significant to the labour power in Germany. The same goes for UK or Italy.

Figure 2: Percentage of EU foreigners living in a country in 2010 or (1) 2009, data for EA17 countries
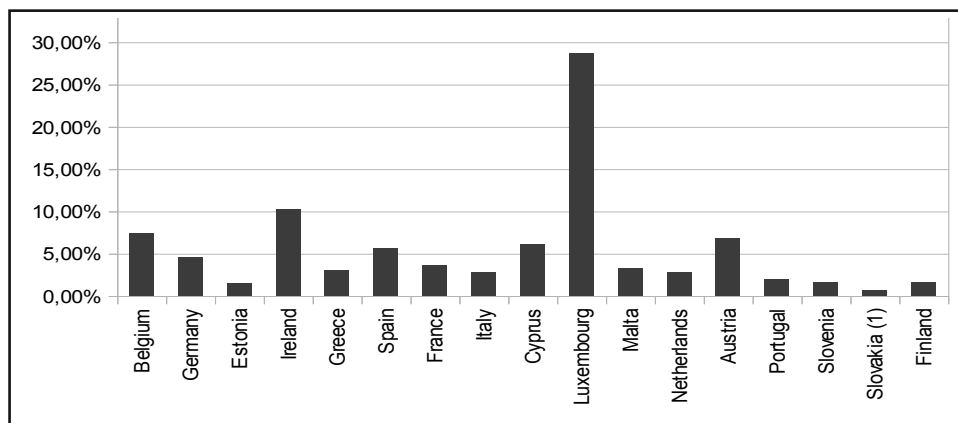
Source: Eurostat (2012a).

You can see from Figures 1 and 2 that there are not so many member states having a high percentage of inhabitants that come from other EU member state. There are only 6 out of 17 EMU member states that have a higher percentage of EU-foreign-inhabitants than 5%. And, for example, the data for Belgium are not really relevant as majority of foreigners working in Belgium is due to European institutions which tend to be seated in Belgium. The high rate for Luxemburg is not a result of high worker mobility but mostly a historical progress. Average rate for the whole EU is less than 4%.

According to a public opinion survey declared by the EU most Europeans think that seeking a job in a different EU member state is good for the economies. But on the other hand only one third of correspondents mean that it is also good for their families, as stated in Eurobarometer 337 (European Commission, 2010). 84% of the European population has no experience at all with living in another EU country than the original one as published in Eurobarometer 337 (European Commission, 2010) and the same level of EU population did not work or study in any other European country than their own. Last but not least most Europeans do not intend to move to any other EU country any time sooner or later in the future (European Commission, 2010).

Some other surveys of Eurobarometer 337 (European Commission, 2010) and Eurobarometer 264 (European Commission, 2006) also say that almost half of the correspondents would consider moving to another country if they were unemployed. But as a long line of surveys shows there is a strong tendency for a not-moving-anywhere mood in Europe and this unwillingness of Europeans to move is a long-term condition as a percentage of people living in other countries of Europe is steadily low – less than 2% during last 30 years.

And what are the European reasons for such a low worker inter-state mobility? The multilingual character of Europe, historical and cultural traditions of European states, European bureaucracy, rigid labour markets, different types of education systems and necessity for recognizing diplomas and other education qualifications etc. And worldwide economic

crisis did not make it any easier. Low labour mobility in Europe is not a temporary condition and is not going to change any time soon. The labour markets in Europe are really rigid due to the national politics of the member states but there are also a lot of cultural, historical and linguistic reasons why the European labour markets will not be any time soon highly mobile as Mundell´s model assumed. In short... the euro area is not even close to an optimum currency area concept as far as the labour mobility is concerned.

1.3 Wages and price flexibility

Wages and prices in the EU are not very flexible. In most member countries of EMU wage costs are rising every year. And it also negatively affects the unemployment rate as states Arpaia (2007). The average hourly labour costs were estimated in 2011 to be €27.6 in the euro area (EA17). However, there are significant differences between Member States, with hourly labour costs ranging from €8.1 in Estonia to €39.3 in Belgium (Tab. 1 below). Which in a way could possibly serve as a source of higher labour mobility in the European single market but due to all the obstacles it just shows the differences between member states and the labour markets' rigidity.

Table 1: Labour cost per hour in euros (costs for wages and salaries plus employer's social contributions)

	2009	2010	2011		2009	2010	2011
EU17	26.5	26.9	27.6	Cyprus	15.9	16.2	16.5
Belgium	37.0	38.2	39.3	Luxembourg	32.0	32.7	33.7
Germany	29.0	29.1	30.1	Malta	11.3	11.5	11.9
Estonia	7.9	7.7	8.1	Netherlands	29.8	30.5	31.1
Ireland	28.0	27.9	27.4	Austria	27.7	28.1	29.2
Greece	17.6	17.5	-	Portugal	11.9	12.1	12.1
Spain	20.0	20.2	20.6	Slovenia	13.8	14.1	14.4
France	32.1	33.1	34.2	Slovakia	7.9	8.1	8.4
Italy	25.6	26.1	26.8	Finland	28.7	28.9	29.7

Source: Eurostat (2012b).

The inflation rate in the euro area was recorded at 2.6 % at the beginning of 2012. Historically, from 1999 until 2012, the euro area inflation rate averaged 2.3 % reaching an all-time high of 5.0 % and a record low of -0.7 % in 2009. Inflation rate records a general rise in prices measured against a standard level of purchasing power. Below we can find Figure 3 with historical data of the inflation rate of the euro area.

Figure 3: Inflation in Europe (in %)
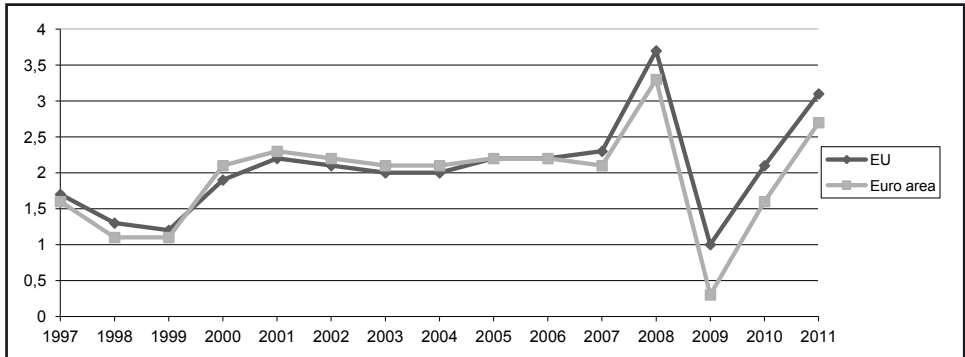
Source: Eurostat (2012d).

You can see from Figure 4 how the EA states are synchronized with regards to national inflation rate. Inflation rates are influenced by single monetary policy managed by ECB but there are a lot of differences between the euro member states. In 2011 there was a 4 percentage points difference between the lowest (1.2 in Ireland) and the highest (5.1 in Estonia) inflation rates in the euro area.

Figure 4: Inflation in EA17 member states, two years interval (in %)
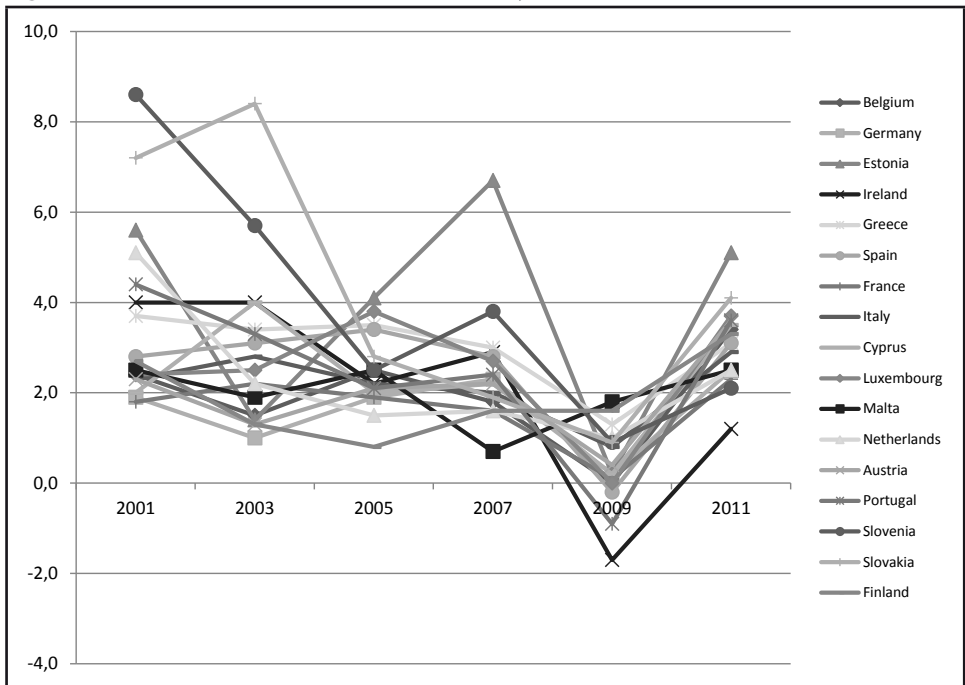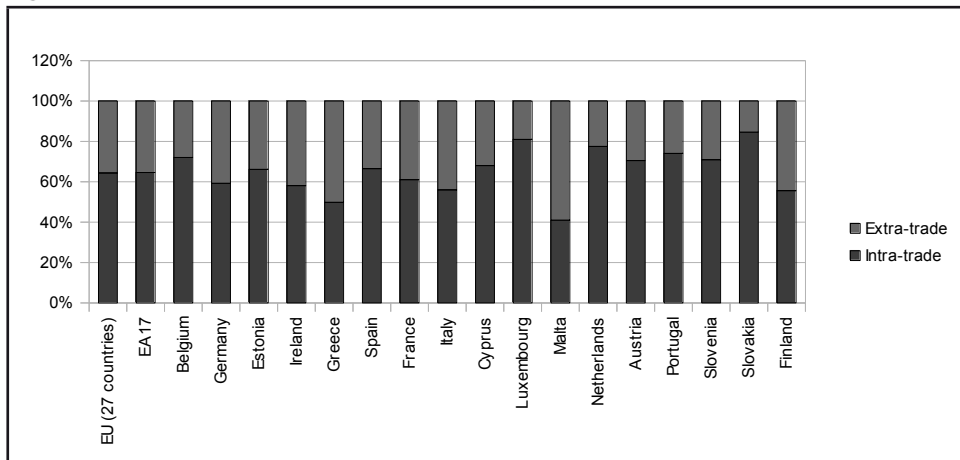

Source: Eurostat (2012d).

The euro area does not meet the criteria of wage and price flexibility in its single currency area. You can see from Figure 3 and 4 and Table 1 that even with a single monetary policy and a strict inflation policy managed by ECB the euro area is not converging and differences between the members exist.

The differences in inflation rates reflect the particular economic conditions that exist at national and regional levels. The individual citizens, households and businesses can experience differences in inflation due to income differences, varied consumption preferences and patterns, the extent of local price competition, different tax rates etc. Here we would like to briefly mention about the causes and application of the Balassa-Samuelson model of real equilibrium exchange rate with a model of capital accumulation and with the demand side of the economy. As some empiric studies claim it could be show how the model can be used toward projecting price convergence in some economies (more Holub, Čihák, 2003). The key empirical observation of the Balassa-Samuelson model is that countries with higher productivity in the tradable sector compared with the non-tradable sector tend to have higher price levels. Holub and Čihák (2003) extended the model of more than two goods. Their calculations suggested that for countries with relatively low price level, there should be a negative relationship between the price dispersion and price levels; it means the relationship should become less negative for countries with higher price level, and eventually turn positive with increasing price levels.

## 1.4 Sufficient size and openness of the national economy

Most EU countries are open and are therefore good candidates for monetary integration. European countries also have a long history of trade between European states and the inner-European trade is at the core of the integration process from the very beginning. A common trade policy, a single market and a single currency just developed a highly concentrated area within Europe with intensive trade between the EU-members as we can see on Figure 5 and 6.

Figure 5: Intra and extra EU-27 trade in 2011 (exports, % share of total trade)

Source: Eurostat (2012e).

Figure 6: Intra and extra EU-27 trade in 2011 (imports, % share of total trade)
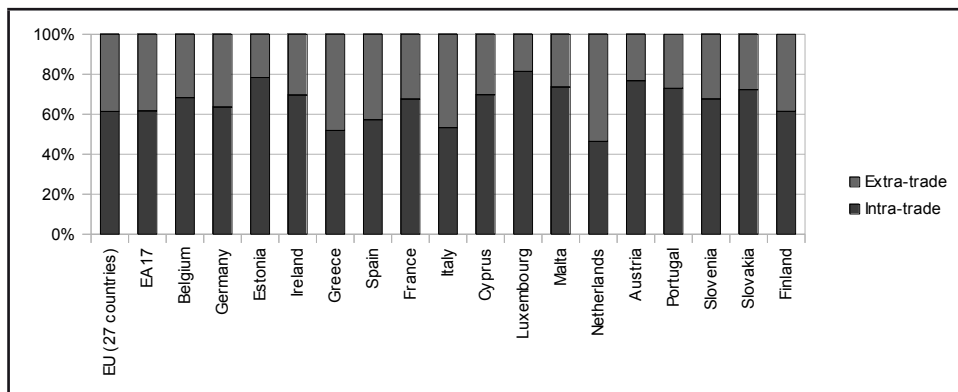
Source: Eurostat (2012e).

According to Figure 5 and 6, smaller countries are more open than the others. One reason is the inability of the economy to satisfy domestic demands and the economic dependence between the EU countries. The intra EU-27 trade achieved high levels over a long period. Especially for smaller countries, the share of intra trade is between 60 and 80 percent. We can say that the euro area meets the criteria of OCA models as far as the openness of the economies is concerned.

1.5 Variety in production, consumption structure and export diversification

Diversification of the economy and production structure can be monitored using exports indicators by the Standard International Trade Classification (SITC). SITC 0: Food, live animals, SITC 1: Beverages, tobacco, SITC 2: Raw materials, SITC 3: Fuels, lubricants, SITC 4: Animals, vegetable oils, SITC 5: Chemicals, SITC 6: Manufactured Goods, SITC 7: Machinery, transport equipment, SITC 8 Miscellaneous manufactures, SITC 9: Others. You can see data for the EA17 countries in Table 2.

Based on these data we can conclude that diversification in the euro area is sufficient. The most important export commodity is machinery and transport equipment. There are some countries that have large export shares in machinery but other EU countries depend more on other industry sectors such as beverages, fuels or other manufactured goods. As the data shows the European single market is diversified and there are a lot of differences in industry specialization in different countries and if we slightly modify the original Kenen's criterion (which says that it is advisable to enter the monetary union for a country whose production and export are sufficiently diversified), we can say that EMU meets the OCA model criteria. Kenen was not involved in the production and export diversification of the monetary union as a whole, but he saw it from the perspective of a potential member. For the euro area is a shining example of strong export specialization economies Germany, France and the Netherlands.

Table 2: Extra-EU27 trade - Share of Exports (%) by Member States, SITC Classification

|	SITC 0+1	SITC 2+4	SITC 3	SITC 5	SITC 7	SITC 6+8
Belgium	4.4	5.9	10.3	11.7	3.0	7.7
Germany	13.1	14.2	5.4	24.3	37.5	25.0
Estonia	0.4	0.5	1.1	0.1	0.2	0.2
Ireland	2.1	0.9	0.2	10.1	0.7	1.5
Greece	1.1	1.3	5.9	0.3	0.1	0.6
Spain	7.2	7.3	10.9	4.3	3.4	5.1
France	20.1	6.6	7.9	11.9	10.7	9.6
Italy	9.3	6.5	11.5	6.6	9.8	15.5
Cyprus	0.1	0.1	0.1	0.0	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0	0.2	0.3
Malta	6.1	0.0	0.7	0.0	0.1	0.0
Netherlands	13.1	13.6	18.4	6.4	5.9	4.0
Austria	2.3	2.2	0.3	2.4	2.4	3.4
Portugal	1.4	1.6	1.8	0.4	0.4	1.0
Slovenia	0.4	0.7	0.5	0.7	0.3	0.6
Slovakia	0.1	0.2	0.1	0.1	1.0	0.5
Finland	0.8	4.6	1.4	0.9	1.5	2.1

Source: Eurostat (2012e).

1.6 The existence of positive shock and correlation among countries

Europe is a diversified continent and the European Union is a heterogeneous unit with large differences between member states. First, there is a large difference in development and economic wealth between the original states (as we consider EU6, EU9, EU10, EU12 or even EU15) and the new members of the EU (12 member from central, southern and eastern Europe). Second, there are also few really strong economies such as Germany or the United Kingdom that represent a kind of economical core to the European integration with a main influence on the European economy and a high dependence of other smaller member states on these large members. And third, there are big differences in economic growth in different countries; we can find a large growth in some smaller countries from the east (Baltic countries for example) and some really low growth rates in original EEC states (for example France, Belgium or Italy). And the same differences that go for the EU can also be applied for the euro area. Currently the euro area is a mixture of small and big, strong and weak, rich and poor countries.

If we simply look at the data of economical growth in Europe we will not really see a lot of similarities in progress. Yes, all the European states were hit by the last world crisis, but the degree of growth decreased and the time needed for recovery also differed.

Figure 7: Economical convergence in EMU area, GDP growth in two years interval (in %)
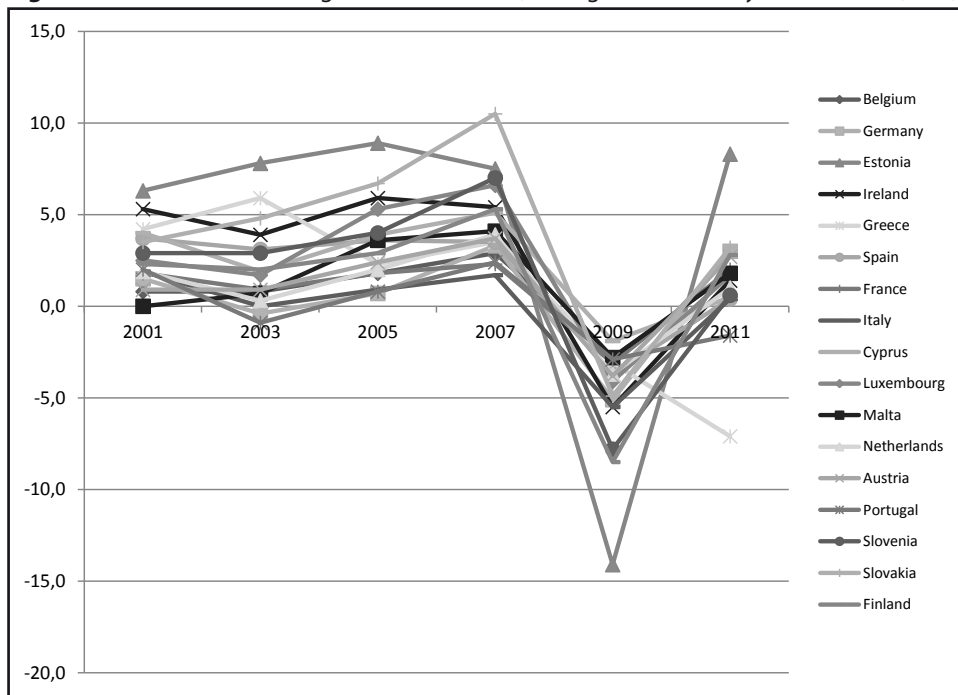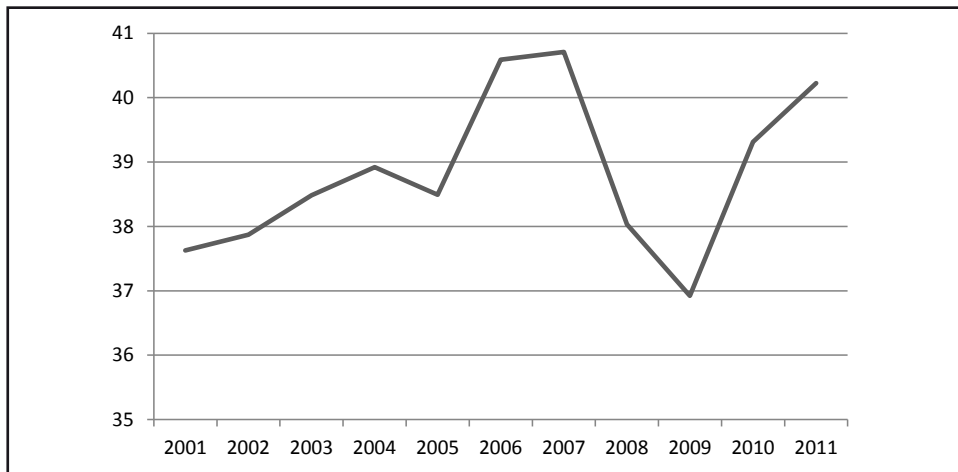

Source: Eurostat (2012f).

Figure 7 illustrates economical growth during the last decade in Europe. We can see that the correlation between different states is not really coordinated. There are some similarities within growth or depression tendencies but there are always big differences between states in a mind of how deep the recession is or how big the economical growth is. The difference between highest and lowest economical growth in 2011 was 7.6% in Estonia compared to -6.9% in Greece.

Very beginning of the investigation of convergence can be combined with the theory of economic growth. For a better understanding of the problem here we mention only studies dealing with this issue, one of them is the so called beta-and gamma-convergence, authored by Barro and Sala-i-Martin (more Barro, Sala-i-Martin, 1992). They say that when the dispersion of real per capita income across a group of economies falls over time, there is gamma-convergence. When the partial correlation between growth in income over time and its initial level is negative, there is beta-convergence. Beta convergence refers to the case when poor regions experience faster economic growth than richer ones. (Barro, Sala-i-Martin, 1992).

Following a single monetary policy requires that economies were matched in terms of the business cycle, which contributes to the structural similarity variables, in particular the level of GDP. The Figure 8 shows that the differences in economic level between member countries until the beginning of the financial crisis widened and then decreased and since 2009 it has been again widening. The reason for reducing the variance was primarily a relatively larger decrease in real GDP in rich countries in 2009 than in poorer countries (ČNB, 2011). Euro area does not converge.

Figure 8: Dispersion of GDP/population in PPP between euro area members (variational coefficient)

Source: Eurostat (2013), (authors' own calculation).

If we consider economic convergences as one of the presumptions for currency integration then we have to admit that the euro area is not really a converging area and does not meet the criteria stated by the OCA model. In Figure 9 we will look at interest rates which were mainly controlled by ECB during the last decade in Europe but in the moment of economical problems showed a diversified development in member states.

Figure 9: Long-term interest rate in euro area, in two years interval (in %)
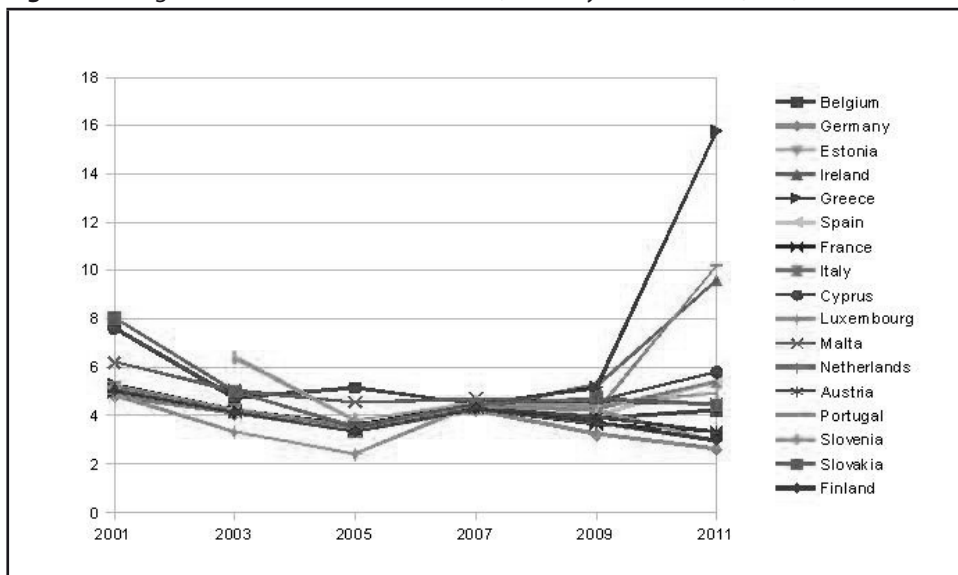
Source: Eurostat (2012c).

You can see from Figure 9 that the national interest rates in Europe were quite synchronized (more than the inflation rate – see Figure 4) but in the moment when world economic crisis came to Europe national interest rates started to diverge in large scales. There are big differences between the states with tight and strict national fiscal policies and the states with quite a long tradition with expansive government sectors (even with a single monetary policy). In 2011 the difference between the lowest (2.6 in Germany) and the highest (15.8 in Greece) was more than obvious.

2   Fiscal integration and coordination

For the coordination of fiscal discipline and to avoid excessive government deficits and public budgets the EMU countries established a 'Stability and Growth Pact' in 1997. This pact is an agreement between members of the euro area, which concerns the coordination of budgetary policies to safeguard the stability of the euro and to prevent the increase of inflation in the euro area. This Agreement shall also apply to some countries outside the European Economic and Monetary Union. Extra-large countries such as Germany and France violated the pact and especially at the Initiative the EU Council in March 2005 agreed on new rules. Increased number of options when a member state can exceed three per cent deficit in public finances and the period before the EU accedes to sanctions has been extended.

The general government deficit as stated in the Agreement shall not exceed 3% of GDP and public debt must be less than 60% of GDP, or must at least diminish. If any country does not fulfil these conditions, the European Commission issue a warning signal and even a money penalty can be imposed (0.2 to 0.7% of GDP depending on the violation). These penalties do not apply in case of emergencies such as natural disasters or in the case of a prolonged economic crisis.

Figure 10 shows the debt of individual EU Member States (whether member states or non-EMU) as a percentage of GDP. It is also one of the Maastricht criteria, allowable value being 60% of GDP.

Figure 10: General government debt in percentage of GDP, 2010 and 2011
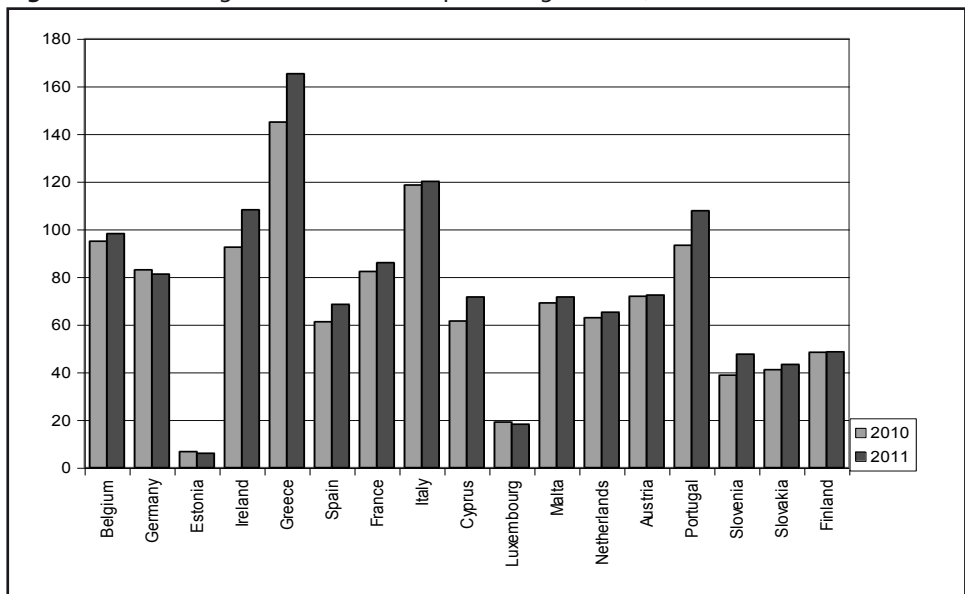
Source: Eurostat (2012g).

The border of three percent of budget deficit over the years failed to be complied to by several states, including Germany and France. In the long term, however, more states had difficulties in fulfilling the criteria, mainly Italy, Portugal, Spain and Greece. We can see the fall in the deficit immediately after the crisis erupted in Europe in Figure 11.

Figure 11: Government deficits in percentage of GDP, 2010 and 2011
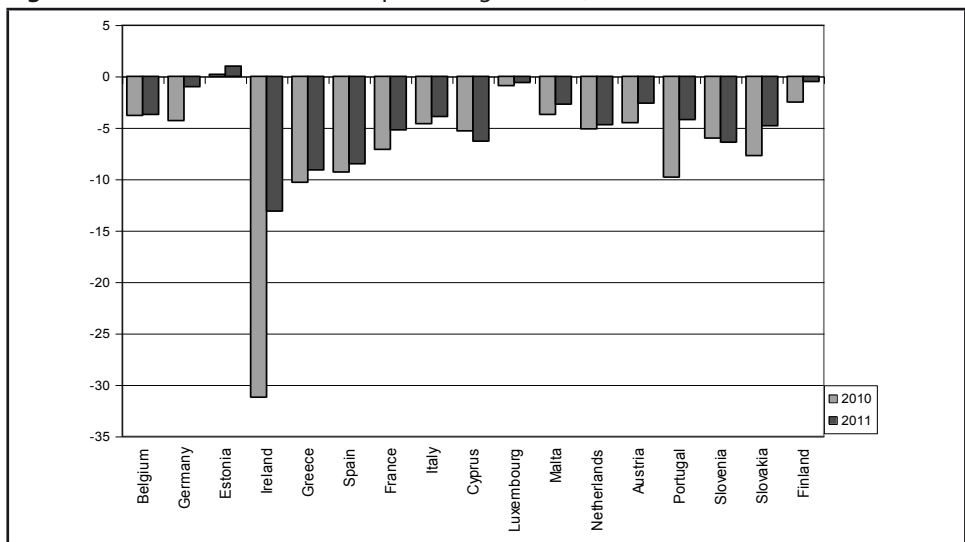
Source: Eurostat (2012g).

In 2011 the largest government deficits in percentage of GDP were registered in Ireland (-13.1%), Greece (-9.1%), Spain (-8.5%), Slovenia (-6.4%), Cyprus (-6.3%), France and Romania (both -5.2%). The lowest deficits were in Finland (-0.5%), Luxembourg (-0.6%), Germany (-1.0%) and Estonia (+1.0). However, 15 of EA17 Member States recorded an improvement in their government balance relative to GDP in 2011 compared with 2010 (Eurostat, 2012).

We can see that the European rules for national budgets of member states are not followed and basically are broken really often. Even if we consider Europe as an area with coordinated national budgets and fiscal policies, we cannot still speak about fiscal transfer in EU (in a way the OCA theory sees it) as these are not even part of any of the European agreement. Fiscal transfers are not part of the European integration process and are not supposed to be any time soon. European common budget is strictly defined and can be used only in certain areas, so this budget cannot serve as a fiscal policy mean in a common way. So the euro area is not meeting the criteria for the OCA model as far as the fiscal transfer, fiscal cooperation and single fiscal policy is concerned.

As the evolution of integration process continues we can admit that the latest development of economic governance in EU goes to a direction of fiscal union. New Stability and Growth Pact along with the European Financial Stabilization Mechanism (EFSM), the European Financial Stability Facility (EFSF) and with the European Stability Mechanism (ESM) can serve as a mechanism for balancing the economic disequilibrium inside euro area. And this can serve as a Kenen's "optimum policy mix" (Kenen, 1969). This is not a single fiscal policy yet but the euro area is as close as it is possible to get right now.

3   Political reasons for currency integration

We can see from previous chapters that Europe is not an economical homogeneous area or any kind of suitable area for monetary integration and it fails to meet quite few of the OCA models presumptions. The mobility in the labour factor is really low, wages are rigid and European economies do not really absorb any kind of shocks in perfect symmetry. And in fact the introduction of the euro was mainly a political step in a long walk of European economic cooperation rather than an economical decision.

In the beginning of the euro (during preparation for the Maastricht treaty in the early nineties) Europe was a successful and highly integrated region. The single market was introduced in 1986 and a Single European Act should have been a core of a future economic development in Europe. Free movement of goods, services, persons and capital should have represented the main substantial ingredients of the growing European markets and the euro just compromised a highly convenient instrument for a better single market.

As we look at the economical standards for optimal currency area (from the OCA model) we can notice that this view can be also seen a little differently. Europe wanted to implement the euro not because it was economically reasonable and because of an optimal European currency area. The euro was more seen as an ingredient maintaining better free movements of goods, persons or capital and also serving as a new impulse for integrating the European single market. For many reasons introducing the euro currency also seemed

as a logical step to further economical and maybe also (in a distant future) political integration. The euro represented mostly a step in a big wish to have a real single European market. Single market – single currency – single Europe. From this point of view the single euro did just make much more sense than evaluating optimal currency area conditions and making the European currency integration fulfill political criteria of OCA model.

4   Economical vs. political standards of optimal currency area

The fathers of the European single currency tried to incorporate some of the prerequisites for an optimal currency area into the currency cooperation. The convergence criterion had been set up and was supposed to be followed. Participation in Exchange Rate Mechanism (ERM II) was some kind of a main test for every single member state to see how they can handle fixed exchange rates and if it is possible for them to meet the convergence criteria even under this condition.

Member state economies were expected to converge by meeting the Maastricht criteria: fiscal stability, stable price level and strict maintainance of a monetary policy were about to support a real convergence of the euro area member states and the endogeneity of the currency area: as long as European states participate in the currency integration process the more is the European currency area (euro area) closer to the concept of an optimal currency area. However data mostly show the facts that economical variables are stable and differ across the whole euro area and not even a little closer to a converging process. For more information please see for example a study about economical diverging of euro area Matthes (2009). Even though some small countries are actually converging (for example as stated in Bank of Greece, 2009) it is not the case for the whole single currency area.

It is quite evident from these studies that small and open economies (like the new EU member states) are converging to the euro area. These countries usually have national currencies bonded to the euro anyway and their economical growth largely depends on progress in bigger European countries (mainly Germany). In a theoretical sphere (and not speaking about political opinions and actions) the question whether to adopt the euro currency is mostly a question of when rather than if so, as offered in Šaroch, Tomšík, Srholec (2003). These states are anyway so much dependent on the change in the euro area that they can get more profit if they are part of the European currency.

Recent development in Europe also shows us that the single currency has brought some big problems for various European states like Greece or other highly indebted countries. Not only is the European single currency area not converging into an optimal currency area but also the single currency and single monetary policy with low interest rates and a single exchange rate were steadily increasing the differences between member states. Not having an optimal use of fiscal policies and with a lack of a controlling process for fiscal stability within the area the euro area has to face nowadays such a big problem with indebtedness and instability as stated in Matthes (2009).

Conclusions

So is the European currency area an optimal currency area? As we can see from the previous chapters – not even close. There are a lot of obstacles and some of them (such as a high mobility of labour) are not easy to remove. As discussed in previous chapters many problems and insufficient conditions of the European economy for an optimal currency area can be resolved by fiscal cooperation and fiscal union. Right now the EU is on a careful and gradual way to a fiscal union. A new fiscal pact for coordination in the budget area has been introduced last year. But this pact is maintaining only national budget problems with deficit and it put some restraining limits for national fiscal policies.

Possibility of fiscal transfers (as the OCA model presumes) is not a question for European states right now. The common budget of the EU is used strictly for single policies and should not serve as a European single fiscal policy instrument. Willingness of member states is not ready for such a transfer of national competencies and not big enough to sacrifice independent nation fiscal policies. On the other hand the new stabilization mechanisms (EFSM, EFSF and ESM) can point out a new way for single currency and mark an "optimum policy mix" for an optimal currency area in Europe.

The strongest point of European currency integration is the political will of member states. From the very beginning this political will was a main reason and core characteristic of the single currency. Not only could the euro have served as an impulse for a European single market but there were also strong expectations for a growing international position of the European single currency in world economy. European politicians were and still are ready to fight for an idea of a strong Europe and a strong euro.

There are a few possible future development scenarios for the euro and monetary integration in Europe. First: European markets will sooner or later converge and the endogeneity of the currency area will serve as a starting point for establishing a European optimal currency area. Second: fiscal union as much as not possible as it seems today will happen as the member states will be forced by the circumstances of the European integration process. Third: right now European states are getting ready for the possibility of Greece leaving the euro, and this will set the precedent and other states will gradually leave the euro and return to their national currencies. The development mainly depends on the member states and political will in Europe as we stated in the previous chapter. The euro is an economical phenomenon but with a strong political feeling. And maybe the theoretical point of view can be that the euro area is not the right thing to fight for but the European politicians still do.

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