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**Asymmetries in Post-War Monetary Arrangements in
Europe: From Bretton Woods to the Euro Area**

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Abstract

This paper provides a perspective on monetary cooperation in Europe, before and after the creation of the euro area (EA), focusing on macroeconomic and financial asymmetries among its member states. After surveying the evolution of EU macroeconomic and monetary arrangements and developments before and after the creation of the euro, and particularly the euro area crisis, we argue that economic and financial asymmetries have played a key role in post-war monetary arrangements in Europe. Such asymmetries have also characterized the euro area, which needs fundamental fiscal, financial and labor market reforms in order to operate more efficiently as an optimum currency area. Two key reforms would be a common EA budget of sufficient size, which would help smooth out the asymmetric impact of macroeconomic shocks through the operation of automatic fiscal stabilizers and the explicit recognition of the ECB as a lender of last resort in times of crisis.

Keywords: Euro area, Monetary Policy, Fiscal Policy, Current Account, Asymmetries, Reforms

JEL Classification: E6, F3

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This paper provides a perspective on the asymmetries of post-war monetary cooperation in Europe, before and after the creation of the euro area. It surveys the functioning of the Bretton Woods system in Europe, the evolution of monetary cooperation in the European Union (EU) since the collapse of the Bretton Woods, the snake, the creation of the European Monetary System (EMS), the adoption of the euro and the post-2010 crisis. This survey is suggestive of the deepening of monetary integration in Europe, but also suggests the existence of a number of macroeconomic and financial asymmetries within the group of the original 12 Euro area (EA12) members from the 1970s, if not before, until the creation of the euro.

We identify five sub-periods in the evolution of monetary cooperation in Europe. First, the Bretton Woods period, after the Western European members of the Bretton Woods system declared current account convertibility in 1958. Second, the period from the collapse of the Bretton Woods system of fixed parities in 1973, to the emergence of the EMS in 1979. Third, the period of operation of the EMS, until the creation of the euro in 1999. Fourth, the first ten years of the euro area, before the crisis of 2009-2010. Finally, we survey the period since 2010, when the euro crisis broke out, and discuss the response to the crisis.

In each successive sub-period monetary integration was becoming gradually deeper, evolving from the Bretton Woods system of the 1950s and 1960s, to the “snake” of the 1970s, the EMS of the 1980s, the tighter EMS with infrequent realignments of the 1990s, and, eventually the creation of the euro.

We then focus on discussing some of the main macroeconomic and financial asymmetries in the euro area.

All periods were characterized by significant macroeconomic and financial asymmetries among member states in the core and the periphery, but also by different degrees of monetary integration.

In our analysis, the three largest euro area economies of Germany, France, and Italy, which jointly comprise about two thirds of the euro area, are treated individually. The rest of the EA-12 economies are aggregated within two groups. The smaller economies in central and northern Europe, consisting of the Netherlands, Belgium, Austria, and Finland, which we label the ‘core’, and the economies of the ‘periphery’, comprising Spain, Greece, Portugal, and Ireland. It turns out that the economies of the ‘core’ have similar characteristics to Germany, while France and Italy share both ‘core’ and ‘periphery’ characteristics, with France being closer to the ‘core’, including Germany, and Italy closer to the ‘periphery’.¹

We discuss these asymmetries, focusing on the evolution of macroeconomic aggregates such as GDP per capita, its growth rate, unemployment rates, inflation rates and current account balances. We also discuss financial asymmetries by focusing on the evolution of short and long-term interest rates, nominal, and real exchange rates, fiscal balances, and government debt.

As monetary cooperation deepened, in the evolution from the snake to the euro, some of these asymmetries were addressed, while others were not. When the euro was created, there was a period of inertia with regards to the necessary monetary arrangements to strengthen the architecture of the common currency by addressing the remaining asymmetries, which resulted in essentially shifting the burden of adjustment to individual euro area members and their fiscal systems. While asymmetries in inflation rates, and nominal interest rates and exchange rates were

¹ We list the countries in each group in descending order of economic size, as measured by their PPP adjusted real GDP in 2001. This is the year for which we calculate the weights that go into the construction of the group aggregates. These weights are the ones used in the Area Wide Model (AWM) database of the European Central Bank. See Fagan et al (2005) for more details.

addressed by the creation of the euro- real, financial, and external asymmetries widened after the creation of the common currency, both before and after the euro area crisis.

In the first ten years of the euro, the remaining asymmetries resulted in the buildup of significant external imbalances, and eventually contributed to the euro area crisis. In this context, the main financial asymmetric shock appears to have been due to the fragile architecture of the euro itself, which, by its creation, initially brought about the convergence of nominal and real interest rates between the periphery and the core.² This convergence resulted in a widening of savings and investment imbalances in the periphery, which up until then had relatively high nominal and real interest rates, the widening of external imbalances, the buildup of external debt by the countries of the periphery, and eventually a euro area financial crisis. This process was exacerbated by the 'home' bias of banks in the countries of the euro area.

The euro area crisis was essentially an external debt crisis in an economic and monetary union with a single currency, but major economic and financial asymmetries and governance problems. Such were major differences in the product mix, fragmented national labor markets, different fiscal systems, imperfect financial integration, lack of effective cross border financial regulation, an extremely low federal budget and lack of a lender of last resort to banks and sovereign governments. In this respect, the euro area crisis of the 2010s was at the end of the day no different than other regional financial crises involving indebted economies, such as the Latin American crisis of the 1980s and the Asian crisis of the 1990s. In the words of Bernanke, this new European crisis was almost entirely homegrown and fundamentally arose because of a mismatch in monetary and fiscal arrangements, as the sixteen countries in 2010 shared a common currency, the euro, but each pursued separate tax and spending policies.³ Yet, from a political economy perspective, this crisis had important implications regarding the future evolution of the euro architecture as well as the acknowledgement that the common currency was first and foremost a political project; as Mario Draghi, then President of the European Central Bank, put it in a "sense more political" during his "whatever it takes" speech in July 2012, "when people talk about the fragility of the euro [...] underestimate the amount of political capital that is being invested in the euro."⁴

Nevertheless, a result of the major asymmetries and other economic and governance problems of the euro area is the fact that adjustment efforts since the crisis have shifted the burden exclusively towards the weaker economies in the periphery of the euro area, which suffered deep recessions, a significant rise in unemployment, continuous tax rises and exorbitant social costs for young workers and old age pensioners.⁵

Although financial market integration and effective regulation of financial markets have taken a priority since the 2010 crisis, the euro area remains a single currency area with significant real and financial asymmetries, segregated national fiscal systems, weak coordination of fiscal policies and a virtually non-existent federal budget. At the same time, the European Central Bank (ECB)

² De Grauwe and Ji (2022) document the fragile construction of the Eurozone coming from the fact that the governments of the member countries issue bonds in a currency over which they have no control.

³ Bernanke (2015), p. 475.

⁴ European Central Bank, "Verbatim of the remarks made by Mario Draghi", Speech by Mario Draghi, President of the European Central Bank at the Global Investment Conference in London, 26 July 2012. See Section 3.6 below.

⁵ The rise in current account deficits as a result of the lower real interest rates that followed euro area entry occurred in almost all of the economies of the periphery of the euro area. See Blanchard and Giavazzi (2002). Almost all of these economies faced a serious external debt crisis after 2010. The literature that focuses on the euro area crisis and its aftermath has expanded exponentially. See, among others, Lane (2012), O'Rourke and Taylor (2013), Baldwin and Giavazzi (2015, 2016), Orphanides (2015, 2017a, b), Brunnermeier et al. (2016), Kang and Shambaugh (2016), Papademos (2016), Stiglitz (2016), Wyplosz (2016), Benassy-Quere et al. (2018), De Grauwe and Ji (2018), Mody (2018), Pisani-Ferry (2018).

remains the only major central bank in the industrialized world which cannot function properly as a lender of last resort to governments and commercial banks. In addition, labor markets in the euro area remain fragmented, contributing to major differences in unemployment rates, which are exacerbated by the notoriously low degree of labor mobility in Europe.

Hence, not only does the euro area not satisfy the main criterion suggested by optimum currency area considerations, namely the absence of asymmetries and asymmetric shocks, it furthermore lacks the other two main prerequisites for macroeconomic stabilization, namely integrated labor markets and a federal budget that would act as an automatic stabilizer in the case of asymmetric macroeconomic developments. Furthermore, its response to major financial crises the Euro area is hampered by the lack of an effective lender of last resort, the creation of the European Stability Mechanism (ESM) notwithstanding.

In the final section of the paper, we briefly discuss two key reforms at the level of the euro area, which in conjunction with reform efforts at the national level in the countries of the periphery, would help address the main fault lines of the single European currency, and allow the euro area to become less asymmetric and an area of prosperity for all its members.

The rest of the paper is as follows: In section 1 we survey the evolution of post war monetary cooperation in Europe and document the gradual deepening of monetary cooperation among member states. In section 3 we survey the evolution of the euro from the period of euphoria between 1999 and 2007, to the post-2008 period of crisis. In section 4 we discuss optimum currency area considerations for the euro area. In section 5 we discuss the main macroeconomic and financial asymmetries between the 'core' and the 'periphery' countries of the euro area, and proposals for euro area reform. The final section summarizes our conclusions.

1. From Bretton Woods to the European Monetary System

The countries of the European Union were key members of the Bretton Woods system of fixed but adjustable exchange rates that emerged in the aftermath of World War II. Thus, post war monetary cooperation in Europe effectively started through their adherence to the rules envisaged in the Bretton Woods system. In this context, "the return of European currencies to convertibility in 1958 marked the end of one era and the beginning of another".⁶

1.1 The Bretton Woods System, 1958-1973

The Bretton Woods system departed from the interwar gold exchange standard in at least three respects: First, it provided for pegged exchange rates, which were however adjustable in cases of a "fundamental disequilibrium". Second, it permitted controls to limit international capital flows. Third, a new institution, the International Monetary Fund (IMF) was created, to monitor national economic policies and extend balance of payments financing to countries that required it.⁷

According to Roubini & Mihm (2010), one of the principal responsibilities of the IMF has been to act as an international lender of last resort to governments and central banks who find themselves in the position so many countries faced later in the 1990s.⁸ After a rather calm decade for European economies during the larger part of the 2000s, with relative inaction on the part of the IMF in global monetary affairs, the absence of a similar institution suitable for arranging a loan for

⁶ Mehrling (2022), p. 135.

⁷ Interestingly, as Mehrling (2022, p. 136) puts it, "In Triffin's mind, the IMF had been supposed to be a world central bank."

⁸ Roubini and Mihm (2010), pp. 76-77.

a euro area country⁹ led, in parallel with the developing political and economic conditions, to its involvement and participation in the Greek bailout program in 2010, with the ultimate goal being the preservation of monetary stability in two stages; first, in the aftermath of the Great Recession, monetary stability was preserved by the coordinated institutional arrangements among the United States, Germany (as the leading economy within the Euro Area) and China, in order to maintain the status quo of the US dollar as a global reserve currency;¹⁰ second, during the subsequent euro crisis, the European Central Bank firmly stated that within its mandate it was ready to do “whatever it takes” to preserve the common currency, thus confirming the inherent monetary stability provided by the euro, *per se*,¹¹ among the member states of the Euro Area, in the long process of the European integration.¹²

The Bretton Woods system was meant to address the three fundamental weaknesses of the interwar monetary system, such as the high volatility of exchange rates, disruptive capital flows and the absence of an effective mechanism of international adjustment. The system became fully operational in 1958, with the removal of exchange controls for current-account transactions.

Under the Bretton Woods system, the dollar’s international status was recognized and given prominence. From the beginning, as Bernanke puts it, “the system afforded the greatest flexibility to the United States, which enjoyed substantial freedom to pursue its domestic policy objectives as well as the ability to run sustained balance-of-payments deficits. The latter, according to French finance minister Valéry Giscard d’Estaing, gave the United States an ‘exorbitant privilege’.”¹³ Also in practice, because the United States was the only country which pegged its exchange rate to gold, the system evolved into a gold-dollar standard and, consequently, the dollar dominated the international monetary system, as it became a medium of exchange, a unit of account and a store of value, thus fulfilling the three basic functions of money.¹⁴

All through the 1960s, the United States trade and current-account balances were in substantial surplus and domestic savings exceeded domestic investment, with the gap narrowing towards the end of the decade. As a result, the United States was a net investor abroad, investing the excess savings in foreign earning assets.¹⁵ In fact, although the United States continued to run current-account surpluses, foreign direct investment by U.S. multinationals in Europe, as well as other capital outflows, produced an overall deficit in the U.S. balance of payments. In the end, as a result to building imbalances, dollar and gold outflows intensified. “The Bretton Woods system ultimately broke down in part because the U.S., as the ‘anchor’ country, didn’t live up to its obligation to maintain price stability.”¹⁶ As Robert Triffin, one of the architects of the European Payments Union (EPU)¹⁷ put it in his famous dilemma, the Bretton Woods system relied on the U.S. providing liquidity worldwide; yet, dollar liquidity would stop, unless the U.S. continued

⁹ Eichengreen and Temin (2010, p. 380) compare the unsuccessful attempt to arrange an international loan for Austria through the BIS in 1931, when the international system began coming apart, with the euro area crisis in 2010, when it became necessary to arrange an emergency loan for Greece, arguing that “there was no analogous organization suitable for arranging a loan for a euro area country”.

¹⁰ See Vliamos, S. and Gravas, K. (2018).

¹¹ Gravas (2019, pp. 128-129) has interpreted these events as contributing to *monetary peace*.

¹² Section 3 below provides more details.

¹³ Bernanke (2016), <https://www.brookings.edu/blog/ben-bernanke/2016/01/07/the-dollars-international-role-an-exorbitant-privilege-2/>.

¹⁴ Bordo (2017), <http://www.nber.org/papers/w23189>.

¹⁵ Eichengreen (2010), pp. 12-14.

¹⁶ Bernanke (2016), <https://www.brookings.edu/blog/ben-bernanke/2016/01/07/the-dollars-international-role-an-exorbitant-privilege-2/>.

¹⁷ See Mehrling (2022, p. 136). Triffin envisaged the EPU “as a kind of regional version of the International Clearing Union that had been proposed by Keynes at Bretton Woods.”

running deficits; on the other hand, U.S. deficits undermined confidence in the dollar; and if the price of gold rose against the dollar, other countries would stop wanting to hold dollars.

In this respect, starting from 1960, efforts to address perceived deficiencies in the operation of the system assumed the form of perfecting interventions in the private gold market through the organization of the Gold Pool,¹⁸ and the establishment of various formal liquidity-increasing techniques, such as the General Arrangements to Borrow (GAB), currency swaps among central banks, and special drawing rights (SDRs).

However, the U.S. focus on national economic priorities, the growing ineffectiveness of capital controls after the restoration of convertibility for current account transactions and the inadequacy of measures to contain the dollar glut marked the beginnings of the end of the Bretton Woods system.

As speculative pressures were mounting, in 1968 central banks stopped buying or selling gold in the open market and the Gold Pool was dissolved. Only foreign central banks could then buy gold from the U.S. Treasury. This effectively changed the Bretton Woods system from a gold-dollar standard, anchored through a fixed dollar price of gold, into a dollar standard.

With a dollar standard, the inflation rates of the other countries in the Bretton Woods system had to move in line with the inflation rate in the United States. Given the fixed exchange rate to the dollar, and the overall expansionary monetary policy in the United States that started in 1964, European countries and Japan essentially had to inflate along with the United States.

Speculative pressures against the dollar gradually increased, and despite efforts to save the system, when confronted with monetizing further massive dollar inflows in March 1973, the other industrial economies decided to let their currencies float, effectively ending the Bretton Woods system.

Soon, the economies of the European Economic Community (EEC) realized that floating exchange rates implied major problems for intra-European trade and the operation of their evolving common community policies. Since the late 1960s, even before the collapse of the Bretton Woods system, and following the completion of the Customs Union ahead of schedule, they had been seeking to create an institutional framework within which they could stabilize their currencies against one another.¹⁹

1.2 *The Werner Report, 1970*

In 1970, a study group of high-level officials, chaired by the prime minister of Luxembourg Pierre Werner, was formed in order to study further steps towards monetary integration in Europe. The Werner report, which resulted from this group, described a process through which monetary union could be created by 1980. "It saw irrevocably locking exchange rates as essential for preservation of the Common Market and as insulating Europe from destabilizing monetary impulses from the United States."²⁰ "It recommended creating a central authority to guide and harmonize national economic policies, concentrating fiscal functions at the Community level and accelerating the integration of factor and commodity markets."²¹ Instead of a central bank and a

¹⁸ Interestingly, Eichengreen, *Global Imbalances and the Lessons of Bretton Woods*, Cambridge: MIT Press 2010, p.35, characterizes the Gold Pool as "one of the more neglected aspects of the international financial architecture of the 1960s", one of the possible explanations being "the complex and technical nature of the arrangement".

¹⁹ In this paper, when we refer to the countries of the European Union (EU), we use the term European Community (EC) for the period before 1992, as this was the official name of the current EU.

²⁰ Eichengreen, B. (2011). *Exorbitant privilege*. Oxford: Oxford University Press, p. 75.

²¹ Eichengreen, B. (2008). *Globalizing capital: A history of the international monetary system*. Princeton: Princeton University Press, p. 151.

common currency it proposed a 'European System of National Central Banks', and a progressive hardening of exchange rate commitments.²²

Although the Werner Report was officially adopted²³, subsequent events prevented its application. Yet it provided the basis for the response of the EEC to the collapse of the Bretton Woods system in 1973. Since the Smithsonian agreement of 1971, EEC countries had sought to limit the fluctuations of their bilateral exchange rates in a range of $\pm 4\frac{1}{2}\%$ in an arrangement known as the snake. They maintained this arrangement even after 1973. Denmark, Ireland, and the UK, soon to become members of the EEC, also participated in the snake.²⁴

1.3 The Snake, 1971-1978

The political champions of European integration had seen the snake as a step toward monetary union.²⁵ However, due to divergent monetary policies and inflation rates between the core economies of Germany, France and Italy, the snake was soon under pressure, even though it provided for short-term and very short-term financing facilities for weaker currencies. Both France and Italy experienced much higher inflation rates than Germany in the 1970s, after the collapse of the Bretton Woods system.²⁶

Italy withdrew from the snake in early 1973. In January 1974 France was forced out, and adopted floating until July 1975, when it rejoined. It left the snake again in March 1976, due to the incompatibility of the German and French response to the oil crisis. In October 1976 there was an agreement on exchange rate changes, the so-called "Frankfurt realignment". Further realignments followed. Sweden withdrew in 1977.

In the end the snake failed to provide the hoped-for exchange rate stability, with the exception of short periods. Part of the reason was the first oil shock in 1973 and its asymmetric financial consequences in Europe, as different European countries relied to differing degrees on imported petroleum and raw materials. A second asymmetry was related to the differing approaches within the EEC, with regard to the appropriate policy response to the oil shock, resulting to a lack of policy cohesion.²⁷

1.4 European Monetary Asymmetries during before and after the demise of Bretton Woods

Yet, both the political and economic conditions that developed shortly before the collapse of the Bretton Woods system as well as the key persons leading the American and European governments at the time, decisively shaped the events of the next few decades. The common fear of a possible devaluation of the dollar, and consequently of the impossibility of maintaining the monetary status quo, which functioned smoothly thanks to post-war institutional arrangements, triggered, between 1968-1971, a series of chain reactions within the Franco-German axis, as a result of the asymmetric capital flows which pushed the D-mark upwards and the French franc downwards.

The German government and its economic team did not want a revaluation of the mark, as exports which were crucial for the growth of the German economy would suffer. On the other hand, General De Gaulle's French government-imposed exchange controls, merely buying time without effectively solving the problem. In mid-1969, De Gaulle's succession by Georges Pompidou

²² See Werner et al (1970).

²³ According to Eichengreen (2011, p. 75), "European economics and finance ministers endorsed the Werner Report in March 1971."

²⁴ See Eichengreen (2008, pp. 151-153).

²⁵ Eichengreen (2011, p. 79).

²⁶ Alogoskoufis and Jacque (2021).

²⁷ Eichengreen (2008, pp. 155-156).

brought with it the sudden devaluation of the French currency, with Pompidou following a more pragmatic policy than his predecessor. In the same period, political affiliations changed in Germany as well. The new German government, under Chancellor Willy Brandt, proceeded to increase the price of the D-mark. The disruption of monetary stability in Europe was a consequence of the dollar-centric system's macro-economic imbalances, which hindered the operation of many major central banks. The Bundesbank, which saw itself as the guardian of price stability, believed at the time that its cooperation with the Bank of France would endanger this role, making it more difficult for German monetary policy to deal with inflationary pressures.²⁸

If, however, monetary cooperation along the Franco-German axis, which was crucial for the continuation of the European vision for economic and monetary union, was not feasible due to the aforementioned asymmetries and also due to changes in political conditions in the two countries, the suspension of the conversion of dollars into gold by the U.S. in 1971, combined with the Nixon administration's increasingly unilateral policies, thus weakening transatlantic cooperation, strengthened the argument for deepening the European Community along the Franco-German axis. Policy makers in France saw closer cooperation with Germany, also considering a common European currency as essential for the following three main reasons: first, to free monetary policy from domestic politics and import German monetary stability; second, to safeguard the Common Agricultural Policy which had brought substantial benefit to French farmers; and third, to constitute a potential rival to the dollar in the international monetary system.²⁹

Over the course of the 1970s, as Judt recounts in his *Postwar: A History of Europe since 1945*, a growing number of politicians came to the conviction that inflation then posed greater risks than high levels of unemployment. Since inflation could not be addressed without some sort of international arrangements for the regulation of currencies and exchange rates -to replace the Bretton Woods system precipitately overthrown by Washington- the six original member states of the European Economic Community (EEC) agreed to establish the snake. Yet, as even the French were twice forced out of the snake, in 1974 and again in 1976, it was clear that something more was needed.³⁰

In the late 1970s, the process of monetary unification intensified with the creation of the European Monetary System (EMS).

2. From the European Monetary System to the Euro

The European response to the collapse of the Bretton Woods system was to intensify economic and monetary cooperation at the regional level, as the Europeans were united in their desire to create a second international monetary pole to counterbalance the dollar and to establish a zone of monetary stability in Europe.

France's inability to stay in the snake was an experience that inspired French officials to seek the construction of a sturdier structure, critical to the success of which would be the cooperation of the German government. From this point of view, the initiative for the creation of the European Monetary System (EMS) belonged to France. Yet, according to Judt (2006, p. 461), German Chancellor Helmut Schmidt proposed to recast the snake into an altogether more rigorous mechanism, aiming to promote internal and external monetary stability. A grid of fixed bilateral exchange rates would be set up, linked by a purely notional unit of account, and underwritten by

²⁸ For an overview of the commitment to maintaining price stability, and hence monetary stability, regarding Bundesbank's policy in the 1970s and 1980s, see Issing (2005), pp. 329-335.

²⁹ Eichengreen (2011, p. 74).

³⁰ Judt (2006, pp. 460-461).

the stability and anti-inflationary priorities of the German economy and the Bundesbank. In fact, if not in name, it amounted to the recommendation, for Europe at least, of a replacement of the dollar by the German mark as the currency of reference.

In any case, the analogy between the Bretton Woods negotiations, which were dominated by the British and American delegations, and the EMS negotiations dominated by the leaders of the two dominant EC member states, namely the Franco-German axis, is obvious.³¹ A blueprint was unveiled in July 1978 as a joint Franco-German initiative.³²

Arrangements for the creation of the European Monetary System were concluded in two European Councils in Bremen in July 1978 and in Brussels in December of the same year. With the creation of the EMS, the snake was replaced some years after the demise of the Bretton Woods system of fixed exchange rates. The objective of the EMS was the same as the snake's: to ensure relatively stable exchange rates in the EC. This stability was considered as a prerequisite for the effective functioning of the Community, especially with reference to free intra-Community trade, the Common Agricultural Policy (CAP), and other common policies.³³

2.1 The Structure of the European Monetary System

The European Monetary System was designed as a symmetric system, unlike the Bretton Woods system which was explicitly based on the US dollar. Its structure was defined by four elements:

First, a common unit of account, the European Currency Unit (ECU). The ECU³⁴ was defined as a weighted average of the Community's national currencies. For each national currency a central rate was set against the ECU. For any two currencies, the ratio of their central rates against the ECU provided their central bilateral exchange rate, and the total of bilateral central rates defined the parity grid of the system.

Second, a mechanism was created for limiting fluctuations in nominal exchange rates among the participating currencies, the Exchange Rate Mechanism (ERM). For currencies participating in the ERM, national central banks undertook to maintain market rates against any other currency in the system within predetermined limits relative to the bilateral central rates. These limits, until 1993, were $\pm 2.25\%$. For some currencies, wider limits were allowed, i.e., a range of $\pm 6\%$ for the Italian lira. Exchange market interventions had to take place when a bilateral rate reached the band limit. These were called marginal interventions. Marginal interventions had to take place through the central bank of the depreciating currency, but the central bank of the appreciating currency undertook to provide the central bank of the depreciating currency with unlimited credit, after the latter had used all of its foreign exchange reserves in that currency. Intra-marginal interventions also took place, by the central bank of the depreciating currency. These were not compulsory and required the approval of the central bank whose currency was used in the interventions. Many central banks engaged in intra-marginal interventions, in order to stop their currency from reaching the lower limit of the exchange rate band. There was also a divergence indicator, which did not play an essential role in the operation of the system.

³¹ See Eichengreen (2008, p. 158).

³² Eichengreen (2011, p. 81).

³³ Eichengreen (2013). The Treaty of Rome had already acknowledged that the exchange rate of member countries was a matter of "common interest". Furthermore, even before the collapse of the Bretton Woods, and in view of the incipient instability of the dollar in the late 1960s, the European Council had authorized the Werner report on moving ahead with economic and monetary union (EMU). See Werner et al (1970).

³⁴ Interestingly, Judt (2006, p. 461) notes a distinct political use of this acronym which, by reviving the name of an eighteenth-century French silver coin, helped assuage Parisian discomfort at having to acknowledge West Germany's emerging primacy in the monetary affairs of Europe.

Third, a mechanism was foreseen for financing the required foreign exchange market interventions and current account deficits, the financing facilities. These were divided into three types: 1. The Very Short-Term Financing Facility, 2. The Short-Term Monetary Support, and, 3. The Medium-Term Financial Assistance. The management of the first two belonged to the jurisdiction of national central banks, while the third was under the jurisdiction of the Council of Ministers. The Short-Term Monetary Support provided short-term credits for financing deficits in the balance of payments, while the Very Short-Term Financing Facility was aimed at financing interventions within the Exchange Rate Mechanism.

Finally, the system allowed for devaluations through the policy of exchange rate realignments. Initially the decision to realign the central parities was unilateral, but later, after 1981, collective decisions were required within the Community's Monetary Committee and the ECOFIN Council. After 1981, collectively agreed realignments did not cover the full inflation differential between the currency being devalued and the other currencies.

Those four elements were based on the experience of the post-war Bretton Woods system of fixed, but adjustable, exchange rates, which collapsed in the early 1970s, the Werner et al. (1970) report, and the European experience between 1973 and 1978, when the European Economic Community experimented with both flexible exchange rates and systems for limiting exchange rate flexibility, such as the 'snake'.

2.2 EMS Asymmetries

The EMS reduced fluctuations in nominal and real exchange rates in Europe, thus contributing to exchange rate stability. However, despite its explicitly symmetrical design, the EMS ended up operating asymmetrically.

Asymmetries emerged because German monetary policy was systematically more restrictive than the monetary policy of the other economies participating in the system and because the DM was an international reserve currency to a much greater extent than the other currencies of the EC.

The more restrictive monetary policy of the German Bundesbank led to the need for intra-marginal interventions by other central banks. Thus, monetary policy became more restrictive in all the countries that participated in the system. Otherwise, the pressure on weaker currencies became too strong and resulted in the need for downward realignments of their exchange rates (devaluations).

The more restrictive monetary policy of Germany can be seen when one compares German inflation to that of France and Italy. Even before the abandonment of the Bretton Woods system of fixed exchange rates, French and Italian inflation was slightly higher than German inflation. After the abandonment of the system in 1973, French and Italian inflation shot up, as both countries loosened their monetary policy, whereas German inflation went down as Germany tightened its own monetary policy. The inflation differentials remained high until the late 1980s.

Because of collective decisions about realignments, devaluations in countries with more expansionary monetary policies and higher inflation than Germany were never equal to the cumulative inflation differential between these economies and Germany. This was especially true for Italy. As a result of the limited realignments the real exchange rate of the Italian lira (IL) appreciated by 36.4% in the first ten years of the EMS, between 1979 and 1988. The real exchange rate of the French franc (FF) appreciated by much less in the same period, 5.2%, both because of the lower inflation differential between France and Germany and the higher nominal realignments

secured by France. Thus, through the EMS, Germany was becoming more and more competitive vis-a-vis competing EU economies with higher inflation.³⁵

The second asymmetry of the system resulted from the international position of the D-mark, which was an international reserve currency, unlike other currencies in the EMS. This meant that when there were disturbances in international financial markets affecting the exchange rate of the dollar or the yen versus the DM, there were pressures for realignments in the ERM. This happened because such international financial disturbances caused changes in the DM demand and supply in relation to other European currencies, resulting in significant pressure on the bilateral exchange rates of other ERM currencies against the DM.

The ERM faced considerable pressures in periods of significant dollar appreciations or depreciations, such as 1981-1983, or in 1986. These pressures lead to realignments of central parities.

Between 1986 and 1992, as a result of a tightening of monetary policy in France, Italy and other weaker currency economies, realignments virtually ceased. The EMS eventually became a broad DM zone, where monetary policy was determined effectively by the Bundesbank. The rest of the participating countries had to adapt to this policy in order to avoid real exchange rate appreciations and politically damaging devaluations. Thus, they ended up adapting to the monetary policy of the Bundesbank, effectively 'borrowing' its anti-inflationary reputation. As a result, all EMS countries eventually achieved lower inflation. At the same time, Germany was consolidating its gains in competitiveness, as it continued to have lower inflation than the rest.

All things considered, all countries came out with something out of this asymmetric system, with France and Italy achieving lower inflation and Germany gaining in international competitiveness.³⁶

2.3 The Planned Path towards the Euro

The initiative for the creation of the monetary union also belonged to France,³⁷ which, early in 1988, with a memorandum of the Minister of Finance to his EEC colleagues, proposed the march towards the single currency. Italy agreed immediately, while Germany was initially more skeptical; with the end of the Cold War, the decision of European governments to negotiate a legally binding agreement on monetary union was taken in December 1989, little more than a month after the fall of the Berlin Wall and the announcement of the German government's plan for the reunification.³⁸

The European Council in Hanover in June 1988 set up an eight-member committee, chaired by Jacques Delors, then President of the European Commission, which would study the matter. The Committee, in April 1989, submitted a report to the Council of Finance Ministers (ECOFIN) proposing a three-stage process for creating a single currency.³⁹

The first stage envisaged capital account liberalization for the countries participating in the EMS. This was to take place until July 1990. No country would be allowed to maintain capital controls.

The second stage, which began on January 1, 1994, aimed at the greatest possible convergence of fiscal and monetary conditions and policies of EU member states, as enshrined in the subsequent

³⁵ See Alogoskoufis and Jacque (2021).

³⁶ See Eichengreen (2008) for a historical account of the operation of the EMS within the context of the international monetary system. Giavazzi and Giovannini (1989) contain a detailed analytical treatment of the EMS. James (2012) traces monetary cooperation in Europe in the post-war period until the creation of the euro.

³⁷ Eichengreen (2011, p. 86) mentions that, in long-standing French tradition, the goal of creating a European reserve currency alongside the dollar was seen as one of the important results of the process of a monetary union.

³⁸ Eichengreen (2011, p. 88).

³⁹ See Delors Committee (1989) for more details.

Maastricht Treaty of 1992, in order to achieve fiscal convergence and price stability, which were deemed necessary and sufficient conditions for monetary integration.

The third stage was the monetary union itself, which would transfer all monetary policy decisions to an independent European Central Bank (ECB).

In late 1991, after an intergovernmental conference (IGC), all EEC member states signed the Treaty on European Union, in Maastricht, The Netherlands.

Under this treaty, the EEC was renamed the European Union (EU), and in addition to the Single Market program, EEC members agreed on a detailed timetable and conditions for adopting the single currency. The deadlines for the introduction of the new currency were adopted by the Madrid European Council in December 1995. This Council also decided that the name for the single currency would be the euro.

The timetable stipulated that until January 1, 1994, the EU would complete the single market and all national parliaments would have ratified the Maastricht Treaty. It also provided for the prohibition of monetary financing of budget deficits, the lifting of all restrictions on the movement of capital and preparation for participation in the Exchange Rate Mechanism of the European Monetary System for the countries that were not part of it, as well as the political independence of central banks. When these conditions were satisfied, the second stage of Economic and Monetary Union (EMU) would begin.

The Maastricht Treaty on the European Union also provided for the adoption the so-called convergence criteria. These consisted of targets for,

1. reducing budget deficits below 3% of GDP
2. reducing public debt below 60% of GDP
3. reducing inflation sufficiently close to the average of the three countries with the lowest inflation rates
4. reducing short term nominal interest rates sufficiently close to the average of the three countries with the lowest nominal interest rates
5. participation in the ERM of the EMS for at least two years

Achieving these objectives was considered as a prerequisite for a country to participate in the third stage of EMU. The European Commission and the European Central Bank would report, in special Convergence Reports, whether a country did or did not satisfy these criteria.

2.4 The 1992-93 ERM Crisis

The complete abolition of capital controls since the early 1990s made the ERM extremely vulnerable, as demonstrated by the speculative attacks of September 1992 and August 1993. The proximate cause was again related to the main macroeconomic and fiscal asymmetries among the EU economies.

A series of adverse shocks broke down the defense mechanisms of the system, such as the mechanism for coordinating macroeconomic policies and the realignment of exchange rates.

In September 1992, the credibility of the ERM was tested and the system could not withstand the pressures. Both the Italian lira and the British pound sterling, which had joined only recently, were ejected from the ERM.

After a year of realignments and periodic crises until late July 1993 and following further pressure on the exchange rates of weaker currencies, the ECOFIN decided to extend the fluctuation margins to $\pm 15\%$, in order to defuse further pressures on central parities.

There were a number of shocks and imbalances that contributed to the 1992-93 ERM crisis, in addition to the chronic macroeconomic asymmetries among European countries.

First, German unification, which transformed Germany from a net creditor to net borrower in the global economy. This also caused an increase in German inflation and led the Bundesbank to tighten monetary policy by raising interest rates.

Second, asymmetries between US and EU monetary policy. In 1992, due to the elections and the recession in the US, the monetary policy of the Fed was relaxed, and the dollar entered into a depreciation path against the DM that caused increased pressures on the ERM.

Third, the political crisis in Italy. This took place at a time when there was a large increase in the fiscal deficit and public debt, which caused a crisis of confidence and speculative pressures on the Italian lira.

Fourth, the negative result of the referendum in Denmark on the ratification of the Maastricht Treaty, the prospect of the French referendum and the ambiguous attitude of politicians in Great Britain. These caused a more general crisis of confidence in the system and in the process of Economic and Monetary Union.

However, following the exit of the lira and sterling from the ERM and the widening of the fluctuation margins for the rest of the participants, the crisis was defused and was gradually contained. The march towards Economic and Monetary Union gathered pace.

2.5 The Final Stage of EMU

The third stage of EMU began on January 1, 1999, by irrevocably fixing the bilateral exchange rates of the currencies of the participating countries and the single currency, the euro.

In May 1998 it was decided which countries would participate in the third stage of EMU. The selection of the 11 countries was based on the five fiscal and monetary convergence criteria of the Maastricht Treaty and convergence reports by the European Commission and the European Central Bank.

As documented by Alogoskoufis and Jacque (2021), convergence on the government deficit front had been achieved since 1998 but was anything but sufficient. The average deficit of the original 12 was below the 3% threshold, but some countries were marginally close to that threshold. In addition, government debt as a percentage of GDP was much higher than the 60% target envisaged in the Maastricht treaty and was not converging sufficiently quickly towards that target. Nevertheless, in the haste to include as many countries as possible among the initial group, the criteria were interpreted somewhat broadly.

The third phase was completed on January 1, 2001, with the introduction of the euro in accounting form.

From January 1, 2002, the euro became legal tender, with the introduction of cash in everyday transactions. On this day, the circulation of banknotes and coins and the swift (within two months) withdrawal of national currencies began throughout the euro area.⁴⁰

3. The Euro area Economy: From Euphoria to Crisis

From January 1, 2001, there is a single currency in the euro area economy and, therefore, a single monetary policy for all member states. This is decided upon and implemented by the European Central Bank which aims to ensure price stability.

⁴⁰ Marsh (2011) contains a detailed account of the political process that led to the creation of the euro.

A central pillar of macroeconomic policy coordination was supposed to be the Stability and Growth Pact (SGP). The pact required all economies in the euro area and the EU to maintain fiscal deficits below 3% of GDP, to pursue budgetary balance over the medium term and to ensure that public debt does not exceed 60% of GDP, or that it tends towards this objective.

The original Stability and Growth Pact provided for remedial action for those economies that did not meet their fiscal targets. The SGP was revised in 2005, after several economies, including Germany and France, failed to promptly correct their excessive deficits.

The revised Pact was more flexible regarding the time available for the correction of excessive deficits, but at the same time more demanding in terms of maintaining fiscal balance in so called 'good times'.

Countries were required to tend towards fiscal balance (zero budget deficits) during so called 'good times', by reducing their deficits by at least 0.5% of GDP annually. As this provision was not implemented strictly by all countries, the Eurogroup and the ECOFIN Council decided in 2007 to aim for fiscal balance for all countries by 2010. However, following the international financial crisis of 2008, the European Commission proposed and the ECOFIN Council decided to apply the pact in a more flexible way, as the euro area economy entered a recession and the subsequently the euro area crisis threatened the very existence of the euro.

The first ten years of the euro saw new asymmetries develop in Europe as a result of the introduction of the single currency and the convergence of inflation rates and nominal interest rates. The new asymmetries appeared in the form of the development of current account imbalances between the "core" countries of the euro area and the countries in the periphery.

3.1 Macroeconomic Euphoria and External Imbalances

The first nine years of the euro constituted a period of macroeconomic euphoria throughout the EA. In most respects, the creation of the euro area appeared an unmitigated economic success.⁴¹

Growth rates remained high throughout the area, with countries in the periphery growing faster than Germany, France, Italy, and the smaller economies of the core. Inflation rates in the periphery converged further towards the low inflation rates of the core and unemployment rates were on a downward path, especially in the periphery. However, these first nine years of the euro saw new asymmetries develop as a result of the introduction of the single currency and the convergence of inflation rates and real interest rates. The new asymmetries appeared in the form of significant current account imbalances between, on the one hand, Germany, and the smaller core economies and, on the other hand, Italy, and the economies of the periphery. France remained somewhere in between.

The evolution of real per capita GDP in the euro area of 12 (EA-12) suggests that between 1999 and 2007, the first nine pre-crisis years of the euro area, real GDP per capita was growing at an average annual rate of about 1.7%. This was the same as in the USA and significantly higher than the average growth rate of 1.4% in Japan.

GDP per capita in the economies of the periphery was rising faster than the EA-12 average, about 2.6% per year. The same applied to the small economies of the core which also experienced higher than average growth rates at 2.0% per year. However, the average annual

⁴¹ In the remainder of this paper we shall concentrate on three groups of countries. First, the euro area of 12 (EA-12), which represents mainly the behavior of the three largest euro area economies (Germany, France, and Italy). Second, the group of the smaller economies

growth rates in the three largest economies were lower than the EA-12. (Germany, 1.7%, France 1.4%, Italy 1.1%).

Unemployment rates also fell significantly. For the EA-12, the average unemployment rate fell from 9.8% in the 1990s to 8.5% in 2000-2007. Average unemployment rates in the periphery fell even further, from 14.6% in the 1990s to 9.3% during 2000-2007. In the smaller economies of the core average unemployment rates fell from 7.1% in the 1990s to 5.9% in 2000-2007.

The periphery also experienced the largest benefits in terms of further reductions of inflation. Average annual inflation rates in the economies of the periphery fell from 5.3% in the 1990s to 3.3% in 2000-2007.

There is no doubt that the first nine pre-crisis years of the euro area were a period of macroeconomic euphoria, especially for the economies of the periphery.

The proximate cause of the economic boom in the countries of the periphery of the euro area was the precipitous fall in their real interest rates, as, following the elimination of the devaluation premium, these interest rates converged with those of Germany and the smaller core economies.

However, not all was well. One of the main characteristics of the 1999-2007 period was the development of significant external imbalances between the economies of the periphery and Italy on one hand, and the core and Germany on the other. These external imbalances, resulted in the fast and excessive rise in international indebtedness of the countries of the periphery of the euro area, which made them extremely vulnerable in the aftermath of the international financial crisis.

It is worth considering the evolution of the average current account balances of Germany, France, Italy, and the groups of smaller economies of the core and the periphery. The participation of the economies of the periphery in the euro area was associated with a significant widening of their current account deficits. On average, following the creation of the euro area, the current account of the EA-12 remained in a small surplus. The surplus rose from 0.1% of GDP in the 1990s to 0.4% of GDP in 2000-2007. However, the economies of the periphery saw their average current account deficit rise from 2.5% of GDP in the 1990s to 6.8% of GDP in 2000-2007. Furthermore, the rise was almost continuous throughout the first nine years after the creation of the euro and reached almost 10% of their GDP in 2007. Italy also saw its current account surplus gradually move into deficit. These rising deficits were associated with current account surpluses in the rest of the euro area. The average current account surplus of the small core economies of the north rose from 2.4% of GDP in the 1990s to 4.8% of GDP in 2000-2007 but did not display a further significant trend in the 1999-2007 period. Germany moved from a small current account deficit of 0.6% of GDP in the 1990s to a surplus of 2.9% of GDP in 2000-2007. Italy displayed a similar if less pronounced pattern as the economies of the periphery. From a surplus of 0.6% of GDP in the 1990s it gradually moved to current account deficit averaging 0.7% of GDP in 2007. France displayed a positive but shrinking current account surplus. Thus, the first nine years of the euro area were characterized by widening current account deficits in the periphery and, to a smaller extent, Italy, and significant and rising current account surpluses in Germany and the smaller economies of the core.

The proximate cause of the external imbalances was the same as the proximate cause of the stronger post-euro boom in the periphery. The precipitous fall of real interest rates in the countries of the periphery which converged with those of the core countries.

A sharp drop in real interest rates is expected to lead to an increase in international borrowing, as private savings fall, and investment rises. This is exactly what happened in the euro area. In

addition, governments found it more attractive and easier to borrow at the lower interest rates that they faced.

For a long time, the risks of low interest rates and the consequent widening of external imbalances were underestimated. Many even considered the fall in interest rates as highly beneficial and an indication of a successful financial integration between the periphery and the core.⁴²

A significant problem was that much of the additional investment in the periphery was directed to non-tradable sectors, such as public investment and real estate, including housing. Hence, the increase in external indebtedness was not associated with an increase of the export capacity of the economies of the periphery.

Worse still, capital flows contributed to house price bubbles that eventually would inevitably burst, leading to losses for lenders, chiefly domestic banks, who had extended the loans. Due to the doom-loop between domestic banks and governments, which made governments eventually responsible for bailing out banks, the bursting of these house price bubbles eventually led to a rise in government deficits and debts in countries such as in Ireland and Spain.

The inflows also contributed to the increase of wages and costs, which resulted in continuous losses of competitiveness that further contributed to the widening deficits in the current account. All the economies of the periphery - Greece, Ireland, Portugal, and Spain - had inflation rates above the euro area average. Instead, all of the core economies, except the Netherlands and Luxembourg, had inflation rates below the average of the euro area.

Hence, the economies of the periphery were not investing sufficiently in sectors which would in the longer run help service their growing external debt. In addition, they were continuously losing international competitiveness, which undermined even their existing export capacity.

The influx of foreign capital also contributed to the smooth financing of budget deficits, which, especially in Greece and Portugal, rose again after these economies joined the euro area. However, the large accumulated deficits in the current account in Spain were not accompanied by higher corresponding public deficits.

It also has to be noted that adverse fiscal developments were not simply a problem of the periphery in the early years of the euro area. Even Germany and France experienced public debt accumulation of around 20 percentage points of GDP over this period. Italy's public debt accumulation was higher but of a similar order of magnitude. None of these countries, however, experienced major imbalances in the current account. On the other hand, Finland and Luxembourg had unusually large fiscal surpluses.

We shall examine the current account imbalances between the core and the periphery of the euro area in more detail in the sections that follow, as they are the key to understanding the causes of the euro area crisis.

3.2 Financial Imbalances

The cumulation of current account imbalances resulted in a corresponding cumulation of financial imbalances. These were transmitted to the economies of the core who were financing the current account deficits of the periphery, but also higher investment in the core countries.

⁴² See Blanchard and Giavazzi (2002) for an early examination of this particular view.

The cumulative additional lending of Irish banks amounted to almost four times the country's GDP. For banks in Austria, it amounted to 2.5 times GDP. For banks in Spain, Belgium and France cumulative new bank lending was over 100% of GDP.

By 2007, many euro area banks were not only too big to fail, but they were also too big to be saved. As the euro area was not a banking union, bailing out the banks remained a national responsibility. Banks in Ireland had liabilities equivalent to seven times Irish GDP. Banks in the economies of the euro area core were not in a much better position, with banks having lent more than twice the GDP of the average country. Bank lending was more than three times GDP in Germany, France, and the Netherlands. For Luxembourg, the multiple was astronomical.

In retrospect, it is surprising that these imbalances went virtually unnoticed. In a sense, this was the equivalent to the non-realization by the US authorities of the toxic nature of securities based on the soaring subprime mortgage loans.

By 2007, at around its tenth anniversary, the course of the euro area was assessed very positively. However, the euphoria gradually gave its way to anxiety during 2008, and deep anxiety following the collapse of Lehman Brothers in September 2008. Yet, before the eruption of the euro crisis, the mood was one of confidence and rather complacency while the risks were generally underestimated.⁴³

Slowing growth and a growing realization of the risks in store reinforced each other for everyone, but especially for countries that had accumulated large stocks of public and private external debt due to the cumulation of large deficits in the current account.

In late 2008, interest rate spreads (risk premia), which were measured in a few basis points for years, began to climb, and reach up to two or three percentage points for Greece, Ireland, Italy, and Portugal.

However, when it became clear in the summer of 2009, that the Lehman shock would not create a second Great Depression, spreads in the euro area fell significantly. Yet, this was not to last.

3.3 The Outbreak of the Crisis in the Periphery of the Euro area

Every crisis requires a trigger. For the euro area crisis this was the announcement of the significant widening of the fiscal deficit of Greece in October 2009.

⁴³ It is worth quoting from a short article from the Director General of Economic and Monetary Affairs of the European Commission and the Director of Fiscal Affairs of the IMF in December 2008. They concluded that, 'Most observers deem the euro a resounding success. However, in doing so, they often forget the magnitude of the original challenge. In this short article, we tried to look at the first decade of the euro area going back to its beginnings. The story is not over. Significant challenges lie ahead. As we write the world is living a financial and economic crisis of truly global proportions. For the euro area, the global crisis brings into sharp focus the challenges of maintaining macroeconomic stability and financial stability. ... Participation in the euro area also contributed to insulating participating countries from some adverse effects that the crisis might otherwise have had on their economies.' (Buti and Gaspar (2008)). The closing remarks of a speech given by the President of the ECB, in February 2009, were in the same wavelength: 'When we look back over the first ten years of the euro, then we can do this with satisfaction. The skeptical forecasts before its birth have not materialized. The euro is a historic achievement. Its first ten years have been a success. ... We have many challenges to cope with in the years to come. Some are shared with the other important central banks in the world, like responding to the present economic and financial global situation and drawing all the lessons from the present turmoil.' (Trichet (2009)). Many others shared such views at the time.

This announcement set in motion a spiral of increases in interest rates, unsuccessful budget fiscal balancing efforts by Greece itself, the deterioration of Greece's credit rating, further interest rate increases, culminating in the 'Greek bailout' of May 2010.⁴⁴

The leaders of the euro area decided it was unthinkable for a member country to default and opted for bailing out Greece. In this case, the 'lender of last resort' was not the ECB but the governments of the euro area and the International Monetary Fund, through an ad hoc financial instrument, the European Financial Stability Facility (EFSF). This eventually evolved into the European Stability Mechanism (ESM).

The bailout did not work well and proved insufficient. Markets reacted negatively as analysts concluded that Greece was not a clear path to debt sustainability. The constrained and politically charged design and implementation of the program did nothing to boost confidence in the ability of the euro area ability to handle the crisis. The risk premium on Greek bonds continued to rise.

Since early 2010, financial markets began to wonder if the failure of Greece to tackle the crisis could apply to other countries. These doubts - combined with the relentless logic of the debt interest rate vortex - was enough to raise the risk premium for other euro area members apart from Greece.

What proved decisive was whether a state's fiscal problems were combined with balance of payments problems. Only countries that borrowed primarily from international markets experienced problems. The borrowing costs of Portugal and Ireland rose sharply when the Greek bailout was announced.

This was the beginning of a 'sudden-stop' of lending from international financial markets, which affected all countries with significant deficits in the current account. Ireland, Portugal, Spain, and Italy. As it turned out, because of the 'home-bias' of European banks, euro area investors were much more wary about lending to other euro area governments than about lending to their own government.

The increase in the risk premium led to the adoption of rescue plans both for Ireland and Portugal, although with very different characteristics than Greece. In the case of Ireland, the imbalance that proved decisive was the situation of Irish banks.

3.4 The Doom Loop: From the Periphery to the Core

Both banks and sovereigns are subject to the possibility of a debt vortex. Banks borrow money short term to lend long term. For every euro borrowed short term, the bank makes long-term loans of twelve or more euros - this is the nature of leverage.

Leverage increases profitability but it also increases risks. Such risks materialize in bad times. The Irish banks had loans in 2008 approximately 7.8 times Irish GDP. The banking crisis led Ireland to a bailout in November 2010, which significantly increased its public debt. This was the first example of the 'doom-loop' between bank debt and sovereign debt.

The Irish bailout exacerbated the crisis. It was followed by Portugal in May 2011 and the second Greek bailout in July 2011.

In July 2011, the second Greek package was agreed in principle, but one of its elements inflamed the overall situation. As part of the EA leaders' new view that the private sector should bear part of the cost of the bailout, private holders of Greek government debt would

⁴⁴ For an analysis of the macroeconomic imbalances that led to the Greek crisis see Alogoskoufis (2019), Alogoskoufis (2021) and Papademos (2021).

see about half the face value of their holdings disappear, in what was euphemistically called the Private Sector Involvement (PSI).

This was a wake-up call for investors who still found the Maastricht Treaty's no-default clause credible. The markets began to demand higher yields on the government bonds of Belgium, Spain, and Italy. Italy in particular, was a deadly threat to the euro area, given the size of its economy and its huge debt. The doom-loop was moving from the periphery towards the core.

3.5 Fiscal Adjustment, Recession and Contagion

Budget cuts in the periphery, in the aftermath of the 2010 crisis, exacerbated the problem, as countries in rescue programs or those involved in the debt vortex had no other option but to cut their budget deficits.

The euro area as a whole saw a primary deficit of about €350 billion in 2010 to be reduced to only €10 billion in 2014. This was a massive recessionary shock - equal to four percentage points of the EA economy.

Budget cuts came from both the countries of the periphery and from the core countries that had not faced a debt crisis. This was because the 2009 recession had pushed many other countries over the 3% threshold for the deficit of the general government envisaged in the stability and growth path.

Greece, Ireland, Italy, Portugal, and Spain accounted for about 48% of the budget cuts, although they represent only one third of the GDP of the euro area. However, budget cuts in Germany accounted for 32% of the total, and those in France 13% of the total budget cuts in the euro area.

Because budget cuts were mainly tax increases, and to a lesser extent primary expenditure reductions, the negative repercussions on economic activity were even greater. Hence, in 2011, the euro area was again in recession.⁴⁵

Things were plainly going from bad to worse. Each attempt to end the crisis seemed to make matters worse.

By this time, the contagion spread all the way to France. Its debt was downgraded and market yields rose substantially above those of other core euro area nations like Germany and the smaller economies of the core. British Prime Minister Gordon Brown unhelpfully suggested that Italy and France might need a bailout.

The Belgian problem –domestic banks in trouble due to Greek lending– spread to Cyprus. Its banks were severely affected by the Greek debt write down, so the nation asked for a bailout in June 2012 (granted in March 2013).

Needless to say, a crisis that threatened Italy and France was a crisis of global dimensions. This was no longer an issue of Greece and the other smaller economies of the periphery. This had the potential of blowing up the euro area and the EU itself. The world economy was looking at another Lehman-sized shock. With euro area leaders manifestly incapable of mastering events, something had to be done.

3.6 "Whatever it Takes"

At the height of the euro area debt crisis by mid-2012, Mario Draghi characterized the euro as irreversible, and stated that the ECB, within its mandate, was ready to do whatever it takes to

⁴⁵ Alesina et al (2015) and Callegari et al (2017) have investigated the impact of this contractionary fiscal mix on the EA economy. See also Alesina et al (2019).

preserve the common currency. It was a forceful verbal intervention by the then ECB President, which proved to be a credible threat by telling market speculators that the central bank of the euro area would preserve the inherent monetary peace of the euro. It was effectively a game changer which marked a regime change for the euro area, contributing to a significant decline of the sovereign bond yield spreads between the core and the periphery.⁴⁶

Following the verbal interventions, in September of the same year the ECB announced the so-called Outright Monetary Transactions (OMT) programme, confirming that it was ready to provide unlimited liquidity support in the government bond markets; thus it took out the fear factor from the government bond markets and started a process of normalization during which yields gradually converged again. This convergence was sometimes bumpy, as during the second Greek crisis in 2015, and it ultimately led to an almost complete convergence of the yields at the end of 2019.⁴⁷

In any case, Draghi and the ECB did the trick successfully. It switched expectations from 2011 and 2012's 'doom-is-inevitable' back to the old 'we-will-get-through-this-thing' expectations of 2009 and 2010. In fact, the OMT was never activated and so the ECB did not have to buy one euro of government bonds in the context of this program; Private investors, having rediscovered confidence, bought the sovereign bonds of the member countries of the periphery. Later on, in 2015, as the ECB backed the "whatever it takes" statement with its quantitative easing program, borrowing costs for the affected countries gradually returned to pre-crisis levels.

The basic switching mechanism that Draghi triggered is a direct corollary of the debt-vortex logic. The rush to unload debt is driven by fear. The fear is driven by the suspicion that everyone else will sell a nation's debt, thus driving borrowing costs up to the point where the nation actually faces such fiscal difficulties that it is threatened with default. But if there is a debt buyer-of-last-resort – someone who can buy unlimited amounts of debt – the suspicion dissolves and investors are happy to hold the debt. This is what Mario Draghi did in the summer of 2012. It worked.⁴⁸

3.7 Proximate Causes of the Euro area Crisis

The proximate cause of the euro area (EA) crisis was the rapid unwinding of intra-EA borrowing imbalances between the periphery and the core. The built up of these imbalances occurred in the 2000s, prior to the crisis. Some of this was to private borrowers (especially in Ireland and Spain) and some of it to public borrowers (especially in Greece and Portugal), but in every case the difficult debt mostly ended up as government debt. Often private over-indebtedness ends up on governments balance sheets, so that the rise in public debt is more a consequence than a cause of a financial crisis.

⁴⁶ For the Draghi speech see ECB (2012); Gravas (2019, pp. 43-45) documents the broader "whatever it takes" (WIT) mode, quoted in El-Erian, 2016, p. 48, of the two systemically important central banks (Fed and ECB), starting from the US Federal Reserve (see Federal Open Market Committee, 2008, p. 153), when Ben Bernanke, then Fed Chairman, stated a couple of weeks after Lehman collapse that "There has been a lot of talk about confidence. I think the best thing we can do for confidence is to say that we're going to do whatever it takes, even if it involves extraordinary actions, to get this economy back onto a path where it can begin to grow in a reasonable way again. Signaling coyness, being cute, is not a safe strategy right now. We just need to be straightforward and say that we're going to do what it takes."

⁴⁷ De Grauwe and Ji (2022).

⁴⁸ A detailed analysis of the euro area crisis, focusing on external and financial imbalances can be found in Baldwin and Giavazzi (2015).

The sudden stop became a crisis rather than a temporary problem since EA members could not devalue and the ECB could not bail out governments, as was the case in the US crisis of 2008-09.

A confidence crisis ensued, first about the countries of the periphery, but later also about some of the core countries, regarding their ability to service their public and private external debts. This was exacerbated by the unsuccessful efforts to address the debt problem.

The proximate causes of the crisis, external imbalances, and lack of crisis management mechanisms, suggest three sorts of underlying causes; first, macroeconomic, and financial asymmetries and policy failures; second, lack of institutions to absorb shocks at the euro area level; and third, crisis mismanagement.

Some of these failures involved unanticipated events. Others were a failure to implement the provisions agreed in the Maastricht Treaty. Others, such as the inability of the ECB to act as a lender of last resort in the initial phase of the crisis, or the lack of appropriate institutions to tackle the asymmetric impact of major shocks are more fundamental and call for major euro area reforms.

3.8 The Pandemic and the Recovery and Resilience Fund

The pandemic and the restrictive measures it has demanded after the crisis of early 2020 have deeply disturbed the world economy and of course the economy of the EU. As a result of restrictive measures to address the pandemic, global demand, global supply chains, labor supply, industrial production, commodity prices, foreign trade and capital flows have shrunk significantly. The pandemic hit the European economies hard at a time when they were still vulnerable to new disruptions.

Once again, as in 2010, the EU and the Euro area proved relatively unprepared to deal effectively with a major international economic crisis. The necessary reforms in the functioning of the euro area after the international financial crisis of 2010 had proceeded too slowly. However, unlike in 2010, when the cost of adjustment was passed on to the economies of the periphery, in 2020 the EU countries finally agreed to set up a significant new temporary crisis management mechanism. The agreement on the Recovery and Resilience Facility (RRF) and other initiatives totaling 750 billion euros created a temporary mechanism to jointly deal with the crisis. This is a positive, albeit limited and temporary, initiative in the right direction.

4. Optimum Currency Area Considerations for the Euro Area

The launch of the euro in 1999 never met the acid-test of what economists have come to call an optimum currency area. Nevertheless, the considerations relating to optimum currency areas can prove extremely useful in thinking about reforming the euro area in order to address its main asymmetries and fault lines revealed by the crisis.

What are these considerations? The optimum currency area literature poses a seemingly simple question. If we forget about national boundaries and focus purely on economic relations, which is the best constellation of countries that can share a single currency? In answering this question, it considers the benefits and costs from giving up national currencies, whose exchange rates can potentially change, and substituting them by a single currency.⁴⁹

⁴⁹ This question was first posed, and partially answered, by Mundell (1961) who is rightly considered as the originator of this literature. McKinnon (1963) and Kenen (1969) were early major contributors to this literature. The literature was revived in the 1980s, as additional considerations were added. A survey of the so called 'new' theory of optimum currency areas can be found in Tavlas (1993).

The literature stresses four potential benefits from the adoption of a single currency. First, the reduction of cross border transaction costs, from the elimination of the need to exchange different currencies, second, the increase in transparency, that makes prices in different countries easily comparable, third, the elimination of currency risk, associated with changes in exchange rates, and fourth, applicable to countries with inflationary monetary policies, the switch to a low inflation monetary policy.⁵⁰

The potential costs from the adoption of a single currency include the cost of the loss of the ability of each country to use monetary and exchange rate policy to tackle the undesirable macroeconomic consequences of shocks that impact the various economies asymmetrically, and, potentially, the loss of the ability of each country to use its monetary policy in choosing the appropriate inflation tax, and/or combination of inflation and unemployment, according to its own preferences.⁵¹

Assuming that the marginal benefit of adding a country to a currency area is positive and declining, and that the marginal cost is rising as additional countries are added, the number of countries that constitute an optimal currency area can be theoretically determined at the point where the marginal benefit of adding a country is equal to the marginal cost.⁵²

The higher the benefits from adopting a single currency and the lower the costs, the larger is an optimum currency area, in the sense that more countries are included. What determines the position of the benefit and cost functions?

With regard to benefits, a high potential trading volume among the participating countries would result in higher average and marginal benefits from the reduction of transaction costs and exchange rate uncertainty. This was an argument put forward by both Mundell (1961) and McKinnon (1963), who gave emphasis to the degree of economic integration and openness. Hence, countries that are more economically open, geographically close, and economically integrated, will have significant trading volumes among themselves and, therefore, higher benefits from sharing a common currency.⁵³

The inflation criterion, also emphasized first by McKinnon (1963) and later by Mundell (1973), is more questionable. Whereas it may be a benefit of a high inflation country to participate in a low inflation monetary union, and adopt its anti-inflationary credibility, it may be a cost for the other participating countries to accept a high inflation economy in a monetary union.⁵⁴

With regard to costs from joining a monetary union, the original considerations proposed by Mundell (1961) emphasized the degree of cross border factor and, especially, labor mobility. If cross border labor mobility is high, then a country hit asymmetrically by an adverse employment shock will not suffer from persistent unemployment, because the unemployed will migrate to high employment countries in the monetary union. Hence, increased labor

⁵⁰ This last argument presupposes that the central bank administering the single currency is politically independent and cares mostly about inflation, something that applies to the euro area.

⁵¹ Given that most macroeconomists accept the Friedman (1968) doctrine that there is no long-run tradeoff between inflation and unemployment, this latter argument is not widely accepted.

⁵² A diagrammatic representation of this argument can be found in Alogoskoufis and Jacque (2021).

⁵³ This is a criterion that is obviously satisfied by the EU countries, which are all geographically located in Europe, have eliminated trade barriers, and created a single market and have high trading volumes among themselves. Obviously this criterion is stronger for the economies of the core than the periphery, which are geographically more detached.

⁵⁴ This may be one of the reasons why the Maastricht treaty envisaged convergence of inflation rates and nominal interest rates as a prerequisite for acceptance into the euro area. The inflation tax argument is also a justification for the fiscal criteria, of budget deficits lower than 3% of GDP and government debts tending to 60% of GDP of an applicant.

mobility can reduce the costs of joining a monetary union from the loss of the domestic monetary policy instruments, such as the interest rate and the exchange rate.⁵⁵

Kenen (1969) gave emphasis to the degree of product diversification. His argument was that countries with a relatively diversified product mix were less likely to suffer from the impact of industry specific shocks. Hence, an increased diversification of the average product mix of participating countries will tend to shift costs of joining a monetary union downwards.

Another important criterion which was first emphasized by Kenen (1969) is the existence of a significant federal budget, that results in automatic transfers towards countries that are hit by an adverse asymmetric shock, from countries that have not been hit by the shock. The higher the fiscal transfers from a high federal budget, the lower the costs of joining a monetary union in the presence of asymmetric shocks. The fact that the EU federal budget is extremely low, around 1% of EU GDP, is a factor that keeps costs of participating in the euro area at a higher level, suggesting that due to the small size of the EU federal budget, the optimal euro area is probably on the low rather than the high side.⁵⁶

Finally other criteria that affect benefits and costs include the homogeneity of national preferences and the existence or not of political solidarity among member states in a monetary union.

One cannot, and in any case would not want to use these optimum currency area considerations to determine in an absolute fashion whether the current euro area is an optimum currency area or not. In all probability no single currency area is an optimum currency area, including the United States. However, on prima facie grounds, admitting the countries of the periphery into the EA may have been premature, as they did not satisfy some of the important optimum currency area criteria suggested by the literature.

In any case, as O' Rourke and Taylor (2013), among others, have argued, the United States is much closer to the optimum currency area criteria than the euro area.

First and foremost, US markets are much more closely integrated than EA markets, as cross border inter-state trade amounts to 66% of US GDP, whereas cross border inter-country trade amounts to only 17% of EA GDP.

Second, with regard to the asymmetric impact of shocks, there do not seem to be major differences between the US and the EA. The average correlation coefficient of GDP growth rates across US states is 0.46 and across EA countries it is 0.50. Macroeconomic asymmetries seem to impact the EA and the US in roughly the same degree.

However, the US is far ahead of the EA with regard to the labor mobility criterion. The average share of people in a US state born outside that state is 42%, while the equivalent share in an EA

⁵⁵ This also applied in principle to the EU, as the free movement of people is one of the four fundamental freedoms of the Treaties, along with the free movement of goods, services, and capital. In practice however, because of both cultural, administrative, and tax-benefit considerations, labor markets in the European Union remain segmented.

⁵⁶ This so-called fiscal federalism criterion was investigated by Sala-i-Martin and Sachs (1991), who pointed to the large automatic transfers across US states, due to the large US federal budget of more than 20% of GDP, and the federal tax benefit system. In effect a federal budget acts as an automatic stabilizer in the presence of shocks that have asymmetric effects, mitigating their impact. A small federal budget, of the order of 1% of GDP, such as the EU budget, is clearly an ineffective automatic stabilizer. Darby and Melitz (2008) have documented the positive impact of automatic stabilizers in the OECD economies, while Bargain et al (2013) demonstrate that a bigger EU federal budget would have mitigated the adverse effects of the euro area crisis for the economies of the periphery, by absorbing about 10-15% of the shock.

country is only 14%. On the basis of this criterion, labor mobility is four times larger in the USA than in the EA.

In addition, the US is far ahead on the fiscal federalism criterion, which is related to fiscal transfers and the effectiveness of automatic stabilizers in the presence of shocks that affect states and countries asymmetrically. In the US about 30% of a state income shock is offset through federal fiscal transfers. In the EA, the relevant percentage is only 0.5%. Thus, the low level of the EA federal budget relative to the US has major implications for the ability of the EA to address shocks with an asymmetric impact through transfers from countries not affected by the relevant shock.

Given that macroeconomic and financial asymmetries seem to have increased following the creation of the euro, as we shall show below, these considerations suggest the direction of the reforms that would take the euro area closer to an optimum currency area.

5. Reforming the Euro Area

Although financial market integration and effective regulation of financial markets have taken a priority since the 2010 crisis, the euro area remains a single currency area with significant real and financial asymmetries, segregated national fiscal systems, weak coordination of fiscal policies and a virtually non-existent common budget. At the same time, the European Central Bank (ECB) remains the only major central bank in the industrialized world which cannot function properly as a lender of last resort to governments and commercial banks. In addition, labor markets in the euro area remain fragmented, contributing to major differences in unemployment rates, which are exacerbated by the notoriously low degree of labor mobility in Europe.

Hence, not only does the euro area not satisfy the main criterion suggested by optimum currency area considerations, namely the absence of asymmetries and asymmetric shocks, it furthermore lacks the other two main criteria for macroeconomic stabilization, namely integrated financial and labor markets and a federal budget that would act as an automatic stabilizer in the case of asymmetric macroeconomic developments. Furthermore, in its response to major financial crises the Euro area is hampered by the lack of an effective lender of last resort, the creation of the European Stability Mechanism (ESM) notwithstanding. The euro area is in urgent need for additional fiscal, financial and labor market reforms.

Since the crisis, there have been scores of proposals for reforming the euro area. However, there has been very little progress towards actual reform. The heads of the European institutions issued a blueprint for the future, the Four Presidents' Report in June 2012 (Van Rompuy et al. (2012)). In a statement on 29 June 2012 the euro area heads of state agreed on breaking the vicious circle between banks and sovereigns by establishing a banking union. The agenda, which was endorsed by the European Council, has not been completed and the roadmap for the future remains a matter of fierce controversy. At the June 2018 summit, despite the prior Franco-German rapprochement and the joint 'Meseberg Declaration' by President Macron and Chancellor Merkel, the euro area heads of state could only agree to call for further work on a series of still-divisive issues. Why is it that it remains so difficult to reform the euro area?

As suggested by Pisani-Ferry (2018), p. 1, "There are essentially two possible theories for this enduring state of controversy: the 'battle of interests' and the 'battle of ideas'. The first posits that problems are fundamentally distributional. Decisions are controversial because they pit creditors against debtors, high-debt against low-debt states, stable against crisis-prone countries, or global banks against local banks. The second emphasizes cognitive issues.

According to this reading, a major factor behind disagreements is that actors do not share the same representation of reality, but rather work with different implicit or explicit models of it.”

An attempt to reach a consensus in the battle of ideas was made recently by a group of 14 French and German economists, in Benassy-Quere et al. (2018). They suggest that the euro area ‘remains vulnerable, underperforming and divided’. (p. 2). They highlight three main weaknesses for the euro area: ‘First, the euro area continues to face significant financial fragility and limited institutional capacity to deal with a new crisis. Stabilisation and recovery have relied mainly on monetary easing by the ECB. ... Second, the euro area lacks adequate institutional conditions and incentives for long-term prosperity. Incomplete banking union and fragmented capital markets prevent it from achieving full monetary and financial integration, which would boost both growth and stability. ... Third, and perhaps most worrisome, the flaws of the euro area’s fiscal architecture have given rise to political problems. This has to do partly with the poor design and complexity of the EU’s fiscal rules and partly with the euro area’s inability to deal with insolvent countries other than through crisis loans conditioned on harsh fiscal adjustment.’

Our analysis of economic and financial asymmetries in the euro area broadly supports the proposals for reforming the euro area put forward by Benassy-Quere et al. (2018) in their attempt to provide a resolution to the battle of ideas within Europe.⁵⁷

However, we would go beyond those proposals in two directions. First the need for a common euro area budget, and second, the need to strengthen the role of the ECB as a lender of last resort in times of crisis.

We would argue for the introduction of a sufficient and appropriately targeted common EA budget that would help smooth out the asymmetric impact of macroeconomic shocks through the operation of automatic fiscal stabilizers. It would also help countries in recession face smaller national fiscal and financial consequences of such recessions and would also partly address labor market fragmentation. A significant part of the fragmentation of labor markets in Europe is the result of the lack of a cross border system of unemployment and health insurance. This could be addressed in a reform that would allow for a separate EA budget, targeted to unemployment insurance. An EA unemployment insurance scheme would have common rules, such as common replacement ratios and eligibility rules, and would reduce the divergence the national fiscal balances in the case of asymmetric cyclical shocks.

We would also argue for an explicit recognition of the responsibility of the ECB to act as lender of last resort to banks and sovereigns in times of crisis. This would help avert ‘sudden stops’ and the market disruptions associated with sovereign debt crises much better than an upgrade of the ESM to an IMF-like institution, due to the higher capacity of central banks to create liquidity.

At the same time, the banking union should proceed as planned and national reform efforts that enhance international competitiveness should be strengthened, especially in the periphery.

All proposals for a common EA budget go against the arguments of those opposing a transfer union, chiefly the countries that are net contributors to the EU budget. We feel that these objections are misplaced. The EU and, in particular, the EA are already transfer unions, through the operation of the single market and the monetary union. They encourage significant economic transfers from weaker and less competitive sectors and economies in the periphery,

⁵⁷ The battle of ideas that emerged after the euro area crisis was first analyzed and highlighted by Brunnermeier et al. (2016).

to stronger and more competitive ones at the core, as suggested by the disparate macroeconomic performance of the core and the periphery following the creation of the Euro area.

A fiscal transfer union, which would partly correct the effects of such transfers through fiscal redistribution is a logical counterpart of the single market and the monetary union. The transfers we suggest would be modest, but certainly higher than the current EU ceiling of 1% of GDP. They could be concentrated in key cyclically sensitive areas such as unemployment insurance.

The objections of net contributors to a moderate increase in the EU budget could in principle be overcome by an appropriate rules-based fiscal reform that would address moral hazard and other coordination problems and ensure an appropriate balance between risk sharing and market discipline, as is also the case with the Benassy-Quere et al. (2018) proposals.

6. Conclusions

This paper has provided a perspective on monetary cooperation in Europe, from Bretton Woods to the euro area. The focus has been on macroeconomic and financial asymmetries among its member states, and in particular between the core and the periphery. This perspective highlights the need for major and fundamental EA reforms.

After surveying the evolution of EU macroeconomic and monetary cooperation and developments since the creation of the euro, and particularly the euro area crisis, we argue that the euro area needs fundamental fiscal, financial and labor market reforms.

In addition to the banking union and other reforms currently contemplated, we stress the need for two additional major reforms, so as to deal with the asymmetries of the EA and deal with potential future crises.

First, a common EA budget of moderate size, focused on an EA system of unemployment insurance. This would shift the EA nearer to being an optimal currency area. It would help smooth out the asymmetric impact of macroeconomic shocks through the operation of automatic fiscal stabilizers and would thus help countries in recession face smaller national fiscal and financial consequences of such recessions. The reform we propose would also partly address labor market fragmentation. A significant part of the fragmentation of labor markets in the EA is the result of the lack of a cross border system of unemployment insurance. This could be addressed if the increase in the EA budget is targeted to euro area wide unemployment insurance.

Second, it would also help in the avoidance of future crises if the scope for the ECB to act as a lender of last resort in times of crisis was expanded and officially recognized, as the limited scope of the ESM would not suffice in a future crisis, especially if it involved one of the larger EA economies.

Finally, the establishment of the Recovery and Resilience Fund, following the Covid-19 crisis of 2020, appears to be a step in the right direction, but appears to be only temporary.

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