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EXCHANGE RATE REGIMES AND MONETARY UNION

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Ai miei genitori, Giovanni e Fulvia
che hanno sempre creduto in me

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ABSTRACT

The choice of an exchange rate regime is of fundamental importance for a country but selecting the right one is not an easy process since there is no universal best solution. A country may prefer to choose one regime over another at some point in time, given its specific characteristics at the moment of the choice such as size, openness to trade export structure, inflation, shocks likelihood, credibility of monetary institutions and many others but might prefer another regime as time passes and these country specific features change. It is thus important to be aware of all the available alternatives and choose the one that suits best the country in question. Over the past century all different kinds of exchange rate regimes have been experimented by the major economies. The first international monetary regime adopted by European countries was the Gold standard. Many more others followed as the economic conditions and the specific countries' characteristics evolved until the foundation of the European Monetary Union in 1999. Europe, among all the different exchange rate regimes alternatives, has chosen a currency union and this paper questions this choice with the theory of Optimum Currency Areas. Is Europe an OCA? All the different benefits and costs of the EMU are thus compared and analyzed with particular regards to the impact asymmetric shocks on countries belonging to a monetary union and the adjustment process. The theories proposed by Mundell, Kenen and Mckinnon on labour mobility, openness to trade and product diversification are the starting points of this analysis. A particular emphasis is placed on themes such as the fiscal federalism and the political union which represent the best solutions to reduce the costs of a monetary union. The final chapter deals with the current events: the financial crisis, its impact on the Eurozone and the possible solutions to it.

This paper reviews: (1) The different exchange rate regimes alternatives,(2) an historical overview of the different monetary systems that characterized the past century, (3) the main factors affecting the choice of an exchange rate regime, (4) the impact of asymmetric shocks on a monetary union and the following adjustment process, (5) the theory of Optimum Currency Areas, (6) the analysis of whether Europe constitutes an OCA and (7) the current Eurozone crisis and its possible solutions.

CH 1. EXCHANGE RATE REGIMES

1.1 The impossible Trinity principle

The idea of the impossible trinity lies behind the logic of the European monetary integration. Only two of the following features can be chosen:

1. Full capital mobility
2. Autonomous monetary policy
3. Fixed exchange rates

These qualities are called impossible trinity since a country must give up one of the three goals described: monetary independence, exchange rate stability or free capital flows. The forces of economics do not allow the simultaneous achievement of all three. For example, a country with a pure float exchange rate regime such as the United States can have monetary independence and a high degree of full financial integration with the outside capital markets but the result must be a loss of exchange rate stability. The choice of an exchange rate regime is simply the same thing as monetary policy since choosing one fully determines the other.

1.2 The exchange rate regime alternatives

The most common distinction between exchange rates is the one between fixed and flexible exchange rates. However, we have different kinds of exchange rates regimes. With the exception of the freely floating regime, all the other regimes choose a foreign currency to peg to. The main anchors are usually the US dollar and the euro.

1.2.a Floating regimes

a.1 Freely floating

Monetary authorities refuse any responsibility for the exchange rate. The rate is freely determined by the markets and can fluctuate by any amount at any time.

a.2 Lightly managed float

The exchange rate is determined in the market freely by demand and supply but differently from the free float in which monetary authorities do not intervene, in this

case monetary authorities intervene occasionally to moderate excessive fluctuations.
Usually the most developed countries let their exchange rate float freely. Examples: the Eurozone, the USA, the UK, Sweden and Canada. The main reason for adopting this regime is that it preserves monetary policy independence and full financial integration. The central bank can thus focus on inflation. Moreover, this regime protect the economy from foreign demand disturbances since the exchange rate can be used as a tool to absorb shocks.
The cost of this regime is represented by the large fluctuations in exchange rates which can become a problem for a country implementing this regime. As a matter of fact, large fluctuations affect the competitiveness of the country, especially exporters and importers can be harmed. However, this is just the case for small countries since for larger countries such as the USA and the Eurozone exports and imports weight very little so the impact is limited. The situation may be more problematic for countries such as Sweden, where exports represent more than half of GDP. Another advantage of this system is that there is no need to keep high international reserves.

1.2.b Intermediate regimes

b.1 Managed floating

A managed floating is a sort of middle ground between a free float and a peg. In small and open economies which are usually concerned about the excessive fluctuations deriving from a free float and that, at the same time, do not want to commit themselves to a particular exchange rate, the best option is a managed floating. Central banks that adopt this strategy buy their own currency when it is too weak and sell it when it is too strong, but they do not pursue any exchange rate target. Authorities do not make explicit commitments but they act with the aim of smoothing short movements or keeping the exchange rate within limited margins in the foreign exchange markets. The margins may be explicit or implicit, fixed or variable. Countries that manage their exchange rates to some degree include: Czech Republic, Hungary, Poland and Romania as well as some Asian countries. This regime is appropriate for emerging market economies and some other developing countries with a strong financial sector and a history of discipline in macroeconomic policy. Among the advantages of this regime there are the fact that it

allows a partial absorbance of adverse shocks and the easy maintenance of stability and competitiveness if the regime is credible. Some drawbacks are related to the lack of transparency because the intervention criteria is not always disclosed which may lead to uncertainty and reduced credibility. Moreover a high amount of international reserves is required.

b.2 Target zones

Target zones imply the choice of a wide range of fluctuation within which the exchange rate is allowed to move vis-à-vis a chosen anchor. This strategy leaves some room to maneuver for both monetary and fiscal policy. The central bank must intervene, and lose policy independence, when the exchange rate is close to the edges of the target zone, but it can also intervene at any time it wishes. Many central banks try to keep the exchange rate close to the midpoint. The range or the midpoint with a tolerance of fluctuations around it can be announced or not.

1.2.c Soft pegs

c.1 Crawling pegs

In a crawling peg regime the authorities announce a central parity and a band of fluctuation around it. The main feature of this regime is that the central parity and the associated maximum and minimum margins of fluctuations are allowed to slide regularly: they crawl. The rate of crawl can be announced or not. A crawling peg and a target zone are very similar since they both involve an acceptable range but the margins for a peg are less than +/- 5% around the official parity. Many Latin American countries used the crawling pegs in the 1980s as did Poland and Russia in the mid-1990s.

c.2 Fixed and adjustable

The authorities declare an official parity vis-à-vis another currency, usually the US dollar or the euro, sometimes vis-à-vis a basket of several currencies. The arrangement specifies the margins of fluctuations around the central parity. The band of fluctuations allow the central bank to intervene once in a while and therefore there is a limited role for monetary policy. The central parity can be infrequently changed and this

process is called realignment. The realignment option is very useful to deal with serious disturbances that can affect the economy of a country. From 1945 to 1973, under the Bretton Woods system, fixed and adjustable exchange rates were the rule worldwide. The margins were initially +/- 1% and were later widened to +/- 2.25%. between 1979 and 1993 the ERM also operated with a system of fixed but adjustable exchange rates with a 2.25% percent band, which was enlarged to +/- 15% after 1993.

The soft pegs are appropriate for developing countries with limited links to global financial markets, less diversified productions and export structure and lacking monetary discipline and credibility. This system provides a clear and controllable nominal anchor which makes the system credible and transparent. If the peg is credible the country will be able to maintain stability and competitiveness. However, a soft peg requires a high level of international reserves and has a limited capacity to absorb adverse shocks.

1.2.d Hard pegs

d.1 Currency boards

Currency boards are a tight version of fixed exchange regimes. Currency board lack the flexibility of the soft pegged regimes in which there is both the possibility to revalue/devalue and there are margins of fluctuations. With this regime, monetary policy is entirely dedicated to exchange rate target and there are no margins of fluctuations. The central bank, thus, may only issue domestic money when it acquires foreign exchange reserves. If it spends foreign reserves it must buy domestic currency and thus reduce money supply. Currency boards existed in the British empire. They started to be used in a number of Caribbean islands as soon as they became independent and in Hong Kong in 1983. This regime spread in the 1990s in countries were political institutions were weak such as Argentina, Bosnia-Herzegovina and Bulgaria. Also Estonia and Lithuania adopted this regime after the collapse of the communism. A currency board is appropriate for countries with a history of high inflation, monetary problems, lack of credibility of monetary authorities and that need a strong anchor to achieve stability.

d.2 Dollarization/Euroization

A stricter regime is to fix the exchange rate irrevocably which means adopting a foreign currency. For those countries adopting the dollar we use the term Dollarization (Ecuador, Panama, El Salvador, Liberia), for those adopting the euro we talk about euroization (Montenegro, Kosovo). With no domestic currency there is no monetary policy. This regime is, thus, adopted by small countries with very weak political institutions.

d.3 Currency Unions

In a Currency Union several countries adopt a single currency. Examples of monetary unions are Europe, the francophone Africa and some Caribbean islands.

These last two regimes are appropriate for those countries that engage in extensive trade and have particular economic ties. The hard peg regimes have several advantages. They provide the maximum credibility for the economic policy regime compared to other exchange rate regimes. Moreover they lead to low transaction costs and low and stable interest rates. The hard pegs have important drawbacks that need to be taken into consideration. First, the central bank loses its role as lender of last resort so countries that, for example, join a monetary union are more likely to experience a liquidity crisis. The role of the exchange rate as a shock-absorber disappears.

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CH.2 HISTORICAL OVERVIEW

2.1 Gold standard (1870-1914)

The gold standard had its origin in the use of gold coins as a medium of exchange, unit of account and store of value. While gold has played these roles since ancient times, the gold standard as a legal institution dates from 1819 when it was adopted by the British Parliament. Later in the 19th century other countries such as the United States, Germany and Japan followed the British example and adopted the gold standard. Other major countries joined in 1870s. The period from 1870 to 1914 is known as the classical gold standard. Under the gold standard, each country fixed the price of its currency in terms of gold. National money and other forms of currency (banknotes and deposits) could be converted into gold at the fixed price established. Since countries pegged their currencies to gold, official international reserves took the form of gold. The gold standard was also an international standard determining the value of a country’s currency in terms of other countries’ currencies. Because the countries that adopted the standard maintained a fixed price for gold, rates of exchange between currencies tied to gold were necessarily fixed. As a consequence, governments agreed to trade domestic currency for gold whenever it was needed to defend the official price. To maintain this official gold price, the central bank of each country needed an adequate stock of reserves to back up its currency's value. The system also had the effect of implicitly limiting the rate at which any individual country could expand its money supply. Any growth in the amount of money was limited to the rate at which official authorities could acquire additional gold. As a matter of fact, in case in which a country increased its money supply, the country's interest rates would decrease but, since the exchange rate could not depreciate, the central bank would have to buy its domestic currency and sell gold to keep its currency price fixed. Foreign central banks would automatically gain reserves as they buy gold with their currencies. Moreover, it was important that national authorities kept monetary growth under control since a rapid monetary growth could eventually raise the money prices of all goods and services, including the price of gold. A gold standard, thus, places limits on the extent to which central banks can use expansionary monetary policies to increase the national price levels. An increase in the money supply will also affect the balance of payments of the

country through an increase in the price level. Since reserves are in terms of gold, the surplus or deficit in the balance of payments of a country has to be financed by gold shipments between central banks. The most important automatic mechanism that contributes to balance of payments equilibrium is the “price-specie-flow mechanism”. This mechanism ensures that, since exchange rates are fixed, the price levels around the world move together. In order to explain how this mechanism works we can provide the example of the monetary shock caused by a gold discovery in California that hit the United States in 1848 (Bordo, 2008). The newly produced gold led to an increase in the money supply and a consequent increase in price levels which made exports more expensive leading to a balance of payments deficit. This deficit had to be financed by the US central bank through an outflow of gold to its trading partners, thereby reducing the money stock. The money stock would have then increased in the trading partners countries leading to an overall price level increase. For the gold standard to work properly, central banks were supposed to play by the “rules of the game.” In other words, they were supposed to raise their discount rates to speed a gold inflow, and to lower their discount rates to facilitate a gold outflow. Thus, if a country was running a balance-of-payments deficit it should have allowed a gold outflow until the ratio of its price level to that of its principal trading partners was restored to the par exchange rate

The gold standard was very effective in maintaining price stability and to bring symmetry in the system. This international monetary system was fully symmetric since no currency played any special role, in contrast to the Bretton Woods system where the dollar was at the heart of the system. All currencies and all countries were subject to the same rules. However, this system had also a lot of drawbacks that eventually led to the end of this system. The economies of most countries were very vulnerable to real and monetary shocks and prices were very unstable in the short run. This can be explained by the limitations regarding the use of the monetary policy tool in the gold standard which could not be used to offset these kind of shocks. For the same reason, the national authorities could not use monetary policies to fight off unemployment and as a consequence the unemployment level during this period was very high. The biggest disadvantage of the gold standard was the cost of producing gold. Gold is a limited resource and, thus, central banks cannot easily increase their level of reserves as their economies grow unless there are continuous gold discoveries. All the conditions that

made the gold standard so successful vanished in 1914 with the outbreak of World War I since the trade flows and free movements of gold were interrupted. For these reasons this event caused the main trading nations to suspend operation of the gold standard. The gold standard will end after WWII when it became impossible to sustain such system.

2.2 Interwar years (1914-1944)

Governments suspended the gold standard during World War I and financed their massive military expenditures by printing money. The result was a sharp rise in money supplies and inflation levels. At the end of the war a lot of countries returned to gold. The United States returned to gold in 1919 followed in 1922, after the conference in Genoa, by a group of countries including Britain, Italy, Japan and France. With the Great Depression in 1929 a lot of banks went bankrupt. Britain left gold in 1931 when foreign holders lost confidence in the sterling value and began converting it into gold. During the depression, a lot of countries were forced to leave the gold standard and let their currency float in the foreign exchange market. As a matter of fact, with growing unemployment and high inflation levels, keeping a fixed exchange rate in line with the impossible trinity principle was almost impossible. The countries that did not leave the gold standard were forced to devalue their currencies and, those that did not, suffered the most. The United states left the gold standard in 1933 and returned in 1934, having raised the dollar price of gold. The major economic harm was done to international trade which was restricted. Most countries responded to the economic downturn caused by the great depression by restricting trade with tariffs which made an already bad situation worse. By reducing the gains from trade, that approach imposed high costs on the world economy and contributed to the slow recovery from the recession. From 1934 to the end of WWII, exchange rates were theoretically determined by each currency's value in terms of gold. During WW II, however, a lot of currencies lost their convertibility into other currencies. The dollar was the only major trading currency that continued to be convertible.

2.3 Bretton Woods and the IMF (1944)

As World War II was coming to an end, the representatives of 44 countries met at Bretton Woods to create a new post-war international monetary system. In July 1944 these countries signed the Articles of the Agreement of the International Monetary Fund (IMF). At the basis of the agreement, considering the disastrous events that characterized the interwar period, there was the need to ensure full employment and price stability while allowing countries to achieve external balance without restrictions on international trade.

The Bretton Woods system established a US dollar based international monetary system and created two new institutions: the IMF and the World Bank. Under the original provisions of the Bretton Woods agreement, all countries fixed the value of their currencies in terms of gold but they were not required to convert their currencies into gold. Only the dollar remained convertible into gold at $35 per ounce. Therefore, each country established its currency vis-à-vis the dollar, and then calculated the gold par value of its currency to create the desired dollar exchange rate. Member countries held their international reserves in the form of dollar assets and gold and had the right to sell dollars to the FED for gold at the official price. This system came to be known as a gold exchange standard, with the dollar as the principal reserve currency. While foreign central banks had to peg their exchange rates, the US Federal Reserve was responsible for keeping the dollar price of gold at $35 per ounce.

The main institution created with the Bretton Woods agreement was the International Monetary Fund. The IMF, through flexibility and discipline, hoped to avoid a repetition of the interwar experience. The two main features of the IMF helped promoting this flexibility:

1. Members of the IMF contributed with their currencies and with gold to the creation of a pool of financial resources that the IMF could lend to countries in need.
2. Exchange rates were fixed but adjustable in very particular circumstances.

The Bretton Woods system dealt with the impossible trinity principle by restricting the movements of financial capital in favor of the use of the monetary policy tool. This was the opposite of the gold standard subordination of monetary policy to the freedom of

capital flows. Thanks to this system countries will no longer be forced to used tightening monetary policies for balance of payments reasons in situations of economic downturn but, instead, they will be allowed to slightly adjust their exchange rate in situations of persistent imbalance. However, while this approach worked pretty well initially, the very success of the Bretton Woods system in expanding international trade made it progressively harder for policy makers to avoid speculative attacks as the years passed.

2.4 Fixed exchange rates and the collapse of Bretton Woods (1945-1973)

The currency arrangement negotiated at Bretton Woods and monitored by the IMF worked pretty well during the post-war reconstruction period and the following growth period. However, the widely diverging monetary and fiscal policies, the different rates of inflation and various unexpected shocks eventually resulted in the system collapse. In order to promote world trade, which had been restricted during the war period, the IMF urged the members to make their national currencies convertible. A convertible currency is one that may be freely exchanged for foreign currencies. The dollar became convertible in 1945. Most countries in Europe did not restore convertibility until the end of 1958. The early convertibility of the US dollar, its special position in the Bretton Woods system and the political dominance of the United States made the dollar the postwar world's key currency. Since the dollar was freely convertible it became the international medium of exchange, store of value and unit of account. The restoration of convertibility in 1958 in Europe changed the general economic and monetary picture. Foreign exchange trade began expanding and financial markets integrated even more. As the financial markets integrated the opportunities for disguised capital flows increased. The consequent relaxation of capital flows in the USA and in several other countries resulted once again the violation of the impossible trinity principle. Moreover, both the USA and in Europe were exhibiting high inflation levels and the US dollar was overvalued. The biggest concern was that the United States were running persistent and growing deficits in the balance of payments and these deficits had to be financed with dollar outflows. Moreover additional dollar capital outflows were required to meet the foreign investors demand. For all these different reason but in particular due to the excessive holding of dollars by foreigners resulted in a lack of

confidence in the ability of the United States to meet its commitment to convert dollars into gold. This lack of confidence forced President Richard Nixon to suspend official convertibility of the dollar into gold in 1971. Exchange rates of most leading currencies were allowed to float in relation to the dollar and thus indirectly in relation to gold. By the end of 1971 most of the currencies appreciated as a consequence of a dollar devaluation. By 1973 a fixed-rate system was no longer sustainable given the speculative flows of currencies, the Bretton Woods system had collapsed.

2.5 Temporary currency arrangements (1972-1992)

European Monetary Snake (1972)

The first response to the Bretton Woods system problems' was the European Monetary Snake in1972. The aim of the snake was to maintain fixed exchange rates within Europe and to limit exchange rate fluctuations. The original six members of the European Economic Committee (EEC): Belgium, France, Italy, Netherlands, Luxembourg and Germany joined the Snake. Within this system the currency of each participating country was allowed to fluctuate with a band of 2,25 % around a specified rate. Exchange rates were constrained within the system but they were allowed to float freely against currencies outside the system after 1973. Also the UK and Ireland participated sporadically in the Snake.

The 1970s were characterized by high inflation levels, a high frequency of macroeconomic shocks and economic turbulence. After the first oil shock in 1973, the Snake was put under pressure and, in the following years, exchange rates were often adjusted. The main problem that led to the end of the Snake was the violation of the impossible trinity principle, as a matter of fact capital controls were often in place but they were not tight and thus they were easily evaded and there was no restriction on monetary policies. As a result, when the first oil shock hit Europe and inflation rates increased in most of the European countries, keeping exchange rate fixity in such conditions was impossible. By the end of the 1970s, many countries were characterized by stagflation, a situation of high unemployment and high inflation. The poorly functioning of the economy, the many exchange rate adjustments (devaluations/revaluations) that were needed to comply with the system, the high

volatility of exchange rates and the stagflation situation implied that the Monetary Snake was a failure.

The European Monetary System (EMS)

A new exchange rate regime to replace the failing Snake was in need and the natural step was the creation of the EMS. The heart of the EMS was the Exchange Rate Mechanism (ERM), a system of jointly managed fixed and adjustable exchanged rates backed by mutual support. Formally, all the members of the European Community joined the EMS in1979. The UK will only join in 1990.

The currencies of the participants of the EMS were allowed to fluctuate with a 2.25 percent band around a central rate. The central banks of the member states were required to sell or buy currency whenever the exchange rate was at risk of depreciating or appreciating. The arrangement had a number of interesting features. First, it was entirely European, with no reference to the US dollar or to gold. Second, the system was perfectly symmetric: no currency played any special role. Third, the responsibility for maintaining each exchange rate within its margin was shared by all countries, thus removing the idea of strong versus weak currencies. The snake, in fact had failed because weak currencies had no help in maintaining their exchange rate within the limits from stronger currencies. The ERM, by creating a system of mutual support, eliminated this problem. This commitment was unlimited. Each central bank was committed to keep intervening as long as its parity vis-à-vis any other member currency was not at its limit. The system was characterized by joint management of exchange rate realignments to avoid situations of unfair trade advantage resulting from recurrent devaluations. This is why the ERM stipulated that any bilateral exchange rate had to be jointly decided by all members.

During the first period of the EMS, till the mid-1980s, the inflation level differed a lot from one country to another and realignments were frequent. As a matter of fact, ERM countries had chosen to have monetary independence and exchange rate stability with capital controls in place. Monetary independence allowed each country to operate with a different inflation level. Different inflation levels led to frequent exchange rate adjustments to deal with competitiveness problems and trade imbalances. With frequent realignments it was important to keep inflation at a low level and

Germany, the largest country with the lowest inflation level, naturally became the example to follow. The German central bank, the Bundesbank, gradually became the center of the EMS. After 1986, each country was anchoring its currency to the Deutschmark and realignments became rare. However, infrequent realignments came at the expenses of the monetary policy tool loss for all countries except Germany. The impossibility to use the monetary policy tool for these countries was a serious problem since it was limiting their ability to deal with shocks in case of economic disturbances. The system worked well till the German reunification in 1990. With the conversion of the East German mark to the West German mark, the German money supply increased sharply. At the same time the German economy experienced a boost due to public spending and transfers in East Germany. The Bundesbank, fearing overheating of the German economy, raised interest rates to bring inflation down. As a result, the central banks of the other countries, to defend the fixed exchange rate, were forced to increase interest rates as well but with terrible consequences for their economies. Most of these countries' economies entered into recessions. The situation gradually became unsustainable and a lot of countries were forced to leave the agreement. After another failing monetary system European leaders realized that the only way to credibly fix exchange rates was to create a common currency.

2.6 The road to EMU (1992-PRESENT)

The idea of a Monetary Union first emerged at the time the Treaty of Rome was signed in 1957. However, the first actual step towards a monetary union was made by the Werner Committee. At the Hauge Summit in 1969 it was agreed to the explore prospects for monetary unification leading to the formation of the Werner Committee. Europe’s leaders set up a highly skilled group under the supervision of the Luxembourg Prime Minister Pierre Werner to report on how EMU could be achieved by 1980. In 1970 the Committee submitted its report, developing a plan for a three-stage transition to economic and monetary union (EMU) over 10 years in which economic and monetary convergence would proceed simultaneously. Monetary Union meant the total and irreversible convertibility of currencies, free movement of capital, and the permanent locking of exchange rates or possibly a single currency. The EU leaders adopted the Werner plan in 1971 but a series of unfortunate events put the Werner plan

on hold. The war in Middle East raised sharply the oil prices, which resulted in negative shocks that hit Europe. These shocks damaged the economic activity in Europe and the expansionary policies to compensate for the economic downturn led to a situation of stagflation. All these factors explain why the Werner plan was moved to the background. After the failure of the Werner Committee, the creation of the European Monetary System in 1979 laid the foundations for a new era of monetary co-operation. It followed the Single Act in 1985 whose aim was to dismantle capital controls. The complete removal of capital controls will be achieved by 1990.

A second attempt to develop a Monetary Union plan was made in 1989 with the Delors Report. Like the Werner report, the new document emphasized the need for simultaneous economic and monetary convergence. But in contrast with the Werner report, it emphasized the need to issue a new currency quickly and about the need to create an ECB and to pool reserves of the participating countries. The report indicated that this could be achieved in three stages, moving from closer economic and monetary coordination to a single currency with an independent European Central Bank and rules to govern the size and financing of national budget deficits.

The 3 stages to economic and monetary convergence:

1. **Stage I (1990-1994).** Complete the internal market and remove restrictions for further financial integration
2. **Stage II (1994-**1999). Establish the European Monetary Institute to strengthen central bank co-operation and prepare for the European System of Central Banks (ESCB). Plan the transition to the euro. Define the future governance of the euro area (the Stability and Growth Pact). Achieve economic convergence between Member States.
3. **Stage III (1999**-2001). Fix final exchange rates and transition to the euro. Establish the ECB and ESCB with independent monetary policy-making. Implement binding budgetary rules in Member States.

The Maastrict Treaty followed. In December 1991, the 12 heads of states and

governments of the EU gathered there to sign a treaty that replaced the European Community (EC) with the European Union (EU). The change of the name was purely symbolic, it emphasized that the treaty was not just about economic matters but also about political matters. The power of the European Parliament was enhanced and it was also agreed to have "unanimity" for Council decisions on certain issues. The Treaty included the irrevocable decision to adopt the single currency by January 1999. The treaty described in great detail how the system would work, including the statutes of the European Central Bank (ECB) and the conditions under which monetary union would start.

The admission to the Monetary Union was not automatic, members had to meet a set of requirements, described in the Maastrict convergence criteria, in order to adopt the single currency. In addition to these criteria, Member States would have to align the national laws and rules governing their national central banks and monetary issues.

Convergence Criteria

1. **Inflation**

   To be eligible a country's inflation should not exceed the average of the three lowest inflation rates achieved by EU members by more than 1.5% .

2. **Long-term nominal interest rate**

   Long-term interest rates should not exceed the average observed in the three lowest inflation countries by more than 2%.

3. **ERM membership**

   Membership for at least 2 years without changes in the exchange rate.

4. **Budget deficit**

   Budget deficit cannot not exceed 3% of GDP.

5. **Public debt**

   Public debt cannot exceed 60% of GDP.

In the end, the Monetary Union started with 11 members. The countries that did not join were Greece, which did not meet the convergence criteria, the UK, Denmark and Sweden. Greece converged later and joined in 2001. The EU expanded in the following years and today it includes 17 members: Austria, Belgium, Cyprus, Estonia, Finland,

France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

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CH 3. THE CHOICE OF AN EXCHANGE RATE REGIME

Factors affecting the choice

The wide variety of exchange rates regimes implies that there is no universal best solution and that a country will find it preferable to choose one regime over another at some point in time but might prefer another regime at another point in time. The choice would vary according to the specific country circumstances of the time period in question such as the size of the country, the openness to trade, the structure of its production and exports, its inflationary history and the nature of the shocks it is subject to, the extent to which monetary policy autonomy is of relevant importance, the credibility of domestic institutions, the impact of exchange rate fluctuations and many others. The ultimate choice would be determined by the relative weight of all these factors. If we consider all these factors we can say that a floating regime would be a suitable choice for medium-large developed economies that have small export and import sectors relative to GDP and thus won't be damaged by eventual exchange rate fluctuations. Moreover they should be fully integrated in the capital markets. The hard peg regimes, instead, are more appropriate for countries satisfying the optimum currency area criteria, meaning small countries already integrated in larger neighboring country (countries in the European Monetary Union) or countries with high inflation, monetary problems and low credibility which need a strong anchor for monetary stabilization (currency board in Argentina or Bulgaria). The choice of an exchange rate regime may change as the priorities of a country change. The main priorities are linked to inflation, economic growth interest rate levels, trade balance and unemployment. However the main factors, which determine the ones just mentioned, to be taken into consideration are: credibility and discipline, monetary policy autonomy, the nature of the shocks and the impact of exchange rate fluctuations. A simple way of weighting these factors is to focus on two broad regimes: fixed exchange rates which include all the regimes where the central bank makes an explicit commitment (soft and hard pegs) and floating exchange rates, where the central bank does not intervene on the foreign exchange market or it does but in a limited way as with managed float. Considering only these two kind of regimes we can now look at the single main determinants in the choice of an exchange rate regime.

3.1 Credibility & Discipline

When choosing an exchange rate, in fact, a country is confronted with the tradeoff between flexibility and credibility. By choosing a floating exchange rate it gains flexibility but it loses credibility. As a matter of fact if a country with a floating exchange rate wishes to decrease inflation it faces the time inconsistency problem, meaning that monetary policy authorities have an incentive to focus on short term goals rather than long term which usually lead to high long run levels of inflation. As a consequence, the announcements of a monetary policy would be less credible today if the authorities did not use their monetary policy instrument with discretion in the past. For example, in case they set in the past a certain inflation target to be met with a certain policy which, in the end, was not met because policy makers favored output stimulation. This will result in a lack of credibility of the government in the future. With a fixed exchange rate, instead there is no such problem since lower flexibility of the regime implies the maximum level of credibility. This is explained by the fact that a fixed exchange rate regime loses it monetary independence so policy makers can't cheat. The use of monetary policy with a fixed exchange rate would lead to an exhaustion of reserves and a consequent collapse of the fixed exchange rate regime which would lead to enormous costs for the policy makers. As a consequence they will have no incentive to engage in such nondiscretionary behavior. As a matter of fact this fixed regime is usually chosen by those countries that lack a strong monetary or political authority. We can conclude that a fixed exchange rate makes the whole system more disciplined since there are less incentives to cheat and there no inflationary bias. However, by gaining credibility and discipline a fixed exchange regimes loses flexibility. But anyway, it is always possible to exit from such regime or in case in which the system is not strictly fixed realignments are always possible.

3.2 Shocks impact

A floating exchange rate regime is flexible and thus can absorb the impact of both domestic and external shocks and avoid large cost for the real economy. These shocks need an adjustment in the real exchange rate, either a depreciation or an appreciation to limit the negative impacts. A country with a fixed exchange rate cannot let its currency depreciate or appreciate and thus their shock absorbance capacity is very

limited. Given the pegged exchange rate, the shocks are absorbed by changes in economic activity and employment which may be a painful and last for a very long period of time. Wage and price flexibility, and labor mobility are therefore essential in these regimes maintaining the peg in these regimes, the fiscal policy must be flexible enough to mitigate the impact of the shocks. The intermediate regimes are characterized by a partial capacity to absorb shocks which depends of the width of the margins of fluctuation of the regime.

3.3 Exchange rate volatility vs stability

A floating exchange rate it is characterized by unpredictable fluctuations in the exchange rate which can generate uncertainty about the future and thus hurt trade and foreign direct investment, a problem which does not arise at all in case of a fixed exchange rate. As a consequence, a country whose economy depends mainly on trade should consider accurately the idea of adopting a floating exchange rate. Moreover, the uncertainty generated by these fluctuations is likely to increase interest rates, transaction costs, discourages trade and investment and increases inflation. However, we must say that the impact of these factors on larger economies is usually limited. The more flexible the exchange rate the more the fluctuations.

3.4 Monetary independence

Monetary policy is important to the extent to which the country needs it to achieve internal and external balance. Without monetary independence a country cannot solve problems such as high unemployment or increasing inflation. The monetary policy instrument is particularly important for developed economies and in fact most of the larger and developed countries exploit this advantage of floating exchange rates. Under floating regimes, a nominal anchor is needed to guide monetary policy. The most common anchor is an inflation target. In a fixed exchange rate regime the monetary policy tool is used exclusively to maintain the peg.

3.5 Stabilization policy with a fixed and floating exchange rate

(See Krugman, Obstfelt, *International Economics, 9th edition*)

When a central bank fixes its exchange rate it gives up its ability to influence the

economy through monetary policy. Fiscal policy, however, becomes a more potent tool for affecting output and unemployment. We will use the DD-AA model to describe the short run equilibrium. DD schedule shows combination of the exchange rate and output for which the output market is in equilibrium, the AA schedule shows combinations of the exchange rate and output for which the money and exchange markets are in equilibrium. The DD schedule is upward sloping since it reflects the relationship between output and the exchange rate. As the exchange rate depreciates (a rise in E) output increases through the increase in exports. The AA schedule instead it is downward sloping because a rise in output, all else equal, causes a rise in the domestic interest rate which will lead to a domestic appreciation (a decrease in E). The short run equilibrium of the economy as a whole is the intersection of DD and AA.

3.5.1 Monetary policy

Fig.1

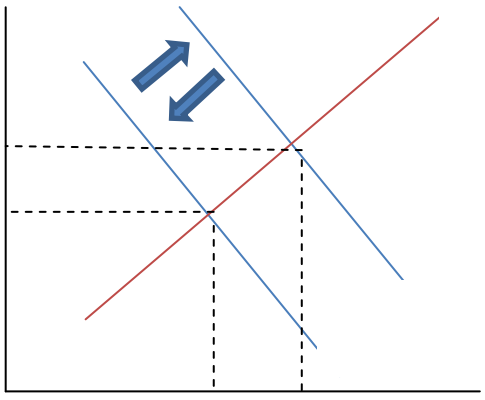


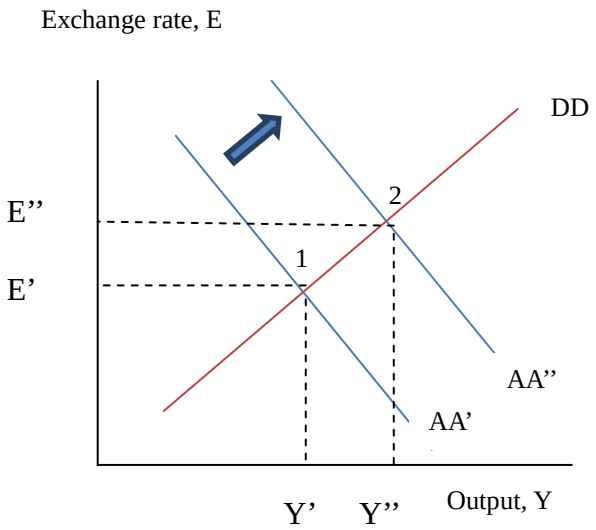
Fig.1 shows the economy in the short run equilibrium at point 1 where the central bank fixes the exchange rate at E' and output is equal at Y1'

Suppose the central bank increases the Money supply through a purchase of domestic assets with the objective to increase output. Under a floating exchange rate, the increase in the Money Supply will push the AA' curve rightward to AA'' and would therefore result in a new equilibrium at point 2 where the exchange rate has depreciated (from E' to E''). The central bank, to prevent this depreciation and maintain the exchange rate at

the E' level, will sell foreign assets for domestic money in the foreign exchange market. The money the central banks gets goes out of circulation therefore reducing the Money Supply. The reduction in the Money supply shifts the AA schedule back to its initial position at AA'. When the AA schedule is back to its original position the exchange rate is no longer under pressure. *We can conclude that under a fixed exchange rate, monetary policy is powerless to affect the economy's money supply or output level.*

Under a floating rate (fig.2), instead, the central bank by purchasing domestic assets will cause an excess supply of domestic money which will push interest rate downward which will weaken the currency. The AA will shift rightwards and the new equilibrium is at point 2 where the exchange rate has depreciated and is now E''.

Fig. 2



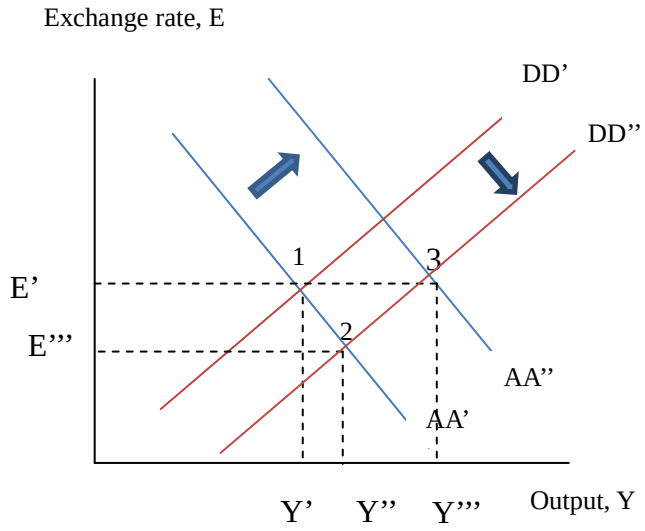
Under a fixed exchange rate, however, the central bank will not let the currency depreciate and will keep on selling foreign assets for domestic currency till it removes the excess supply of money its policy move has caused. In the end, the increase in the bank's domestic assets will be offset by an equal decrease in the central bank's official international reserves. Similarly, if there is a decrease in the money supply through a sale of domestic assets there will be an equal increase in the foreign reserves held by the central bank. Under fixed rates, monetary policy affects only the composition of the bank's assets but nothing more. As a consequence by fixing an exchange rate, the central bank loses its ability to use its monetary policy tool for the purpose of

macroeconomic stabilization. However, the fiscal policy tool will instead be effective under a fixed rate regime than under a floating rate regime.

3.5.2 Fiscal policy

Suppose the authorities enact an expansionary fiscal policy, such as a cut in taxation or an increase in spending, when the economy's initial equilibrium is at point 1. A fiscal expansion shifts the DD curve to the right (DD' shifts to DD''). If the central bank refrained from intervening, the new equilibrium would be at point 2 where the exchange rate has appreciated to E''' as a result of a rise in the domestic interest rate and output has increased to Y''.

Fig. 3

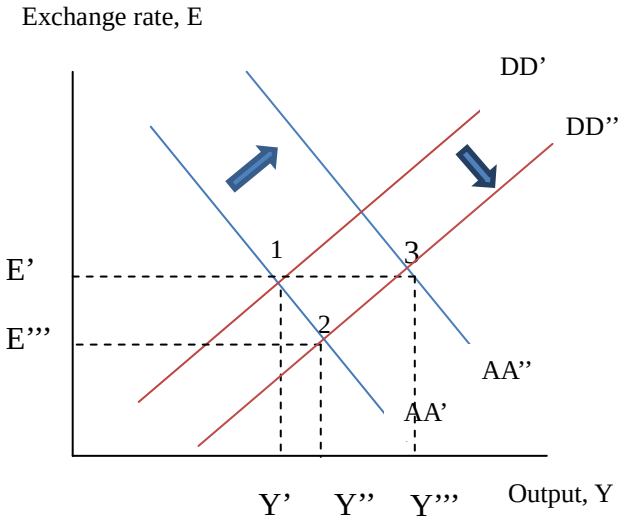


Under a *fixed exchange rate (fig.3),* the central bank cannot let its currency appreciate so to prevent an excess of money demand from pushing domestic interest rate up, the central bank must buy foreign assets to increase the Money supply. The increase in the Money supply shifts the AA schedule to the right (AA' to AA'') at the new equilibrium at 3 where the exchange rate is unchanged and output is instead higher than at the beginning and official international reserves are higher. Unlike monetary policy, a fiscal policy can affect output under a fixed regime and actually it is even more effective than under a floating regime.

Under a *floating exchange rate (fig 4),* a fiscal expansion is accompanied by an

appreciation of the domestic currency which makes domestic goods more expensive compared to foreign goods. The higher interest rate and the appreciation decrease the country's exports which have a direct effect of aggregate demand and as a consequence offset part of the effects of the fiscal expansion. Fiscal policy is less powerful with a floating exchange rate.

Fig.4



3.6 The two corners view

Recently, the "*two corner*" view, according to which the only safe regimes are the extremes one, free floating or the hard pegs such as currency board, monetary unions or dollarization has become pretty popular (*The economics of European Integration*, Bladwin and Wyplosz). The two corner view or bipolar view has originated from the fact that the idea of an optimal exchange rate has been revised several times in the history. Before the collapse of the Bretton Woods system flexible exchange rates were seen as the best solution to isolate countries from imported inflation. After the collapse of the system and the disappointment with the lack of stabilization of floating exchange rates, fixed exchange rates were seen as the only plausible solution to achieve monetary stabilization. The currency crises that characterized several countries in the 1990s led to several intermediate regimes which however did not work as well as expected. All this different systems tryouts led to the conclusion that only corner

solutions are the right choice for countries open to international capital flows. A great deal of merits of the two corner view derive from the short comings of the intermediate regimes. These soft pegs may be seen as a reasonable comprise between the fear of floating and the fear of fixing but they run against the impossible trinity principle. When capital is freely mobile, soft pegs are predestined to fail. In fact this principle argues that a country cannot simultaneously have fixed exchange rate regime, monetary independence and openness to capital flows. Since the 1990s have been characterized by increased international capital mobility, involving both developed and developing countries, the only reasonable choice is between giving up on the exchange rate stability or the monetary independence. Moreover, whereas the intermediate regimes are focused on a short run perspective, the two corner theory finds its main support from the long run unsustainability of the intermediate regimes. Hard pegs are seen as extremely credible and transparent, their lack of monetary discretion eliminates the inflation problem, they show low transaction costs and low interest rates and thus ensure both monetary and financial stability. Freely floating rates, instead, are completely immune from speculative attacks, they absorb any shock.

If we consider the two corner view as the right theory to follow in the choice of an exchange rate, we are left with the choice between a freely floating exchange rate and a hard peg, which one is better? As I have already stated above they both have different advantages and drawbacks.

3.7 Floating exchange rate pros and cons

A floating exchange rate has several advantages. For example, the high degree of flexibility which is useful in absorbing adverse shocks. This can be done with the monetary policy tool which can be used to fight off inflation and foster employment. Balance of payments automatic adjustment is another important advantage. In fact, if a country has a balance of payments deficit it can let its currency depreciate to go back to equilibrium. This is because imports will be greater than exports. A depreciation will make exports cheaper and imports more expensive, thus increasing demand for your goods abroad and reducing demand for foreign goods in your own country, therefore dealing with the balance of payments problem. Conversely, a balance of payments surplus can be offset by an appreciation of the currency. Moreover, a floating rate does

not require the country to hold a high level of international reserves and any intervention of the central bank in the foreign exchange market. Furthermore, a floating exchange rate insulates a country from other countries' economic problems. Meaning that for example inflation is not imported from one country to another as in the case of fixed exchange rates. A flexible exchange rate, though, has a lot of shortcomings as well. Uncertainty related to exchange rate fluctuations may reduce the volume of foreign investment and international trade in a country operating under this regime. A fixed exchange rate gives more sense of stability and thus investors are more likely to invest. Moreover, this regime can be characterized by a lack of discipline compared to the fixed rate regime. Monetary authorities have an incentive to follow policies that might lead to long run inflation levels but this problem can be solved by using an inflation target. The adjustment advantage can become a disadvantage since it can be slow and it depends on the price elasticity of demand for imports and exports. When import and export elasticities are very low, the exchange market becomes unstable. Hence, the depreciation of the weak currency would simply tend to worsen the balance of payments deficit further. A flexible exchange rate system involves greater possibility of high inflation since the float can cause inflation by allowing import prices to rise as the exchange rate falls. Inflationary rise in prices leads to further depreciation of the external value of the currency. Furthermore, another disadvantage is that this regime leads to unnecessary capital movements which may lead to speculative activities. Speculative activities deriving from exchange rate fluctuations may lead to the liquidity preference problems. People will be willing to hold money in the form of currency which will increase interest rates and make investment fall.

3.8 Fixed exchange rate pros and cons

A fixed exchange rate regime, instead, has different advantages. It ensures both maximum credibility and discipline for the economic policy regime. This system is stable meaning that the prices won't be affected by exchange rate fluctuations, thus, investor will have an incentive to trade. The more certainty the higher the investment level. They are appropriate for small countries that depend mainly on imports and exports and that will be affected negatively from fluctuations in the exchange rate. The speculation flows that characterize a floating exchange rate regime are not in place in a

fixed regime so there is no destabilization risk of the economy from this point of view. Also a fixed rate is characterized by several disadvantages. First, with increased credibility there is less flexibility meaning that the flexibility of this regime in responding and absorbing adverse shocks is limited compared to a floating rate. Moreover, this regime lacks the automatic balance of payments adjustment that is a main advantage of the floating regime. When there is deficit, if you have a floating rate you can let your currency depreciate and go back being competitive again but if you have a fixed rate the problem would have to be solved by a reduction in the aggregate demand which will have negative effects on the economy. One of the main disadvantages is the loss of the monetary policy tool which can be very useful in fight off inflation or in ensuring full employment. Another drawback with a fixed rate is that a central bank needs to keep a high level of international reserves to maintain the peg. The stability of fixed exchange rates can be questioned if we take a look at the broader picture of all the countries that adopt this regime. Countries within a fixed rate mechanism often follow different economic policies, the result is that they show differing rates of inflation. Some countries will, thus, have low inflation and be very competitive and others will have high inflation and be less competitive. The uncompetitive countries will be under severe pressure and may be eventually forced to devalue. Speculators will know this and thus create further pressure on that currency. The increase foreign investment advantage of this regime can be questioned since fixed rates are not permanently fixed or rigid but are sometimes adjusted which can discourage long term investment rather than encouraging it.

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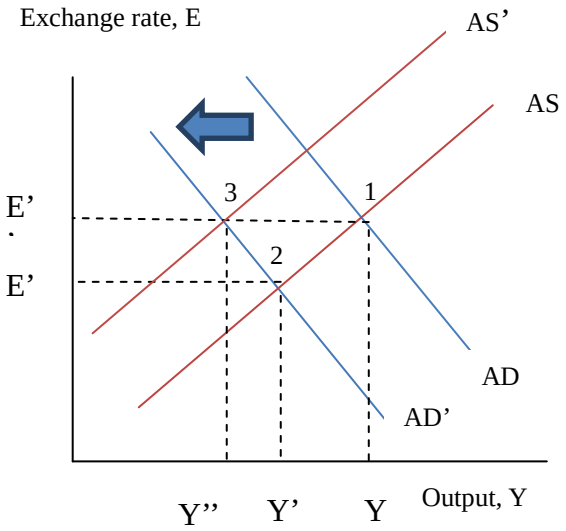
CH. 4 ASYMMETRIC SHOCKS

4.1 Adverse shocks

Suppose a country is hit by an adverse shock for example the world demand for the country's exports declines. This opens up a hole in the balance of trade, and to re-establish its external equilibrium the country needs to make its exports cheaper. The best solution would be to let the country's currency depreciate but if the country has a fixed rate or is part of a wider currency area it has no other option but to decrease both prices and wages. Lowering prices, however, requires the economy to slow down which can be very painful. If we look at the aggregate supply-aggregate demand model in fig. 5 we see that the adverse shock is represented by a leftward shift of the AD curve, from AD to AD'.

Fig.5



If the exchange rate was allowed to depreciate or if prices were flexible the new short run equilibrium would be at point 2. It is a painful move since output is reduced but it is less painful than in case of a fixed exchange rate or rigid prices. In this case, the economy would move to point 3 after a leftward shift of the AS curve. The exchange rate would be unchanged but the output level would be significantly lower. This example emphasizes that a fixed exchange rate when prices are sticky makes an already

bad situation worse. In a monetary union, a real exchange rate adjustment can only come from changes in prices and wages. If they are sticky, the adjustment is likely to be very painful for the economy of the country in question.

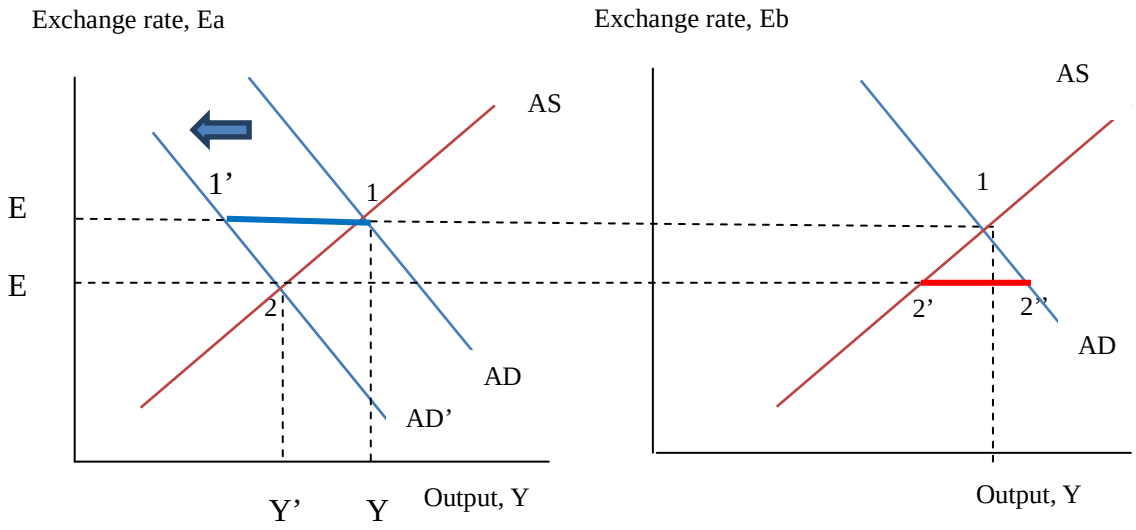
4.2 Asymmetric shocks

An asymmetric shock is a shock whose impact is different from one region to another. The simplest case is a currency area with two member countries. Suppose we have two countries, country A and country B and they both have two exchange rates, one vis-à-vis the other country and one vis-à-vis the rest of the world. If we assume that both countries are hit by the same adverse shock, both countries will undergo a depreciation vis-à-vis the rest of the world. If they are similar enough they will both face the same problems and there is no need for their bilateral exchange rate to change. The situation is different in case of an asymmetric shock. Suppose that only country A is hit an adverse shock but not country B. Country A will have to depreciate vis-à-vis country B and the rest of the world. This reasoning shows that by joining a monetary union there is the loss of the exchange rate tool because a country cannot let its currency appreciate or depreciate to absorb the shock impact.

As long as all member face the same shocks, symmetric shocks, there is no problem since the union will simple adjust its common exchange rate vis-à-vis the rest of the world and all the countries will be as well off as if they had each independently adjusted their own exchange rate. With asymmetric shocks, however, joining a monetary union can become very problematic.

Fig.6 analyses the effects of the shock on country A when A and B that form a Monetary Union. As soon as country A is hit by the adverse shock the AD schedule shifts leftward from AD to AD'. If country A is not part of a monetary union, it let its currency depreciate and the new equilibrium would be at point 2 with E' as the new exchange rate. Country B has no reason to change its exchange rate which will remain at E. Since both A and B are part of a monetary union they cannot have different exchange rates as they would like to in this circumstance.

Fig.6



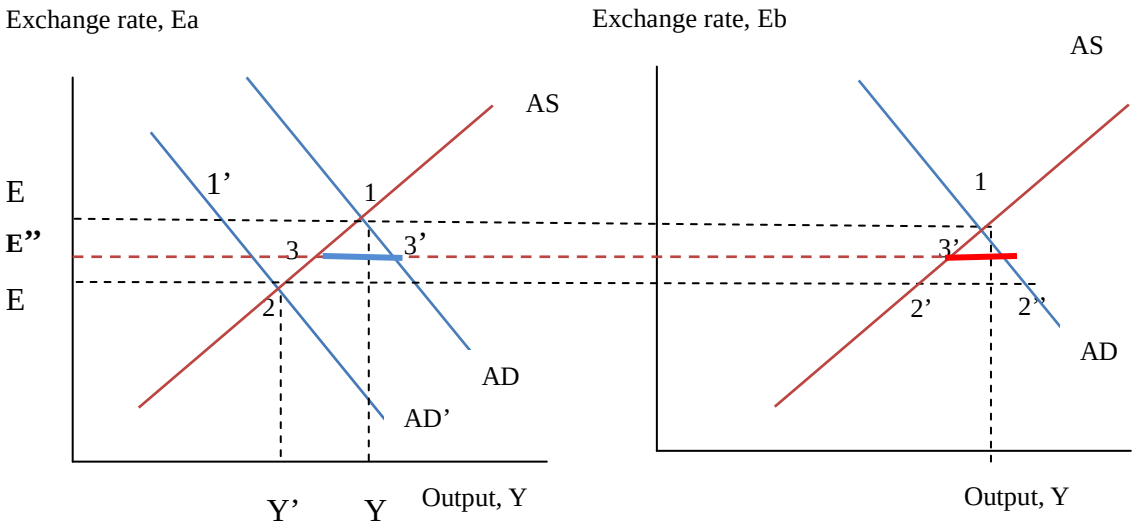
COUNTRY A (affected)

COUNTRY B (unaffected)

The common central bank must now make a choice between country A and country B. If it cares only about country A it will let its exchange depreciate which will be good for A but not for country B which will face a situation of potentially inflationary excess demand (the distance 2' 2''). If, instead, the central bank favors country B it won't let the exchange rate change which will be beneficial for country B which won't be affected by any kind of disturbances but will have a negative effect of country A which will be in a situation of excess supply (1-1'). The adjustment will have to come from a reduction in wages and in prices since a member of a monetary union cannot let its exchange rate change which will be very painful for the economy of country A since its output will decline even further.

This shows that with an asymmetric shock what hurts one country benefits the other and vice versa. If the union's common exchange rate is freely floating, it will depreciate because of the adverse shock in one part of the area, but all the way to E'. It will decline to an intermediate value E'', a combination of the excess supply of country A and the excess demand of country B (represented by the distance 3-3' in fig.7). Both countries are in disequilibrium. The new exchange rate is too strong for country A which is in a recession and it is too weak for country B whose economy is overheating. *This is the fundamental and unavoidable cost of a monetary union.*

Fig.7



When prices are sticky, the nominal exchange rate is the only way of adjusting and absorb the impact of an adverse shock. The common exchange rate of a monetary union cannot insulate all countries that belong to a the union. Disequilibrium cannot last forever and thus prices, over time, are flexible and will adjust. In country A the price level will decline until the country reaches its equilibrium at point 2. This will require a recession since country's A goods are in excess supply, unemployment will rise putting a downward pressure on prices. Country B instead will experience an increase in prices since its economy is overheating till it goes back to its equilibrium at point 1. *Recession and disinflation in country A and boom and inflation in country B are the costs of operating under a monetary union when an asymmetric shock occurs.*

We can make 4 distinctions among asymmetric shocks:

1. Temporary and permanent shocks
2. Country specific and sector specific shocks
3. Real and financial shocks
4. Exogenous and policy-induced shocks

It is important to make a distinction between those shocks that have a temporary effect, for example an unexpected fall in aggregate demand, and those that instead have a more permanent impact on the economy of the country in question. The former shocks can be corrected by countercyclical changes in fiscal policy or monetary policy or by

borrowing. The latter shocks, instead, can be corrected only through a decline in incomes and prices, by labor force migration or by major long term restructuring. It is really important to understand the difference between a temporary and permanent shock since confusing them and thus taking the wrong correction path may aggravate rather than improve the situation. Treating a permanent shock as if it was temporary may only lead to a loss of competitiveness and make the necessary reforms more difficult. However, the distinction between the two should not either be too rigid.

The second distinction that has to be made is between Country specific and sector specific shocks. According to the European Commission, changes in monetary policy or in the exchange rate which will have a general effect on the whole economy are the wrong instruments to meet a shock which affects only one sector or region of the economy. Only a small portion of the shocks experienced by the EU has been country specific. A significant portion has been industry specific and some 80% has been either non-specific (common to the whole EU area) or region specific. The implication is that the loss by EU member states of the ability to change their exchange rate will have minimal consequences for dealing with shocks. Moreover, a sectoral shock is of relevant importance only if a particular area is dependent on the industry in question. In this case this shock become identical to a regional shock which might be problematic and the country should consider the idea of creating its own currency or reduce its degree of specialization.

The third distinction is between real and financial shocks. Changes in the exchange rates are an appropriate remedy in case of a country specific shock only when the real aggregate demand is affected. On the other hand, if the shock is financial (a shock to the money supply process) the best response is fixed exchange rates or single currency which minimize the impediments to money flows across national borders.

The last distinction is between exogenous and policy-induced shocks. Exogenous shocks are those shocks over which the authorities in a particular economy have no direct control whereas policy induced shocks are those shocks deriving from internal policies.

4.3 Asymmetric shocks and debt dynamics

When countries join a monetary union they lose their monetary independence

which affect their capacity to deal with asymmetric shocks. The loss of this instrument can have two different and opposite consequences. First, it affects the country's capacity to finance its budget deficit. This means that the members of a monetary union issue debt in a currency they have no control on. The implication is that these countries may be forced into default by financial markets following a sharp increase in the interest rate and a liquidity crisis. Second, the loss of this instrument can also have beneficial effects such as the reduction of exchange rate risk. Fixing the interest rate by joining a monetary union and thus avoid the related risk of a floating rate reduces the interest rate for the country joining the Union. If the first negative effect overcomes the second one the country in the union may experience serious problems.

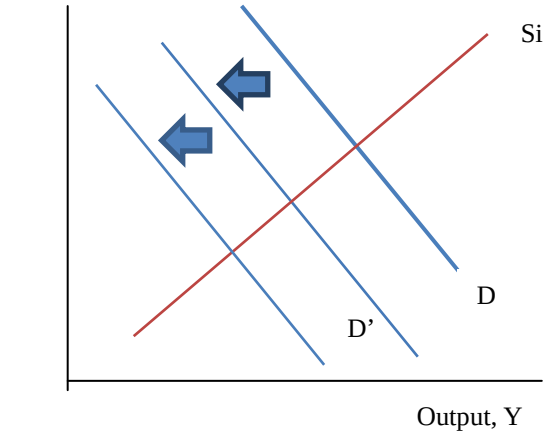
If we take into consideration the budgetary implications following an asymmetric shock, the adjustment process flowing a shock may be different for a country in a monetary union (fig.8). As a result of a negative shock both output and employment declined in country A. the budget deficit of the country increases since taxes decrease more than proportionally due to the decline in GDP and spending increases as a result of rising unemployment. If the decline in aggregate demand is too strong, investors may start fearing the default of the government of country A. A lack of trust in the government of country A will push investor to sell country's A bonds which will increase A's interest rate and bring about a liquidity crisis. The country will face a liquidity crisis because it has no national central bank that can print money to finance the deficit and it has no control on the ECB and the country cannot obtain funds at a reasonable interest rate. This is another major risk and cost when joining a monetary union.

The liquidity crisis will aggravate the situation of country A which will experience a further shift to the left of its demand curve (from D' to D''). Moreover, with the now higher interest rate people will spend less on consumption and investment. Thus, the debt crisis amplifies the effect of the negative demand shock. At the same time country B experiences a boom since investors, after selling country A's bonds will buy bonds they trust such as country's B bonds. This will decrease the interest rate of country B which will increase aggregate demand and shift it to the right. We can conclude that a debt crisis amplifies the negative effects of the asymmetric shock on country A and the positive ones on country B. The amplification effect is due to the fact

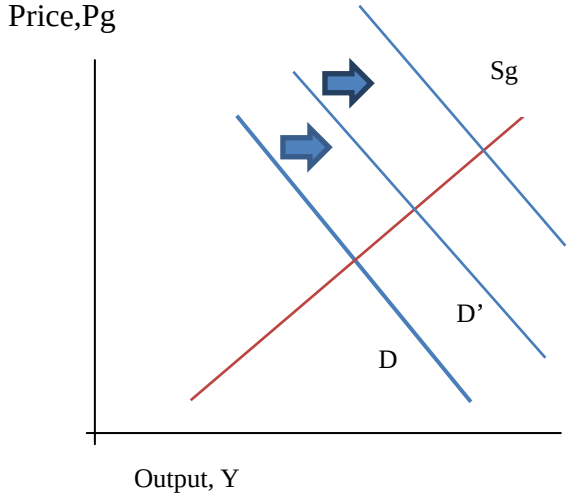
that the interest rate increase in country A and decreases in country B, so the interest rate changes destabilize the system and increases the adjustment problems for both countries.

Fig.8

COUNTRY A



COUNTRY B



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CH.5 OPTIMUM CURRENCY AREA THEORY

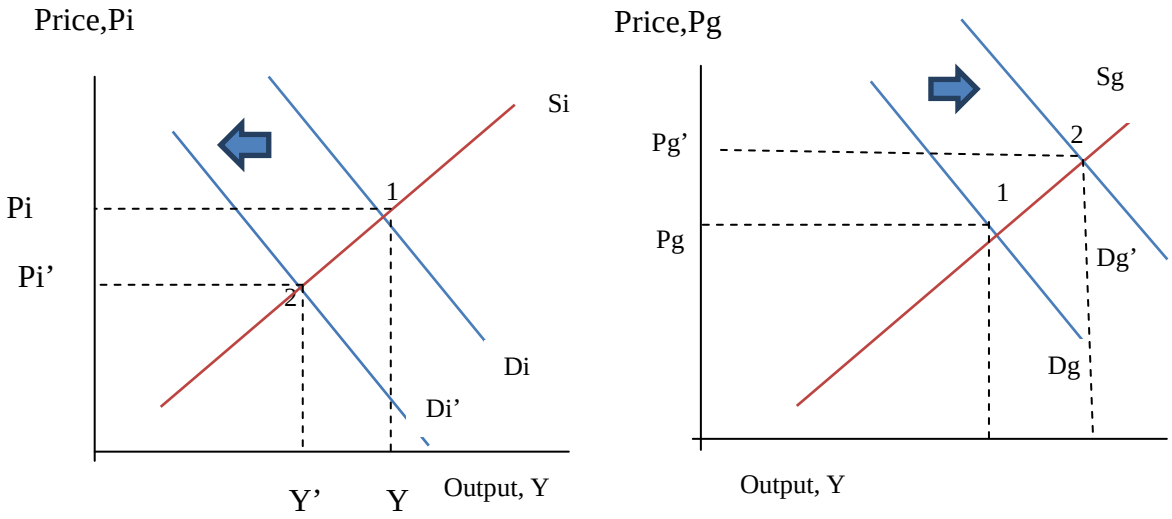
Sharing a common currency can be very beneficial for the states joining the currency area but it can be very problematic and painful in case of asymmetric shocks. Whether or not to form a monetary union or a currency area is a matter of trading off costs and benefits. The optimum currency area (OCA) theory takes the benefits as given and proposes a criteria to analyze the costs of sharing the same currency.

5.1 Mundell

The first criterion of the theory of the Optimum currency areas was proposed by Mundell in the paper, *OCA with stationary expectations*, he published in 1961. His idea was based on the fact that the cost of sharing the same currency would be eliminated if the factors of production, capital and labor were fully mobile across borders. Since capital is assumed to be mobile the real concerns derive from a possible lack of labor mobility. According to Mundell an optimum currency area is one in which workers can move easily. In his celebrated article on optimum currency areas he examined the possible mechanisms of adjustment when countries or regions face exogenous country specific shocks. Mundell to explain his theory assumed the existence of two countries, which we can call Italy and Germany, each producing a good that formed a monetary union. By forming a monetary union it means that they both abandoned their national currencies and adopted a common currency, the euro, which is managed by a common central bank, the ECB. A demand shift caused by a shift of consumer's preferences from Italian goods to German goods. The effects of the asymmetric shock are presented in Fig.9.

The demand shift is represented by upward movement of the demand curve in Germany and a downward movement in Italy we assume that these shifts are permanent due to a change in consumer preferences. The result of these shifts is that output will decline in Italy and will increase in Germany. Moreover, Italy will be facing an higher unemployment level and Germany instead will have a declining unemployment level.

Fig.9



ITALY (affected) GERMANY (unaffected)

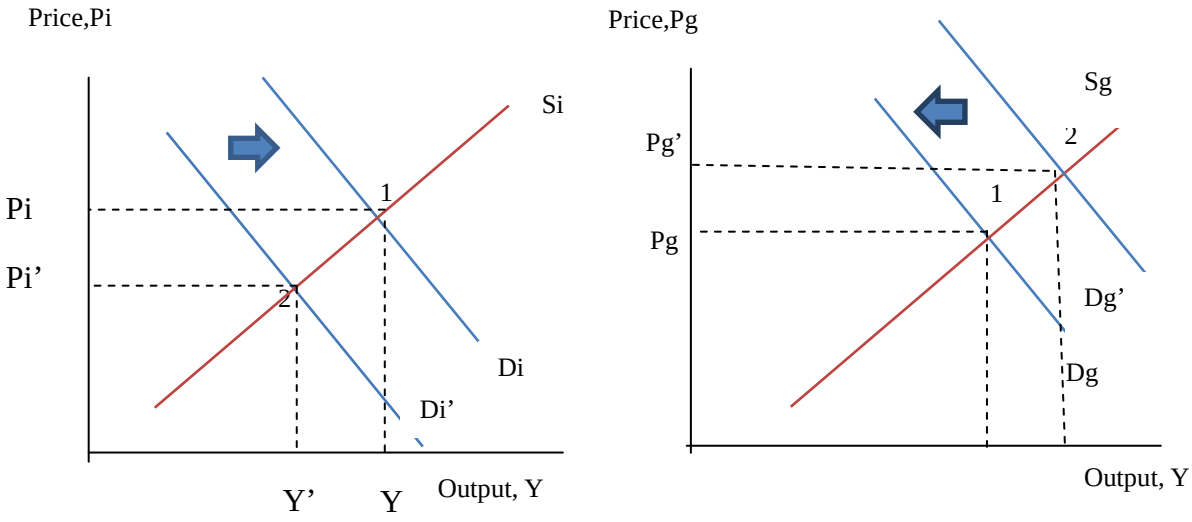
Both countries are in a disequilibrium situation and require an adjustment.

5.1.a Adjustment process

If the countries did not belong to a monetary union the adjustment process would have been possible through the use of national monetary policies. In case in which both Italy and Germany had a flexible exchange rate like the US or the UK they could have manipulated their domestic interest rate. in that case Italy would have lowered its interest rate to stimulate aggregate demand and Germany would have increased its interest rate to reduce aggregate demand. These policies would have led to depreciation of the Italian lira and an appreciation of the German deutschmark. Both the interest rate and exchange rate changes would have boosted aggregate demand in Italy and reduced aggregate demand in France. If, instead, both Germany and Italy had chosen peg exchange rates, Italy would have been able to devalue its currency against the German currency and, thus boost demand. The devaluation in fact would have made Italian goods cheaper compared to German goods, thereby stimulating demand coming from Germany. The effects of these national monetary policies are shown in fig.10. The expansionary monetary policy in case of flexible exchange rates for Italy or the devaluation of the Italian lira in case of pegged exchange rates would have both shifted

the demand curve upward to its original position. In Germany we have the opposite situation. The restrictive monetary policy or the revaluation would have both shifted the aggregate demand curve downward. The effects are that Germany avoids inflationary pressure and Italy solves the high unemployment level problem.

Fig.10



ITALY (affected) GERMANY (unaffected)

If both Italy and Germany are part of a monetary union the adjustment process is different since both countries have no control on their monetary policies. Moreover, a common monetary policy directed by the ECB cannot solve the problems of both economies at the same time. A restrictive monetary policy will reduce inflation in Germany but will worsen the unemployment situation in Italy which might enter in a recession. Similarly, an expansionary monetary policy would reduce unemployment in Italy but worsen inflation in Germany. According to Mundell there are 2 mechanisms that will bring back the two countries to an equilibrium situation without the use of national monetary policies. The first one is based on wage flexibility and the second one on mobility of labor.

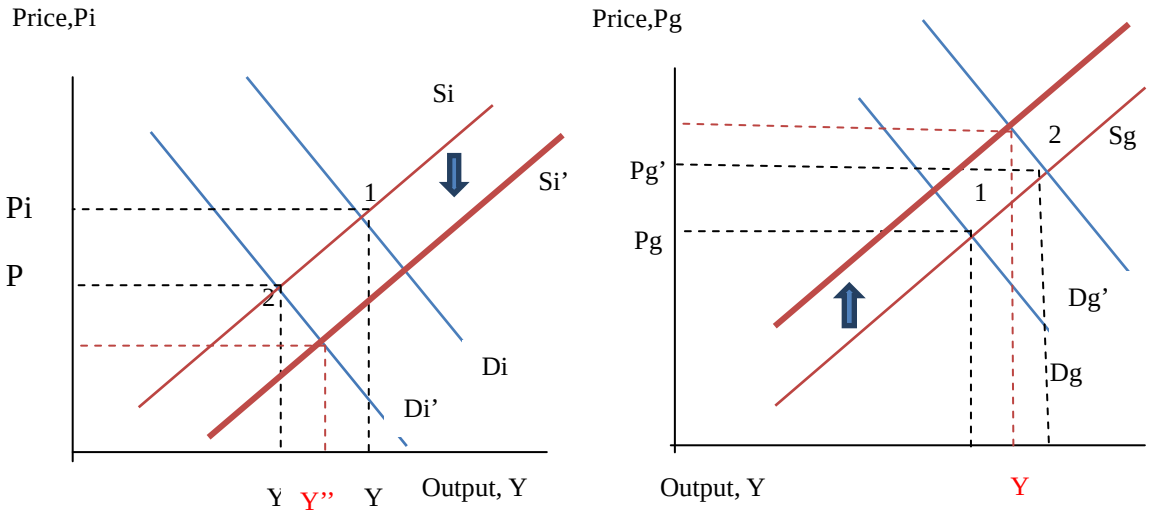
5.1.b Wage flexibility

If wages in Italy and Germany are flexible, Italian workers which are now unemployed will reduce their wage claims whereas in Germany the opposite will

happen and the wage level will raise.

The adjustment process is shown in fig.11.

Fig.11



ITALY (affected) GERMANY (unaffected)

The reduction in wages in Italy will shift the supply curve downwards. This shift will create a new equilibrium where the price of output is lower which makes Italian goods more competitive relative to German goods which will eventually boost aggregate demand. The wage increase in Germany will shift the German supply curve upwards and the price of output will be higher which will eventually contract aggregate demand.

5.1.c Labour mobility

The second adjustment mechanism that will absorb the shock impact is the mobility of labour. The Italian unemployed workers will move to Germany where ther is excess demand for labour. This movement eliminates the need for wages and prices to decline in Italy and to increase in Germany. As a consequence the unemployment problem in Italy and the inflationary pressures in Germany will disappear. This implies that either age and price flexibility or mobility of labour can absorb the negative impacts of an asymmetric shocks. If these conditions are not satisfied, however, the adjustment problem will not be solved.

Let's suppose that prices and wages are rigid and there is no mobility of capital, meaning that workers are not willing to move to find a job. The adjustment must now come exclusively from a price increase in Germany and a decrease in prices in Italy which will be very painful for both economies. Germany will be facing inflation and Italy deflation but eventually this effects will reestablish the equilibrium. If wages are rigid and labour mobility is limits, countries that form a monetary union will have problems in adjusting to asymmetric shocks compared to countries that have their own national currency and thus can use the monetary policy tool to absorb these shocks. We can thus conclude that according to Mundell a monetary union is optimal only when there is sufficient wage flexibility and when there is sufficient labour mobility.

5.3 Kenen

Also Kenen contributed to the optimum currency area criteria with its theory on product diversification. According to Kenen the more countries tend to specialize in the production of particular goods the more likely they will be hit by asymmetric shocks. Conversely, countries that produce a wide range of products will be little affected by these shocks since that products weight very little in total production. According to Kenen, countries to reduce the likelihood of shocks should diversify their production or produce similar shocks so that shocks will have a limited impact or will tend to be symmetric in case of similar goods. In other words, the second criterion according to Kenen states that countries whose production and exports are widely diversified and of similar nature form an optimum currency area.

5.4 McKinnon

McKinnon included as one of the criterion of the theory of optimum currency areas the degree of openness of a country. According to Kenen countries that are extremely open to trade experience a reduced effectiveness of an autonomous monetary policy and can make limited use of the exchange rate as a tool to restore competitiveness since, for example, a revaluation will have a negative effect for exporters and for the economy of the country itself if trade represents a great portion of its GDP. The third criteria states that countries which are very open to trade and trade a lot with each other form an optimum currency area.

5.5 Fiscal transfers

Fiscal transfers can be considered as an adjustment alternative. The country in a better position will help the country that faces the shock. In this case also Germany suffers from the shock that hits Italy so it is in the interest of Germany to help Italy alleviate the impact of the shock. Germany could financially compensate Italy which will mitigate the recession in Italy and the boom in Germany. As the shocks occur randomly the country that pays today will be tomorrow's beneficiary. So also fiscal transfers contribute to the formation of an optimum currency area.

5.6 Other factors

Among the other factors that contribute to the creation of an optimum currency area there is the political reaction and the different policies of different countries to limit the impact of asymmetric shocks. It is important that countries share a wide consensus on how to deal with shocks to avoid a worsening of the situation. If countries follow different policies, meaning that some countries focus on inflation and others instead care more about unemployment they will want the central bank to pursue different policies. Whatever the central bank will chose to do will be controversial and may lead some countries unhappy which may put at risk the currency union. If all countries instead agree on a common path to be followed after a shock this risk can be avoided and the currency area will surely benefit from it.

5.7 Criticism to the theory of Optimum Currency Areas

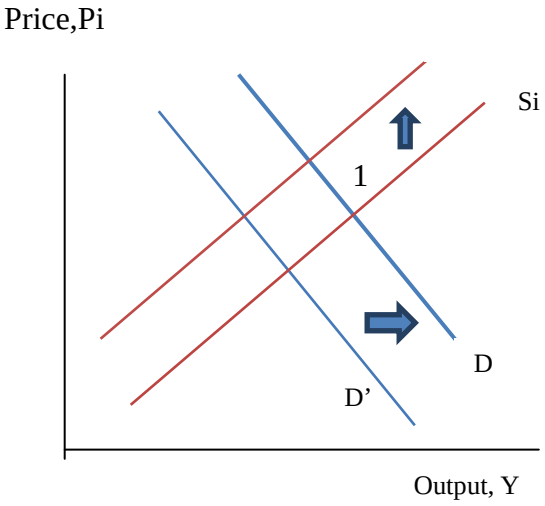
The traditional theory of optimum currency areas tends to be very pessimistic about the possibility for countries to join a monetary union at low cost. One of the main criticism to the OCA theory is about the likelihood of shocks in a monetary union, especially in the euro area and about this topic there are two different views.

The first view is the one of the European commission which states that asymmetric shock will occur less frequently in a monetary union. According to the Commission the higher the degree of trade integration the more the shocks will tend to be symmetric. The second view by Paul Krugman states that as trade increases also the concentration of regional industrial activities increases. Thus, when economic integration increases,

the countries involved will become more specialized and so they will be subject to more rather than less asymmetric shocks so symmetry declines. There is not a right or wrong view but usually the European commission view tends to be favored.

Another critique to this theory is about the ability of exchange rates to absorb asymmetric shocks which is weak than the OCA theory has led us to believe. In fact, exchange rates have no permanent effect on output and employment. If we assume that Italy is not part of a monetary union, it means that in case of a shock it can use its national monetary policies and let its currency depreciate or in case of pegged exchange rate, devalue its currency. We assume that the shock is permanent and thus prices and cost of French goods will necessarily have to decline relative to the German ones if Italy wants t return the its initial output level. This decrease can be achieved through a depreciation which will increase the Italian competitiveness and shift the demand curve back to its original position. Italy is back to its original equilibrium and thus the price level of Italian goods has been restored. (point A in fig. 12)

Fig.12



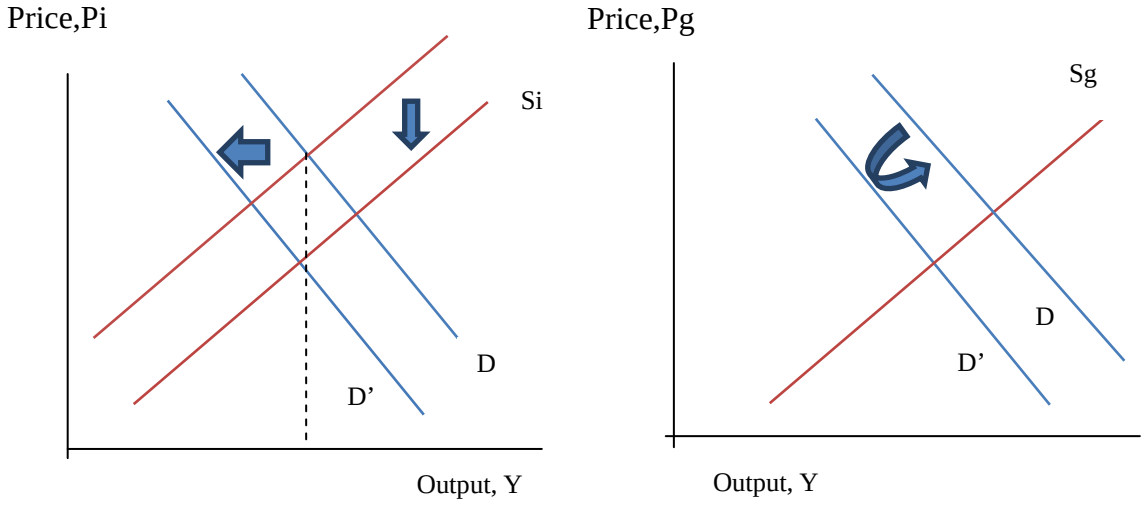
However it is unlikely that this new equilibrium will be sustained since the price of German imported goods has increased which increases the overall costs for the Italian economy and since the real wage of Italian workers has declined they will put upward pressure on the nominal wage. All this means that the supply curve will shift upwards

and the Italian price level will increase and output decline the new equilibrium will be at point 2.

We can thus conclude that the initial favorable effects on both output and prices of a depreciation tend to disappear over time, implying that a depreciation has only a temporary effect on relative prices. *In other words a nominal depreciation leas only to a temporary real depreciation.*in the long run the nominal exchange rate does not affect the real exchange rate. *This conclusion regarding the effectiveness in the long run of exchange rate changes, however, does not mean that countries do not lose anything by giving up the use of this instrument when joining a monetary union but it means that tis tool is not as strong as the OCA theory stresses*. If we compare the adjustment process in a monetary union and the one in a country that has maintained its currency independence we will see that in both cases a decreases in wages and in the price level has to be achieved. In a monetary union there will be a downward shift of the supply curve whereas in Italy, when it keeps its national money the adjustment will come from a depreciation which will shift the demand curve back to its original position (fig.13). The condition needed to adjust and restore initial output is the same in both cases: workers must be willing to accept lower wages which will be difficult to achieve in both regimes, since if workers resist they will resist in both regimes.

Fig.13

MONETARY UNION NATIONAL MONETARY POLICY



However, we must say that workers will tend to resist a decrease in wages brought about by an actual decrease in nominal wage rather than the same decrease brought about an increase in prices. Thus, we can conclude that it will be more difficult and costly to adjust to a demand shock in a monetary union rather than outside a monetary union.

The last critique to the OCA theory is about the changes in exchange rates as a source of macroeconomic disturbance. As a matter of fact, exchange rate movements can be a source of asymmetric shocks instead of being a mechanism that allows countries to better adjust for asymmetric shocks. So a monetary union can be seen as an insurance against these type of shocks. However this theory holds when shocks are temporary since it is based on the fact that German consumers, experiencing an increase in their incomes as a result of the shock, will lend to Italian consumers knowing that the effect of the shock is just temporary. The chances that they will lend in case of a permanent shock are pretty low. We can conclude that despite this criticism the heart of the OCA still stands.

Related references

- Richard Bladwin and Charles Wyplosz, *The economics of European integration*, Third edition, McGraw Hill (322-329)
- De Grauwe, *Economics of Monetary Union*, ninth edition , Oxford. (ch 2)

CH. 6 IS EUROPE AN OCA?

The optimum currency area theory it is useful to assess whether it made sense to establish a monetary union in Europe and whether the new member countries are likely to benefit from obtaining Eurozone membership. To analyze whether Europe is an OCA we should check whether the OCA criteria are satisfied and compare the benefits with the costs of forming a currency area.

6.1 Asymmetric shocks

The OCA theory emphasizes the role of asymmetric shocks as the main source of costs in a monetary union so it is important to analyze whether these shocks occur often enough and are large enough to be of serious concern. Another important aspect is whether shocks faced by the EMU are more likely to be symmetric or asymmetric. In case in which they tend to more asymmetric than symmetric some countries may consider the option of leaving the monetary union, if there are no appropriate absorbance mechanisms. Most research finds that only a minority of shocks experienced by EU countries have been country specific and thus asymmetric and that even these asymmetric shocks have often had similar outcomes. A high proportion of shocks has however, been regionally asymmetric which emphasize the importance of developing and strengthening adequate absorbance mechanisms. On this idea there are two contrasting views: the EU commission view and Krugman's view. According to the Commission as the degree of trade integration increases between countries, asymmetric shocks will tend to occur less frequently meaning that symmetry increases. Krugman's view instead, states that as economic integration increases the countries involved become more specialized and as a result they will subject to more rather than less asymmetric shocks. The former view tends to prevail (see De Grauwe, *Economics of Monetary Union,* 9th edition, Oxford).

Is the level of economic integration achieved by the members of the Eurozone sufficient to prevent shocks from being asymmetric? Economic integration has increased a lot since the union but there are still a lot of differences among member countries that did not disappear with the monetary union which represent possible sources of asymmetric shocks. The fact that monetary policy is in the hands of the ECB but, at the same time, member countries of the EU maintain their sovereignty in several

economic areas is one of the main sources of asymmetric shocks. Most spending and taxing powers are still in the hands of national authorities and the different policies followed in each member country are a source of asymmetric shock. Also a lot of economic institutions are national and the differences from one country to another are another possible source of shocks. For example, the labour market is different among Eurozone member because the wage bargaining systems are different. Also the legal systems are different and are thus another source of disturbance. The effect of all these differences is that countries will experience very different economic conditions which can lead to different competitive positions. This was the case in the last decade in the European monetary union. Like in the case of Germany where the unit labor cost declined relative to other members. The unit labor cost can be defined as the unit labor cost of one country relative to the average unit labor cost in the other member countries of the Eurozone. As a result Germany improved its competitive position between 2000 and 2010, conversely countries such as Germany, Ireland, Greece, Italy saw their labor cost increase relative to other members and as a consequence lost competiveness. Labour costs increase when wages increase or when labour productivity declines in the past these countries could have devalued their currencies to go back being competitive but in a monetary union they can no longer do it.

Another source of asymmetric shocks comes from the absence of political union. In Europe we still don't have a strong political union but this aspect will be analyzed more in depth below in paragraph 6.6. All these problems can be easily solved if Europe is able to absorb these shocks and thus be an OCA. In order to be able to do so there are some fundamental requirements such as a flexible and mobile labour market and/or a system of fiscal transfers (the USA is an example).

6.2 Labour mobility

Labour mobility is the main tool to deal with asymmetric shocks in a currency area. Full labour mobility is achieved when workers move immediately to take advantage of possible earnings opportunities, in other words they move to where they can earn more. Moving from one country to another is not so easy, migrant workers have to consider several issues:

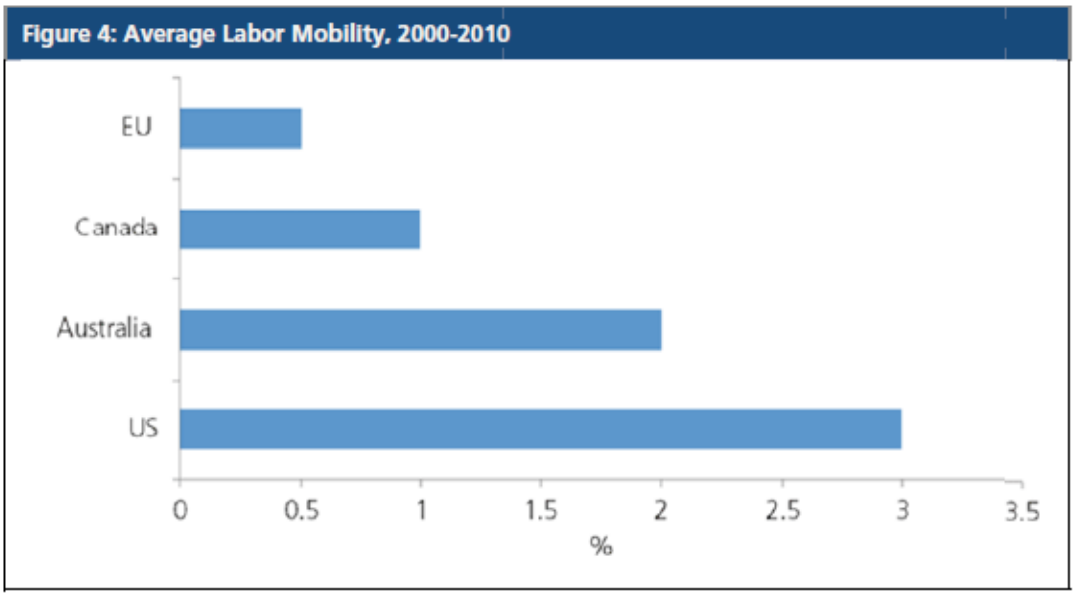
- The cost of moving

- The prospect of becoming unemployed also in the migration country
- Career opportunities, which entail current and future earnings
- Family and friendships
- Social benefits (unemployment, health and retirement)
- Taxation
- Cultural differences
- Nationalism

Labour mobility is not flexible in the Eurozone compared to countries like Canada or the USA. As far as migration is concerned, the EU countries are less open to immigration than similar developed countries. Moreover, they take little advantage of the single market which allows them to work and settle anywhere in the EU. Europeans move much less than US citizens and they do mainly for personal reason, professional reasons account only for 5 % of the reported moves, the reasons that explain why Europeans move so little are several such as the different languages and cultures or the higher housing expenses compared to the US. Another factor that is of relevance importance is the different welfare systems across countries (health and retirement benefits) which instead are the same all over the USA. Other obstacles are the result of divergent action by public authorities such as the non-transferability of pension rights, restrictions on the right to social security, inflexibility in housing markets, nationality restrictions on recruitment in the public sector, non-recognition of qualifications, lack of information about jobs in other member states and many more. All these obstacles are absent in the US.

The removal of these obstacles is proving to be extremely slow but if we compare today labour mobility with the labour mobility of 10 years ago we can see some improvements. A rigid labour market, though, can be very costly in a monetary union, in fact, if workers moved to places where there is an excess labour supply the cost of a monetary union would be reduced significantly. According to Eichengreen, in his paper published in 1991, *Is Europe an Optimum Currency Area*, labour mobility in the USA adjusts faster to regional shocks than in Europe. Whereas in Europe the negative impact of shocks is reflected in much higher unemployment levels.

Fig.1 : Average labour mobility



Source: U.S. Census Bureau, Current Population Survey; Eurostat, Labour Force Statistics

By looking at fig. 1 it is clear that Europe has by far the most rigid labour market compared to countries such as the USA, Australia and Canada. Since Europe lacks also a system of fiscal federalism to deal with shocks it is of fundamental importance for the European monetary union to quicken the process of flexibility and thus increase labor mobility.

However, there are diverging views on this matter since a high degree of geographical mobility is not cost less and might be undesirable. It can be undesirable from the point of view of both the emigration regions and the immigration regions but also for the workers involved. For example if the shock is only temporary a movement of workers to another country can weaken the country's recovery in the future. Moreover if the emigration involves the youngest and most skilled workers the country losing this people may experience a permanent decline. At the same time also the immigration country can face some problems such as providing the emigrants with an accommodation and pay them social benefits.

As a result the linguistic, cultural, legal and other differences play a modest role in determining the flexibility of the European labour market. A possible explanation of the lower labour flexibility in the Eurozone compared to the USA is that the costs of large scale labour movement in Europe will generally tend to outweigh the advantages. Internal migration can be an effective way of reducing disequilibria on the labour

markets, especially in a monetary union that does not have flexible exchange rates as an adjustment mechanism. Europeans are apparently becoming more willing to relocate. The potential for internal labour migration is particularly high among young, well qualified workers, who are especially hard hit by high unemployment. However, today Europe is far by satisfying this OCA criterion.

6.3 Openness

Openness is defined as the share of economic activity devoted to international trade. According to the McKinnon criteria the more open to trade a country is, the more it will benefit from joining a monetary union, especially if its trading partners will join the union as well. To assess whether Europe is an OCA we should analyze the degree of openness of the member countries. The degree of openness can be determined by looking at the amount of exports and imports of the single country relative to GDP. Most European countries are very open as we can see from table 1. The smaller ones are actually the more open to trade which explains their great support of the monetary union. This is the case for both EU members and non-members.

Table 1: Openness to trade

(Source: from the text book by Bladwin & Wyplosz, *The economics of European integration,* 3rd edition - **Horvàth, 2005**)

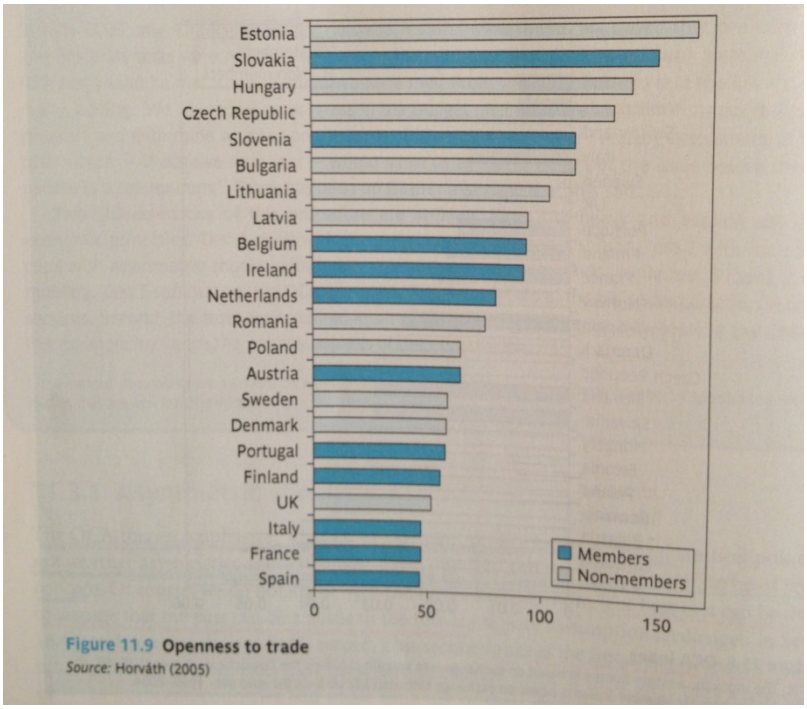
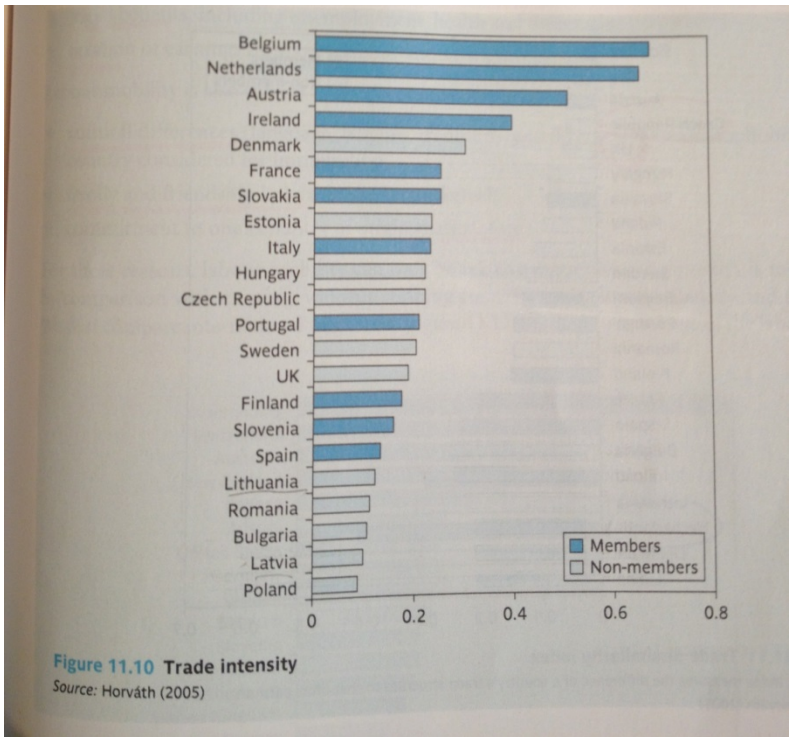


Figure 11.9 Openness to trade
Source: Horváth (2005)

Another measure of trade looks at the bilateral trade links between each country and a centre country. In table 2 we consider the central country as Germany for the old members and the Euro area for the new members. We can see that there is a high degree of trade intensity among the euro area. This table shows us that countries like Denmark could join as well as Estonia, which however still does not meet the entry requirements. Some other countries instead show a low level of trade intensity meaning that they are not so integrated within the Eurozone.

Table 2 : Trade intensity

(Source: from the text book by Bladwin & Wyplosz, *The economics of European integration*, 3rd edition - **Horvàth, 2005)**



We can thus conclude that as far as the McKinnon criterion is concerned most EU economies qualify for joining a monetary union since they are very open and well integrated within Europe.

6.4 Diversification and trade similarities

The Kenen criteria is based on the idea that countries to form an OCA should

have production and trade patterns widely diversified and of similar structure. If we look at table 3 we can see an index of trade dissimilarities of European trade. This index shows how each country trade is different from the German one (old members) and from the Eurozone (new members). In this table trade considers agriculture, minerals and manufacturing. Dissimilarity is really high in countries such as Denmark or Latvia that have not joined the Eurozone and it is low for non-member countries such as the UK or Czech Republic and Hungary.

Netherlands is a particular case since it shows a very high trade dissimilarity pattern but it is an enthusiastic member of the Eurozone. This shows that OC criteria are not absolute since a country like Netherlands may enjoy other economic or political benefits from joining the EMU.

Table 3: Trade dissimilarities index

- the index measures the difference of a country's trade structure compare to that of its partners.

(Source: from the text book by Bladwin & Wyplosz, *The economics of European integration*, 3rd edition - **Horvàth, 2005**)

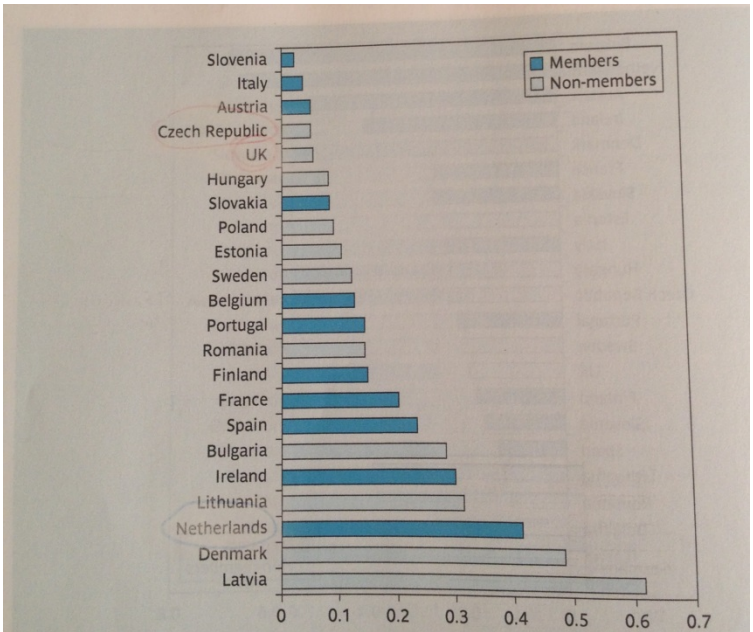


Figure 11.11 Trade dissimilarity index

Note: The index measures the difference of a country's trade structure to that of its partners.

Source: Horváth (2005)

In general we can conclude that also this criteria is satisfied by most EU economies.

6.5 Fiscal transfers

An alternative mechanism to deal with the negative impact of asymmetric shocks is provided by fiscal transfers. Fiscal transfers consist in the ability to transfer economic resources from better off countries to those suffering economies which may be victims of a shock. The transfers would be a form of compensation to the countries hit by shocks for having lost their exchange rate instrument. Such fiscal federalism for the purpose of stabilization is carried out automatically and rapidly in most countries. Funds are automatically transferred from richer areas, which pay more taxation and receive less in social security and other payments, to poorer areas and those affected by a shock, which pay less in taxes but receive more in benefits. The transfers are usually financed by taxation and have a central budget of a substantial amount. The USA is characterized by this fiscal federalism whereas there is no such system in the EU. The EU budget is small, about 1 % of GDP compared to the American one which is about 33 % of GDP. Moreover, the European budget is spent on the Commission's operating expenses, the Common Agricultural Policy and the Structural Funds which support the poorer regions independently of whether they are hit or not by shocks. As a result it is straightforward that the European budget cannot work as an adjustment mechanism. The main fiscal mechanisms of adjustment within the EU are the national budgets which provide a sort of insurance within the same member state but not between member states. We can conclude that on this criterion, Europe is definitely not an optimum currency area. The lack of fiscal federalism together with the rigidity of the labour market can pose serious problems on the stability and the integration process of the European monetary union since they represent the main adjustment mechanisms to asymmetric shocks

6.6 Conclusions: Is Europe an OCA?

In the end, we can conclude that Europe partly satisfies the OCA criteria since European countries do well on openness and diversification but fail on both labour mobility and fiscal transfers. Also from a political/institutional point of view there is not much coordination and integration. However, the OCA criteria are rarely black and white, entirely satisfied or entirely violated. So, in the end, the partial fulfillment of the OCA implies that there will costs which will have to be addressed and reduced. The

main costs are related to the labour markets and fiscal transfers.

Will Europe become an optimum currency area?

There is a common idea that the single currency can change the European situation by affecting trade, specialization, labour markets and fiscal transfers. Many European policy makers believe that stable exchange rates promote trade integration. As a matter of fact a common currency will increase price transparency and reduce transportation costs which will reduce the overall cost of buying and selling goods across borders. A fixed exchange rate also avoids exchange rate fluctuations which can affect negatively trade. As time passes trade should keep on increasing and the Eurozone will get closer to an OCA.

As far as specialization is concerned, a common currency will either increase trade and thus the level of specialization since each country will focus on its own comparative advantage (Krugman view) which will go against the OCA diversification criteria proposed by Kenen, or integration will lead to intra industry trade (EU Commission view). Every country will produce similar goods, offering customers more choices which means that trade will become more diversified. Evidence shows that the second option is more likely to happen.

The expectations of an increase in the mobility of the labour market in Europe in the near future are low. The low labour mobility derives from the rigidity of the European labour market. On the contrary, the US labour market is much more flexible and thus labour mobility is enhanced. In the USA, firms are quite free to fire workers in case of an economic downturn whereas in Europe firing is very costly due to the social benefits to be paid. Moreover, US workers receive much less welfare support and this encourages them to find a new job as soon as possible once they get fired, also in another country and even if it is less well paid. This European rigidity is likely to refrain the labour market from becoming more movable. Moreover there is a lot of skepticism regarding the positive effect that a single currency may have on the labour market. European workers are attached to the welfare support and all the social benefits they receive and they are willing to bear the costs that come with them, such as a high level of unemployment and lower growth. This implies that the chances that the European labour market will change are low at the moment. The single currency may be useful in reducing the oppositions to the measures aiming at flexing the labour markets. It is

important to make markets more flexible not just in order to increase labour mobility but also to boost the economy and reduce unemployment. The member states now lack the exchange rate tool they used to employ in the past to boost their economies before joining the monetary union. However, some countries in the Eurozone have taken important step towards reforming their labour markets other did not.

Regarding fiscal federalism, there is no political support for automatic fiscal transfers in the Eurozone. There have been some proposals such as a tax to support unemployment but nothing concrete has been accomplished. The single currency is likely to change things in this field and fiscal transfers will have to be adopted sooner or later.

There are mainly two conclusions, first, Europe is not exactly an Optimum Currency area; some criteria are satisfied while other are not. Second, it is not just labour mobility that is insufficient but are the labour markets that display significant rigidity, especially in large countries. In these countries, the monetary union may worsen an already painful situation of high unemployment.

The European union in order to become effectively an OCA can follow two strategies. One is to increase the degree of flexibility, which is what we have just described above and the other is to reduce the degree of asymmetric shocks by increasing symmetry. The second strategy is not easy since the degree of asymmetric shock depends on large extent to factors on which policy makers have no control on. There is one area, however, which can reduce the degree of asymmetric shocks, provide further integration and thus move the Eurozone to the OCA zone. This is the field of political unification.

6.7 Political Union

One of the main sources of asymmetric shocks derives from the existence of nation states and their institutions. In order to reduce asymmetric shocks more economic policy coordination and institutional streamlining will be necessary, in other words, political unification.

According to Feldstein in his paper, *On Monetary and Political Union,* published in 2006, the EMU is not only unjustified on economic grounds (it is not an OCA) but its survival will require a major step towards a federal Europe including common defense and foreign policies as well as harmonization of tax and labour market regulations, in

other words a political union is necessary to ensure the survival of the European Monetary Union. Political considerations were at the basis of the EMU when the euro was launched so it is important to keep on focusing on this aspect. As far as political union is concerned, there are mainly two diverging views. According to one school, monetary union cannot survive in the long run without a strong political union among member states. According to the second school of thought, the present degree of political integration reached in the EU is sufficient to ensure the long run survival of the Monetary Union. In this view, there is no need for Europe to become a federal state like the USA. Considering the current events and the impact the crisis had on Europe the first view should probably prevail.

There is a fundamental difference between the monetary union in the USA and the European monetary Union. The first big difference, which is also a reason why Europe should aim at achieving further political integration, is that the US federal government has a monopoly in the use of coercive power within the union and will prevent any state from leaving the union. In the EU there is no supranational institution that can prevent a member state from leaving the Eurozone. Thus, it is extremely important for member states to perceive their membership in the Eurozone as a national interest. With the current financial crisis the possibilities that the member countries most damaged by the crisis may leave the union are increasingly rising and this is due to the fact that the political integration in the union is probably not sufficient. It is important to ensure that the benefits of joining a monetary union exceed its costs for member countries and if political unification it is a way to reduce these costs, the Eurozone should follow this path.

Political unification brings several benefits to a monetary union and would bring EMU to being an OCA. It makes possible the centralization of national budgets at the level of the union. This makes it possible to organize systems of automatic fiscal transfers that provide some insurance against the negative impact of asymmetric shocks. Moreover, political union also reduces the shocks that have a political origin. Examples are these shock related to the different national taxation policies among member states. The same reasoning applies also to social security and wage policies. Another reason to opt for political unification is represented by the fact that the present institutional design of the Eurozone is weak. The weakness is evident both at a fiscal policy level and at a

monetary policy level. The Stability and Growth Pact (SGP), the heart of the governance of fiscal policies in the Eurozone has a weak basis. First, spending and taxation are still in the hands of national governments and parliaments backed by democratic legitimacy. The SGP imposes an extensive control and sanctioning system on this democratic decision making process of national governments. However, when the Commission starts an excessive deficit procedure which aims at forcing national governments to cut spending or increase taxation it bears no political responsibility for such decisions. National governments will bear all the responsibility for these policies. Moreover, they are the ones who will be judged by their national electorates for their decisions and that may be punished for that. The European commission instead does not face the prospect of being voted anyway, meaning that it lacks democratic legitimacy. This lack of accountability of the EU Commission makes the SGP unsustainable. Conflict between the Commission and the national governments will keep on arising unless something is done to improve politics. As long as national states maintain their sovereignty over spending and taxation and as long as who decides for spending and taxation is not made accountable for its decisions this problem will keep on existing. Together with the SGP problem there is also the one linked to unemployment. National governments have also the responsibility of unemployment, although there is not much that they can do since the monetary policy instruments lie in the hands of the ECB. They don’t have the instruments to fight off unemployment but they are responsible for it, whereas those who held the instruments do not want to be made accountable for unemployment. The claim that they have to introduce structural reforms will not solve the problem since there is more unemployment than the structural component.

In conclusion, there are 3 problems. First, the main macroeconomic instruments have been transferred to European institutions but political accountability for both the results and the policy decisions is on national governments. Second, the Eurozone lacks a systems of fiscal transfers and a substantial central budget to compensate member states hit by negative shocks. Third, since national governments still control taxation, spending and many more fields which represent a source of asymmetric shocks. A further political unifications seems to be the only reasonable solution. Without a political union the Eurozone is at risk.

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CH.7 THE EUROPEAN MONETARY UNION AND THE FINANCIAL CRISIS

The Eurozone is now facing one of the most serious crisis of all times. The internal imbalances of the common currency area are visible to everyone, several countries are facing sovereign debt crisis and large trade deficits, unemployment has reached incredibly high levels, European banks are in fragile conditions, there are diverging levels of competitiveness among Eurozone countries, declining growth levels for most member countries and unsustainable governments. The emergence of these problems, a decade after the launch of the euro, does not come as a surprise since these issues are the inevitable consequences of imposing a single currency on a very heterogeneous group of countries and the result of bureaucratic mismanagement. As mentioned in the chapter before, weak financial discipline, the evident differences in labour markets, legal systems, welfare systems, credit and hosing institutions, cultures and inflation levels, in other words, different economic structures, fiscal traditions and social attitudes have all contributed to the negative consequences of the crisis on the Eurozone. The ECB was able to maintain a low inflation level but also most of the other countries both in Europe and abroad were able to do so without bearing the costs of a monetary union. The political goal of an harmonious Europe which led to the launch of the Euro and inspired the early advocates of a European union has not been achieved. Germany and France have both dictated painful conditions to countries such as Italy, Spain and Greece as a condition for financial help. Moreover, the leaders of Germany and France have been arguing on how the burden of financial assistance should be distributed. A stronger political union, as stressed in chapter 6, would have probably eased the recovery process for Europe.

7.1 Before the crisis

The European union and the launch of the euro were pushed by an ideal of political unification rather than economic convergence. When the idea of a common currency was developed, the main European leaders focused more on the political benefits such as an increased sense of belonging to the European community, an enhanced international role for Europe, a possible relevant role in foreign markets of the new common currency and the shift of responsibility for monetary policy to national

governments to the ECB. However, the unwillingness of European countries to postpone further the move to a single currency did not allow a deep political unification. At the time the project was created, Germany stressed that a monetary union could not begin without a political union but there was no support for the German position which was seen just as a way to postpone the launch of the Euro. What the German government did was to shape the characteristics of the ECB on the Bundesbank example. It was characterized by the single goal of price stability, the prohibition of purchasing bonds from member governments and a "no bailout" rule for countries that became insolvent. Also sanctions and financial penalties were introduced for countries violating the convergence conditions such as a budget deficit of more than 3% of GDP and a debt that was above 60% of GDP (SGP).

7.2 The Eurozone crisis

Long before the euro was launched, economist warned the advocates of the monetary union against the possible drawbacks it might have on the economies of Europe (Feldstein, *The case against the Euro*, The economist, 1992; Eichengreen, *Is Europe an Optimum Currency Area?*, 1991). The warnings included output and employment fluctuations, slower adjustments to demand shocks and persistent trade imbalances with the rest of the world which have all occurred in recent years. The creation of the monetary union and the anti-inflationary policy followed by the ECB caused interest rates to fall in all the Eurozone, also in countries like Spain or Italy where expectations of high inflation had always kept interest rates at an high level. Households and governments in those countries responded to the low interest rates by increasing their borrowings. Households used the increase debt in house building and house prices and governments used it to finance budget deficits together with larger social transfer programs. The result was rapidly rising ratios of public and private debt to GDP in several countries, including Italy, Spain, Greece and Ireland. Despite the risk to lender that the higher debt to GDP ratios implied, the global capital markets did not raise the interest rates on countries with rapidly rising debt levels. Until the outbreak of the crisis in the Eurozone, bond buyers assumed that any bond issued by any member of the European Monetary Union was equally safe, ignoring the "no bailout" rule of the Maastrict treaty. As a consequence Italian and Greek interest rates differed only by a

small amount from German rates. Before the EMU, a rising fiscal deficit in one country would have increased its interest rates or declined the exchange rate. This market signal would have worked as an automatic warning to reduce the amount of borrowings. With the European monetary union these automatic signals disappeared to avoid a reduction in the amount of borrowings. The result was that countries borrowed too much and banks loaned too much overpriced housing.

When the markets recognized the mistake of considering all the EMU countries bonds as equally safe, interest rates rose rapidly on the sovereign debt of Greece, Italy and Spain. The market dynamics led to a mechanism which came close to the risk of insolvency and eventual default for these countries. The Greek case was the most problematic one. Greek incapacity to repay its debt led to a further increase in interest rates and in the expected future interest rates which increased the debt burden. What started as a liquidity crisis turned into a solvency crisis with the fear that Greece may not be able to ever repay its debts. The Greek government had to accept a 50% write down in the value of its bonds. The Greek solvency problem raised the interest rates of Italian bonds increasing the perceived risk of the Italian government debt, pushing Italy close to insolvency. The crisis arrived also to banks since they heavily invested in government bonds.

7.3 Possible Solutions to the sovereign debt crisis

(see Feldstein, *The euro and European economic conditions*, November 2011)

By the end of 2011, several European countries had debt to GDP ratios that made the probability of default high. Excessive write downs in the value of sovereign debt would have damaged irreversibly the European banks and other financial institutions in the United States. Different strategies were proposed to deal with the situation such as an increase in the capital ratios of Banks and the expansion of the European financial stability facility (EFSF) from 400 billion euros to a trillion euros to provide insurance guarantees and allow both Italy and Spain to access the capital markets at reasonable interest rates. However, this strategy did not work since banks rather than increasing capital reduced the amount of lending, causing a further slowdown in the European economic activity. Moreover, also borrowing additional funds won’t be easy for the EFSF since Germany opposed to this strategy and Germany

represents one of the main guarantor of that debt. Another strategy implies that the ECB buys bonds of both Italy and Spain to keep their interest rates low. The ECB has already been doing so but going further with this strategy will go against the no bailout rule. Another strategy is again the creation of a fiscal system of transfers and a deeper political union. This strategy will avoid the repetition of what led to the really high debt levels during the current crisis.

According to Muellbauer in his article *Resolving the Eurozone crisis: Time for conditional Eurobonds,* (October 2011) conditional bonds represent an additional strategy to restore the right incentives and allow poorly performing economies to go back to being productive again and avoid a future crisis like the current one. Conditional bonds, coordinated with nominal wage cuts linked with limited debt write-downs and bank recapitalization are the right solutions. These bonds are Eurobonds with a collective underwriting guarantee which limits the country risk faced by investors and where administratively set spreads determine the annual side payments at below AAA rated countries pay to the AAA countries. These spreads would compensate the taxpayers in the AAA rated countries (Germany, France, the Netherlands, Finland, Austria and Luxembourg) for their risk in investing in the bonds of the riskier countries. These spreads would be set annually and would be linked on performance target determined by a European monetary and fiscal authority (EMFA). Limit the sovereign debt risk faced by investors would immediately restore confidence in the Eurozone and at the same time the spread linked to performance will create incentives for strong reforms rewards and it ensures fiscal discipline. This incentive structure has also the benefit in decentralizing Eurozone governance and thus reduce the problems of missing democratic institutions since a tough central fiscal authority will have to be legitimated. Governments will not set their targets but the will be able to make the right policy choices to achieve them. These bonds will have to come together with a reductions in prices and wages. this popular solution may have some drawbacks since these bonds and the access to low interest rate borrowing that they imply may eliminate the need for countries to undergo austerity and only push back an inevitable origin of the same problem all over again.

Greece was unable to borrow in the capital markets and so had to depend on the credit granted by the ECB and the International Monetary Fund and thus had to stick to

the stick conditions set by both Germany and France. These conditions required large cuts to reduce the budget deficit or the alternative of leaving the Eurozone. The Italian government was in a better position since it did not depend on transfers from the ECB or IMF but it did depend on the support of the ECB to limit an excessive rise in the interest rate of its government bonds. Also Italy was put under pressure to adopt tight policies. The creation of the euro has thus created tensions and conflicts within Europe. Further steps towards a permanent fiscal union may increase these conflicts rather than reduce them. Even if the debt levels were reduced, the long term competitiveness problem caused by the monetary union would not be solved. There are still substantial differences in both competitiveness and trade balances among Eurozone countries which represent a major source of shocks. In 2010 Germany had a trade surplus of about 200 billion dollars whereas the other members had deficits summing up to 200 billion dollars. Since these countries belong to a monetary union no depreciation is possible to boost growth and competitiveness. The only option which has almost the same effects of a depreciation is a cut in wages and prices but this process can be very painful from an unemployment point of view. Countries like Greece and Italy already have incredibly high levels of unemployment so the process would be very painful. Another option is to leave the euro and go back to their own currencies. This possibility has been considered for Greece. However Germany won't let this happen since it fears that other countries may follow the Greek example such as Italy and then France leading to the collapse of the Eurozone. Another problem related to the possible exit of Greece from the euro is the amount of debt to be repaid which would increase sharply since loans are in euros and if Greece leaves the euro it won't receive any more financial help from Eurozone countries which would make a bad situation worse. With disagreements between rich and poor countries in the Union there is the fear that nothing will be accomplished and the situation will only worsen. In the end, there is no easy solution to the Eurozone crisis but financial markets keep on monitoring the situation in the hope that an acceptable solution for everyone arises.

7.4 Differences with the United States

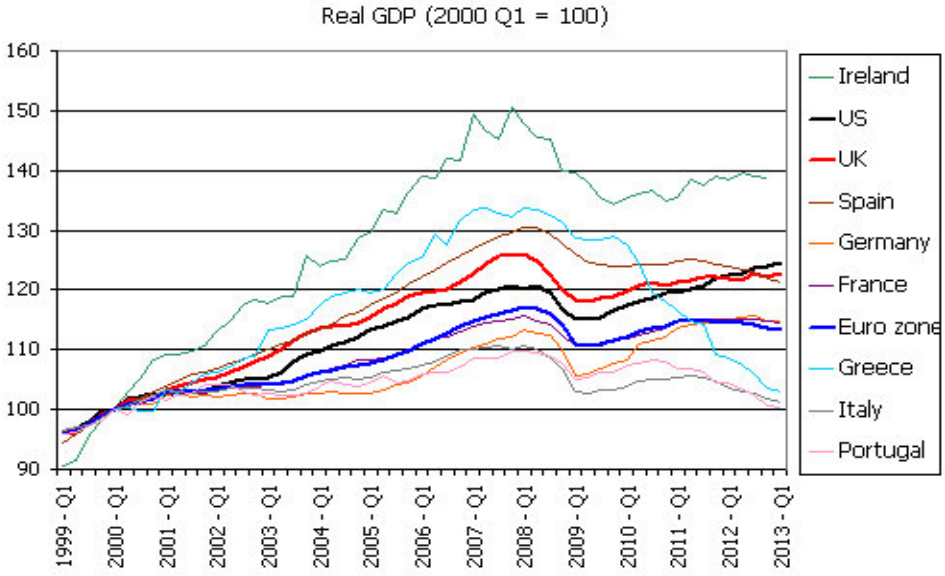
The United States were able to recover much faster from the crisis because although it is a country made of heterogeneous states it functions successfully with a

single currency. there is a flexible labour market, a fiscal system finance through taxation. In Europe, individuals are not willing to transfer funds in the form of taxes to the people of other states which makes the creation of a fiscal system harder. The most significant difference between the USA and Europe is that in the US states have the obligation to balance their operating budgets since money cannot be created to finance fiscal deficits. They prevent the kind of deficit and debt problems that occurred in the Eurozone where capital markets ignored the lack of monetary independence and regarded individual nations as capable of running large deficits.

7.5 Current situation

Today, reform is under way in most of the Eurozone and some southern European countries are regaining back their competitiveness. The government debt market is almost normal and share prices are up by a quarter over the last year. The worst of the crisis is now safely in the past. However, the Eurozone has just endured a sixth successive quarter of shrinking GDP. The figure below shows the declining levels of real GDP. Retail sales are falling and unemployment is above 12%. Although a lot of spending cuts have been applied, government deficits are still persistent and high. The same things is for debt levels. Banks are still undercapitalized and investors worry about not being compensated for their losses. Most firms in southern Europe are experiencing a credit crunch, the lending market is frozen. All these factors are of course limiting the growth in the Eurozone.

Source image: *What the euro has meant*, the Economist, 2013



Even if Europe is not about to collapse and the worst part of the crisis is now over, is important that European leaders recognize the need to act to avoid stagnation. Something should be done to make banks work properly again because with no credit there is no growth. The USA has recovered much quicker than Europe because it has been less austere and because it rapidly made banks lend again. Moreover, the Eurozone needs growth boosting reforms. What is needed more than everything is cohesion among Eurozone members. As long as conflicts will keep on arising among members the situation will not change. The main problem with the European union is not the shortage of things to do but the unwillingness to do them. (*The sleepwalkers*, 2013)

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Conclusion

In this paper we started our reasoning from the choice of an exchange rate regime among the different alternatives available. In line with the two corner view we mainly focused on the 2 extremes regimes: the freely floating and the hard pegs. The choice of a regime is very important since a country should choose the regime that suits its specific country characteristics and that can improve its economic performance. Different features should be taken into consideration such as the country's size, its production and export structure, its inflation history, the credibility of the monetary authorities, the flexibility of its labour market, the likelihood of shocks and the exchange rate fluctuations. During the past century several monetary regimes have been chosen by European countries and they all collapsed for one reason or another as the economic conditions changed. The European union was created in 1999 as a response to the failing systems that characterized the period after the two wars. It was mainly political the motive for the creation of the EMU. The EMU was seen as a way to enhance the international role of the European union in the world. The system proved to be extremely successful and the benefits were several. However, with the financial crisis this system proved to be very fragile. Although a high degree of integration has been achieved among Eurozone members is still not sufficient to form an OCA. The EMU lacks the labour mobility necessary to deal with the negative impact of asymmetric shocks. The absence of labour mobility is a consequence of the lack of flexibility of the European labour markets and of the differences among the European countries. European countries are heterogeneous, they have different legal systems, welfare systems, credit institutions, cultures which all increase the likelihood of shocks exposure. Moreover, the Eurozone also lacks a system of fiscal transfers which could represent an alternative shock absorber. It is thus very important to fill these gaps and get the Eurozone closer to an OCA to be able to respond rapidly to shocks and future financial crisis. Another alternative strategy is to achieve a deeper political integration among Eurozone countries and thus reduce these differences that represent a major shock source. Political unification is very important in crisis situations as we have seen with the current one. If political

unification is not achieved, conflicts among Eurozone countries will keep on arising and the recovery process will be slow. The Eurozone is not yet an OCA but satisfies partly this criteria. The creation of the EMU has brought incredible advantages to its members such as increase trade levels, increased price transparency, reduction in transaction costs and lower interest rates due to the lack of exchange rate risk. It is thus a monetary system that is worth to survive and prosper. However, to ensure the long run success of the Eurozone a combination of labour mobility, political unification and a system of fiscal transfers is needed to strengthen a system that has become very fragile with the crisis. If these goals are achieved, both with the appropriate reforms and especially with the willingness of the countries in question to go ahead with this project, the Eurozone will become an OCA and will enjoy all the benefits deriving from it.

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