An Evaluation of the Euro from an Optimum Currency Area Perspective

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I. Introduction

More than a decade after the first introduction of the euro, a global economic crisis has triggered several crises in different members of the euro area. These crises will test the strength and success of the European Economic and Monetary Union (EMU) project unlike anything before. It also grants an opportunity to test the real-world applicability of certain theoretical assumptions and theories about the euro, and thus improve the quality and validity of future analyses and discussions. The most widely used theoretical framework for discussing the euro is undoubtedly Optimum Currency Area (OCA) theory, which attempts to define the parameters of a successful currency union. This paper will use the OCA framework to provide an analysis of the economic state of affairs in the euro area, as well as discussing the validity and usefulness of OCA theory as a method of analysis, in an attempt to answer a very basic question: is the Euro a success in economic terms?

In analyzing the euro, this paper will review several recent studies and recent data to closely examine all of the four criteria widely regarded as the most important ones provided by OCA theory: degree of trade, similarity of shocks and cycles, degree of labor mobility and system of risk-sharing. In doing so, it hopes to provide an up-to-date, comprehensive and yet concise overview of the status of the euro area as an optimum currency area, this in order to facilitate future analysis of, and structure future thinking about, the euro. This paper will conclude that the euro area is still far from being an optimal currency area in many ways, which is in line with several other papers on the subject, and that it is not on its way to becoming optimal anywhere soon either.

Aside from providing criteria for successful currency unions, OCA theory spawned a branch of thinking known as endogenous OCA theory, which holds that currency unions may become optimal *ex post* simply by forming, even if they do not conform to the criteria *ex ante*. This endogenous theory became very popular around the introduction of the euro, and has likely influenced some decisions regarding the formation of the euro area, however the theory has lost some support in recent years. After reviewing both literature on the subject and the results from the OCA criteria analysis, this paper will conclude that the endogenic forces as explained by this theory have only been marginally influential in the case of the euro area, which also coincides with the conclusions of other recent papers.

Finally, this paper will attempt to determine the value of analyzing the euro area in OCA terms by testing the predictive and explanatory value of OCA theory regarding the crises in the euro area, aided by a recent paper by Vieira and Vieira (2010). It will find that OCA theory provides valuable insights in understanding the current situation, and, building on these findings, proposes a more active role for OCA analysis both for future decisions regarding EMU policy and for future decisions regarding expansion or possibly contraction of the euro area. The paper concludes with a number of suggestions, but at the same time recognizes that many of them may prove either insufficient or not feasible in light of the current political and economical situation.

II. A Theory of Optimum Currency Areas

A theory of Optimum Currency Areas (OCA) was first formulated by Robert Mundell in 1961, and has since been a seminal building block for discussion about the European Economic and Monetary Union (EMU) and the adoption of a single currency. An Optimum Currency Area refers to a geographic region for which it would be beneficial to adopt a fixed exchange rate regime or a common currency, rather than having multiple currencies with freely floating internal exchange rates.[1] This could for instance be the case when homogenous economic regions transcend national borders, or when the elimination of internal exchange rates would provide a large enough benefit to trade through elimination of transaction costs and exchange rate uncertainty. Generally speaking, the adoption of a single currency in an OCA should increase the overall welfare of that area.

Throughout the years many criteria for determining an OCA have been suggested, such as price and wage flexibility, factor mobility, fiscal policy, degree of trade, business cycle similarity, political integration, production diversification and homogenous preferences. According to Frankel and Rose (1998:1011), most of the literature focuses on four inter-relationships: degree of trade, similarity of shocks and cycles, degree of labor mobility and the system of risk-sharing. We will shortly review each of these four main criteria.

1. Degree of Trade

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. The higher the degree of intra-area trade, the greater the efficiency gains of adopting a single currency

2. Similarity of Shocks and Cycles

A similarity of shocks and business cycles is an important determinant for the effectiveness of a homogeneous monetary policy. As countries follow a similar economic trend, the central bank can effectively promote growth during downturns or slow down the economy when overheating. Conversely, as business cycles diverge, the optimal monetary policy may differ per country and thus negatively impact the desirability of having a single currency.

3. Degree of Labor Mobility

Labor mobility refers to the physical, cultural and institutional barriers to the free movement of labor in the area. When relinquishing sovereign control over a currency, countries lose an important tool for dealing with shocks and imbalances. The effects of, for instance, a shock in demand could previously be mitigated by adjusting the exchange rate to affect the competitive position, controlling the level of

[1] Regarding the focus of this paper, OCA theory with respect to multiple countries adopting a single currency will be used, rather than an unidentified geographical area and/or the adoption of fixed exchange rates.

unemployment. Under a single currency, the degree of labor mobility represents the ability of the internal market to deal with shocks and regional or sectoral unemployment.[2]

4. System of Risk-sharing

Usually a system of fiscal transfers, this refers to the manner in which certain areas or sectors that have been adversely affected by shocks or are sluggish in growth get compensated, for instance through taxation redistribution, guarantees on government debt or the provision of cheap funds. A well-developed system of risk-sharing serves to smoothen any disturbances and facilitate the long-term adjustment process.

A group of countries which score well in these four categories should theoretically be able to successfully adopt a single currency, and expect to benefit from it. Unfortunately, as mentioned by Mongelli (2002:31) in his extensive review of OCA literature, there is "no simple OCA test with a clear-cut scoring card" to indicate which levels should be minimally reached for a single currency to be successful, which results in OCA analysis generally being inconclusive.

III. Endogenous OCA theory

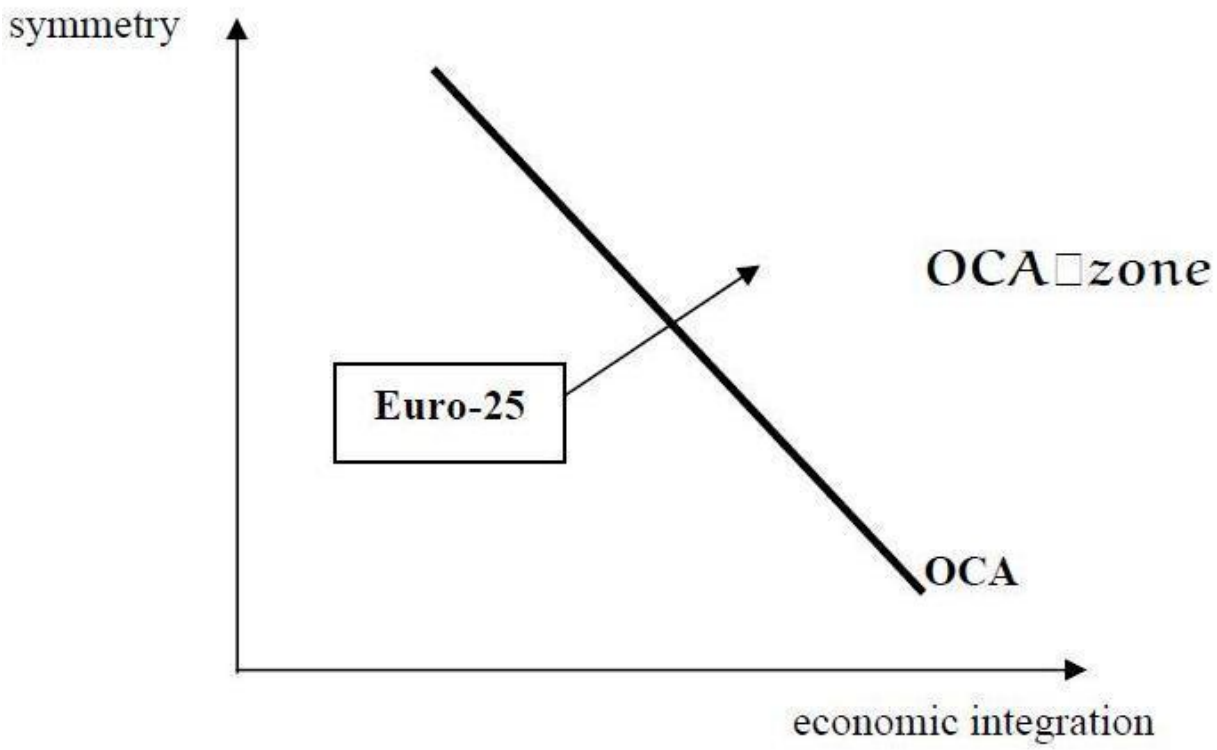
A new hypothesis on OCA theory was developed by Frankel and Rose in 1997, referred to as endogenous OCA theory. Basically, it states that the act of forming a monetary union itself improves the OCA conditions, or, in their own words, is more justifiable ex post (after) than ex ante (before). An excellent explanation of this theory is given by Paul de Grauwe in his paper on enlargement of the eurozone:

> *The story has two components. First, the fact that twenty-five countries decide to form a monetary union sets in motion a cycle of more intense economic integration. The use of a common currency reduces transaction costs and increased price transparency leads to even more integration. Second, this integration, in turn, further increases the degree of symmetry among the member countries. (...) The two components ensure that because the twenty-five countries are in a monetary union, they move towards the OCA-zone, which they will eventually reach one day. Thus, there is a self-fulfilling dimension to the optimality of a monetary union. By doing it, that is establishing a monetary union, countries create the conditions that make the union optimal (De Grauwe, 2007:5).*

Figure 1 is a graphic depiction of this story. On the y-axis is the level of symmetry, on the x-axis the level of economic integration. The area to the left of the line represents a non-optimal currency area, while the area to the right represents the OCA zone. Even though the Euro-25 are not in the OCA zone yet, they will move there by establishing a monetary union.

[2] Theoretically, price flexibility could mitigate shocks, but prices are generally considered to be sticky. Thus, labor mobility functions as a substitute for price flexibility.

Figure 1. The endogenous OCA theory



Source: De Grauwe (2007:5)

This optimistic story certainly has some merit. As barriers to trade are being removed, the degree of trade will almost certainly increase, and this increased integration can reasonably be expected to foster further symmetry. The first research on monetary union effects on trade by Rose (2000:17) even indicated a possible increase in trade of up to an incredible 300 percent. In addition, endogenous OCA theory "correctly argued that what was relevant for the operation of a currency area were the conditions after, not before, it was formed" (Wihlborg et al., 2010:53).

However, while there is little doubt that a monetary union would have at least some positive effect on trade, the positive effects on the other OCA conditions is not as unequivocal. Political will is another powerful factor in economic integration, and plays a large part in determining the OCA conditions. In addition, as mentioned by Wihlborg et al. (2010:54), not only do the endogenous responses need to move the countries towards the OCA zone, the effect needs to be strong enough to actually reach the OCA zone. Furthermore, the theory provides no defined time horizon for when this transition into the OCA zone should take place; the process may well take years or even decades to complete.

While the theory's real world implications remains inconclusive to some extent, it has been highly influential in academic debate on the EMU, and it's attractively positive view on the formation of currency unions combined with the giant potential for trade increase reported by Rose has almost certainly influenced decisions of entry into the EMU to some degree. In fact, a rapport by the European Parliament (1998:6) states that "many of the asymmetries might be removed (…) by the fact of monetary union itself".

IV. The European Economic and Monetary Union

After more than a decade of operation, the debate on the successfulness of the Euro is still as fierce as ever. In the wake of the global economic crisis, several of the EMU's member states are left facing crises of their own, and the skepticism about the EMU's ability to deal with the situation is growing. In order to better understand the current situation, let us look at the development of the EMU over the past years from an OCA perspective.

The European Economic and Monetary Union is the commitment of all EU member states (except Denmark and England) to eventually adopt a single currency and monetary system. It consists of three stages: firstly, free movement of goods, capital and persons (also referred to as common market). Secondly, the cooperation of central banks and the coordination of monetary policy, in preparation of relinquishing monetary policy to the ECB. And finally stage three, in which countries irrevocably fix their exchange rates and adopt the Euro as the national currency.[3] As from January 1st, 1999, eleven countries adopted the Euro as their currency, followed by Greece in 2001, Slovenia in 2007, Cyprus and Malta in 2008, Slovakia in 2009 and Estonia in 2011, bringing the total number of countries who have currently adopted the Euro to seventeen (EU-17).

Prior to the adoption of the Euro, the prospective members agreed to the adoption of the Stability and Growth Pact (SGP) in an attempt to converge their economies and facilitate an easy transition. The SGP basically constitutes the economic criteria for entry into the eurozone, and focuses on convergence of interest rates, low budget deficits and low inflation rates as indicators of suitability for new members. While these are commendable characteristics for any economy, they have very little to do with the criteria outlined by OCA theory. In other words, conforming to the SGP tells us hardly anything about whether a group of countries is suitable for joining in a monetary union, as has been pointed out by Paul de Grauwe (2007:11).

It is fairly well-known that the origin of the SGP was political rather than economical, which is underlined by the arbitrary manner in which it has been applied throughout the years, but the fact remains that the criteria outlined in the SGP are still the ones that prospective new members have to conform to, even despite their lack of applicability to the situation. So, since EMU membership is not being tested on any of the four OCA criteria mentioned earlier, what does this mean for the optimality of the European currency area?

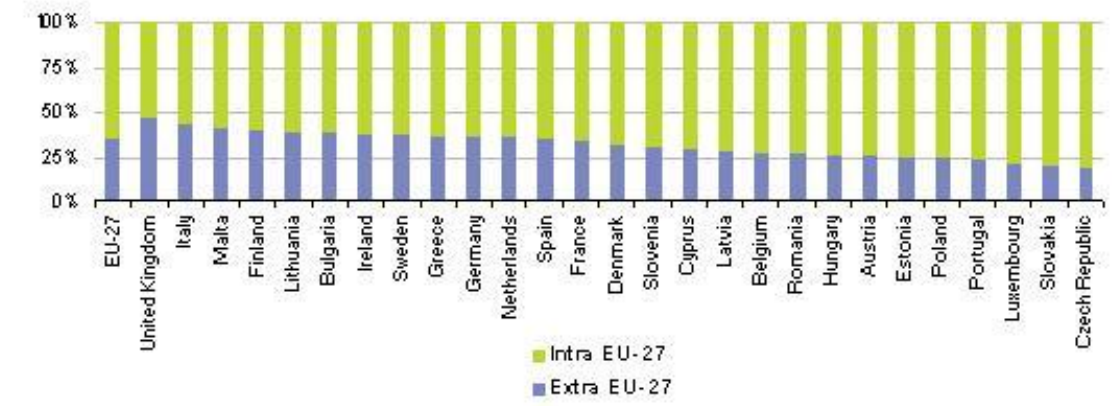
1. *Degree of Trade:*

The EU member countries tend to be fairly open with respect to trade, and the lion's share of that trade takes place within the EU as indicated by figure 2. This would suggest that there is ample opportunity to benefit from adopting a single currency. Willett et al. (2010:854) observed that "intra-euro country

[3] For convenience purposes, throughout this paper the term EMU will refer to those countries who have entered stage three and thus adopted the Euro, also referred to as eurozone, euro country or euro area.

trade as a percentage of GDP grew very rapidly from around 25 percent in the mid-1990s to over 40 percent by 2000". However, they also report that growth has since leveled off, which would not appear to be consistent with the assumptions of endogenous OCA theory. Their figures are largely consistent with those presented by Jean Claude Trichet (2006), who reports the total of intra-euro area trade in goods and services to have increased from 31.5 percent in 1998 to 37.5 percent in 2005. Furthermore, the combination of these figures suggests an initial surge in intra-euro area trade at the introduction, followed by a subsequent leveling off as observed earlier.

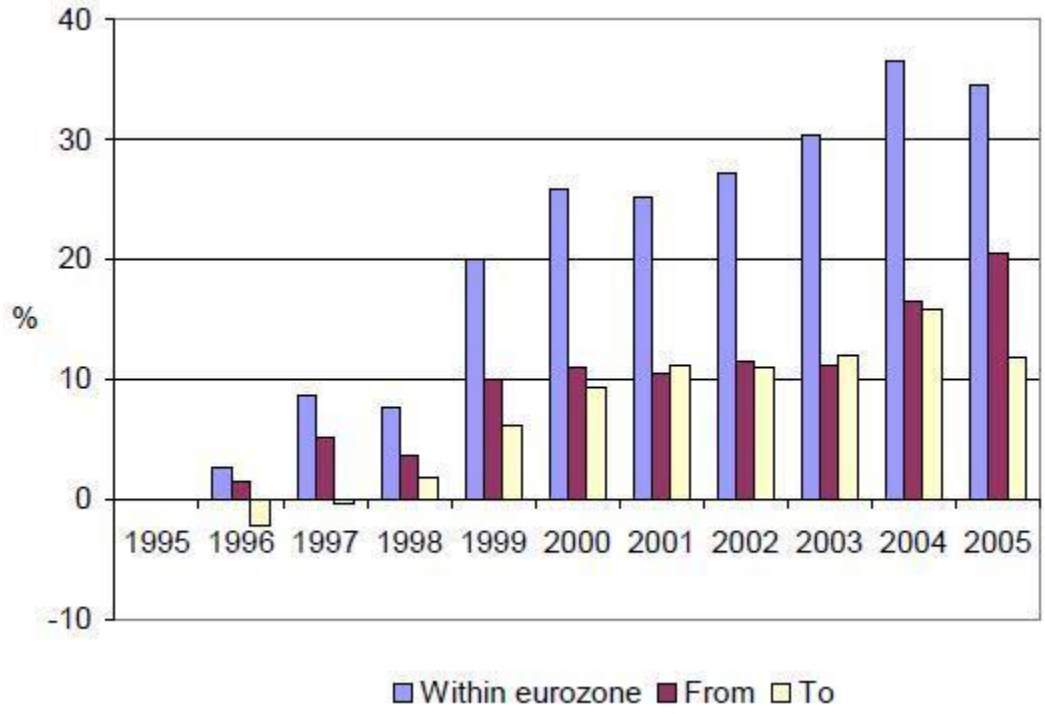
Figure 2. Percentage of intra-area trade



Source: Eurostat (2009)

As for the endogenous currency union effect on trade, a study by Micco et al. (2003:333) estimates the effect to be between 7 and 10 percent, Baldwin and Di Nino (2006:7) report the effect to be between 10 and 15 percent and Flam and Nordström (2006:13) find the effect to be between 21 and 26 percent. Overall, a reasonable consensus figure of the intra-euro area trade effect seems to be around 13 percent. The effect is clearly visible in figure 3, which compares the yearly increase in exports within, from and to the EMU since 1995, as a sharp increase in intra-area exports can be observed from the introduction of the Euro in 1999. On a critical note, "cyclical conditions and the early weakening of the new currency no doubt played a critical role in that increase" (Bernanke, 2005:182). Nonetheless, while nowhere near the possible tripling of trade suggested by Rose, it is still a significant positive effect.

Figure 3. Yearly increase of exports



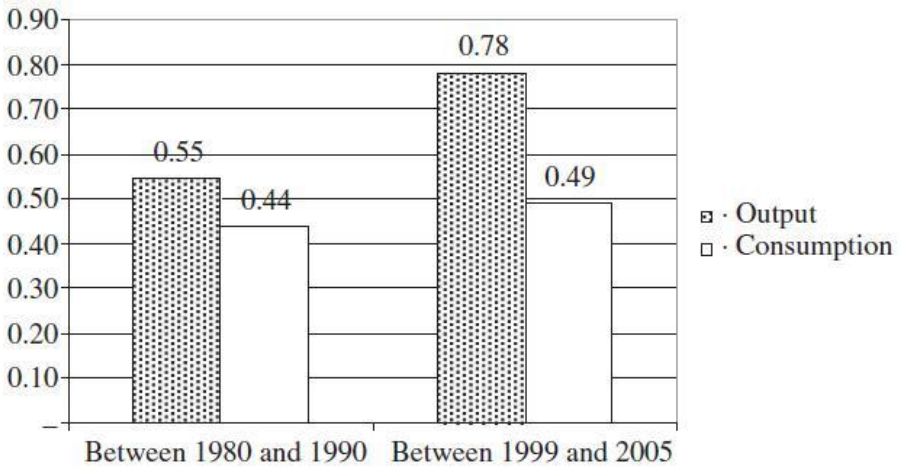
Source: Flam and Nordström (2006:10)

2. *Similarity of Shocks and Cycles:*

The findings of literature on the synchronization of business cycles and the factors that influence synchronization are very ambiguous, which can largely be explained by a lack of consensus on the methodologies and variables to be used.[4] Openness to trade is generally seen as the most influential factor, but degree of financial integration, differences in specialization and coordination of fiscal policies are all thought to influence business cycle synchronization, although there is little consensus on the weight of each. Nonetheless, the evidence suggests that business cycle synchronization in the EMU has increased in the 1990s, although there still does not appear to be an exclusively European cycle, and it is unclear to what extent the increased synchronization can be attributed to increased global integration rather than a specific EMU effect (De Haan et al., 2007:253). Indeed, it has been observed that while output and consumption growth correlations have risen substantially among eurozone countries, the same effect can be observed even more strongly among non-euro Western European countries, as is shown in figures 4 and 5 (Willett et al., 2010:858).

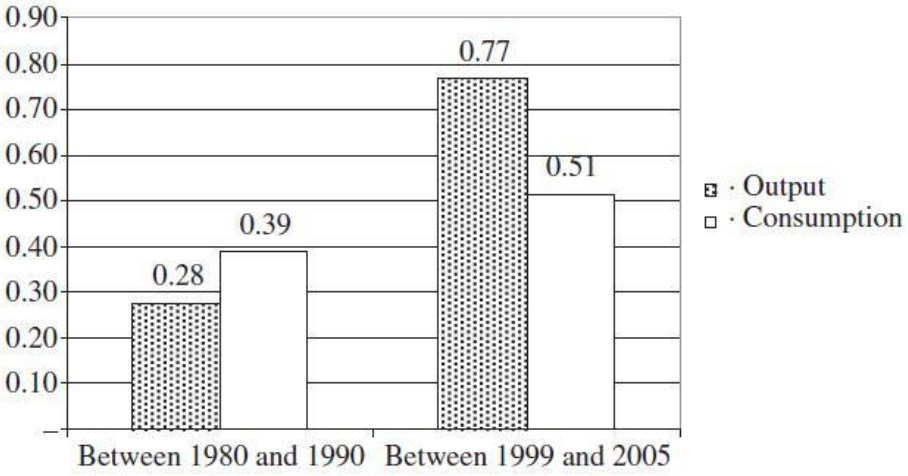
[4] For an extensive survey of the various studies done and methods used to measure business cycle synchronization and the factors that influence it, see De Haan et al. (2007).

Figure 4. One year growth correlations among eurozone countries



Source: Willett, Permpoon and Wihlborg (2010:859)

Figure 5. One year growth correlations among non-euro countries



Source: Willett, Permpoon and Wihlborg (2010:859)

A study by Furceri and Karras (2008:1497) suggests that the formation of the European common market may have had a bigger impact on trade and business cycle synchronization than the introduction of the euro, which may explain the observation of similar trends in EMU and non-EMU countries. Regardless, in spite of the increase in business cycle synchronization, de Haan et al. (2007:266) conclude that "the business cycles of many euro countries are still substantially out of sync".

This is a problem because a-synchronized business cycles tend to produce more asymmetric shocks, causing some member countries to experience an economic boom or deflationary pressures while other member countries may experience an economic downturn or inflationary pressures. This paralyzes the ECB and frustrates member countries, as optimal monetary policy decisions for one member may differ greatly from optimal monetary policy decisions for another (De Grauwe, 2007:3). Furthermore, Matthes

(2009:117) notes that while asymmetric shocks usually cause temporary divergences, they are more persistent in the EMU, due to rigidities in product and labor markets.

3. *Degree of Labor Mobility:*

Labor mobility refers to the ability of the labor force to adjust to shocks, particularly negative shocks. There are several ways in which adjustment to a negative shock can happen: by moving out of the labor force, by moving geographically, by retraining and moving to other sectors, by working at a lower wage, by decreasing the number of hours worked, or by remaining unemployed (Janiak and Wasmer, 2008:3). Moving out of the labor market is an option mostly restricted to those close to retirement or dual income couples who revert back to a single income, and can hardly be influenced by policy.

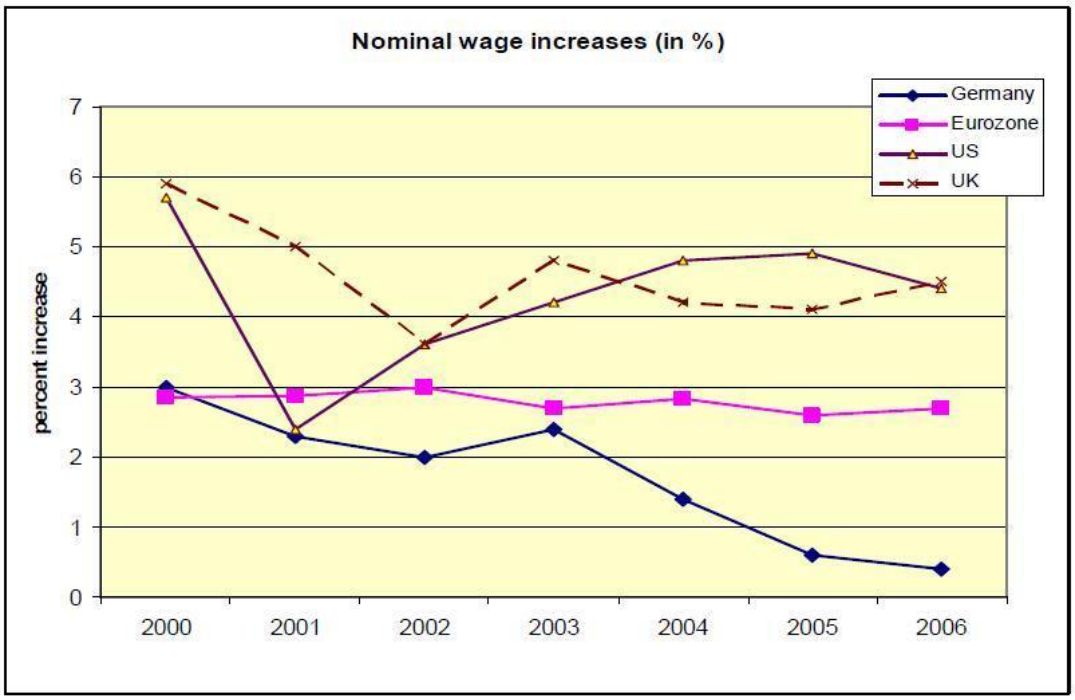
Although the official barriers to the free movement of people between EMU countries have been abolished, the EMU has no established common language and a fairly heterogeneous culture, which hinders the attractiveness of migration. Additionally, as mentioned by Janiak and Wasmer (2003:8), the inefficiency of housing markets and the limited portability of pensions further reduce the incentives to move to another EMU country. As a result, the mobility rate in the EMU only reaches 5 percent, or less than a third of the mobility rate for the US, which boasts a mobility rate of 15.5 percent.[5] It is interesting to note that mobility in Southern European countries is universally lower, while North-Western European countries are much closer to the US in terms of mobility.

Unfortunately, there is little statistical evidence on inter-industry mobility in Europe available, however a study by Hagedorn et al. (2004) found the rate to be 10 percent for Germany, contrasting with 17 percent for the United States. Generally, inter-industry mobility is expected to be low in Europe. This can be partly explained by high unemployment benefits as they reduce the incentive for workers to retrain themselves in order to find a new job quicker. Another explanation is offered by Wasmer (2006), who states that high employment protection rewards the accumulation of very specific skills over more general skills. Workers with a highly developed specific skill-set will not easily migrate to another industry where their skills are not useful, and underdeveloped general skills increases the need for, and cost of, retraining.

The general acceptance of a decrease in wages (wage flexibility) is very low in Europe, caused by a long tradition of strong worker unions, high employment protection, minimum wage restrictions and high unemployment benefits. Traditionally, wages grow every year to compensate for inflation, and every tenth of a percentage point is fought over heavily by the unions. This is reflected by the extremely steady line of nominal wage developments in the eurozone depicted in figure 6. Interesting are also the wage developments in Germany, which has slowly gained a competitive advantage to the rest of the EMU by a policy of strong wage moderation. However, the divergence of competitive positions in the EMU not only results from German wage policies, but also from different speeds of structural labor market reform processes in the individual member countries (De Grauwe, 2007:10). In all likelihood, the increasing divergence of competitive positions will cause an asymmetric shock that will not be easily corrected.

[5] Source of EU data: European Community Household Panel 1999-2001. Source of US data: U.S. Census 2000.

Figure 6. Nominal wage developments



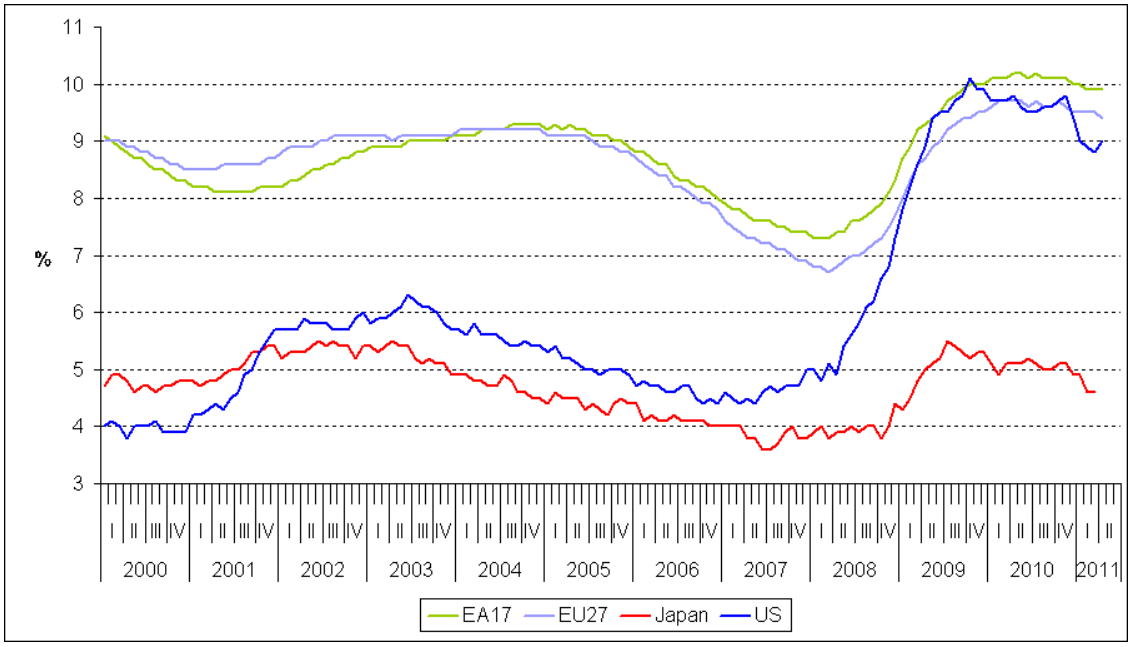
Source: De Grauwe (2007:10)

The most promising venue of adjustment seems to be in the form of flexible working time arrangements, which is also stressed in several studies performed by the European Commission. Allowing employers and employees to deviate from collective agreements on working time schedules and encouraging part-time work is a viable alternative to adjusting wages, and can help to prevent unemployment by creating more jobs and giving employers an alternative to firing excess workers. Coincidentally it also fits well with the increased importance people tend to place on leisure and personal development outside of work, making it a very natural and friendly adjustment mechanism. Unfortunately, academic studies on the subject have not found workweek reductions to have a notably positive effect on employment. Indeed, a study by Chemin and Wasmer (2009) on the workweek reduction in France from 39 to 35 hours shows that it caused real wages to rise as workers demanded compensation for their reduced monthly incomes, while no positive effect on employment could be shown. Nonetheless, the general consensus is that flexible working time arrangements could work if they are not negotiated at the country level, but at the level of individual industries and firms.

The last option, becoming or remaining unemployed, although it seems like the least desirable, is in practice the most common response in the EMU. In the absence of other well-functioning labor market adjustment mechanisms, and aided by generally high unemployment benefits, unemployment rates in the EMU are traditionally high, and shocks in demand and supply are generally translated into increased unemployment rates. The most notable and painful example of this is the current situation in Spain, where unemployment levels have reached 20.7 percent, and youth unemployment rates are even up to 44.4 percent. In comparison, euro area averages for the same period were 9.9 and 19.6 percent

respectively.[6] It is however interesting to note that unemployment rates in the US, which in recent decades have been much lower than in the EU, have soared from 2008 to levels comparable to those of the EU, as can be seen in figure 7. It is likely that the some of the same mechanisms that are blamed for the inflexibility of the labor market in the EMU, such as strong worker unions and high employment protection, have served to dampen the effects of the global economic recession on unemployment to some extent.

Figure 7. Unemployment rates in the EU, US and Japan



Source: Eurostat (2011)

Another interesting observation is that the EU countries outside of the euro area have fared slightly better than those who have adopted the euro. This may in part be due to the fact that they still have the exchange rate mechanism to compensate for shocks, but additional research is required to confirm this.

4. System of risk-sharing

Another way of dealing with asymmetric shocks is a system of fiscal transfers, where member states which have been adversely affected get financially compensated by those who have not, or not as severely, been affected. In the case of the EMU, there is no fiscal union present. Member states have full sovereign control over their fiscal policy, provided they stay reasonably within the boundaries on government deficit and debt levels outlined in the SGP, and there are no fiscal transfers between members following asymmetric shocks. The Maastricht Treaty even contains a no-bailout clause, which prevents the EU government and the ECB from rescuing a member state which faces a debt crisis (Bordo, 2010:2). This clause serves to impose fiscal discipline on the individual member countries without compromising their sovereignty.

[6] Data source: Eurostat (April 2011)

Recent developments however have shown this clause to be not credible. In the wake of the financial crisis that started in America, the large-scale numbers fraud of the Greek government was discovered, and the impending debt crisis Greece faced triggered a fear of contagion across the eurozone, which prompted the EU and the IMF to comprise a rescue package of 110 billion euros. Additionally, the European Financial Stability Fund (EFSF), which holds an additional 750 billion euros, was established to protect other members from debt crises. Moreover, the ECB has broken its pledge not to purchase the sovereign debt of member countries, which effectively means the ECB is conducting fiscal policy, threatening its independence (Bordo, 2010:2).

The upside of a nationally sovereign fiscal policy system is that individual countries have an instrument to alleviate shocks and conduct countercyclical policy according to their own insight, by running budget surpluses or deficits within the, admittedly stretchable, limits set by the SGP. A downside of this is that the various fiscal policies active throughout the EMU are causing divergences between the EMU member states.

V. Optimum Currency Area Implications

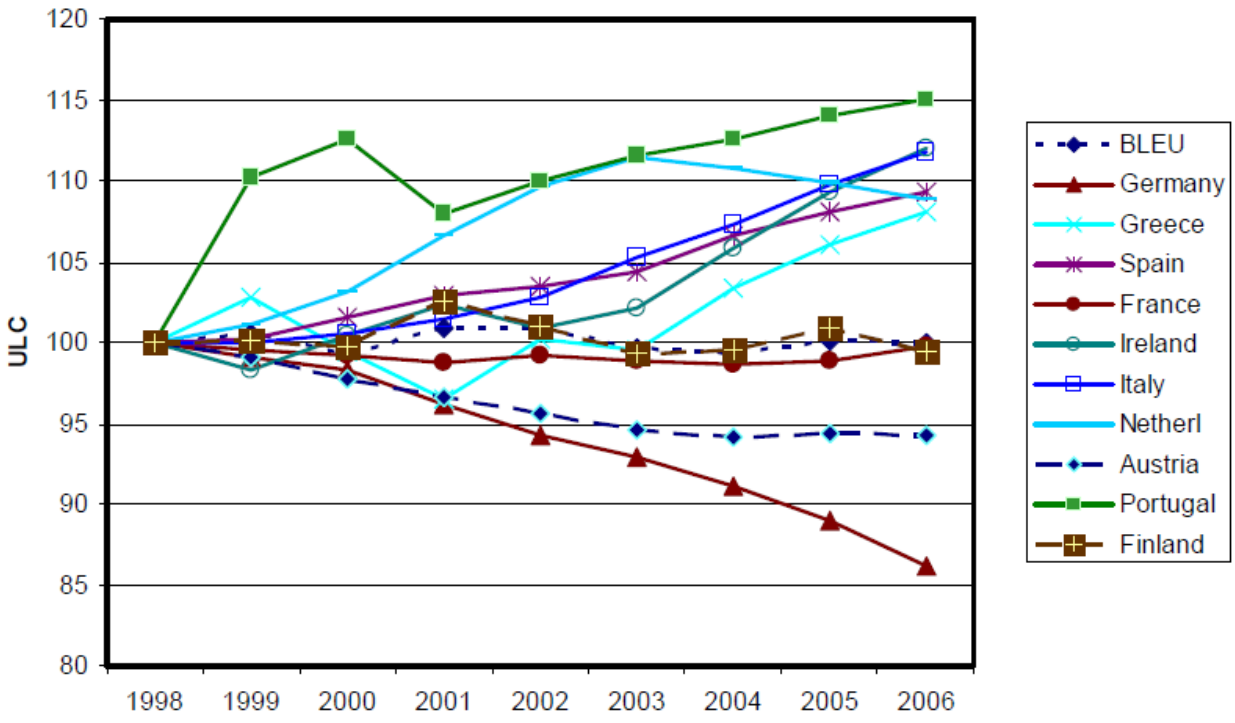
Reviewing this analysis of the EMU, what are the implications for its optimality as a currency area, and for the endogenous OCA hypothesis? Unfortunately, neither appears to get a very positive review. The most positive view on both is undoubtedly provided by the degree of trade, which has seen a substantial increase, as has been predicted by the theory. However, the increase was by no means as spectacular as many had hoped based on early research by Rose and others. Additionally, the increase in trade growth appears to have leveled off after an initial surge, which does not seem to be consistent with the assumptions endogenous OCA theory provides us with. Willett et al. (2010:854) observe that while some studies have assumed that full adjustment would take 20 to 30 years, no theoretical explanation for such an assumption has been offered. All in all, it appears unlikely that the benefits to trade the euro has provided so far are by themselves enough to offset the costs of monetary union.

Business cycle synchronization provides us with similar but even less positive insights. Although business cycles have become more synchronous, from the perspective of optimum currency areas they are still much too dissimilar to allow for smooth functioning of a monetary union. Endogenous OCA theory appears to have been of marginal importance at best in predicting movements in business cycle synchronization, as there has been little evidence of additional increase in synchronicity since the start of EMU (Matthes, 2009:116). This observation is supported by the fact that increased business cycle synchronization of a similar degree took place in EU countries that did not adopt the euro.

The degree of mobility in the labor market is no source of confidence either. Labor markets in the EMU can be characterized as rigid and inflexible, and entry into the EMU has so far not inspired large-scale reforms. Furthermore, labor market institutions are under national control, which implicates that any reforms will happen at different speeds, in different directions and to different degrees in each of the

member states. This leads to divergence within the union, as was shown earlier in figure 6, of which the divergence of relative unit labor costs as shown in figure 8 is yet another indication. Relative unit labor costs indicate a change in the competitive position of a country; here we notice a deterioration of competitiveness for all Southern European countries, and Ireland and the Netherlands, especially in comparison with Germany which has greatly improved its competitive position. Willett et al. (2010:867) comment that "traditional OCA analysis views exchange rate changes as substitutes for wage flexibility and labor mobility. According to this view, large and persistent changes in real exchange rates in term of unit labor costs indicate that there is a need for exchange rate changes as a result of insufficient flexibility in labor markets". The divergence we observe in figure 8 is quite significant, and will undoubtedly cause further asymmetric shocks within the EMU.

Figure 8. Real effective exchange rates based on unit labor costs



Source: De Grauwe (2007:9)

Finally, the absence of a fiscal union is becoming increasingly untenable, which is emphasized by the fact that the ECB found itself forced to break its neutrality in the face of the current crisis, and that pseudo fiscal union institutions like the EFSF have been recently established. This underlines both the importance of the OCA criterion of having an established system of risk-sharing, and the weak position of the EMU as an optimum currency area. However, the establishment of a fiscal union may prove to be very costly for the surplus members, which is indicated by the enormous amounts of money poured into the EFSF and the large-scale investments into bad government bonds by the ECB.

Vieira and Vieira (2010) provide a ranking of OCA indices, based on an updated and more detailed version of the index proposed by Bayoumi and Eichengreen (1997), presented here in table 1.[7] The indices represent a comparison of each country's OCA characteristics compared to Germany, which is viewed as the economical anchor of the EMU. "The smaller the value of the index, the more the two countries approximate an OCA" (Viera and Viera, 2010:11).

Table 1. Ranking of OCA indices

1988		1998		2008	
Belgium	0.01907	Austria	0.01222	Belgium	0.00203
Austria	0.03289	Belgium	0.01389	Austria	0.00442
Netherlands	0.03397	Netherlands	0.04473	Netherlands	0.03639
Finland	0.05709	Denmark	0.05862	Finland	0.03839
Switzerland	0.06175	Switzerland	0.06297	Switzerland	0.04141
Sweden	0.06563	France	0.06985	Denmark	0.04362
Italy	0.06628	Italy	0.07278	France	0.06301
France	0.06906	Portugal	0.07718	Sweden	0.06636
Denmark	0.06933	Spain	0.08147	Portugal	0.06916
Ireland	0.07656	Ireland	0.08668	Italy	0.07240
Greece	0.08878	Sweden	0.08858	Spain	0.07815
UK	0.09321	Greece	0.09773	UK	0.07984
Norway	0.09440	Norway	0.10100	Norway	0.08500
Spain	0.09857	UK	0.10263	Greece	0.09982
Portugal	0.10178	Finland	0.10827	Ireland	0.10616

Source: Vieira and Vieira (2010:11)

We can see that OCA indices improved for many countries, whether they adopted the euro or not, except for those countries for which it was the most crucial (the ones who adopted the euro despite relatively high OCA index values). Portugal shows some improvement, but the situation for Italy, Spain and Greece has hardly changed at all since the adoption of the euro, and Ireland even shows a significant deterioration. Once again, endogenous OCA theory does not appear to hold true in case of the EMU.

All in all, we must conclude that the EMU does not constitute an optimum currency area, nor does it appear to be becoming one anywhere soon. While there is convergence on some levels, we can observe divergence on other levels, and there is yet no clear answer as to which force will prove to be stronger. Since the hope of endogenous forces automatically steering the EMU towards becoming an OCA seems to have been idle, a lot will depend on the willingness of the EMU member countries to push through any reforms necessary for making the Euro a success in optimum currency area terms.

[7] For explanation of the calculations and variables used to compute these indices, see Vieira and Vieira (2010:8-10)

VI. Relevance of OCA Analysis

To test the relevance of OCA analysis in analyzing the EMU it is interesting to study to what extent OCA analysis is capable of predicting and/or explaining some of the problems that the EMU is facing today, such as the debt crisis. Some of the peripheral EMU member countries, which have been dubbed PIIGS (Portugal, Ireland, Italy, Greece and Spain) by the money markets, are facing high and increasing debt-to-GDP ratios. This has inspired a fear of default on some of their debts in the money market, causing risk premiums on any loans these countries obtain to rise, further reducing their ability to repay their debts and thus creating a snowball effect. To what extent can OCA theory help to explain the causes for this situation?

While there are always many factors at work in such situations, possibly the most important contributing factor is the decrease in the competitive positions of these countries. Looking back to figure 8, the relation between the countries facing debt crises and the worsening of relative competitive positions is almost 1-to-1, the exception being the Netherlands. A decrease in competitiveness means a worsening of the current account, or, in the case of the PIIGS countries, an increase in annual budget deficits. As mentioned earlier, OCA theory states that insufficient flexibility in labor markets will cause such divergence of competitive positions in the absence of an exchange rate mechanism. This view on the decrease in competitiveness of the PIIGS countries is further supported by the observation of the highest unemployment rates in decades in almost all of them.[8]

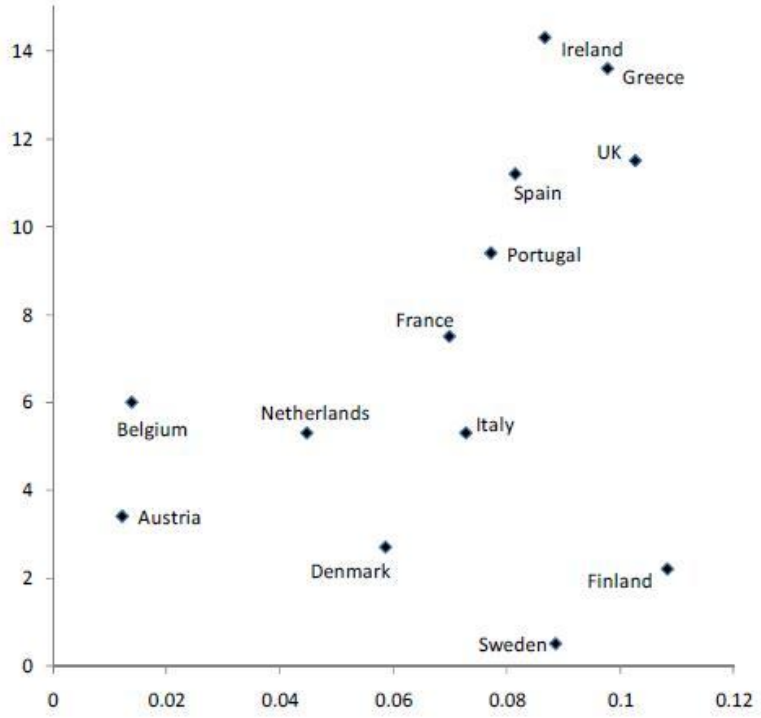
Additional proof on the predictive and explanatory value of OCA theory regarding the debt crisis is provided by Vieira and Vieira (2010:14) by mapping recent government budget deficits against the OCA index of 1998, presented here in figure 9. The correlation between these two variables is clearly visible, and moreover was shown by Bayoumi and Eichengreen (1997:767) to be absent prior to adoption of the euro. This would suggest the capability of OCA theory to indicate those countries that are likely to experience problems adopting a single currency. Strengthening this observation are the OCA indices of 2008, presented earlier in table 1, where the PIIGS countries neatly form the bottom five EMU member states. An inference of high values on their OCA indices is that monetary policy conducted by the ECB is likely to be less or even counter-effective for these countries, which adds to any problems they might be facing.

Aggravating the situation is the absence of a fiscal union, which effectively means that all EMU member states are responsible for their own deficit problems. This legitimates the fear of the money markets that some weaker member countries may default on their loans, whereas it is unthinkable that any of the member states of the USA would default on their loans since they are protected by a fiscal union. The SGP, which was supposed to prevent the rapid accumulation of debt by providing fiscal restraints on the EMU members, proved to be ineffective in doing so, partly because it was delegitimized when

[8] Source: Eurostat (2011). It has to be noted that the massive increase in unemployment started from 2008 onwards, and that Italy does not appear to be experiencing any substantial unemployment problems.

Germany and France themselves started ignoring its limitations, and partly because the SGP has no effective instrument for enforcing its rules.

Figure 9. Government deficits in 2009 and the 1998 OCA index.



Source: Vieira and Vieira (2010:14), government deficit in percentage of GDP on the vertical axis.

Another factor which is often mentioned as a contributor, but is not mentioned by OCA theory, is the access to cheap debt when the interest rates were fixed at the start of EMU. This facilitated an accumulation of debt by the weaker member states which would not have been possible had they not adopted the euro, and provided an incentive for risky behavior in both the public and private sector. Also, OCA theory makes no mention of the effect of the conversion rates at which the various currencies of the member states were linked to the euro, while they have certainly had an effect on their economies and their competitive positions.

Perhaps an even bigger problem than the debt crisis comes in the form of a declining support for the EMU. The desynchronized business cycles, which cause monetary policy to be suboptimal from the perspective of individual member states, the diverging views ranging from labor market reforms to fiscal policy, the apparent inability of the EMU to effectively deal with the debt crisis, and the massive financial injections which are a constant hot political topic (directly stemming from a lack of monetary union) are all contributing to rapidly declining electoral and thus political support for the EMU. This, more than any other factor, may ultimately prove to be fatal for the EMU project in its current form. While geopolitical and ideological reasons may have been of equal, or greater, importance than the economical reasons in the undertaking of this project, the euro has been sold to the electorate on the promise of its benefits to welfare for everyone. As the adoption of the euro continually appears to be

less beneficial and more costly than many had hoped for, declining electoral support for the project may eventually render the realization of any necessary reforms, and the subsequent sacrifices required, impossible.

VII. Policy Implications and Conclusions

Is the Euro a success? From an economic viewpoint, the answer has to be: no. Although there are those that hold the view that simply having survived for twelve years while being such an ambitious and never before tested project makes the euro a success, the EMU member countries are not an experimental laboratory. The introduction of the euro and expansion of the euro area have been rushed too fast, perhaps aided by the hope that endogenous forces of the introduction of the euro would be strong enough that economic success would ensue automatically. Unfortunately, the endogenous effects have been of only marginal importance in the euro area, and because the euro was introduced without proper regards for the economic circumstances and without first making all the necessary preparations, a day of reckoning may be close at hand which may end up costing us dearly. Had more attention been paid to the criteria as laid out by OCA theory, the euro project may have been executed differently and yielded more economic success, thereby also increasing its electoral and political support.

While the tone of this paper regarding the EMU has been mostly negative, it does not abandon all hope for future improvement. Starting off lightly, as endogenous trade benefits generated by the euro have proven insufficient in synchronizing business cycles across the EMU, more pro-active methods of inducing synchronization will have to be explored. Any policies that serve to further promote intra-EMU trade should be welcomed, as intra-EMU trade is still a cornerstone measure of success for the euro and an important driving force for integration and synchronization. Additionally, coordination of fiscal policies can serve both to improve business cycle synchronization and to prevent further divergences within the EMU based on those same fiscal policies. Although literature on the effects of fiscal policy coordination on business cycle synchronization has so far yielded ambiguous results, it is still reasonable to assume that increased coordination will have a positive effect on synchronization. Moreover, fiscal policy coordination can be very directly influenced and controlled, which makes it an attractive method of approach.

More importantly, reform of labor markets should both be sped up and coordinated between all the members. Diverging competitive positions resulting from differing labor market policies and different stages of labor market development are an important driver behind many of the problems the EMU is currently facing. Especially in the absence of other shock-absorbing or correcting mechanisms such as exchange rates and a system of fiscal transfers, the establishment of a well-functioning and properly coordinated labor market across the EMU is of vital importance. It is however difficult to find support for extensive reforms during an economic downturn, which may hinder labor market reform and make it a painful and costly process for many.

Most literature on the subject recognizes that the introduction of a fiscal union in the euro area is not feasible, as political support for such a level of integration is simply not there. However, if all the EMU member states want the project to continue with all the current members, every country will have to be prepared to share in the costs of adaption to the monetary union faced by individual member countries, especially the weaker, peripheral ones. There are currently many theories and possible solutions being tossed around on how the EMU is to solve this problem, but there is no clear answer yet.

If worst comes to worst, and the EMU is not able to stabilize the debt crisis or force further convergence on various features of its internal market, it may be necessary for one or more countries to exit the eurozone. While costly, it may in the long run serve them better than to continue sailing under the euro flag with an economy that cannot properly function under it. This should probably only be a last-resort option, as it will likely not only be costly to those countries, but damage the reputation of the euro as a whole. On the other hand, it may boost confidence in future success of the euro in the remaining member states.

As suggested earlier, more use should be made of OCA analysis and instruments such as the OCA indices in the consideration of any future euro area expansion. OCA criteria have proved to be far superior to SGP criteria as indicators of the suitability of new members, and do not rely on adherence to unenforceable rules. However, it is advised that future research on OCA theory should seek to incorporate interest and conversion rate analysis to provide an even better indication of the optimality of currency areas.

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