

MONETARY POLICIES IN THE EMS: LESSONS FROM THE GREAT RECESSION OF 1991–3

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ABSTRACT

Monetary Policies in the EMS: Lessons from the Great Recession of 1991-3*

This paper analyses the nature of the monetary policies in the EMS during the most recent recession. It shows that these monetary policies were very restrictive in an historical perspective, and identifies the characteristics of the workings of the EMS responsible for these monetary policies.

Jel Classification: F33, F36, F42

Keywords: monetary policy, EMS, recession

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NON-TECHNICAL SUMMARY

The EMS evolved into an asymmetric monetary arrangement in which the German Bundesbank played a dominant role in determining monetary conditions in the system. Such an asymmetric system worked well as long as the participating countries perceived their national interest to be well-served by following the leading country. This was the case during most of the 1980s when countries like Belgium, France and Italy pursued anti-inflationary strategies, and when the EMS was seen as a device which made this disinflation easier. Things changed dramatically during the early 1990s when inflation dropped to historically low levels (except for Germany) and the recession became the major policy problem. It then appeared that the asymmetric monetary arrangement inherent in the EMS exerted a deflationary bias to monetary policies in the system.

This deflationary bias occurred as a result of three self-reinforcing phenomena. First, the business cycles of the EMS countries were dis-synchronized. While the other EMS countries were already heading into a recession in 1990, Germany was experiencing a boom. Given the money targeting strategy of Germany this led to an (unwelcome) monetary restriction in the other EMS countries. Second, the EMS had the effect of forcing those countries who stayed within the system to follow a restrictive monetary policy in order to help Germany in its objective of reducing its domestic inflation rate (which stood at 4% at its peak). Thus the EMS was an arrangement in which the total money stock was geared towards the exclusive objective of reducing the inflation rate in Germany. Third, the loss of credibility in the system which was induced by the policy conflict between the major EMS countries forced the EMS countries outside Germany to raise their interest rates.

The asymmetric feature of the EMS in which one country is allowed to follow its own national interest without taking into account the interests of the others, tended to amplify the negative monetary effects of the recession which hit the EMS countries during the early part of the 1990s.

A monetary arrangement between nations should serve the interests of all participating members. The EMS performed this role during most of the 1980s. It did not during the 1990s, when it contributed to intensifying the deflationary forces of the recession. A monetary union in which one central bank would have targeted a European money stock would have been better equipped to avoid the excessive monetary restriction of the early 1990s.

The recent European experience with monetary policies is reminiscent of what happened in the United States during the 1930s. As is well-known Friedman and Schwartz (1963) have claimed that by following too restrictive monetary policies, the Federal Reserve intensified the severity of the Great Depression. Although there is still some dispute about the importance of the Fed's monetary stance in explaining the Depression in the 1930s, few will contest that the restrictive nature of these policies contributed to its severity. In a similar way it can be argued that the restrictive nature of monetary policies in Europe has contributed to the severity of the European recession of 1991–3.

1. INTRODUCTION

During 1991-94, continental Europe experienced its worst recession of the post-war period. In 1993, when the recession reached its low point, output declined by 1 to 2 percent in almost all countries of the European Union.

In this paper we concentrate our attention on the monetary policies that were conducted in Europe during this recession. We first describe the nature of these policies (section 2). This will naturally lead to the issue of whether the stance of monetary policies in the European countries was the appropriate one (section 3). Finally, we analyze the role the EMS has played in determining the monetary policy stance in Europe (section 4).

2. THE STANCE OF MONETARY POLICY IN THE EMS DURING THE RECESSION : A DESCRIPTIVE ANALYSIS

Measuring the stance of monetary policy is not an easy task. Several indicators can be used. Quite often these indicators give an unclear, and even conflicting, view of the nature of the monetary policies. Here we use three alternative indicators:

- (a) the real short term interest rate,
- (b) the real growth rate of the money stock (M1),
- (c) the difference between the short-term and the long-term interest rate.

The indicators (a) and (b) are widely used and do not need much introduction. Indicator (c) has only recently been recognized as providing useful information on the stance of monetary policies. In particular, the difference between the short and the long rates can give information on the degree of tightness of monetary policies. When the monetary authorities follow restrictive monetary policies this will tend to show up in a positive differential. It should be stressed, however, that according to the expectations theory of the term structure, this differential is also

influenced by the expected future interest rate. It is, therefore, important that this indicator is interpreted in conjunction with the other ones.

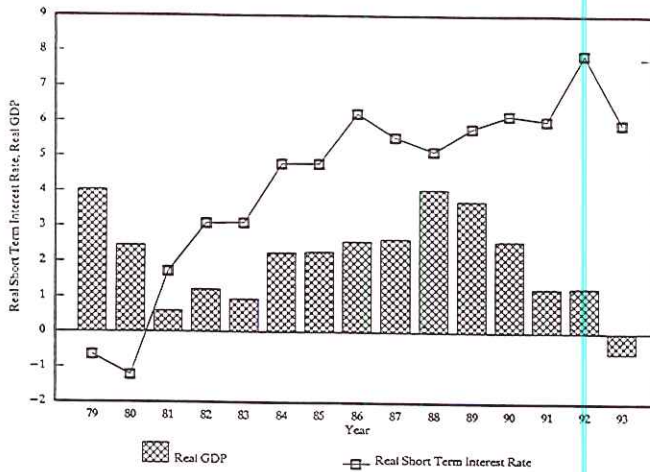
In order to describe the stance of monetary policies in the EMS we have constructed weighted averages (GDP-weights) of national indicators. We then systematically compare these EMS-indicators with the average growth rates of GDP in the EMS. The results are shown in figures 1 to 3.

The most striking feature of figures 1 to 3 is that all three indicators point in the same direction of monetary tightness in the EMS during the recession of 1991-93. From figure 1 we note that the real short-term interest rate reached its highest level since 1979 precisely during the worst recession of that period. From figure 2 we observe that the real growth rate of M1 became negative during the recession of 1991-93 (as it also did during the recession of 1980-82). Finally, during 1991-93 the differential between the short and long term interest rates remained positive all the time. This is the longest consecutive period of positive differential since the inception of the EMS.

The figures 1 to 3 also highlight some differences in the conduct of monetary policy during the recessions of 1991-93 and of 1980-82. In the latter case we find conflicting signals from the three indicators. The money growth figures seem to indicate that considerable monetary tightness was exerted at that time. The other two indicators, however, suggest that monetary policy was not particularly tight in the EMS. This contrasts with the more recent experience where the three indicators all point towards considerable monetary tightness.

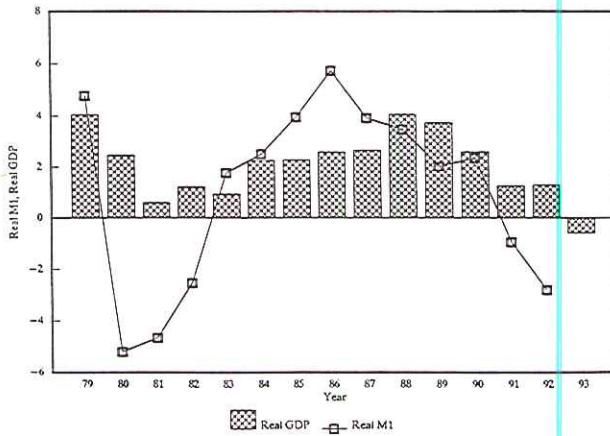
It is also useful to compare the experience of the EMS with that of the US during the same period. We, therefore, constructed the same indicators for the US and present them in figure 4 to 6. The contrast with the EMS is strong. At the start of the US recession in 1989-90, which occurred two years before the EMS-recession, the real short term interest rate and the differential between the short and the long term interest rate started a steep decline, whereas the real growth rate of the money stock started to increase significantly. All this point to a US policy of considerable monetary ease.

Figure 1 : Real short-term interest rates and growth rate of GDP in the EMS-countries



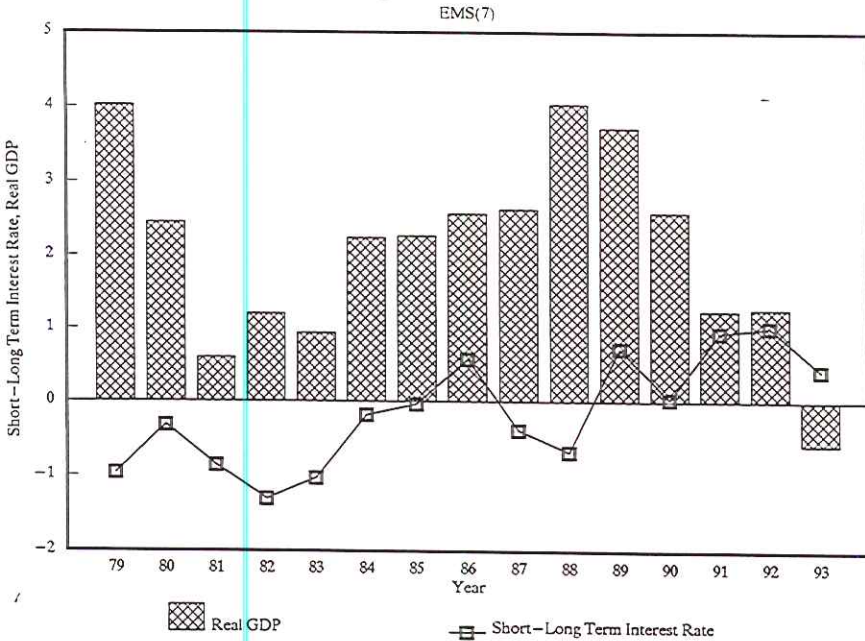
Source : IMF, International Financial Statistics

Figure 2 : Growth rate of M1 and real growth of GDP in EMS-countries



Source : IMF, International Financial Statistics

Figure 3 : Real GDP and difference of short and long term interest rate



The comparison between the EMS and the US is interesting for another reason. It appears that the conduct of monetary policies in the EMS during the 1991-93 recession was very much comparable to the US monetary policies during the worst US recession of the postwar period, in 1980-82. During that period the real short-term US interest rate and the interest differential reached record high levels, whereas the growth rate of the US money stock was strongly negative. We observe precisely the same phenomena in the EMS during 1991-93.

It is now generally recognized that the Fed's monetary policies in the early 1980s contributed to the severity of the US recession of 1980-82. It is also well known that the reason why the US Federal Reserve engaged in this policy of monetary tightness was to reduce inflation which in 1980 reached 13.5 %. (As will be argued later, the monetary tightness in the EMS was similarly motivated by a desire of one country, Germany, to reduce its inflation rate which in 1992 had reached 4 % ...)

The descriptive nature of the monetary indicators presented in this section does not yet allow us to make a definitive judgment about the stance of monetary policy and about its appropriateness. In order to do so, the actual values of the indicators must be compared against the hypothetical values given some policy objective pursued by the monetary authorities. We perform such an exercise in policy evaluation in the next section.

Figure 4 : Real short term interest rate and real GDP

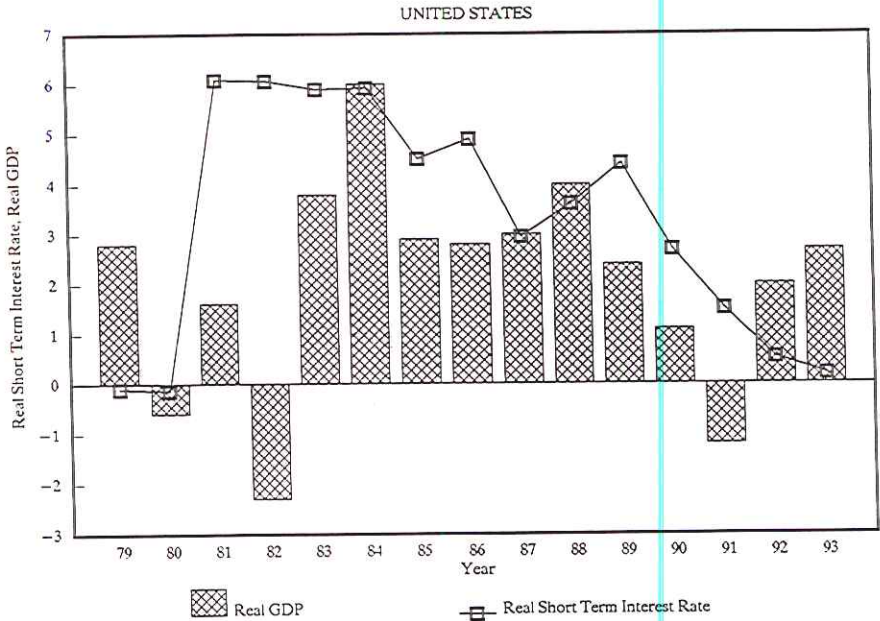


Figure 5 : Real M1 and real GDP

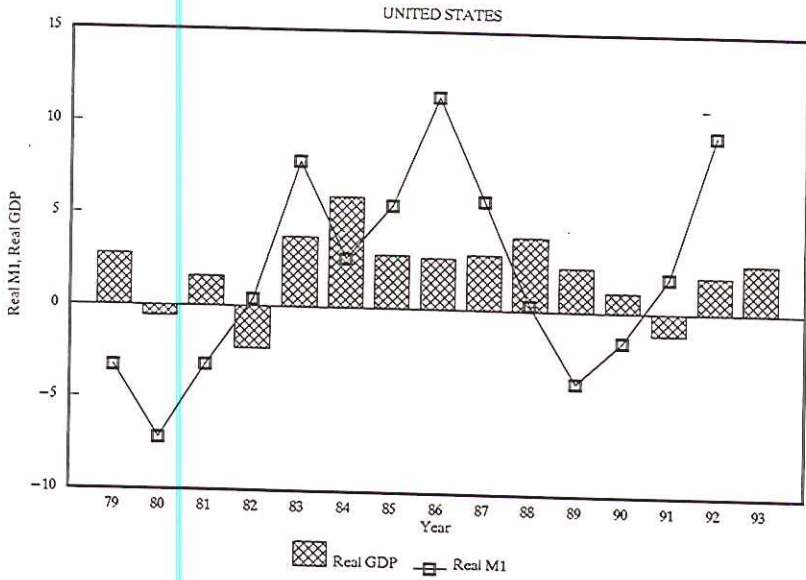
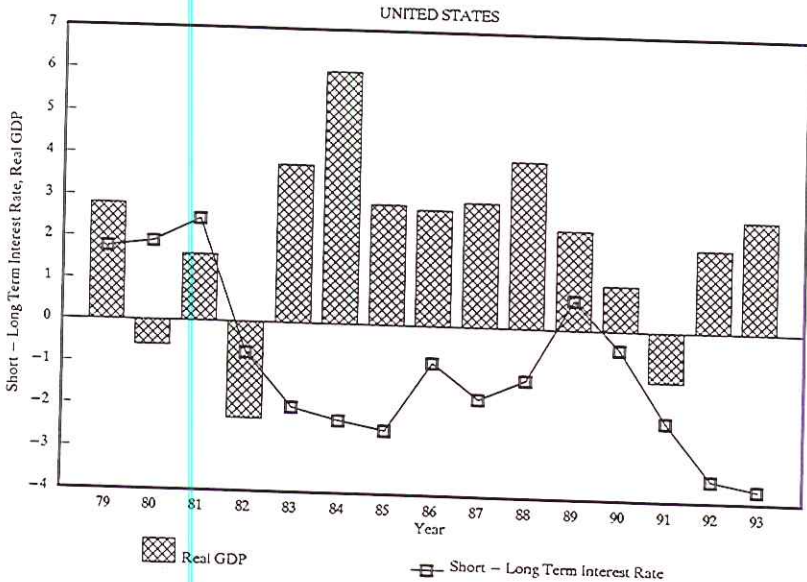


Figure 6 : Real GDP and difference of short and long term interest rate



3. THE STANCE OF MONETARY POLICY IN THE EMS DURING THE RECESSION : AN EVALUATION

In order to evaluate the monetary policy stance we propose the following simple procedure. We compare the observed growth rates of M1 of the EMS countries with a constant money growth rate. Thus we ask the question of how much the actual money growth rates have diverged from the hypothetical money growth rate if the European authorities had followed a (Friedman-type) constant money growth policy. We set this constant money growth rate at 5 %, assuming that the long term growth rate of real GDP is 3 % and the inflation target is 2 %¹ We do this exercise for Germany and for the rest of the EMS separately. The results are shown in figures 7 and 8. The sample period only extends to 1992 (there were insufficient data to do the calculation for 1993).

We observe the following. First, the German monetary authorities, who are known to follow explicit money targeting policies, were not really very successful in stabilizing the growth rate of M1. The overshooting during 1990 and 1991 is especially noteworthy. This overshooting certainly is related to the problems of monetary control encountered during the process of German monetary unification. Second, when analyzing the EMS data, one finds that during the first half of the 1980s the money growth figures in the EMS outside Germany were consistently above the constant money growth norm. Put differently monetary policies during that period were too expansionary compared to a (hypothetical) policy objective aiming at stabilizing nominal GDP growth at 5 %. From 1986 to 1990, however, actual money growth came much closer to this constant growth norm. Finally, in 1991-92 when the European recession started, the observed money growth in the EMS declined below the constant growth norm. In 1992, this decline was substantial, i.e. close to -5 %. Put differently, if the EMS-authorities had followed a Friedman type rule, aimed at a 3 % real growth rate and 2 % inflation rate they should have expanded the money stock in 1992 by 5 % more than they actually did. The EMS mechanism, however, forced them to follow a monetary policy which was much too restrictive measured against the Friedman

¹ These numbers are in accordance with the nominal growth rate of GDP used by the drafters of the Maastricht Treaty when they fixed the fiscal convergence criteria (3 % deficit and 60 % government debt). The rule we apply here is crude. We are in the process of applying other policy rules, in particular the nominal income targeting proposed by McCallum(1987). See also Ducker(1993).

rule. In this sense it can be said that the ERM led the EMS-countries to follow excessively deflationary monetary policies.

Why did the EMS-countries pursue such deflationary monetary policies during the worst recession of the postwar period? The answer must be found in the way the EMS functioned during the 1990s.

Figure 7 : Nominal M1 growth : deviation from 5 % growth benchmark

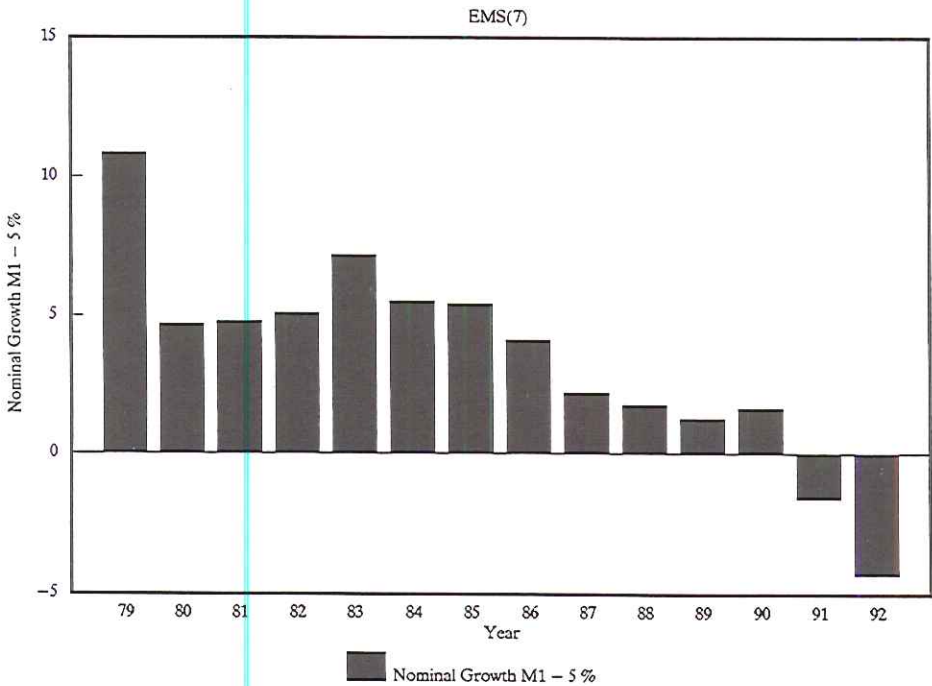
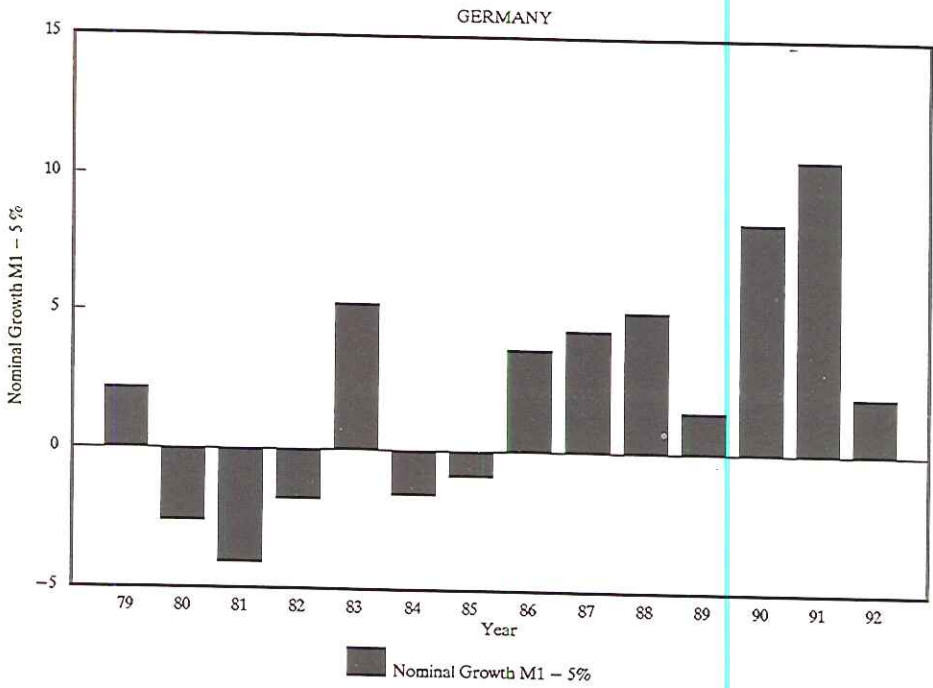


Figure 8 : Nominal M1 growth : deviation from 5 % growth benchmark



4. THE EMS DURING THE 1990S

At the end of the 1980s it became the ambition of the major EMS-countries to move to a truly fixed exchange rate system. This changed the essence of the EMS which up to that time had been a system with the limited ambition of providing an organizational structure for changing exchange rates in an orderly fashion.

This movement towards a rigidly fixed exchange rate regime also revealed the basic flaws of the system. As is well-known, every fixed exchange rate regime must find some collective decision process that will determine how the system-wide monetary policy is conducted. Typically, this problem has been solved by delegating this job to one country. In the EMS this has been Germany. As a result, the money supply process evolved into an asymmetric system².

One can analyze such an asymmetric money supply process in the context of a simple two-country model of the money markets³. The model can be described as follows.

The money demand equation in country A is specified as follows:

$$M_D^A = P_A + aY_A - br_A$$

where P_A is the price level in country A, Y_A is the output level in country A, and r_A is the interest rate in country A.

Money market equilibrium is obtained when demand equals supply:

$$M_S^A = P_A + aY_A - br_A \quad (1)$$

For country B we have a similar money market equilibrium condition, i.e.

$$M_S^B = P_B + aY_B - br_B \quad (2)$$

2 There is a lively literature on the nature and the intensity of the asymmetry in the EMS. See e.g. De Grauwe (1988), Fratianni and von Hagen (1990), Weber (1990). These studies suggest that during the 1980s other countries also influenced monetary conditions despite the fact that Germany was the dominant partner.

3 See P. De Grauwe (1992) for an exposition.

For the sake of simplicity we assume identical money demand equations in both countries.

Adding the assumption of perfect capital market integration in the two countries allows us to use the interest parity condition, which we specify as follows.

$$r_B = r_A + \mu \quad (3)$$

where μ is the expected rate of depreciation of the currency of country B. Note that we assume that there are no risk premia.

Now suppose countries A and B decide to fix their exchange rate. Let us also assume that economic agents do not expect that the exchange rate will be adjusted in the future. This means that $\mu = 0$. The interest rates in the two countries will be identical.

We can now represent the equilibrium of this system graphically as follows (see figure 9). The downward sloping curve is the money demand curve. The money supply is represented by the vertical lines M_1^A and M_1^B . Money market equilibrium in both countries is obtained where demand and supply intersect (points E and F). In addition, given the interest parity condition, the interest rates must be equal.

It is clear from figure 9 that there are infinitely many combinations of such points that bring about equilibrium in this system. We show two such equilibria each corresponding to a different level of the interest rate. One can say that the fixed exchange rate arrangement is compatible with any possible level of the interest rates and of the money stocks. There is a fundamental indeterminacy in this system.

This indeterminacy can be solved by allowing one country to take a leadership role. Suppose, for example, that country A is the leader and that it fixes its money stock independently, say at the level M_1^A (see Fig. 9). This then fixes the interest rate in country A, at the level r_1 . Country B now has no choice any more. Its interest rate will have to be the same as in country A. Given the money

demand in country B, this then uniquely determines the money supply in country B that will be needed to have equilibrium. Country B has to accept this money supply. Its money stock is determined endogenously in this system. Country B cannot follow an independent monetary policy.

We now analyze the effects of disturbances in output on the money supply process in this asymmetric system. We therefore solve the model for exogenous changes in Y_A and Y_B . We also assume that country A fixes its money stock. The asymmetric nature of the system allows us to solve the model recursively. Starting from equation (1) we obtain the effect of the output shock in country A on the interest rate (for a given price level):

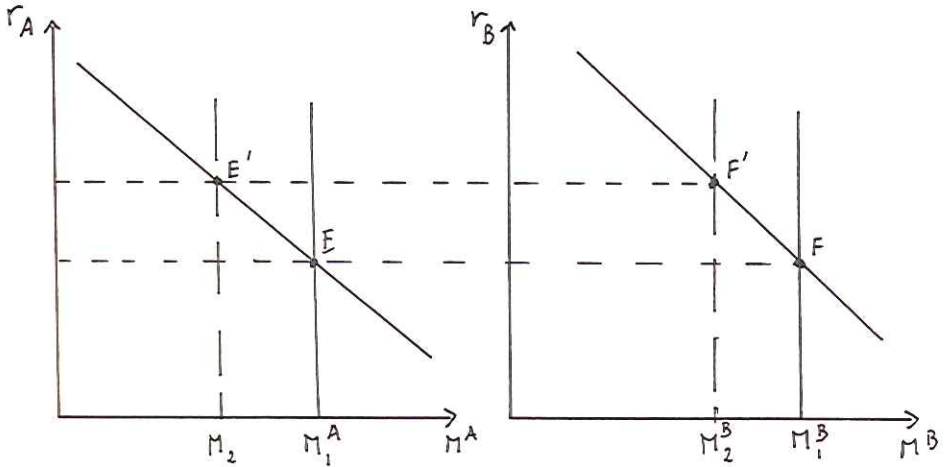
$$dr_A = (a/b)dY_A \quad (4)$$

Since $dr_A = dr_B$, we can use (4) to substitute into equation (2). This yields

$$dM_S^B = a(dY_B - dY_A) \quad (5)$$

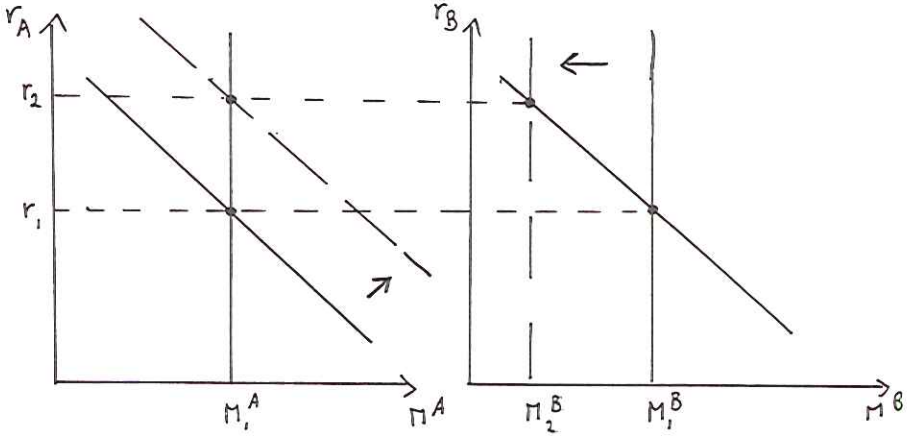
From (5) it follows that an increase in output in country A which exceeds the output increase in country B leads to a decline of the money stock in country B. Thus a more pronounced boom or a less pronounced recession in country A (the leader) compared to B leads to a monetary contraction in country B. Since country A keeps its money stock fixed, the total money stock in the system also declines when such an asymmetric shock occurs. The opposite holds when the output growth in country B exceeds the output growth in country A. In that case the money supply process has an expansionary bias.

Figure 9: Money market equilibrium in a two-country model



This result has a simple graphical interpretation which we present in figure 10. We assume an asymmetric shock in output. To simplify the analysis, we assume that output increases in country A while it remains constant in country B. (Other combinations of asymmetric shocks produce the same results qualitatively). The effect is to increase the interest rate in country A (given that country A fixes its money stock). As a result, country B's interest rate also increases. This forces country B to reduce its money stock. Thus, an increase in output in the leading country has a restrictive monetary effect on country B. At the same time it leads to a decline in the total money stock in the system.

Figure 10 : Asymmetric output shock



From the preceding analysis it also follows that a money supply target by country A does not stabilize the money stock in the system when asymmetric shocks occur in output. On the contrary, the money supply targetting of country A produces procyclical movements in the money stock of country B if the shocks in output are not perfectly synchronized in the two countries.

Is there evidence for such asymmetric shocks in the EMS during the early 1990s? In figure 11 we show the growth rates of GDP in Germany, France and the UK. It can be seen that the recession started almost two years earlier in France and the UK than in Germany. This asymmetry in the business cycle is certainly an important factor explaining the monetary restriction imposed on countries like France and the UK in the early 1990s, despite the fact that these countries started to experience a severe recession.

The deflationary monetary effects of the workings of the EMS during the recession was exacerbated by two other factors. First, as noted earlier, inflation accelerated significantly in Germany from 1989-90. In figure 12 we present the German inflation rates and compare them with the EMS inflation rates. It can be seen that whereas inflation increased in Germany (in fact prior to unification) it declined in the other EMS-countries. This acceleration of inflation in Germany led the Bundesbank to restrict the growth rate of the money stock. This German monetary restriction was then transmitted to the other countries who were forced to reduce their money stocks. Thus, the EMS forced the other countries to engage in monetary restriction so as to reduce the *German* inflation rate. This happened at a time when their own inflation rate had declined significantly and when the main policy problem was the recession.

Figure 11 : Real growth GDP

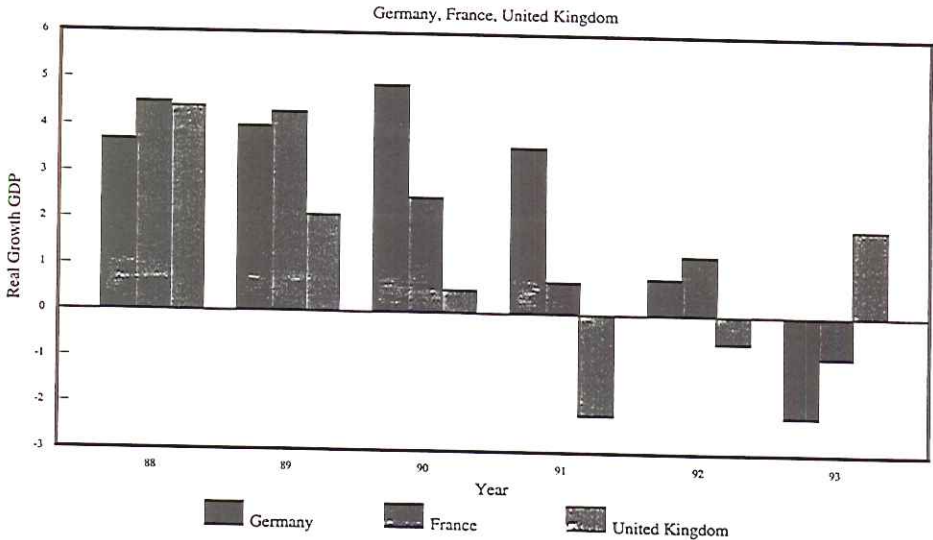
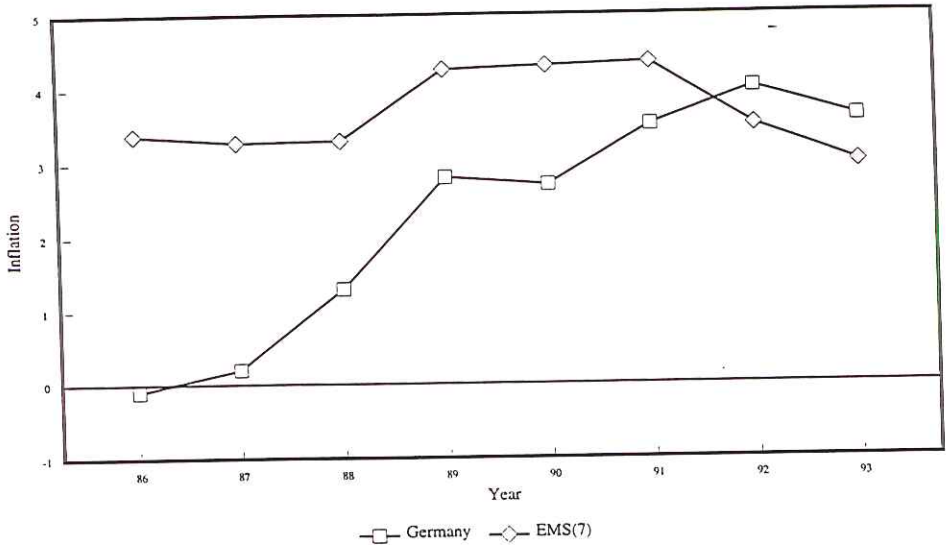


Figure 12 : Inflation in Germany and EMS



Second, the policy conflict between Germany and the other major countries about the appropriate monetary policy reduced the credibility of the system and induced expectations of future realignments. In the context of our model this had the effect of making μ in the interest parity equation (3) a positive number. Since Germany was sticking to its monetary policy objective, the increase in μ had to be accommodated fully by an upward movement in the interest rate in the other countries. As a result, an additional monetary restriction ensued⁴. Thus, to the extent that the recession induced a loss of credibility in the fixity of the exchange rate, the money supply process in the EMS became even more deflationary.

⁴ It can be seen from figure 10 that an increase in μ increases the interest rate in country B (given that country A keeps its own interest rate fixed). This then necessitates an additional decline in the money stock of country B.

From the preceding it can be concluded that the asymmetric monetary arrangement in the EMS amplified the monetary effects of the asymmetric shocks that occurred in the early 1990s. As a result, the EMS probably also made the recession in the countries that tied their currency to the German mark worse than it would have been in a different, more symmetrical, monetary arrangement. Let us take such a different monetary arrangement. Suppose a European central bank had existed in the early 1990s, and suppose it had targeted the money stock of the whole system, much in the same way as the German Bundesbank targets the German money stock.

We can analyze the effects of such a symmetrical monetary arrangement, confronted with the same asymmetric shocks, in the context of our monetary model as follows. We now fix the sum of the money stocks in the two countries, i.e.

$$M_S^A + M_S^B = \bar{M} \quad (6)$$

We then solve for the interest rate and the money stocks:

$$dr_A = (a/2b) (dY_A + dY_B) \quad (7)$$

$$dM_S^B = (a/2) (dY_B - dY_A) \quad (8)$$

$$dM_S^A = - (a/2) (dY_B - dY_A) \quad (9)$$

We now observe that following the same asymmetric output shock, the money stock in country B declines whereas country A's money stock increases. The latter is necessary because the European central bank aims at keeping the total money stock fixed. Note also that the decline in country B is smaller in this symmetrical system than in the asymmetric monetary arrangement (compare (8) with (5)). The reason is that the increase in the money stock of country A reduces the need to restrict the money stock in country B. Thus, although the symmetrical monetary arrangement cannot fully eliminate the monetary effects of asymmetric shocks, it does a better job than the asymmetrical EMS system which amplifies the asymmetrical monetary effects of the shock.

5. CONCLUSION

The EMS evolved into an asymmetric monetary arrangement in which the German Bundesbank played a dominant role in determining monetary conditions in the system. Such an asymmetric system worked well as long as the participating countries perceived their national interest to be well-served by following the leading country. This was the case during most of the 1980s when countries like France, Italy, Belgium pursued anti-inflationary strategies, and when the EMS was seen as a device making this disinflation easier. Things changed dramatically during the early 1990s when inflation dropped to historically low levels (except for Germany) and the recession became the major policy problem. It then appeared that the asymmetric monetary arrangement inherent in the EMS exerted a deflationary bias to monetary policies in the system.

This deflationary bias occurred as a result of three self-reinforcing phenomena. First, the business cycles of the EMS-countries were dissynchronized. While the other EMS-countries were already turning into a recession in 1990, Germany experienced a boom. Given the money targetting strategy of Germany, this led to an (unwelcome) monetary restriction in the other EMS-countries. Second, the EMS had the effect of forcing those countries who stayed within the system to follow a restrictive monetary policy so as to help Germany in its objective of reducing its domestic inflation rate. Thus the EMS was an arrangement in which the total money stock was geared towards the exclusive objective of reducing the inflation rate in Germany (which stood at 4 % at its peak). Third, the loss of credibility of the system which was induced by the policy conflict between the major EMS-countries forced the EMS-countries outside Germany to raise their interest rates.

The asymmetric feature of the EMS in which one country is allowed to follow its own national interest without taking into account the interests of the others, tended to amplify the negative monetary effects of the recession which hit the EMS-countries during the early part of the 1990s.

A monetary arrangement between nations should serve the interests of all participating members. The EMS performed this role during most of the 1980s. It did not during the 1990s, when it contributed to intensifying the deflationary

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The recent European experience with monetary policies is reminiscent of what happened in the US during the 1930s. As is well-known Friedman and Schwartz(1963) have claimed that by following too restrictive monetary policies, the Federal Reserve intensified the severity of the Great Depression. Although there is still dispute about the importance of the Fed's monetary stance in explaining the Depression in the 1930s, few will contest that the restrictive nature of these policies contributed to its severity⁵. In a similar way it can be argued that the restrictive nature of the monetary policies in Europe has contributed to the severity of the European recession of 1991-93.

⁵ For a recent survey see Wheelock (1992). A recent restatement of the argument is Bordo, Choudry and Schwartz (1994).

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