

IMS, EMS, and the (N-1) Problem

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Abstract: Three types of exchange rate regimes predominate the present international monetary system (IMS): the managed float by industrialised countries, a fixed but adjustable peg inside the European Monetary System (EMS), and in most cases a fixed peg by LDCs. Whatever the exchange rate arrangement is, all regimes share the so-called (n-1) problem which means that some minimum kind of co-operation is necessary with respect to the target of (n-1) independent exchange rates. Within the IMS, the problem is solved by the benign-neglect position of the USA with respect to their exchange rate. For the EMS, it could be solved by the Ecu (European currency unit) to the extent that it has reached the full status of a currency. However, for the moment, it seems to be solved by the German mark provided that Germany is only concerned with its exchange rate with respect to the dollar and remains indifferent with respect to the intra-EMS exchange rates. In this sense, one could identify the EMS with a German Monetary Area.

I INTRODUCTION

All exchange rate regimes have one problem in common: the necessity of co-operation with respect to the solution of the possible conflict of exchange rate targets. The international monetary system of the industrialised world (IMS) and the European Monetary System (EMS) of the eight among the twelve members of the EC have solved the co-operation issue in different ways. As is shown in Section II, within the IMS, the US have taken a predominantly passive role in regard to their exchange rate target. On the contrary, within the EMS, the intra-EMS exchange rate targets are negotiated by mutual agreement. However, whether the EMS has operated effectively along this pattern is questioned in Section III. One of the elements of the EMS as a German Monetary Area concerns the controversial question whether or not Germany has taken the role of the n-th country within the EMS. It managed the float between the Deutschemark and the US dollar and it remained passive with respect to the intra-EMS exchange rates. To the extent that the other EMS countries would have been concerned only by their respective currency value with respect to the German mark, Germany would have managed the float between the EMS and the US dollar.

II IMS AND EMS

In an economy with n goods, there are $(n-1)$ independent relative prices to be determined. In a world economy with n currencies, there are $(n-1)$ independent exchange rates to be fixed. The total number of exchange rates amounts to $n(n-1)/2$, or even to $n(n-1)$ rates if one distinguishes between the purchasing price and the selling price of foreign exchange. Knowing the $(n-1)$ independent exchange rates, one can derive the value for all other (cross) rates.

The $(n-1)$ problem raises the question of the consistency of exchange rate targets within any international monetary system. Assume that there are only two currencies. Consequently, there is only one exchange rate. The fundamental question of any monetary order is to know the rules according to which this single exchange rate is determined by the two countries.

The first possible rule is a freely floating exchange rate without any exchange rate target by either government. There are neither (by definition) any interventions by the central banks in the foreign exchange market nor the pursuit of any other economic policy (monetary policy, fiscal policy) with the purpose of indirectly influencing the exchange rate. The passive behaviour by both countries with respect to exchange rate *and* followed at any time would be one solution of the $(n-1)$ problem. However, to the extent that changes in the exchange rate imply in most cases also changes in the real exchange rate, at least during a certain time interval, governments may be tempted by exchange rate targets which could be divergent from each other. Even in a system of freely fluctuating exchange rates such a conflict could emerge since other macroeconomic policies (e.g., other instruments of monetary policy) than intervention policies in the foreign market could be used for influencing the exchange rate. However, if both countries have an exchange rate target, it would be more reasonable to assume that they turn to a managed floating exchange rate system.

In a managed float and in a fixed but adjustable exchange rate system, a conflict of exchange rate targets can be solved by international co-operation. Either there will be a compromise on a commonly chosen exchange rate target negotiated between both countries, or one of the two countries will renounce any exchange rate target. The first solution is practised by the EMS-countries with respect to their intra-EMS exchange rates, and the second solution of passive behaviour is that of the USA within the IMS. The IMS during the Bretton Woods era and afterwards has functioned in a most orderly way in the sense that the USA have accepted the role of the n -th country. However, from time to time, the US expressed the wish of a certain exchange-rate target (the devaluations of the US dollar in 1968 and 1971 could only be brought about by negotiations with the other important members of the IMS) and also happened to intervene in the foreign exchange market after consultation with other central banks.

III GERMANY AND THE EMS

One possible version of the actual functioning of the EMS is to characterise the EMS as a "Greater Deutschemark Area" (Dornbusch, 1986; Giavazzi and Giovannini, 1987a; 1987b). There are three possible interpretations of a German Monetary Area.

1. *Germany, The Netherlands, Austria and Switzerland*

The first one is to consider Germany as the centre and The Netherlands, Austria and Switzerland as the periphery of the German Monetary Area. In the past, the last three countries have followed a policy of practically fixed bilateral exchange rates with respect to the German mark and, consequently, pursued the same monetary policy as Germany. In the course of the eleven realignments between September 1979 and January 1987, the bilateral exchange rate of The Netherlands (being a member of the EMS) with respect to the Ecu was revised by the same amount as the German mark (except for September 1979 and for March 1983). The two other countries, even though formally in a managed float regime with respect to the US dollar, followed in practice a fixed peg with respect to the German mark.

2. *Germany Setting the Anti-inflationary Targets within the EMS*

The second and third interpretations of a German Monetary Area concern the hypothesis to describe the *EMS* as a Deutschemark area. One possible way to consider the EMS as a German Monetary Area would be that Germany has set credible anti-inflationary targets for the inflationary-prone members of the EMS such that there would have been a convergence of the EMS inflation rate towards the German one. There is no doubt that one of the main reasons for establishing fixed intra-EMS exchange rates in 1979 was the belief that this would allow members to fight more efficiently against inflation at a time when nearly double-digit inflation rates were still prevailing in Europe. Fixed rates would impose a stronger monetary discipline on inflationary-prone countries (like those of France and Italy). Or in more fashionable economic terms: the central banks of the inflation-prone countries would obtain more credibility for their anti-inflationary policy measures to the extent that they are linked via fixed exchange rates to the less inflationary countries (like Germany and The Netherlands). The gain of credibility is an important matter since a credible anti-inflationary policy will decelerate inflationary expectations whose reduction is necessary in order to avoid adverse employment effects (via too high nominal wage adjustment and too high nominal interest rate adjustment). Another reason for an increased credibility of the policies of high inflation countries consists of the extra penalty the member country has to pay when it pursues its former inflation policy since the country will suffer a loss in its competitiveness (via a real appreciation of its currency).

The private sector is aware of the penalty the policy-maker is faced with, thus helping to overcome the private sector's mistrust of policy-makers (Giavazzi and Giovannini, 1987a; 1987b).

The gain from Germany's joining the EMS is rather ambiguous. The initial opposition of the Bundesbank to the establishment of an EMS derived from the fear that Germany would lose a degree of freedom for its proper anti-inflationary policy since an accelerated disinflation policy would have imposed an unsustainable strain on other EMS members in terms of too frequent realignments of their bilateral exchange rates. Some authors such as Melitz (1985) argue that the benefit for Germany consisted of the competitive gains (real undervaluation of the German mark) to the extent that there were losses in competitiveness in the high inflation countries. However, one of the main *political* reasons for Germany to initiate the EMS was a further step towards political integration for which one requisite consisted of a convergence of the EC inflation rates towards the lowest one, i.e., towards the German one. Whether the EMS has accelerated in inflationary deceleration process remains an open question. By comparing the disinflation performance between the EMS members and non-EMS members (either the other European countries or nearly all other OECD countries), de Grauwe (1989) comes to the unconventional conclusion that the EMS countries did not perform better.

3. *Germany Behaving as the n-th Country within the EMS*

Another interpretation of the EMS as a German Monetary Area concerns the exchange rate arrangements in terms of exchange rate targets and exchange rate interventions. Designating the number of EMS currencies (and those of Austria and Switzerland) as n currencies, Germany may have played, deliberately or not, the role of the n -th country being mainly preoccupied with the exchange rate of the German mark with respect to the US dollar. The other EMS members targeted their exchange rate with respect to the German mark. Consequently, Germany played a passive role within the EMS, with respect to intra-EMS exchange rates, similar to the benign neglect role of the USA in regard to the $(n-1)$ exchange rate of the EMS.

Whether this stylised monetary order corresponds to the reality of the past (and future) workings of the EMS, is certainly a highly empirical issue. Looking at the intervention practice by EMS central banks, Giavazzi and Giovannini (1987) come to the following conclusions. As far as intra-marginal interventions are concerned, Germany never intervened, whereas France intervened most actively and used predominantly European currencies for intervention. With respect to marginal interventions which are compulsory, the German Bundesbank intervened hardly in EMS currencies, but it intervened mostly in dollars and according to Mastropasqua, Micossi and Miller (1988) most of its interventions were sterilised.

This third interpretation of a German Monetary Area (the German mark as the n-th currency within the EMS) involves, to a certain extent, the second interpretation. According to the second interpretation, Germany represents the monetary anchor of the system. It sets the growth rate of the money supply which the others have to follow, since otherwise the menace of realignment arises in the medium run. Since Germany withholds from any intra-marginal interventions, the burden of intra-marginal interventions and eventually of adjustments falls upon the (n-1) EMS members. However, the picture looks apparently different when the bilateral exchange rate of an EMS currency (mostly the French franc) with respect to the German mark has reached its margin. At that moment, heavy interventions take place by the German Bundesbank (but they are mostly sterilised) and by the other European central banks (mostly by the Banque de France), but in many cases this action is the prelude for a realignment, normally taking place one or two weeks after the first common marginal interventions.

It should be emphasised that the interpretation of the EMS as a German Monetary Area by any of the three above elements constitutes a politically explosive issue since any sort of monetary hegemony by the Deutsche Bundesbank over the EMS would be officially repudiated, including by German officials. However, the facts may be stronger than any deliberate political design favouring the Ecu as the monetary anchor of the EMS.

REFERENCES

- de GRAUWE, P., 1989. "Fiscal Policies in the EMS: A Strategic Analysis", in E. Claassen (ed.), *International and European Monetary System*, New York.
- DORNBUSCH, R., 1986. "Flexible Exchange Rates and Excess Capital Mobility", *Brookings Papers*, No. 1, pp. 209-226.
- GIAVAZZI, F., and A. GIOVANNINI, 1987a. "The EMS and the Dollar", in R.C. Bryant and R. Porter (eds.), *Global Macroeconomics: Policy Conflict and Cooperation*, New York, pp. 237-265.
- GIAVAZZI, F., and A. GIOVANNINI, 1987b. "Models of the EMS: Is Europe a Greater Deutsche-Mark Area?", *European Economic Review*.
- MASTROPASQUA, C., S. MICOSSI, and R. RINALDI, 1988. "Interventions, Sterilization and Monetary Policy in European Monetary System Countries 1979-1987", in F. Giavazzi, S. Micossi and M. Miller (eds.), *European Monetary System*, Cambridge.
- MELITZ, J., 1985. "The Welfare Case for the European Monetary System", *Journal of International Money and Finance*, No. 4, pp. 485-516.
- MICOSSI, S., 1985. "The Intervention and Financing Mechanisms in the EMS and the Role of the ECU", *Banca Nazionale del Lavoro Quarterly Review*, December, pp. 327-345.