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EURO ZONE DEBT CRISIS: THEORY OF OPTIMAL CURRENCY AREA

Abstract

Creation of a monetary union, carries along certain costs and benefits. Benefits of monetary union mainly stem from reducing transaction costs and eliminating exchange-rate uncertainty. On the other side, a country that joins a currency union, therefore gives up the opportunity to select a monetary policy, that it regards as optimal for its own circumstances.

In this paper we explain the criteria of optimum currency area (OCA): degree of trade, similarity of business cycles, degree of labor and capital mobility and system of risk sharing. Viewed through the prism of these criteria, EMU is currently far from being an optimal currency area, especially in fulfillment criteria of labor mobility and fiscal integration.

The aim of the paper is to highlight certain shortcomings of the EMU, such as its vulnerability to asymmetric shocks and its inability to act as predicted by the theory of optimum currency areas. Furthermore, we explain the reasons behind the difficulties that the euro area faced, and the problems that led to the outbreak of the sovereign debt crisis. At

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the end, we laid out several steps that could be taken or conditions that could be met in the euro zone in order to move toward optimization.

Key words: euro zone, debt crisis, optimal currency area, business cycles, convergence criteria.

JEL classification: F15, F21, F23, F31, F36, F44, F45

Introduction

The creation of the euro was supposed to be another triumphant step in the European project, in which economic integration has been used to foster political integration and peace (Krugman, 2012: 582- 587). In the past, almost every country in the EU has had its own currency, sometimes as a symbol of sovereignty. As the process of integration went deeper and deeper, majority of the countries gave up on their own currencies and accepted common currency. The new regime was completely in the line with the “impossible trinity” theory, which explains that it is impossible to have monetary sovereignty, capital mobility and fixed exchange rate at the same time, because these are mutually exclusive goals. According to the theory, all countries, which initially joined the Monetary Union, have sacrificed their monetary sovereignty in order to get exchange rate stability and capital mobility.

At the beginning, general public of the European Union believed politicians who promised that introduction of euro would contribute to economic growth, reduce unemployment and bring monetary stability. Unfortunately, today, it is clear that the introduction of euro did not succeed in preventing the constant decline of the growth of European economy and that the single currency has different impacts on the individual euro zone countries.

Debt crisis in the euro zone grew out of the U.S. financial crisis of 2008-2009. A slowing global economy exposed the unsustainable financial policies of certain euro zone countries. Several countries in the euro zone have borrowed and spent too much since the global recession began, causing them to lose control of their finances.

1. Did EMU countries fulfill Maastricht Convergence Criteria?

In order to explain the reasons of euro zone crisis we will start with Maastricht Criteria for convergence. Before the entrance in the EMU, the countries have to fulfill criteria for convergence, as outlined in the Maastricht Treaty: (1) price stability (average inflation rate of no more than 1.5% above the average of the three best-performing Member States); (2) low interest rates (no more than 2% above the three best Member States); (3) minimal annual budgetary deficits (not exceeding 3% GDP) and debts (not exceeding 60% GDP) and (4) currency stability. The purpose of these criteria was to bring the euro zone member and candidate countries into closer economic convergence.

Here below, we are analyzing six EMU countries: Germany, France, Austria, Greece, Italy and Spain. As we can see from the charts presented below, some of these countries in some periods before and after entrance in EMU, didn't fulfill those criteria's.

Table 1: Inflation, consumer prices (% per annum)

	1999	2001	2003	2005	2007	2009	2011	2013	2014
Germany	0.57	1.98	1.03	1.55	2.3	0.31	2.07	1.50	0.91
France	0.53	1.63	2.11	1.74	1.49	0.09	2.12	0.86	0.51
Austria	0,56	2,66	1,35	2,30	2,17	0,51	3,27	2	1,61
Greece	2.64	3.37	3.53	3.54	2.89	1.21	3.33	-0.92	-1.31
Italy	1.66	2.79	2.68	2	1.82	0.75	2.74	1.22	0.24
Spain	2.31	3.59	3.04	3.37	2.79	-0.29	3.2	1.41	-0.15

Source: OECD

Table 2: Long-term interest rates, total (% per annum)

Country	Jan-07	Jan-08	Jan-09	Jan-10	Jan-11	Jan-12	Jan-13	Jan-14	Jan-15
Germany	4.02	4.03	3.07	3.26	3.02	1.82	1.51	1.76	0.39
France	4.07	4.15	3.6	3.52	3.44	3.18	2.17	2.38	0.67
Austria	4.06	4.22	4	3.75	3.54	3.27	1.92	2.13	0.54
Greece	4.28	4.4	5.6	6.02	11.73	25.91	11.1	8.18	9.48
Italy	4.26	4.4	4.62	4.08	4.73	6.54	4.21	3.87	1.7
Spain	4.07	4.18	4.15	3.99	5.38	5.4	5.05	3.78	1.54

Source: OECD

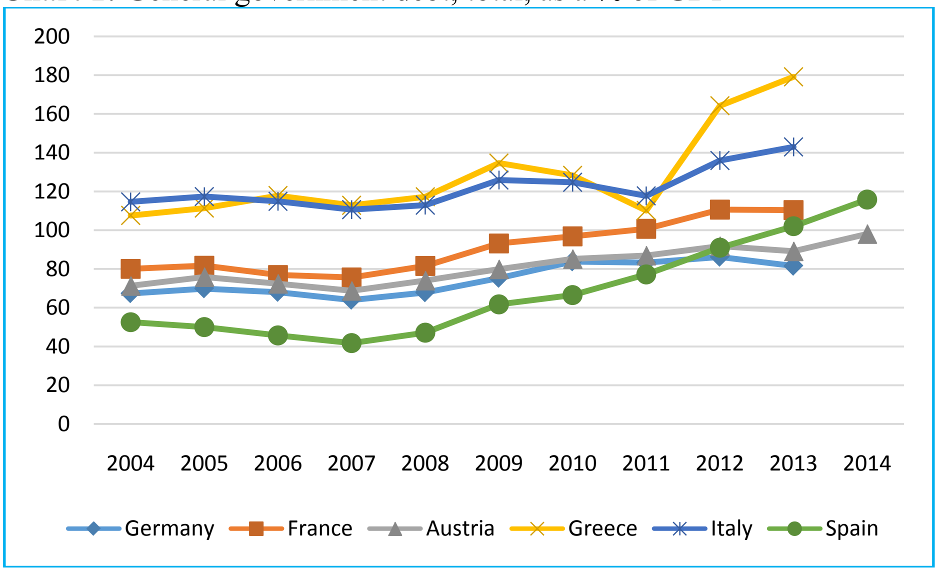
From the table 1, we can see that selected EMU countries have different inflation rates. The periphery countries, Greece, Italy and Spain, had higher inflation rates than the group of countries from the core of the euro zone, in our research, Germany, France and Austria.

Table 3: Government deficit/surplus, as a % of GDP (million EUR)

	Germany	France	Austria	Greece	Italy	Spain
2003	-4,1	-3,9	-1,8		-3,4	-0,4
2004	-3,7	-3,5	-4,8		-3,6	0
2005	-3,3	-3,2	-2,5		-4,2	1,2
2006	-1,5	-2,3	-2,5		-3,6	2,2
2007	0,3	-2,5	-1,3		-1,5	2
2008	0	-3,2	-1,4		-2,7	-4,4
2009	-3	-7,2	-5,3		-5,3	-11
2010	-4,1	-6,8	-4,5		-4,2	-9,4
2011	-0,9	-5,1	-2,6	-10,2	-3,5	-9,4
2012	0,1	-4,8	2,2	-8,7	-3	-10,3
2013	0,1	-4,1	-1,3	-12,3	-2,9	-6,8
2014	0,7	-4	-2,4	-3,5	-3	-5,8

Source: Euro stat database.

Chart 1: General government debt, total, as a % of GDP



Source: OECD

Because of higher interest rates their exchange rates were growing in real terms and they were gradually losing competitiveness in

foreign trade, which (unlike in the past, before entering in EMU) it would not be possible to compensate by currency devaluation, but could only be coped with by a decrease of the domestic prices of the internationally traded goods and services or by higher unemployment (Sinn, 2010) We have to take into account that in EMU, countries cannot carry out currency devaluation because they have euro. On the other side, ECB can not lead restrictive monetary policy for the countries which suffer inflation, if other countries sustain price stability.

Before the euro zone was formed in 1999, interest rates on average were between 4.5 and 5 percent. The exception was Greece, which was paying 8.5 percent to borrow. Interest rates began rising and the spread began growing in 2009, when Greece registered a 5.6 percent interest rate and Germany only 3.07 percent. In the following years interest rates in Greece continued to rise and reached 25.91 percent's in 2012. Unlike Greece, interest rates in Germany, as well as in France and Austria remain low. The same like in Greece, Italy and Spain have had higher interest rates than core EMU countries (Wolff, 2012).

If we analyze other Maastricht criteria, the maximum debt which is allowed by the EU, we can see that none of the mentioned countries met that standard. Even in the core countries, government debt as a percent of GDP was higher than 60 percent. In the periphery countries, government debt was more than 100 percent of GDP.

In relation on deficit spending, countries sometimes approached zero, or even spent less than they took, but in some years, especially after 2009, deficit spending was more higher than what was permitted by Maastricht criteria. (see table 3).One of the main reasons for government deficit is "shadow" or "underground" economy, i.e. largely untaxed transactions which occur outside the normal channels, which undermine the government ability to collect revenue. The main example for widespread shadow economy is Greece, where tax revenue as a percent of GDP was approximately 20 in the period between years 1999-2014. For comparison, in Germany, tax revenue was approximately 10% of GDP during the same period.

2. The euro zone crisis and the theory of optimum currency area

2.1. Theory of optimal currency area

We will continue our explanation of the reasons behind euro zone crisis with the theory of optimal currency area.

An optimum currency area (OCA) can be defined as the optimal geographical area for a single currency, or for several currencies, whose exchange rates are irrevocably pegged. OCA is a region, or area, where the benefits of sharing a common currency outweigh the costs; an area where a single currency would create the greatest economic efficiency, or benefit. (Koziara, 2013).

The theory of optimal currency area is developed by Mundell (1961), and proposes a set of necessary conditions for monetary unions and provides an analytical framework to assess risks and opportunities a region might be confronted with. According to Mundell (1961), there are four main criteria for an optimal currency area:

- Openness, with respect to trade in goods and services, is the most obvious OCA criterion, since trade is affected most directly by elimination of transaction costs and exchange rate uncertainty.
- Labor and capital mobility throughout the area. Ease of labor mobility includes the ability to travel via simplified visas and lack of cultural barriers, that hinders free movement. Capital mobility between areas that trade frequently with each other, can facilitate overall trade and boost economies.
- Similar business cycles. Similarity of shocks and business cycles is an important determinant for the effectiveness of a homogeneous monetary policy. When one country experiences a boom or recession, other countries in the union are likely to follow. This allows the shared central bank to promote growth in downturns and to contain inflation in booms. Should countries in a currency union have idiosyncratic business cycles, then optimal monetary policy may diverge and union participants may be made worse off under a joint central bank.
- Fiscal transfers. Countries should be prepared to use fiscal transfers to even out some of the regional economic imbalances within the currency union. This means the distribution of money to the regions experiencing economic difficulties (Mundel, 1961: pp 657-665).

A group of countries which score well in these categories, should theoretically be able to successfully adopt a single currency and expect to benefit from it.

2.2 The macroeconomic benefits and costs of being a member of EMU

The most direct and immediate benefits of monetary union are reduced transaction costs and the elimination of exchange-rate uncertainty. This primarily refers to the costs incurred when doing business or conducting an economic transaction, with a different country with a different currency. The complexity of over a dozen currencies in such a relatively small geographic area (such as Europe) in which to conduct business would presumably lead to many inconveniences over the need to exchange currencies at varying exchange rate are benefits to an optimal currency area.

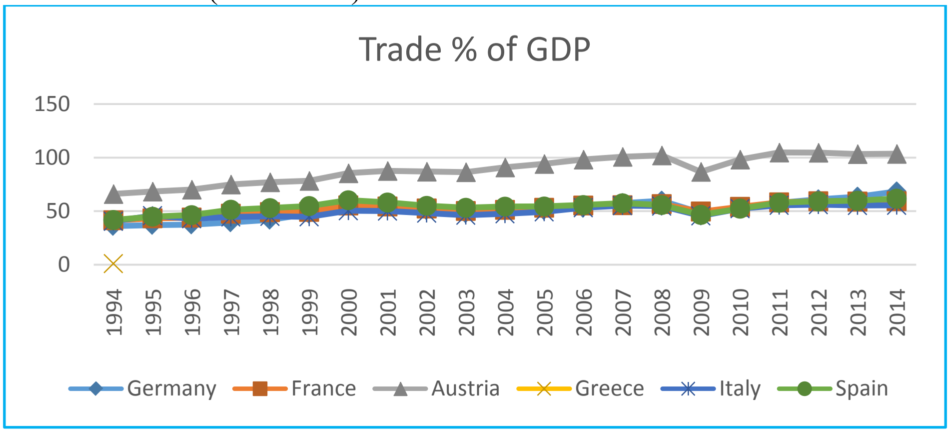
Another benefit is enhanced efficiency and competitiveness of the European economy. Consumers will benefit, as increased price transparencies will promote Europe-wide competition. Travelers in the euro zone does not have to carry a different currency for each county that he/she will visit and subsequently, transaction costs are reduced (Svrtinov, et al, 2014).

Furthermore, the elimination of exchange rate uncertainty will result in saved hedging costs for companies that previously hedged exchange rate risk. Reduced transaction costs and elimination of currency risk will promote cross border investment and trade. Each can invest in the other country without worrying about the potential loss, if the exchange rate changes adversely (Koziara, 2013).

One of the most important benefit is increased capital mobility, or the flexibility with which investors, whether individuals or businesses, can move capital throughout an area. In an optimal currency area, labor like capital, should be mostly mobile; that is, workers should be free and able to move from one part of the region to another, depending on where employment is most available.

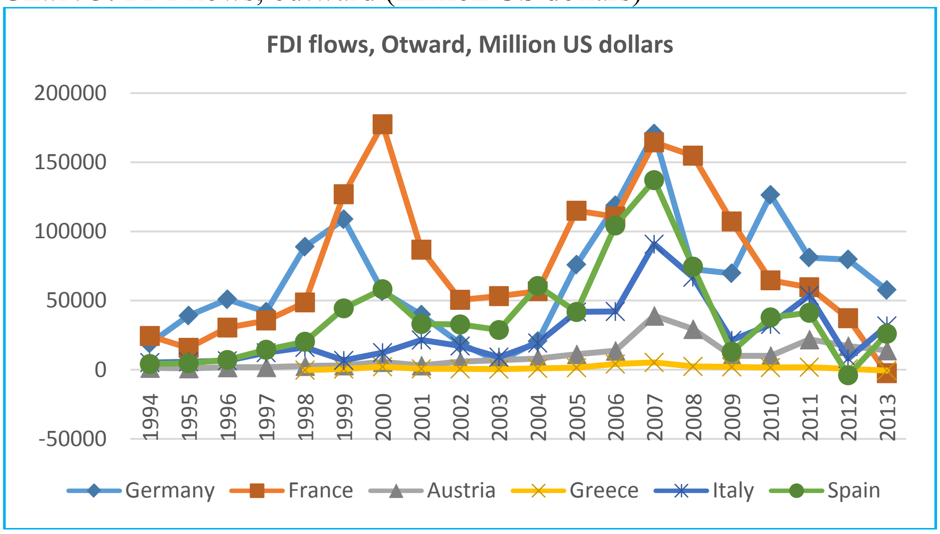
Before the creation of the euro, there was big optimism that the common European currency might produce an explosion in intra-European trade. Unfortunately, that hasn't happened, but trade has risen modestly, as a result of the single currency. Also, capital inflows in form of foreign direct investment, didn't rise dramatically, but they have had cyclical movement, which due to different economic cycles (see Chart: 2 and Chart: 3).

Chart 2: Trade (% of GDP)



Source: World Bank

Chart 3: FDI flows, outward (million US dollars)



Source: OECD

The main cost of a monetary union is the loss of national monetary and exchange rate policy independence. The currency union implies a single monetary policy and a single exchange rate for all member countries. A country that joins a currency union gives up of the opportunity to select a monetary policy that it regards as optimal, for its own circumstances (Pasimeni, 2014: pp. 173-204).

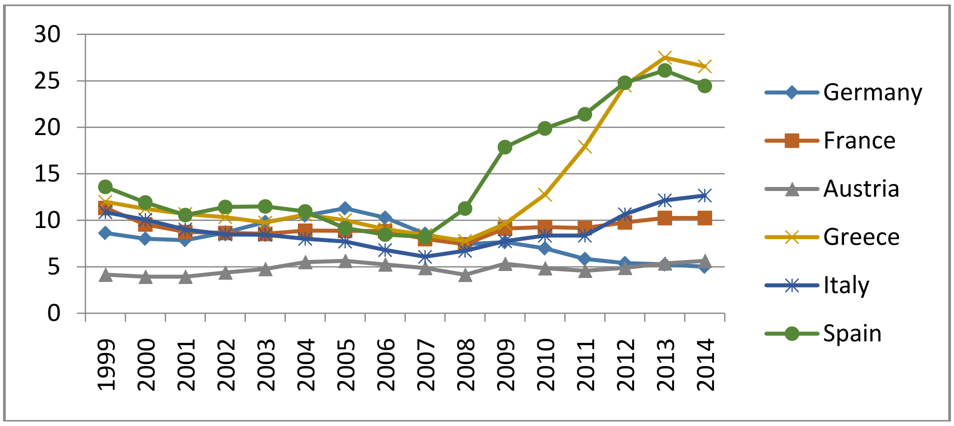
When a regional shock strikes one region of a currency area, such as a drop in demand for a region-specific commodity, and unemployment rises in that region, all else remaining equal in other regions of the currency area, what are policymakers, or the central banking authority to do? Increasing the money supply would stem unemployment in the affected region, but would cause inflation in other regions, where no comparable economic shocks are felt (Svrtinov et al, 2014: pp.57-64).

2.3 The Euro zone: an Optimal Currency Area?

Subsequently, we will see that none of the criteria for an optimal currency area, which we have mentioned previously, has fully satisfied in the euro area.

The mobility of labor force is relatively low in Europe, because the euro zone countries have differences in cultures (different languages, different work customs, different forms and institutions of government etc) which discouraging EU residents in their labor movement. If EMU countries have had high labor mobility, they should had similar unemployment rate. But, from the chart below, we can see differences in the rate of unemployment in different countries.

Chart 4: Harmonized unemployment rate (HUR), total, as a % of labor force



Source: OECD.

Another criteria for evaluating whether or not countries comprise an optimal currency area is whether or not they have similar business cycles; that is, whether or not they experience similar shocks and growth rates. In the case of the euro zone, on one hand we have the industrial and export-oriented countries, like Germany and Austria, and on the other hand, the import-oriented, service-based economies, like Greece, Italy and the other periphery countries (Koziara 2013). Industrial, export-leading "core" countries have improved their current account positions substantially, over the life span of the euro zone. On the other side, the current account positions of some of the euro zone's peripheral members have fallen, as is evidenced in the table below.

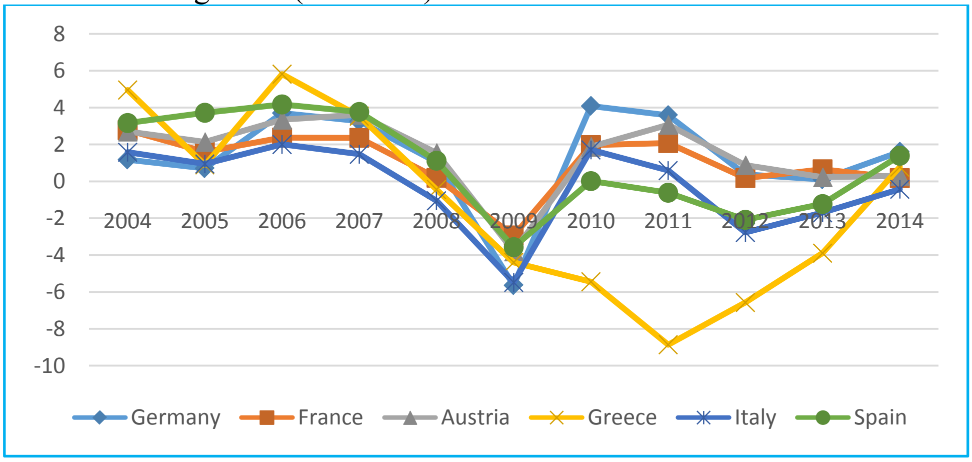
Table 4. Current account balance, total (as a % of GDP)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Germany	4.62	5.67	6.74	5.6	5.74	5.64	6.1	6.8	6.47	7.55
France	-0.02	0.04	-0.29	-0.95	-0.83	-0.83	-1.54	-1.43	-0.84	-0.84
Austria		3.30	3.82	4.52	2.62	2.88	1.49	0.95	0.77	0.77
Greece					-10.8	-9.99	-2.43	0.57	0.90	0.90
Italy	-0.94	-1.54	-1.42	-2.84	-1.93	-3.47	-0.51	0.93	1.93	1.93
Spain	-7.49	-8.98	-9.64	-9.25	-4.28	-3.92	-3.17	-0.27	1.44	0.79

Source: OECD

It is also important to note changes in gross domestic product, because GDP is viewed as an indicator of a country's standard of living. If we analyze GDP growth between core countries on one side, and periphery countries on the other, we can note significant divergences in growth. Germany, France and Austria experienced decline in GDP only in 2009, whereas countries of the periphery experienced a decline in GDP from 2008 until 2014.

Chart 5. GDP growth (annual %)



Source: World Bank

The free circulation of capital has been established in Europe in parallel with the development of the single market. The criteria of fully liberalizing of capital mobility can be considered as fully satisfied by the EMU. But, the problem which arises from capital liberalization was massive capital movement from Europe's core to its periphery, leading to an economic boom in the periphery and significantly higher inflation rates. Matters were quite different, however, when private capital flows from the core to the periphery came to a sudden stop, leaving the peripheral economies with prices and unit labor costs that were well out of line with those in the core. Suddenly, the euro faced a major adjustment problem. This was the kind of problem that theory of optimum currency area has warned about: that it is very difficult to handle without currency devaluation. Internal devaluation i.e. restoring competitiveness through wage cuts as opposed to devaluation has proved extremely hard (Krugman, 2012).

Furthermore, the size of budget transfers, another criteria for OCA, at the euro zone level is very small. There is a certain degree of international solidarity among the EU member states, but its level is incomparable with the degree of solidarity inside the USA. There is no EU budget to carry out fiscal federalism or to rescue a member state in economic difficulties.

However, since 1999, the EMU has been working with an extremely limited common budget and with an explicit no-bail-out clause in the Treaties, which means that any risk arising from potential asymmetric shocks, would have remained national.

The fiscal capacity condition is clearly the least satisfied in the case of the EMU and it is considered as its “major design failure” (Bordo, 2010).

2.4 The building up of the EMU in light of the OCA theory

In this part we will laid out several steps that could be taken or conditions that could be met in order to move EMU toward optimization.

- Increasing the degree of labor mobility and reducing cultural barriers within the euro zone. An important step which is made towards this direction is the Erasmus Program, which is a foreign-exchange program for university students, that permits them to study in another EU country, and thus obtain valuable international and cultural exposure.
- Achieving macroeconomic convergence amongst member states in the euro zone. If countries forming a monetary union have similar cycles, the single monetary policy can therefore be suitable for all of them. Different cycles between countries, on the contrary, lead to more asymmetric macroeconomic shocks, which can be amplified by the same monetary policy.
- Maintain sustainable government debt. Debts are arguably the biggest threat to economic convergence, as they have caused financial crises. For this purpose it is important to establish en enforceable set of convergence criteria, similar to those outlined in the Stability and Growth Pact.
- Implementing a banking union with powers to supervise all banks in the euro zone. ECB should be lender of last resort to governments, in the same way that national central banks already are. But, we have to be aware about moral hazard, which will have to be addressed somehow.
- Central authority with a relevant budget, which will ensure a certain degree of redistribution for automatic compensation for troubled regions. A supranational mechanism of fiscal transfers would be needed as an automatic stabilizer to mitigate asymmetric shocks.

- At the end we have to be aware about successful experiences of monetary unifications, that tell us that political union may represent an important prerequisite for an effective economic and monetary union i.e. the objective of a full monetary and economic union is unattainable without a political union (Bordo, 2010). However, EMU followed an opposite approach (Pasimeni, 2014: pp. 173-204)

Conclusion

In the years prior to the Greek crisis, the euro was seen as a symbol of success of the European project, but the failure of the euro to ensure economic stability throughout Member States, particularly peripheral countries, has now become a symbol of EU failure.

While the Euro zone was seen as the ideal candidate for testing optimal currency area theory in the years prior the global financial crisis, there is now considerable doubt whether or not the Euro zone sustains the criteria necessary to be labeled as an optimal currency area. Substantial economic divergence among member states increased the EMU's vulnerability to asymmetric shocks. The lack of labor mobility or a transfer payment system, limits the EMU's crisis adjustment capabilities. The common fiscal capacity is the main missing element for the euro zone to be qualified as a more efficient currency union.

Furthermore, EMU is composed of two different types of economies: “Core” (Germany, France, the Benelux countries, Austria, Finland) and “Periphery” (Greece, Ireland, Portugal, Spain, Italy, Cyprus). The condition of similarity of business cycles between this group of countries was not fully satisfied.

The single currency did not meet the expectations even in the area of mutual convergence of the participating economies as concerns the growth and inflation rates. Some of the euro zone countries stopped complying with the criteria for stability of public finance that were underlined in the Stability and Growth Pact.

We can conclude that if a country considers to join monetary union, it should evaluate the extent to which a monetary policy designed for the currency union as a whole, would be the best one for itself. Also, country should be aware that the main loss of participation in an optimal currency area is losing autonomy over fiscal and monetary policy, and with it, the loss of interventional tools that could be used to stabilize the economy in the event of a regional shock.

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