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Asymmetric trends and European monetary policy in the post-Bretton Woods era

Paper for the European Historical Economics Society Conference, London 6-7 September 2013

This paper argues that the depth and longevity of the crisis in the eurozone is due to structural and institutional differences between its members and that these are difficult to handle in a monetary union . We show this, first, by a test of the 'one-size-fits-all' ECB monetary policy. The results provide an estimate of how ECB at the same time fuelled some 'bubble economies' and put on a deflationary pressure in other economies. Second, we measure how the higher inflation rate in the periphery eroded its international competitiveness under the restriction of the 'irrevocably fixed exchange rates'. This is compared with the development during preceding decades with more flexible exchange rates. The catch-up and convergence of incomes within Western Europe, up to the mid-1990s, was significantly enhanced by exchange rate adjustments. Without this adjustment mechanism catch-up has got a headwind which is contributing to the recent widening of the income gap in the eurozone. Thus, as a historical irony, the Maastricht aim of further integration has actually been counteracted by the economic mechanisms of the monetary unification.

Key words: euro, monetary policy, exchange rates, fiscal deficit

JEL classifications: E43, E58, E65

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I. Introduction

In the public debate, the crisis of the eurozone has largely been laid on the footstep of imprudent government finance. This is also the main message from the crisis management with austerity packages forced on to indebted countries. However, in this paper we argue that the deterioration of government finances is largely an outcome and not a cause of the crisis. Instead, we find a causal factor for the depth of the crisis in the incapability of the EMU to handle the differentials in inflation rates and productivity growth among its members. This gives rise to 'asymmetric trends' which are a fundamental problem for a monetary union.[1] In the shorter perspective, this implies the difficulty, let alone impossibility, to form a monetary policy that fits all parts of the eurozone. In the longer perspective, economic growth and convergence are significantly influenced by the exchange rate regime, in particular by the conditions set up for 'asymmetric trends.' The aim of this paper is to explore the relations between the monetary policy framework and the asymmetric trends among the euro-12 countries. The short term perspective ranges the period from the launch of the euro to the onset of the crisis, 1999-2008. The longer term perspective extends back to the collapse of the Bretton Woods system.

The paper first explores government fiscal balances, before the onset of the present crisis and back to the years before the introduction of the euro, and their relation to economic performance. Section three is an exercise in reverse engineering applied on the interest rate set by ECB. We first try to find its determinants with help of the Taylor Rule, once found to satisfactorily describe Fed's choice of its fund rate, and proceed to the derivation of 'the ECB Rule'. On the basis of 'the ECB Rule' we can estimate the counterfactual interest rates that would have fitted for individual countries. The results indicate that the single ECB interest rate to varying degree has been off the mark and corroborates not only the criticism that ECB has fuelled bubble economies in Ireland and Spain but also been a drag for the German economy. Section four sets this in historical perspective of previous periods in the post-war period. It explores how fixed exchange rate regimes have aggravated asymmetric trends of competitiveness, whereas soft exchange rate regimes have bolstered asymmetries. Section five concludes and connects the problem of the euro with the

[1] We owe the expression 'asymmetric trends' to Saint-Paul (2010). The phenomenon, although not the expression, have been dealt with in Ljungberg (2004) and Johansson and Ljungberg (2010).

classical problem of international monetary regimes, that of a fair share for both deficit and surplus countries in the financing of international imbalances.

II. Growth and stability in practice

Among the original 12 countries with the euro (including Greece which adopted the euro in 2001), the country which was hardest hit in the first year of crisis, 2008, was Ireland. Now, if we look at which countries did not 'sin' against the stipulation of the Growth and Stability Pact of less than 3 per cent of GDP deficit in the government budget, Ireland stands out as a no-sinner from the launch of the single currency until 2007. Ireland shared this sensible conduct with Spain, Luxembourg and Finland, and together with the latter three also, on average, ran a surplus in the government budget over the whole euro period before the crisis. Actually, Belgium also belonged to this group but should be separated from the others since it had, like Greece and Italy, an accumulated debt that was far greater than the debt-to-GDP ratio of at most 60 per cent, stipulated by the Stability and Growth Pact.

The record as regards fiscal behavior of the 12 'original' euro countries can be seen in table 1. Seven countries are among the 'sinners' during the nine years 1999-2007 and it can be noticed that Germany broke against the budget rule four times, matched by Portugal and exceeded only by Italy and Greece. The three years running up to the 'irrevocable' fixing of the exchange rates are also displayed since these years were in the second stage of the implementation of the EMU, when the 'convergence criteria' should apply, with the same 3 per cent limit of budget deficits. In 1996, the large majority of the countries did not match the budget limit. However, the political will worked for the launch of the single currency and all countries improved their budget balances in the following years. Hence, in 1998 only three southern countries did not match the 3 per cent limit: Greece, Portugal, and Spain. Whereas Greece and Portugal continued to have difficulties to meet the budget stipulations, Spain, as we have seen, behaved according to the code of conduct until the crisis struck in 2008 and GDP growth fell below 1 per cent.

Figure 1 shows the effect of the crisis on growth rates in 2008 and 2009 in comparison with the trend for the euro-12 countries 1999-2007. The figure reveals that the causal role of fiscal deficit is at most ambiguous: Ireland with sound government finance was the first to go deep in 2008 but so did also indebted Italy and Greece. In the second year of the crisis, Ireland was still worst hit but also

Germany, Luxembourg Italy, and Finland were worse off than the euro-12-zone as a whole, and next came Austria and Spain. Another feature can be observed from the figure: most of those who were hard hit in the early crisis years had been rapidly growing in the preceding period. This applies to Ireland, Greece, Spain, Luxembourg, and Finland, although not to previously slow-growing Germany and Italy. These observations suggest another hypothesis: that the patterns of growth and crisis are affected by the mechanisms of a currency union that is far from being an optimal currency area.

Table 1. General government budget balance in per cent of GDP, 12 euro countries, 1996-2008

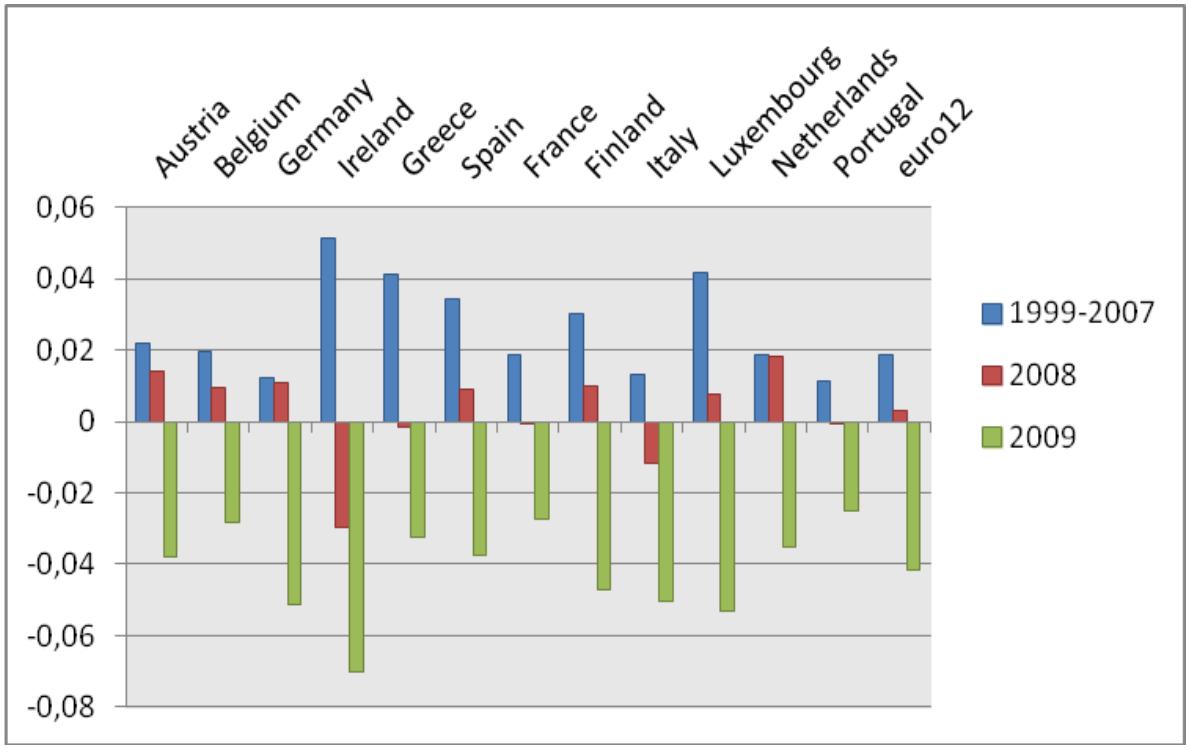
	Austria	Belgium	Germany	Spain	Finland	France
1996	-4,0	-3,9	-3,3	-4,8	-3,5	-4,0
1997	-1,8	-2,2	-2,6	-3,4	-1,3	-3,3
1998	-2,4	-0,9	-2,2	-3,2	1,6	-2,6
1999	-2,3	-0,6	-1,5	-1,4	1,6	-1,8
2000	-1,7	0,0	1,3	-1,0	6,9	-1,5
2001	0,0	0,5	-2,8	-0,6	5,0	-1,5
2002	-0,7	0,0	-3.7	-0,5	4,1	-3,1
2003	-1,4	-0,1	-4,0	-0,2	2,6	-4,1
2004	-4,4	-0,3	-3,8	-0,3	2,4	-3,6
2005	-1,6	-2,7	-3,3	1,0	2,8	-2,9
2006	-1,6	0,3	-1,5	2,0	4,0	-2,3
2007	-0,5	-0,2	-0,2	2,2	5,2	-2,7
2008	-0,4	-1,2	-0,1	-3,8	4,2	-3,4
Incidence 1999-2007	1	0	4 (5)	0	0	3 (4)

	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal
1996	-6.8 (6.6)	-0.1	-7.0	1.2	-1.9	-4.5
1997	-6.0(-5.9)	1.1	-2.7	3.7	-1.2	-3.5
1998	-3.9(-3.8)	2.4	-2.8	3.4	-0.9	-3.4
1999	-3.1(-3.1)	2.7	-1.7	3.4	0.4	-2.8
2000	-3.7(-3.7)	4.8	-0.8	6.0	2.0	-2.9
2001	-4.5(-4.4)	0.9	-3.1	6.1	-0.2	-4.3

2002	-4.8(-4.8)	-0.4	-2.9	2.1	-2.1	-2.8
2003	-5.7(-5.7)	0.4	-3.5	0.5	-3.1	-2.9
2004	-7.5(-7.4)	1.4	-3.5	-1.1	-1.7	-3.4
2005	-5.1(-5.4)	1.7	-4.3	0.0	-0.3	-6.1
2006	-2.8(-6.1)	3.0	-3.3	1.4	0.6	-3.9
2007	-3.6(-6.5)	0.2	-1.5	3.6	0.3	-2.6
2008	-5.0(-9.8)	-7.1	-2.7	2.6	1.0	-2.6
Incidence 1999-2007	9	0	5 (6)	0	1	4 (6)

Source: ECB (retrieved May 2009). ECB has subsequently revised the statistics but mostly only decimals differ. However, for Greece the revision is substantial from 2006 onwards, and the new figures are in parentheses. Another difference is that Germany seems to have abused the rules already in 2001, increasing the German abuses from 4 to 5. Similar changes have occurred for France, Italy and Portugal as indicated by incidence figures in parentheses. However, we have seen it as anachronistic to introduce the new figures in the historical discussion.

Figure 1. Annual rate of change of GDP for euro 12, before and during the crisis



Source: Calculations from Ameco database (http://ec.europa.eu/economy_finance/ameco - retrieved 28/12 2011)

These mechanisms were outlined in the seminal article by Mundell (1961). In his case there are two countries, A and B, with full employment and balanced current accounts which together define equilibrium. A shift in demand occurs from the commodities of country B to country A with the effect that unemployment rises in country B and inflation in country A. Current accounts change negatively in the former and positively in the latter. With floating exchange rates will the B currency depreciate and the A currency appreciate, and equilibrium becomes restored, as basically explained already by the Price Specie Flow Mechanism of David Hume. Now assume that countries A and B have a common currency and a common monetary policy. Adjustment cannot work through the exchange rates and if monetary policy combats unemployment in country B, inflation will rise further in country A. And the reverse, if monetary policy is chosen to combat inflation, this will surely fall in country A but unemployment will grow in country B.

Similar problems as in Mundell's case will apply to the eurozone due to national differences in economic structures, low degree of cross country labour mobility and the fact that there are practically no automatic stabilizers between the member countries, through taxes and welfare transfers. However, by definition the monetary policy, pursued by the ECB, applies for all euro countries, implying that one size must fit all. A relevant question therefore becomes: is the severity of the crisis due to the inability of the one-size-fits-all-policy that is inherent in the construction of the monetary union? Could it be that ECB has fuelled over-expansion in some countries, and been a brake for growth in other countries, with the burst of the crisis causing a deeper recession in both categories?

In general terms this argument has not been uncommon in the debate and it has also been under-pinned by estimates of a Taylor Rule based interest rate in the European context. Moon and Van Poeck (2005) finds that the ECB interest setting can be described by the Taylor Rule but for individual countries, such as Ireland, the ECB interest rate is found much too low. Seyfried (2009) estimates Taylor interest rates for the eurozone, Ireland, Spain and Germany, and his results are similar to our estimations of the ECB Rule. Interestingly, Seyfrid finds the ECB refi rate for Spain even more misplaced than we do. OECD has also excercised with the Taylor Rule (2008, figure 1.1, and the linked database) and reports maximum and minimum interest rates for the euro countries for each quarter 1999-2009. Calculating the average difference between the maximum Taylor rate (i e, the country in each period

that scores the highest Taylor rate) and the ECB interest we find that the difference is more than five percentage points (1999q1-2008q2), while the average difference between the minimum Taylor rate and the ECB interest rate is -0,7 percentage points. These results support the general conclusion in this paper that one size does not fit all, and that the ECB interest rate setting has been particularly problematic for high inflation countries.

III. Determinants of the ECB interest rate

To preclude all suspicion that the ECB has waived in its resolution about the feasibility of a single monetary policy for Europe, let us quote a speech by one of the long-standing members of the Executive Board, also dubbed its 'chief economist':

> On the eve of the changeover, I wrote a commentary on diversity and monetary policy in the euro area. To the question whether a single one-size monetary policy could fit all parties involved – be they national entities, social partners or economic actors – my answer was: "One size *must* fit all". The political decision on the creation of EMU had resolved all discussions on whether monetary union should precede or follow political unity and the fulfilment of the criteria for an optimum currency area. Today, in light of the evidence gathered so far in the euro area, I am more confident in saying: "One size *does* fit all!" (Issing 2005)

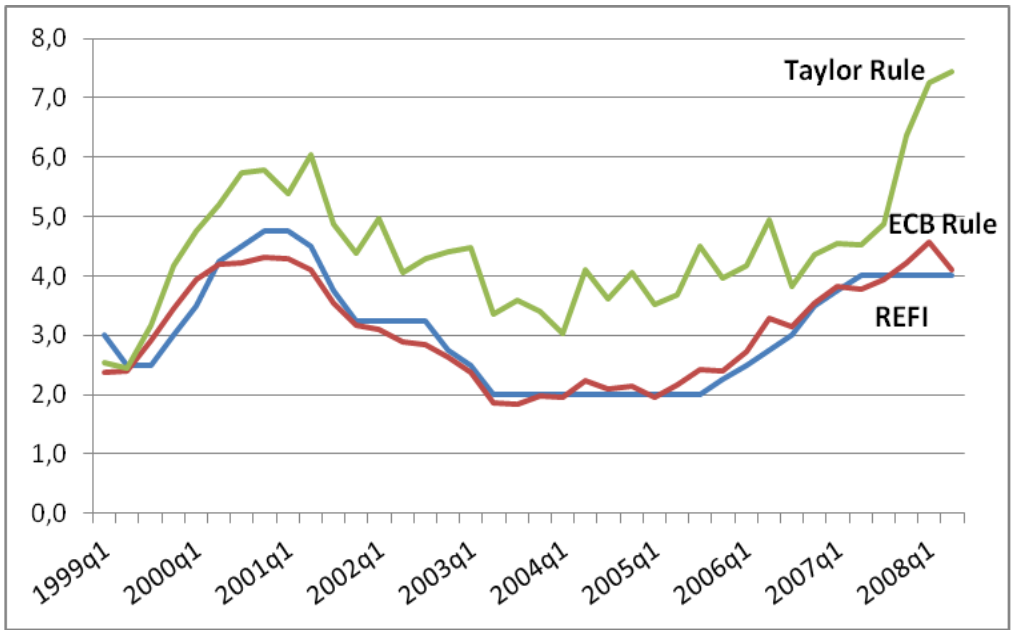
However, political commitment and economic reality are not necessarily the same thing. The last paragraph of the previous section referred to several authors who have applied John Taylor (1993) on the European context. Taylor showed that Federal Reserve's funds rate 1987-1992 fairly well could be derived from a few variables and a few assumptions in the equation:

$$r = p + .5y + .5(p - p^{o}) + p^{eq} \qquad (1)$$

where p is the expected inflation as proxied by the inflation rate over the preceding four quarters, y is the percentage deviation of GDP growth from a target, or the GDP gap; p^{o} is the inflation target and p^{eq} is the long-term or equilibrium real interest rate. Usually the GDP gap is estimated on the trend over a certain period and the same goes for the equilibrium real interest rate. It is arguable how these variables should be estimated for the eurozone but we have used the estimations of the GDP gap published by OECD. For the equilibrium real interest rate different estimates exist, partly due to the novelty of the eurozone and partly due to a global decrease of real

interest rates around the turn of the millennium which affects the estimations. O'Leary (2004) suggests 2.7 per cent, somewhat earlier Gerlach and Schnabel (1999) suggested 3.55 per cent, while Garnier and Wilhelmsen (2005) came up with around 2 per cent. Taylor (1993) had noticed that his equilibrium real interest rate was very close to the real GDP growth. The GDP growth of the euro-12 over the period 1999-2007 was 1.9 per cent annually, and if we assume that the equilibrium real interest rate should not be too far from real growth, 2 per cent seem reasonable. Furthermore, using the implicit ECB inflation target of 1.5 per cent through the second quarter

Figure 2. Actual and estimated ECB refi rates, 1999-2008



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2003 (Vaubel 2004: 92) , and after that rounding the target to "below, but close to, 2%" to 2 per cent and inserting the historical data in equation (1) gives the Taylor Rule interest rate for the eurozone as shown in figure 2. Maybe surprisingly, it turns out that the Taylor Rule would have prescribed an interest rate twice as high as the ECB refi rate for most of the period. Figure 2 also shows a curve labeled "ECB Rule" – we will first comment the result of the Taylor Rule and then return to the ECB Rule.

Different interpretations could be made: one is that ECB follows the Taylor Rule, but with different estimates of GDP gap and/or a lower equilibrium real interest rate than we have used. However, further investigations suggest another answer. This

would be that ECB is not following the original Taylor Rule, which punishes inflation, but rather a modified Taylor Rule in which the growth considerations are given relatively more weight. The simple fact that the ECB has been remarkably unsuccessful in combating inflation, as is shown in figure 3, supports this interpretation.

Taylor (1993) found his weights by a regression on the American data. By simply reestimating the model on data for the eurozone, we search for the specific weights of the determinants for the ECB refi rate:

$$i_t = \alpha_1 + \beta_2 y_t + \beta_1 (p_{t4} - p^o) + \varepsilon \qquad (2)$$

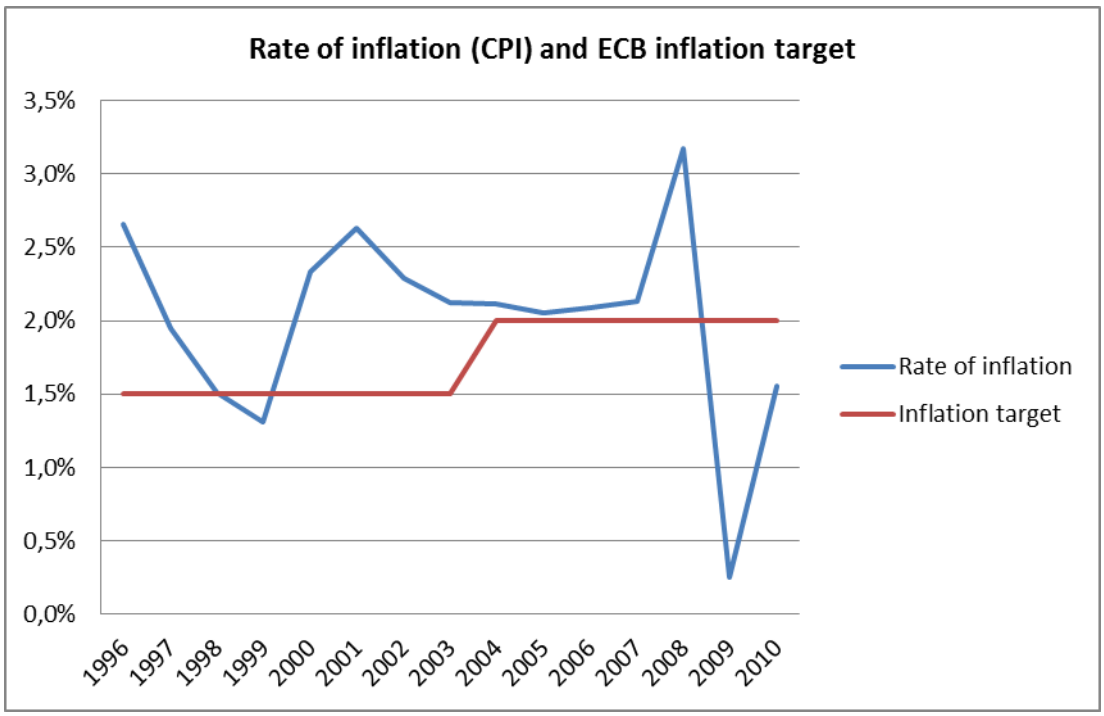
i is the ECB refi rate at time t, y is the GDP gap, p_{t4} is the inflation rate during the last four quarters, while p^o is the targeted inflation rate (1.5 per cent until the second quarter 2003 and then 2 per cent). The constant α_1 here will show the nominal refi rate when the inflation rate is on the target and the GDP gap is naught. The constant, less the inflation rate, will also show the equilibrium real interest rate. Running the equation as an OLS regression yields the following results for the period 1999q1-2008q2 (p-values within brackets):

$$i^*_t = \underset{[0.000]}{2.83} + \underset{[0.000]}{0.73\, y_t} + \underset{[0.002]}{0.31\, (p_{t4} - p^o)}$$

Adjusted R2=0.89

The high statistical significance and the explanatory power of almost 90 per cent indicates that this result could be instrumental for the analysis of the ECB monetary policy, and we label it 'the ECB Rule.' Note that it is estimated on the pre-crisis period, first, since we are interested in the policy choices under more normal conditions and, second, also because the statistical significance diminishes with an extension into the crisis. The ECB Rule differs significantly from the Taylor Rule. A low growth in the eurozone, with a negative output gap of one percentage point, results in a decrease in the ECB refi rate by 0.73 percentage points, while a one percentage point positive deviation in the rate of inflation from the inflation target results in an increase in the interest rate of only 0.31 percentage points. The latter can be compared with Taylor interest rule, which would prescribe an increase in the

Figure 3. Inflation in the eurozone and ECB inflation target, 1996-2010



Source: Eurostat HICP; ECB.

interest rate, above the equilibrium rate, of 1.5 percentage points. A comparison between the outcomes of the ECB Rule, when historical data for the eurozone are inserted in the estimated equation, and the Taylor Rule can be seen in figure 2, which was already mentioned above. The close fit between the estimate of the ECB Rule and the ECB refi rate up to the crisis, is illustrated by the graph.

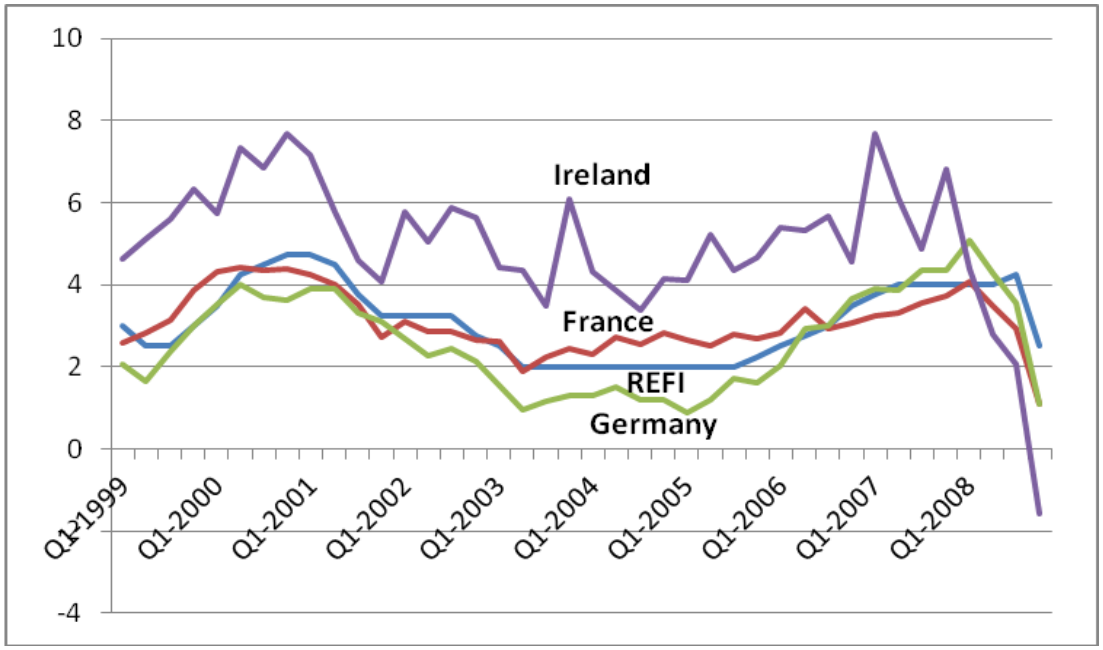
Given the overriding priority given to inflation targeting, both in the treaty regulating the ECB and in the rhetoric, it is relevant to ask why the weight for the output gap is so big, in actual practice having a larger influence than the inflation. Maybe the answer is that inflation has primarily been a problem in the periphery – notably in Ireland, Greece, and Spain - while low growth has been the problem in the core – Germany and France as well as Italy. This has biased the interest setting rule towards growth prospects in the slow growing core, while the periphery, of course, would have been better served from the opposite bias inclined for a low inflation regime.

How inappropriate the single monetary policy has been can be shown by inserting the country data in the estimated ECB Rule-equation. Thereby we get the counterfactual estimates of how the ECB would have set the refi rate in the individual

countries. Results for some countries are plotted in figures 4 and 5, while the results for all the euro-12 countries can be found in the Appendix tables. In figure 4 the counterfactual rates for countries with quarterly data available are compared with the actual ECB refi rate. Figure 5 is for countries for which the OECD GDP gaps are only available with annual frequency and the ECB refi rate is also displayed with annual averages. Let us first look at the peripheral countries which are both in figure 4 and figure 5.

Figure 4: For Ireland, the ECB refi rate has persistently, before the recession, been only about half the level required by the ECB Rule. The too low interest rate caused the Irish economy to overheat, which increased inflation and created a real

Figure 4. The ECB refi rate and estimated 'ECB Rule' interest rates for Ireland, France, and Germany, 1999:1 – 2008:4



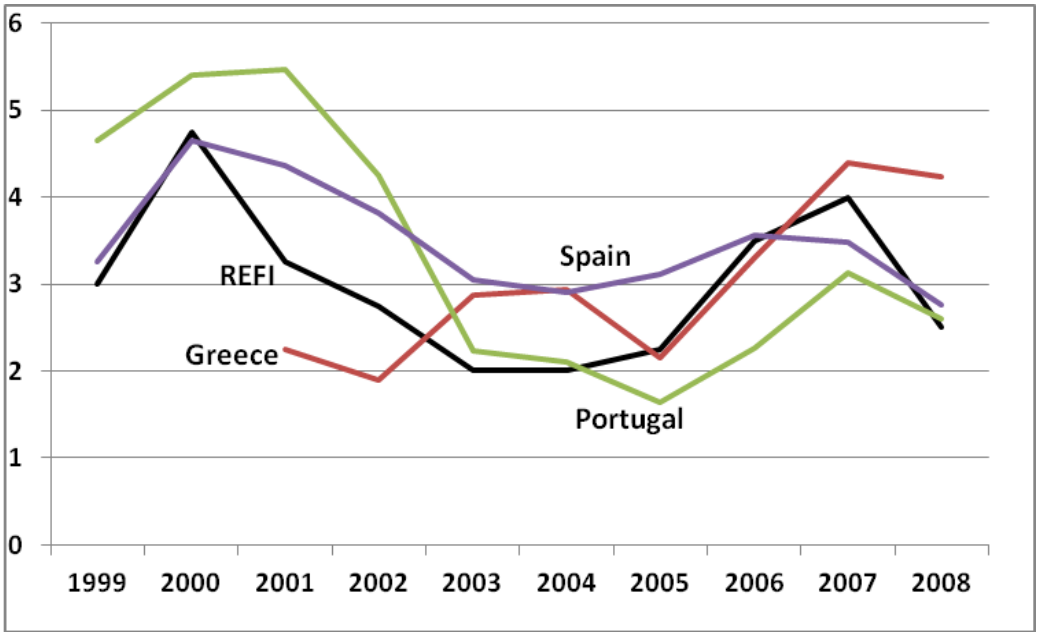
Source: see text [the volatility of the Irish curve indicates shakiness of the data]

estate bubble. The bank crash, which was the outcome of this bubble, then turned the country with the second lowest debt-to-GDP ratio into the country with the second highest. However, it should be added that the Irish curve does not precisely show the feasible monetary policy for Ireland staying outside the euro. An independent monetary policy in Ireland would not have demanded levels as high as in the graph since these are an effect of the sudden drop in Irish interest rates that occurred with the launch of the euro in 1999. By avoiding this sudden drop and the concomitant

overheating, the interest rate could have been more reasonable than in the graph but still higher than the ECB rate. Moreover, a floating Irish punt should have appreciated and thereby cooled off the economy and maybe made the increase of the interest rate redundant. By contrast, for Italy (as can be seen in the Appendix) the ECB refi rate was initially, during 1999 and 2000, too high, but from 2003 until 2007 it became increasingly too lax.

Figure 5: Portugal has some similarities with Ireland. Like in Ireland, interest rates had been pushed down from high levels in the years before the launch of the euro. The economy was heated and according to the 'ECB Rule' the refi rate was several percentage points too low. But here the similarity ends, the Portuguese

Figure 5. The ECB refi rate and estimated 'ECB Rule' interest rates for Greece, Spain, and Portugal, 1999 – 2008



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economy stagnated and from late 2005 the ECB refi rate became increasingly too high. Spain, on the other hand, entered with a match of the ECB refi rate but then for five years got the swelling construction bubble fuelled by too easy credit. For Greece the picture is less clear cut and a closer look can demonstrate the working of the ECB Rule. In 2005, the Greek inflation rate was 3.5 per cent, that is, 1.5 percentage points above the target. Had the output gap been zero, the ECB Rule would have prescribed an interest rate of 3.3 per cent. However, the output gap was negative, 1.5 percentage

points below of the target. With a coefficient for the output gap of 0.73 this means that approximately 1 percentage point is subtracted and the counterfactual rate for Greece becomes 2.3 per cent, not that different from the ECB refi rate. For any monetary rule there is a problem of choice when a country experiences negative output gaps and at the same time high inflation. If such conditions prevail, the high inflation will lead to a loss of competitiveness and a regime of low economic growth will be sustained.

Turning to the core, it is conceivable that the ECB Rule has its roots in the French and German growth problems in 2002-2006. That might be why growth (output gap) got priority over the inflation target. Both countries had negative output gaps during these years, and Germany´s income level per capita decreased 2002 and 2003, while it grew by only 0.5 per cent per year in France. However, whereas in France the inflation rate was close to or above the inflation target, was it well below the target in Germany. As a consequence, the ECB refi rate was only modestly too high for France in the early years before it, from 2003, like in the Italian case, became increasingly too lax. By contrast, the German economy, from 2002 onwards, would have needed an even lower rate. Therefore the conclusion in the case of Germany and France is that, while the single monetary policy was acceptable for France, it was in fact at an austerity level for Germany. This has certainly been an important factor for the low German growth 1999-2007, lower than the Italian and undercut only by Portugal among the euro-12 (see figure 2).

While the single monetary policy of the ECB means a leveling of the refinancing interest rate across the eurozone, it should be noticed that capital markets are not fully integrated. Consequently, the pass-through of the single interest rate to consumers' capital markets differs across countries (Kwapil and Scharler 2010; Soerensen and Werner 2006). This would actually reinforce the centrifugal effects of the single monetary policy, since capital had greater incentive to flow to peripheral countries, like Ireland and Spain, where higher interest could be reaped in the booming mortgage markets.

All in all, the exercise with the 'ECB Rule' applied on the individual countries underlines the Mundell dilemma related in the introduction. Looking at the inflation in terms of the Maastricht convergence criteria, over the period 1999-2007 the three 'best' countries were Finland, Germany and France with on average 1.73 per cent annual inflation rate, as measured by the harmonized CPI. Obviously Germany would

have afforded a lower interest rate than set by the ECB and that would have enhanced economic growth. If allowing a higher internal demand in Germany this would also have enhanced economic growth elsewhere and reduced the external imbalances in current accounts. However, among the euro-12, two countries were outside the Maastricht limit of more than 1.5 per cent higher inflation, notably Greece and Spain, and with Ireland close to the limit. These countries were, as we have seen, to varying degree fuelled by the ECB refi rate. The one sized monetary policy could impossibly benefit them all. Of course, economic failure or success cannot solely be explained by monetary policy but there are other economic factors which differ between nations as well. The problem is, however, that the single currency as well as the single monetary policy reinforces the centrifugal forces between the different economies. The incapability of the ECB refi rate to fit the different countries has contributed to this effect. To this should be added the effect of the 'irrevocably fixed exchange rates' which have precluded any adjustments through depreciations or appreciations of the currency within the eurozone. To this we turn in the next section.

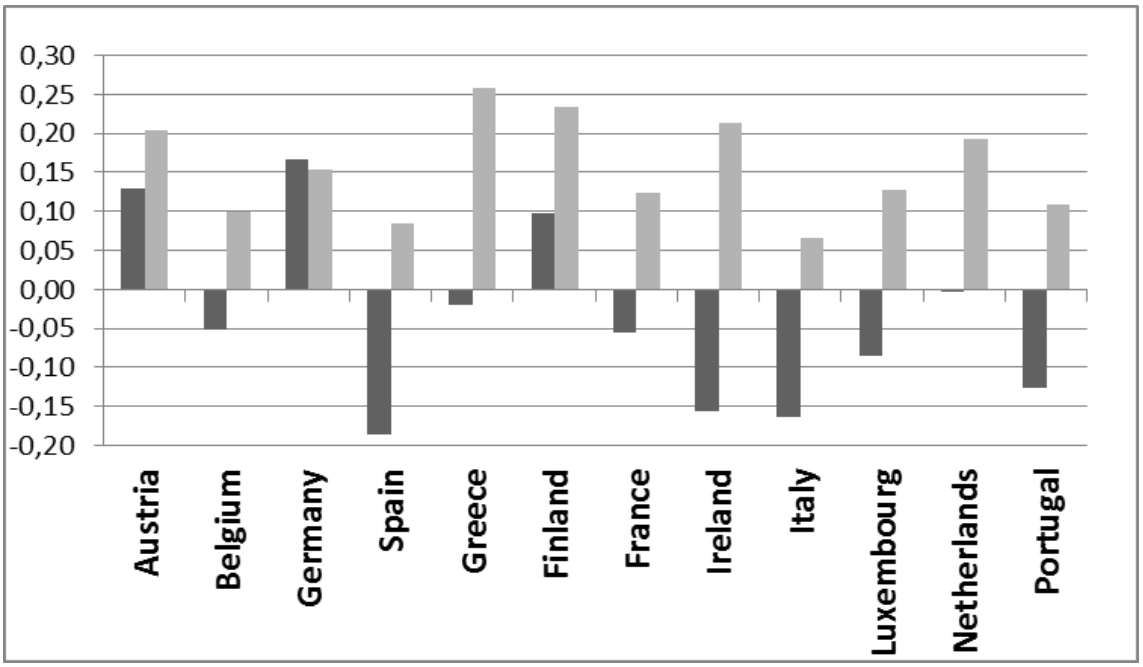
IV. Asymmetric trends in competitiveness

Over the years 1999-2008 Greece had the fastest growth of aggregate labour productivity among the euro-12. This might be knotty to square with the much observed fact that Greece has lost immensely in relative competitiveness. However, both are true facts due to the rapid inflation in Greece which concomitantly brought about a fast increase of unit labour costs. Also Ireland had a high productivity growth, ranking number three, after Finland, among the euro-12, but since unit labour costs increased at more than double the rate, it lost severely in competitiveness. Italy, Spain, and Portugal failed in both respects with a low productivity growth as well as a high growth of unit labour costs. The relative competitiveness within the eurozone is also influenced by countries with the reverse development, where productivity has grown faster than unit labour costs. Most striking is here Germany, only in the middle as regards productivity growth but having a decline in unit labour costs and thus rising in relative competitiveness against all others. These differences between growth of labour productivity and change in competitiveness among the euro-12 can be seen in figure 6. The grey bars show labour productivity, and the darker bars show labour productivity when adjusted for change in unit labour cost. Only Germany, Austria, and Finland had a positive change in the latter from the launch of the euro

and up to the onset of the financial crisis. Despite a productivity growth that is in no way remarkable, but by depressing labour cost, Germany could take the lead in the euro-12.

Several peripheral countries, from the Mediterranean to Ireland and Finland, caught up with the richer "core" over the last decades in the 20th century. Would this have been possible under a regime of fixed exchange rates, as in effect under 'single currency'? We could get an insight by a comparison of competitiveness, or labour productivity adjusted for unit labour cost, when measured in the domestic currencies and when measured in foreign currency. In our sample of countries it is natural to take the Deutsche Mark as the foreign currency since this was the actual anchor from the breakdown of the Bretton Woods system and up to the launch of the euro.

Figure 6. Change in labour productivity in eurozone-12, 1999-2008: with and without adjustment for unit labour cost



Source: authors' calculations based on AMECO database.

In the post-Bretton Woods period, both under the 'Snake' in the 1970s and the European Monetary System (EMS) from 1979, exchange rates were far from fixed. During the six years of the 'Snake', the Portuguese escudo lost almost two thirds of its value, the Italian lire lost a half and the other Mediterranean currencies and Ireland almost as much, while the Finnish markka lost one third. The goal of EMS was to

stabilize exchange rates but in its first nine years there were eleven so called realignments (Gros and Thygesen 1992: 68), in effect collective devaluations against the Deutsche Mark. The final five years running up to the EMS crisis (1992-93) were exchange rates stable but when, as an outcome of the crisis, the Exchange Rate Mechanism (ERM), was reformed in July 1993, the flexibility of the system was greatly increased (see, e.g.Eichengreen 2008). Sizeable adjustments of exchange rates followed, and from the start of EMS in 1979 to 1994, exchange rate changes were broadly of the same magnitude as during the 'Snake' and even bigger for the Greek drachma and the escudo. Not only peripheral currencies experienced sizable depreciations, the French franc lost about 30 per cent in each period and was more than halved against the Deutsche Mark 1973-1994. It is clear that competitiveness was immensely influenced by the flexible exchange rates and this was the way the European economy balanced through most of the post-Bretton Woods period. However, despite the reformed ERM-2 allowed for much greater band width of exchange rate fluctuations, after 1994 the preparations for the 'irrevocably fixed exchange rates' set the regime. Over 1994-1999, on average the national currencies strengthened against the DM – or, the DM became weaker in the run-up to the euro.

In table 2, we have distinguished the four discussed subperiods, and estimate changes in competitiveness for the euro-12 as measured in national currency and Deutsche Mark (DM), respectively. For 1999-2008, this is not possible but competitiveness is measured in euro and also taken relative to Germany. To neutralize volatility in single years, we have fitted a time series trend and calculated the percentage change over the period from the compound average annual changes. Competitiveness is hence change of labour productivity less change in unit labour cost, defined as the ratio of compensation per employee to real GDP per person employed in the domestic currency. By adding the change in the exchange rate, competitiveness is given in DM. Often competitiveness is measured by trade-weighted real exchange rates which differ depending on the scope of the comparison. However, both by desire of a higher transparency and the consideration of the European Union as a single market, we have not used trade-weights but only adjusted productivity for unit labour cost. This procedure is sufficient for highlighting the existence, or non-existence, of asymmetric trends without introduction of further assumptions.

Table 2 tells a story of the contrasting impact of the currency regimes before and after 1994. If we look in the bottom line, the unweighted averages of the change in national competitiveness, this pattern is clear. Under the 'Snake', exchange rate depreciations moderated the loss in competitiveness by some 30 percentage points. Similarly under the EMS 1979-1994, more than 25 per cent loss of competitiveness was turned to a gain of about 10 per cent. By contrast, in the late 1990s, a small gain in competitiveness as expressed in the national currencies was somewhat reduced when expressed in DM. With the 'single currency' from 1999, these adjustments could no longer take place among the euro-12. On the other hand, the different developments of the unit labour cost entailed a loss in competitiveness of all the other countries relative to Germany.

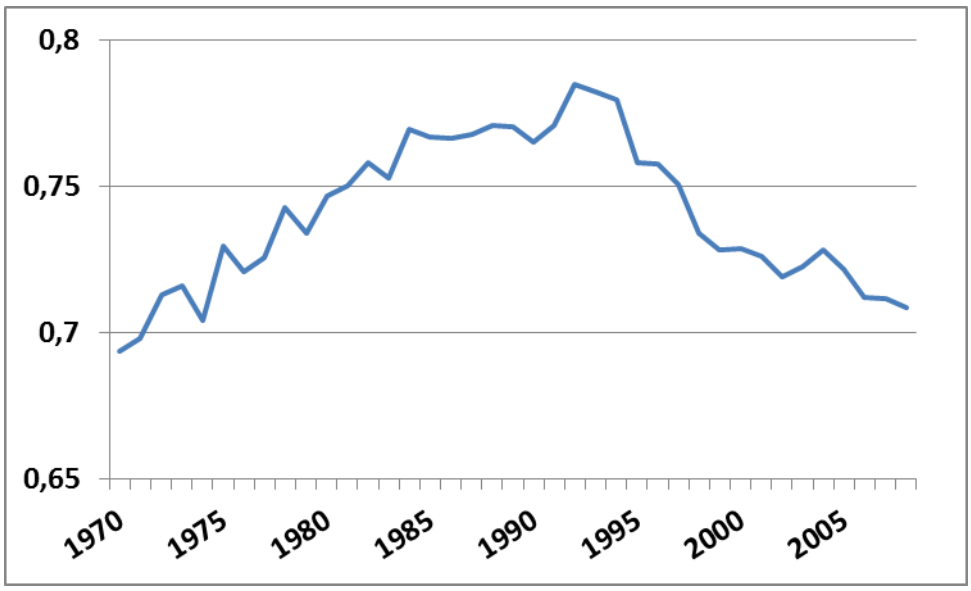
Table 2. Percentage change of competitiveness: aggregate labour productivity adjusted for unit labour cost in different currencies, 1973-2008

	1973-1979		1979-1994		1994-1999		1999-2008	
	Nat'l Currency	In DM	Nat'l Currency	In DM	Nat'l Currency	In DM	Single currency	Relative to Germany
Austria	-20.6	-20.3	-3.8	-5.3	16.0	16.0	13.0	-3.2
Belgium	-29.6	-22.7	-13.7	10.0	3.1	3.3	-5.2	-18.2
Germany	-1.0	-1.0	0.9	0.9	8.3	8.3	16.7	0
Greece	-54.0	-11.1	-91.8	-16.4	-18.9	-10.9	-2.0	-16.0
Finland	-37.3	-2.4	-29.1	12.6	10.6	5.9	9.8	-5.9
France	-37.2	-10.3	-18.4	22.5	7.6	4.3	-5.5	-19.0
Ireland	-42.2	9.0	-10.8	39.4	29.3	21.4	-15.6	-27.7
Italy	-55.7	-0.1	-60.3	-18.6	-4.3	-10.9	-16.3	-28.3
Luxembourg	-39.8	-33.9	17.2	48.7	4.9	5.1	-8.6	-21.7
Netherlands	-19.8	-15.1	18.2	21.3	0.2	0.9	-0.3	-14.6
Portugal	-54.1	47.4	-75.0	15.5	-5.2	-6.1	-12.6	-25.1
Spain	-59.8	-19.3	-52.6	-4.8	-7.8	-6.7	-18.7	-30.3
Unweighted average	-37.6	-6.7	-26.6	10.5	3.7	2.5	-3.8	-17.6

Source: Authors' calculations on AMECO database.

A closer look in table 2 shows that only three countries did not benefit, or did so only to a smaller extent, from the exchange rate flexibility before 1994. The first was, of course Germany, and closely following the DM were the Austrian schilling and the Dutch guilder. All the others significantly modified big losses in competitiveness into smaller losses or even big gains. For example, adjustment of the punt turned a loss in competitiveness, for Ireland, of 42 per cent to a gain of 9 percent during the 'Snake'. In the EMS period the switch was of the same magnitude for Ireland, from a loss of 11 per cent to a gain of 39 per cent. Other catch-up countries, such as Spain, Finland, and Greece, had similar switches. For Greece the switch in the 1979-1994 period was of even larger magnitude, yet, Portugal experienced the largest compensations among the euro-12 up to 1994. But, as said, not only the usually classified catch-up countries of the periphery benefitted from this adjustment

Figure 7. The ratio GDP per capita in the poorer six countries to the median for all euro-12, 1970-2008



Source: authors' calculations from AMECO database; the 'poorer six' are Portugal, Greece, Spain, Finland, Austria (to 1981, and 1997), Italy (from 1982), Ireland (to 1996, and 1998), and Germany (from 1999).

mechanism of a flexible currency regime. France adjusted much the same as Finland, and Italy much the same as Ireland.

It is clear that before the euro, flexible exchange rates did adjust for much of the asymmetric trends in competitiveness. Up to the mid-1990s a convergence as regards income levels took place among the Western European countries. In particular, this was driven by a catch-up by the poorer countries who approached the level of GDP per capita of the richer. This can be seen in figure 7, showing the ratio between average GDP per capita of the poorer six to the median of all euro-12. The shape of the curve is compelling even if GDP per capita not only depends on competitiveness. However, it seems safe to infer that the exchange rate adjustments significantly contributed to the catch-up of the poorer half before the mid-1990s. From the mid-1990s the catch-up switched to a reversal, and a widening gap between the poorer and the richer half among the euro-12. With the preparations for, and later launch of, the single currency an adjustment mechanism was lost and the asymmetric trends gained force. Of course, one could argue that an alternative should have been 'internal devaluations' under a more disciplinary policy. It is beyond the scope of this paper to go further in this discussion, besides just stating the counter-argument : by assigning these countries to low-wage competition through 'internal devaluations', this, in turn, would further have delayed the modernization in the periphery. Furthermore, it is notable that the German lead in competitiveness, which was not insignificantly due to a deflationary regime containing labour cost, could not prevent Germany from falling below the median income level in the euro-12 since 1999.

V. Asymmetric trends in historical perspective

In political discourse, the adjustments of asymmetric trends through exchange rates are perceived as the sin of 'competitive devaluations.' However, historically there have been two alternatives of adjustments for rising differences in competitiveness. One is a deflationary regime, where all adjustments costs are laid on the deficit countries and forcing them to deflate. Moreover, this has often led to a double deflationary regime, in which both surplus countries (A in Mundell's case) and deficit countries (country B) deflate their economies with economic stagnation as a result. This is the recipe adopted in the eurozone, in particular since 2010, and the most famous historical precursor is the interwar Gold Standard through its breakdown during the Great Depression (see Temin 1989; Eichengreen 1992). In the

preparations for the post-war Bretton Woods system, Keynes tried to avoid deflationary traps and at the same time reduce the need for exchange rate changes by making surplus and deficit countries obliged to share the responsibility for achieving international balance. In summary, the argument runs: the less financing the surplus countries are willing to provide and/or willingness to expand, the more flexibility is needed in the exchange rates. Otherwise the outcome would be deflationary and that, in the words of Keynes, would result in the return to 'the evils of the old automatic gold standard'. (Keynes 1980: 143).

In the final Bretton Woods agreement, this was insufficiently acknowledged and basically it was the incapability to handle the asymmetric trends that led to its final breakdown 1971-73. In Europe succeeded the 'Snake', where the Deutsche Mark served as an anti-inflationary achor, and Bundesbank 'set the tone for monetary policy continentwide' (Eichengreen 2008:157).This notwithstanding the 'Snake' contained too much anarchy and preparations were undertaken for a more organized order. When president d'Estaing and chancellor Schmidt in 1978 first agreed on the principles that a year later led to the creation of the European Monetary System, it was in a sense the Pan-European solution for these realities – a monetary system where the Germans set the tone was an economic problem for France and hence a threat to the Franco-German relations, and therefore a political problem for Germany. The agreement was influenced by the Keynes plan: the ECU reserve, in combination with the so called 'trigger mechanism' served as drawing rights and with an automatic mechanism it had a similarity with Keynes' clearing union and its Bancor currency. This would allow for a symmetric solution, so that surplus countries were forced to expand and deficit countries to contract, in a manner not unlike the original Keynes plan. Bundesbank objected, however, and in the negotiations that followed, the automatic trigger mechanism was dropped. Even though the final agreement still had some symmetric components, the obligations for the surplus countries to provide finance was circumvented and made dependent on the deficit countries willingness to devalue their currencies (Eichengreen 2008: 157 ff). This became the practice during the soft-EMS until 1987, and again for a short while with the automatically more flexible ERM-2 which eased the EMS crisis in the summer 1993. However, the lesson was forgotten during the hard EMS period 1987-1993, and the ignorance left its foot prints in the constitution of the Economic and Monetary Union - which was agreed upon precisely before the EMS crisis.

One could expect that this crisis should have been a reminder to not give up the adjustment mechanism but just as the crisis had been unexpected it was soon forgotten, or seen as a casual mistake.[2] However, the asymmetric trends in productivity and prices were not casual, or a result of bad policy, but a necessary outcome of market integration between countries at different income and price levels. Despite the best of intentions, the incapability of the monetary union to deal with the asymmetric trends has made the euro to a force of disintegration.

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[2] 'Overall there is therefore little reason to believe that the EMS would be destabilized by random self-fulfilling attacks in the early 1990s', wrote Thygesen and Gros (1992, p. 166) less than half a year before the outbreak of the EMS crisis. As a member of the Delors Committee the former was one of the architects of the EMU. Also for the IMF came the crisis as a surprise (Eichengreen 2003, p. 229).

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Appendix:

Table A1. Actual ECB refi rate and estimated according to 'ECB Rule' for countries, 1999, first quarter, to 2008, second quarter

	Euro area	Austria	Finland	France	Germany	Ireland	Italy	Netherlands
1999:q1	3	3,68	2,75	2,60	2,06	4,64	1,51	4,47
1999:q2	2,5	3,68	2,89	2,81	1,64	5,12	1,59	4,70
1999:q3	2,5	3,81	2,69	3,14	2,37	5,60	2,01	4,86
1999:q4	3	4,15	3,41	3,88	2,99	6,32	2,71	5,15

2000:q1	3,5	4,72	4,83	4,31	3,53	5,74	3,29	5,19
2000:q2	4,25	4,87	4,24	4,43	3,99	7,33	3,47	5,46
2000:q3	4,5	4,84	4,66	4,34	3,69	6,85	3,83	5,37
2000:q4	4,75	4,69	4,42	4,40	3,64	7,69	4,37	5,35
2001:q1	4,75	3,11	4,19	4,24	3,92	7,16	4,37	5,82
2001:q2	4,5	3,33	3,46	3,99	3,91	5,78	4,11	5,75
2001:q3	3,75	3,26	2,90	3,54	3,30	4,59	3,42	5,24
2001:q4	3,25	3,08	2,09	2,73	3,09	4,09	3,18	4,73
2002:q1	3,25	2,42	1,98	3,09	2,69	5,77	3,21	3,61
2002:q2	3,25	2,35	2,18	2,86	2,27	5,04	3,19	3,45
2002:q3	3,25	2,39	1,54	2,85	2,43	5,88	3,25	3,01
2002:q4	2,75	2,42	1,42	2,65	2,14	5,62	3,15	2,45
2003:q1	2,5	1,27	0,97	2,63	1,56	4,41	2,79	2,07
2003:q2	2	0,84	0,38	1,88	0,95	4,35	2,15	1,22
2003:q3	2	0,96	0,70	2,23	1,17	3,49	2,24	0,95
2003:q4	2	0,93	0,70	2,46	1,30	6,09	2,24	0,92
2004:q1	2	1,25	0,46	2,30	1,31	4,33	2,45	1,28
2004:q2	2	1,50	0,85	2,73	1,50	3,88	2,59	1,47
2004:q3	2	1,35	1,03	2,54	1,21	3,39	2,65	1,33
2004:q4	2	1,56	1,60	2,83	1,20	4,13	2,49	1,17
2005:q1	2	2,16	1,28	2,66	0,87	4,11	2,33	1,09
2005:q2	2	2,03	1,34	2,50	1,20	5,22	2,63	1,64
2005:q3	2	2,22	1,56	2,78	1,70	4,36	2,73	1,95
2005:q4	2,25	1,91	1,23	2,70	1,60	4,67	2,83	2,05
2006:q1	2,5	2,99	2,13	2,82	2,03	5,40	3,18	2,24
2006:q2	2,75	3,18	2,25	3,43	2,93	5,33	3,50	3,18
2006:q3	3	2,99	2,49	2,93	2,99	5,68	3,67	2,87
2006:q4	3,5	3,09	2,97	3,09	3,67	4,56	4,21	3,10
2007:q1	3,75	4,56	3,78	3,24	3,90	7,68	4,15	3,96
2007:q2	4	4,56	4,11	3,30	3,86	6,13	3,97	4,04
2007:q3	4	4,62	4,34	3,54	4,35	4,87	3,90	4,31
2007:q4	4	5,06	4,52	3,74	4,34	6,80	3,80	5,02
2008:q1	4	5,08	4,75	4,07	5,09	4,37	4,27	5,32
2008:q2	4	5,24	4,69	3,49	4,29	2,79	3,82	4,93

Table A2. Estimated refi rate according to 'ECB Rule', 1999, first quarter, to 2008, second quarter: countries with only annual data on 'GDP gaps' (OECD)

	Belgium	Greece	Luxembourg	Portugal	Spain
1999:q1	*2,86*	*1,93*	*2,91*	*4,83*	*3,23*
1999:q2	*2,67*	*1,47*	*3,10*	*4,61*	*3,23*
1999:q3	*2,86*	*1,41*	*3,22*	*4,55*	*3,36*
1999:q4	*3,11*	*1,72*	*3,44*	*4,49*	*3,45*

2000:q1	*4,12*	*2,03*	*6,03*	*4,96*	*4,50*
2000:q2	*4,28*	*1,84*	*6,50*	*5,40*	*4,65*
2000:q3	*4,59*	*2,09*	*6,41*	*5,65*	*4,71*
2000:q4	*4,28*	*2,31*	*6,44*	*5,71*	*4,81*
2001:q1	*2,74*	*2,10*	*4,50*	*5,68*	*4,42*
2001:q2	*2,98*	*2,50*	*4,41*	*5,53*	*4,63*
2001:q3	*2,64*	*2,35*	*4,16*	*5,37*	*4,20*
2001:q4	*2,67*	*2,19*	*3,85*	*5,31*	*4,26*
2002:q1	*2,26*	*2,05*	*4,13*	*4,12*	*3,69*
2002:q2	*1,73*	*1,80*	*4,01*	*4,19*	*3,75*
2002:q3	*1,85*	*1,86*	*4,29*	*4,28*	*3,78*
2002:q4	*1,88*	*1,77*	*4,47*	*4,34*	*3,94*
2003:q1	*1,28*	*3,18*	*2,97*	*2,55*	*3,40*
2003:q2	*1,06*	*2,93*	*2,29*	*2,27*	*2,96*
2003:q3	*1,12*	*2,84*	*2,47*	*2,21*	*3,02*
2003:q4	*1,12*	*2,78*	*2,41*	*1,93*	*2,93*
2004:q1	*1,83*	*2,91*	*2,50*	*2,01*	*2,63*
2004:q2	*2,14*	*2,94*	*3,06*	*2,48*	*3,04*
2004:q3	*2,08*	*2,91*	*2,84*	*1,98*	*2,94*
2004:q4	*2,11*	*2,97*	*2,96*	*2,14*	*2,97*
2005:q1	*2,37*	*1,97*	*3,98*	*1,70*	*3,11*
2005:q2	*2,34*	*2,06*	*3,89*	*1,18*	*3,05*
2005:q3	*2,44*	*2,25*	*4,35*	*1,83*	*3,24*
2005:q4	*2,37*	*2,16*	*3,95*	*1,76*	*3,20*
2006:q1	*2,52*	*3,30*	*4,69*	*2,51*	*3,65*
2006:q2	*2,61*	*3,33*	*4,75*	*2,41*	*3,68*
2006:q3	*2,42*	*3,24*	*4,17*	*2,26*	*3,34*
2006:q4	*2,49*	*3,27*	*4,26*	*2,10*	*3,28*
2007:q1	*2,63*	*4,34*	*6,34*	*3,13*	*3,39*
2007:q2	*2,48*	*4,28*	*6,31*	*3,13*	*3,39*
2007:q3	*2,51*	*4,37*	*6,37*	*3,01*	*3,45*
2007:q4	*3,04*	*4,68*	*6,93*	*3,22*	*3,94*
2008:q1	*2,45*	*4,30*	*5,15*	*2,73*	*2,92*
2008:q2	*2,88*	*4,46*	*5,42*	*2,82*	*3,08*