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**THE EMS WITH THE ECU AT CENTRE STAGE:
A PROPOSAL FOR REFORM OF THE
EUROPEAN EXCHANGE RATE SYSTEM**

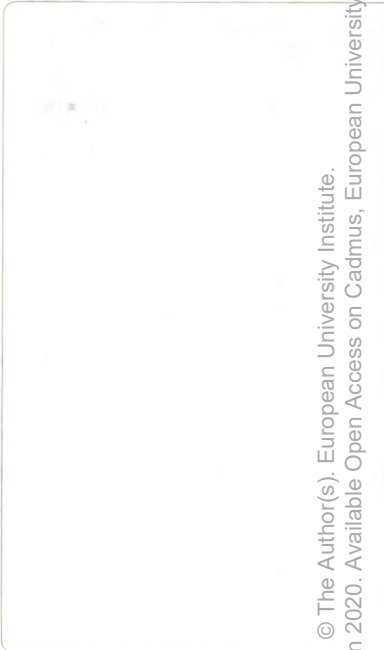
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1. Introduction

At the time being it would not be an exaggeration to argue that the European Monetary System (EMS) would not lose anything if the ECU did not exist. The reverse of this proposition would certainly not be true : development of the ECU has benefited from the EMS and the official commitment by member governments to developing the ECU as an integral part of the EMS into a European currency.

Prior to the creation of the EMS ideas of a new European parallel currency contributing to monetary and exchange stability were extensively discussed(1). EMS and ECU were not seen as two juxtaposed and independent innovations but as the two necessary and strongly mutually reinforcing pillars of the new regional monetary system to fulfill two expectations : creation of a European zone of monetary stability and greater independence from outside disturbances.

Initial expectations have been only partly fulfilled. One of the reasons is that from the beginning the role of the ECU has been severely constrained. These constraints are most obvious in three domains.

First, the potential of using ECUs as a parallel currency has been legally and administratively restricted in several member countries.

Second, the potential development of the ECU as an official reserve currency has been extremely restricted by its creation mechanism and the rules applying to usability, liquidity and yield. As a result, official ECUs are not additional reserve assets replacing the Dollar, are only held within the EMS and are rarely used. EMS central banks are naturally not eager to accept accumulation of ECU balances in excess of their Dollar and gold swaps. The ECU therefore can only play a role as an official settlement currency and even as such only partially because of its low attractiveness for creditor central banks(2).

Third, the ECU was expected to play a pivotal role for the exchange rate system (ERS) of the EMS. However, instead of going all the way to an ECU based ERS (ECU-ERS) for political and practical reasons, such as the inexistence of ECU exchange and security markets, some artificial and in the end not very meaningful roles were designed for the ECU.

Central EMS rates are defined in ECUs from which the bilateral exchange rate grid can be derived. However, this is only a formal aspect without any operational or policy significance. Policy-makers aim, in fact, at bilateral rates particularly with respect to the Deutschmark. And because interventions are carried out in national currency markets there is no operational significance attached to ECU exchange rates.

(1) See Vaubel (1978) for a detailed and comprehensive survey of various proposals.

(2) See Micossi (1985) for details.

The only scope for a significant role of the ECU was embodied in the divergence indicator, itself the consequence of bypassing an ECU-ERS with a bilateral one. The divergence indicator was supposed to provide a signal of divergence of any particular currency with respect to an average EMS performance. In such a case it was supposed to trigger consultations to define the nature of the problem (temporary vs structural) and to elaborate solutions. For temporary divergence generous financial support is available; for structural divergence appropriate policy measures comprising realignments and domestic adjustment policies would be elaborated.

In practice, the divergence indicator has not lived up to (exaggerated?) expectations and its operational significance is very limited. This paper explores an alternative route : instead of complementing a bilateral ERS with a superstructure providing artificial roles for the ECU an ECU-ERS is described and analyzed(3).

Such an ECU-ERS cannot by itself eliminate all the shortcomings of the EMS or reduce the need for a high degree of policy co-ordination(4). However, it would strengthen the cohesion of the EMS, reduce the scope for arbitrariness and substantially enhance the significance and role of the ECU.

2. An ECU based exchange rate system

Among the major shortcomings of the EMS are : the asymmetry of roles played by Germany and other EMS countries ; the preponderance of bilateral exchange targets vis-à-vis the Deutschmark rather than an average target (the ECU) ; dependence of EMS internal cohesion on outside shocks (Dollar movements) ; financial support mechanisms integrating the ECU only with great difficulty ; limited role of the ECU as a reserve asset and hence continued reliance on the Dollar and unexploited seigniorage potential ; and finally diverging macroeconomic evolutions among EMS countries. Except for this last problem all others bear some relationship with the ECU.

When the EMS was created the idea of basing the exchange rate system on ECU rates was discussed but soon discarded as not feasible. A major obstacle was the absence of organized exchange and securities markets in addition to the practical difficulties of adopting an entirely novel approach. Since 1979 markets have become familiar with the ECU and ECU exchange markets have developed. Securities markets in ECU have made amazing progress in spite of limited official support : national governments and central banks are largely absent from the ECU market as is a lender of last resort.

(3) Steinherr (1988) analyzes the potential of an ECU-ERS for a parallel currency approach to monetary integration.

(4) For a detailed discussion of co-ordination in the EMS see Steinherr (1984), Melitz (1985) and Basevi and Giavazzi (1987).

As a consequence markets for short maturities and government paper are still in their infancy and highly illiquid. The problem is, however, not the traditional liquidity problem, i.e., that large transactions produce undesirable large swings in security prices, because ECU rates are tied through arbitrage to component rates. Rather the problem is one of quantitative limitations for large transactions. Of course, use of ECUs as reserve currency would by itself contribute significantly to the development of ECU financial markets(5). In what follows I shall analyze the properties of an ECU exchange rate system on the assumption of sufficiently developed securities markets even if this assumption may not be fully justified as yet and then discuss the wider implications.

An ECU-ERS would be one where each monetary authority fixes a parity for the ECU value of its currency and where interventions would be carried out exclusively in ECU markets.

The ECU is defined as a basket of n currencies :

$$(1) \quad \text{ECU} = (a_1, \dots, a_i, \dots, a_n)$$

where a_i is the amount of currency i in the ECU.

Then the value of the ECU in currency j is :

$$(2) \quad E_j = \sum_{i=1}^n a_i e_{ij}$$

where e_{ij} is the price of currency i in units of currency j . If rates in (2) are parities then the percentage deviation from parities can be written as :

$$(3) \quad \hat{E}_j = \sum_{i=1}^n w_i \hat{e}_{ij}$$

where " $\hat{\cdot}$ " denotes a percentage change ;

$w_i = a_i e_{ij} / E_j = a_i / E_i$ (using $e_{ij} = E_j / E_i$) is the share of currency i in the basket and $\hat{e}_{jj} = 0$.

To examine the functioning of an ECU-ERS the following options are retained :

System 1 : Identical margins for all ECU rates ;

System 2 : Currency specific ECU margins.

System I : Identical margins for all ECU rates

(5) Currently, official ECUs represent book transactions : only their counterpart is invested in gold or interest-earning dollar securities or deposits.

Definition of central ECU rates immediately yields central bilateral rates : $E_j/E_i = e_{ij}$ for all i and j . Denote the uniform ECU margin by d and the spread of bilateral market rates from central rates by \hat{e}_{ij} . Then

$$(4) \quad d = \sum_i w_i \hat{e}_{ij} \text{ for all } j \in 1, \dots, n$$

A currency diverging with respect to all others by the same degree will reach d for the lowest bilateral spread. Then with $\hat{e} = \hat{e}_{ij}$ for all i (4) can be rewritten.

$$(5) \quad d = (1-w_j)\hat{e}$$

A currency with a small weight in the ECU will reach its intervention limit d much faster, that is for smaller bilateral spreads, than a currency with a large weight. For example, for Greece $\hat{e} = d/0.99$ and for Germany $\hat{e} = d/0.65$ assuming weights of 0.01 and 0.35, respectively.

Equation (5) does not indicate the maximum possible bilateral spread which can be determined as follows. Consider a bilateral shock $\hat{e}_{12} > 0$ affecting currencies 1 and 2, leaving bilateral exchange rates among the remaining $(n-2)$ currencies unchanged, i.e., $\hat{e}_{1i} = \hat{e}_{1j}$ and $\hat{e}_{2i} = \hat{e}_{2j}$ for any $i, j \in (3, \dots, n)$.

Therefore,

$$(6) \quad \hat{E}_1 = w_2 \hat{e}_{12} + (1-w_1-w_2)\hat{e}_{1j}$$

$$(7) \quad \hat{E}_2 = -w_1 \hat{e}_{12} + (1-w_1-w_2)\hat{e}_{2j}$$

$$(8) \quad \hat{E}_j = -w_1 \hat{e}_{1j} - w_2 \hat{e}_{2j}, \quad j = 3, \dots, n.$$

However, these three equations are not linearly independent so that it is not possible to determine for a given value of \hat{e}_{12} the other exchange rate changes uniquely. A particular restriction of interest is $E_j = 0$ so that the ECU rates of the $(n-2)$ currencies are not affected by the bilateral shock \hat{e}_{12} . Equation (8) with $\hat{E}_j = 0$ implies that the larger the share of currency 1, compared to the share of currency 2, the smaller will be the depreciation of currency 1 in relation to the appreciation of currency 2 in terms of currencies j . Using $\hat{e}_{1j} = \hat{E}_1 - \hat{E}_j = \hat{E}_1$ and $\hat{e}_{2j} = \hat{E}_2 - \hat{E}_j = \hat{E}_2$, implying that currency 1 depreciates whilst currency 2 appreciates uniformly in terms of all others currencies, one obtains :

$$(6') \quad \hat{E}_1 = \frac{w_2}{w_1 + w_2} \hat{e}_{12} < d$$

$$(7') \quad \hat{E}_2 = \frac{-w_1}{w_1 + w_2} \hat{e}_{12} < -d$$

The currency reaching its intervention point first will determine how far \hat{e}_{12} can go. Hence

$$(9) \quad \hat{e}_{12} = \max \{ d[w_1/(w_1 + w_2)], d[w_2/(w_1 + w_2)] \}$$

and it is clear from equations (6') and (7') that the currency with the smaller weight will reach its intervention limit first. Pursuing the example of Germany and Greece, the maximum bilateral spread would be equal

to $d(w_1 + w_2)/w_1 = d(36/35)$. However, it is important to note that this assignment is independent of whether the smaller country's currency appreciates or depreciates, so that intervention is not asymmetrically assigned to depreciating currencies. For each pair of currencies maximum spreads depend on their respective weights and are therefore specific to any pair of currencies.

The largest bilateral spread for all pairs of currencies is obtained from

$$(10) \quad \max_{(i,j)} \max \{ d[w_i/(w_i + w_j)], d[w_j/(w_i + w_j)] \}$$

The maximum value for any pair (i,j) being obtained for the element in $[w_i/(w_i + w_j), w_j/(w_i + w_j)] > 0.5$ it is clear that the maximum value over all pairs corresponds to $w_i = w_j = 0.5$, i.e. when currencies have similar weights in the ECU. Then the maximum possible bilateral spread is equal to $\hat{e}_{ij} = d(w_i + w_j)/w_i = 2d$. Hence bilateral margins provide considerable flexibility: they range from ECU margins to twice that size. More room for manoeuvre exists for bilateral shocks affecting countries of similar size than for countries of unequal size.

System 2 : Identical bilateral margins

The maximum ECU spread is obtained when currency i is at the margin with respect to the other $(n-1)$ countries :

$$(11) \quad d_i = (1 - w_i)s$$

where s is the common bilateral margin. As is the case with the divergence indicator ECU margins are an inverse function of a currency's weight in the ECU. Thus, the Deutschmark would have the smallest ECU margins and this may not be attractive if outside shocks affect predominantly the Deutschmark. In contrast, if the weight of currencies are allowed to change without ulterior revisions and the Deutschmark's weight were to approach unity then it might be desirable to narrow proportionately the ECU margin.

For a bilateral shock we obtain from (7'), (8') and (11)

$$(12) \quad \frac{w_2}{w_1 + w_2} \leq 1 - w_1$$

$$(13) \quad \frac{w_1}{w_1 + w_2} \leq 1 - w_2$$

where the LHS of the inequalities gives the ECU variation due to a bilateral exchange rate movement to the margin and the RHS the ECU margin. Consider the case where $w_1 = 0.1$, $w_2 = 0.2$. Then

$$(12') \quad 0.67 < 0.9$$

$$(13') \quad 0.33 < 0.8$$

Already from (11) it is apparent that ECU margins are only reached if a currency reaches all its bilateral margins. Therefore a bilateral shock

does not push any of the two currencies to its ECU margin and hence agreed bilateral margins are not enforceable through ECU market interventions. Similarly to System 1 where the maximum bilateral spread was 2 d, ECU margins have to be scaled down by 1/2 (this is a sufficient but not a necessary condition for all currencies). Then at least one currency would reach ECU margins whenever a bilateral margin is reached. In the above example, currency 1 would reach its ECU margin. Thus, like System 1, any bilateral strain would force the smaller country to intervene. Any country reaches its ECU margin when it deviates by at least 50 percent from all bilateral parities or by at least 50 percent from a weighted average. This aspect is perfectly similar to the divergence indicator.

It is thus possible to operate an ECU-ERS in two ways. System 1 reflects more the spirit of a system geared to the ECU where deviations from an average performance matter. Bilateral rates would play no significant roles anymore.

System 2 would have the property of retaining some features of the present system, in particular the in-built importance of bilateral rates. On balance, System 1 seems more ambitious and also more attractive in terms of greater flexibility : implied bilateral margins -devoid of formal significance- would vary among currencies. With identical bilateral margins, each currency has its own ECU margins but it would be awkward and inoperational to apply currency specific scale factors.

I now note the implications of this analysis of an ECU-ERS and attempt a summary of the operational features of System 1.

- (i) In an ECU-ERS there is only one market in which any central bank of the EMS intervenes : the ECU market. This should be attractive in terms of reduced complexity of both reserve management and of intervention policies.
- (ii) The ECU-ERS would assure that each country aims at, and remains close to, average EMS performance. Bilateral strains only create a need for exchange market intervention if they push ECU rates to intervention limits.
- (iii) The pivot of the proposed system is the ECU and therefore performance is gauged to EMS average and not to the Deutschmark anymore. Any bilateral shock involving the Deutschmark would not require intervention by the Bundesbank ; in this sense the Deutschmark would play a role similar to the one of the Dollar in the Bretton Woods system. But if the Deutschmark deviated from all others or a sufficiently large subgroup, then unlike Bretton Woods, only the Bundesbank would have to intervene. More precisely, if one or several currencies with a joint ECU weight smaller than the weight of the Deutschmark have a bilateral problem with the Deutschmark, they alone have to intervene. If the same situation arises for a group of currencies with an ECU weight larger than the Deutschmark, then only Germany has to intervene. And if weights are equal, then both have to intervene within larger margins. Thus, the size of implied bilateral margins and the assignment of intervention responsibility follows a democratic voting rule where votes are corresponding to ECU weights.

(iv) Whilst it is impossible for all currencies to be at ECU intervention margins at any point in time, more than one country can be at the margin. Although only $(n-1)$ ECU rates are independently determined, the n^{th} currency problem does not show up because not all ECU rates can be at the margin. Moreover, in the presently operative system interventions ought to be carried out in bilateral markets by both monetary authorities. This symmetry is often hailed as an advantage of the EMS but in practice puts the weight on the monetary authorities committed to maintaining parity and away from the authority favouring a parity change. In an ECU-ERS, the problem would not be bilateral anymore. Even if there is bilateral strain, in virtually all cases only one currency would reach its ECU intervention point. But even if two currencies reached ECU intervention points intervention would be aimed at the ECU and no bilateral conflict could arise. The n^{th} -country problem is therefore resolved without built-in asymmetries or advantages for particular countries.

(v) The fact that domestic currency is part of the ECU is sometimes seen as an inefficiency of ECU interventions. Indeed, if there is need for bilateral intervention selling or buying ECUs against national currency is not "efficient"(6). However, if the Dollar moves uniformly against all EMS currencies intervention in ECUs is optimal. Moreover, if the Dollar moves against the Deutschmark the ECU-Dollar rate will move in proportion as long as EMS parities are desired to be maintained and intervention in ECUs is at least as efficient as intervention in Deutschmark.

(vi) Consider now the monetary repercussions of intervention policies. Currently there are two possibilities : asymmetric and symmetric interventions in the terminology of Masera (1986). If a weak currency is supported by unsterilized Dollar sales the monetary base of the intervening central bank is reduced. On the other hand, if this central bank borrows the strong EMS currency and repays in ECU, the monetary base in the weak currency country falls and in the strong currency country rises. Strong currency countries are reluctant to accept this symmetry and therefore the use of ECUs for settlement. In an ECU-ERS only the monetary base of the intervening central bank -which could be the central bank of the strong or of the weak currency depending on their ECU weights- would be affected.

Intervention in the Dollar market has been a responsibility mainly assumed by the Bundesbank with direct repercussions on the German monetary base. Of course, in case of an appreciation of the Deutschmark the Bundesbank could resell against EMS currencies part of these Dollar accumulations in proportions w_i to spread the effects evenly over all EMS currencies. Such a policy would not necessarily be appropriate if the

(6) See Reynolds Allen (1986). How much weight this objection carries should depend on the opportunity cost of using ECUs. If they are acquired against national currency this cost is close to zero and the fact that greater amounts are required is not implying an inefficiency. Moreover, for any bilateral strain only the currency with a smaller share in the ECU is supported by interventions.

Deutschmark appreciated with respect to the Dollar for fundamental reasons and would, in any case, require consent of all EMS monetary authorities.

If, in contrast, the Bundesbank acquired Dollars against ECUs its monetary base would remain unchanged. Thus, a shift out of Dollars uniformly into all EMS currencies could be dealt with in this way which is equivalent to sterilized, fully coordinated Dollar interventions by all EMS monetary authorities. Of course, if Dollars are being shifted predominantly into Deutschmarks then the Bundesbank in addition would have to buy ECUs against Deutschmark and let its monetary base swell to preserve unperturbed EMS exchange rates.

(vii) This system would render the ECU more attractive as a reserve currency because it would be directly used for intervention and investment of ECU reserves in ECU securities would contribute to developing the ECU market.

The distinction between official and private ECUs would clearly lose its justifications, if it ever had any. Central banks would intervene in ECU markets and official ECUs would become purposeless and therefore best transformed into the unique ECU identical to private ECUs. Private agents and monetary authorities outside of the EMS would of course be able to accumulate ECUs so that the present ban on official ECU holdings outside a controlled circuit could not be maintained. The unique ECU might then become an international, and not only European, reserve currency with all the inherent advantages (e.g. seigniorage) and risks (volatility induced by shifts in preferences among reserve currencies). Of course, any successful development of the private ECU market -less likely however in the absence of the proposed unification of the ECU market- would lead to the same result. European monetary authorities could much more easily and adequately cope with say, Dollar-ECU shifts in an ECU-ERS backed up with substantial dollar and ECU reserve holdings.

(viii) How can monetary authorities build up reserves in ECUs ? One way of providing ECUs would be in line with existing official ECU creation : in form of reserve swaps. The disadvantage is that this does not increase reserves. For that reason VSTF and STF have been created. Their inconvenience is the bilateral character and the artificial importance attributed to partial ECU settlement. Much preferable would be ECU creation against deposits of national currency with the EMCF(7). Clearly the ECU would play a direct role, and would be used for intervention, the EMCF would act as lender of last resort to central banks and would create net exchange reserves ; the ECU would have made the jump to a full international reserve currency.

(7) The EMCF would have assets in ECUs and liabilities in national currencies. To avoid exchange losses or gains changes in the ECU value of any national currency could be offset by adjustment payments or reimbursements.

Intervention with newly created ECUs would be equivalent to sterilized intervention. Therefore there is need for some safeguards to avoid excessive money creation : although the national monetary base is unchanged the ECU supply is not. The increase in the ECU supply is either absorbed by private agents using ECUs as a parallel currency or if not it will increase ECU reserves of other central banks. The latter case is equivalent to intervention in national currency with instantaneous integral settlement in ECUs. Such an operation is very difficult if not impossible under present circumstances.

Guidelines for managing the EMCF could comprise the following suggestive rules. ECUs could be created on a permanent basis against national currency subject to conservative ceilings(8). In addition, when an EMS central bank wishes to supplement its ECU holdings it can swap with the EMCF national currency into ECUs with renewals subject to conditionality. Such ECU creation would therefore flexibly satisfy temporary needs without resulting in permanent ECU creation. Permanent ECU creation results in an increase of the monetary base in the receiving country and its monetary authority invests ECUs in the ECU market whereas the EMCF invests its holding of national currency. By contrast, with a swap operation the monetary base is unchanged and neither national currency nor ECUs are placed on markets.

(ix) To establish ceilings on ECU creation, to establish objectives for dollar-ECU interventions and to facilitate cohesion among EMS rates monetary authorities would ideally co-operate. For instance, ECU creation (in addition to swaps) could be managed on a discretionary basis or could be subject to a fixed rate growth rule or could be linked to national credit expansion rates. A decision would also be required to assign competence for the dollar-ECU market. There are two candidates : the EMCF and the Bundesbank. If it is the EMCF co-ordination is necessary. If it is the Bundesbank -similarly to present circumstances but based on the ECU rate- its leadership role may be unduly and unacceptably reinforced. On a more practical level the Bundesbank could be the executive agency of a decisionmaking group (the monetary committee ?)(9). Of course, in such a system only the institution entrusted with Dollar-ECU interventions would need Dollar reserves. All others could reduce their Dollar holdings over time or through an exchange with the EMCF against ECUs.

(8) This has been proposed by R. Triffin in several publications. In particular see Triffin (1987).

(9) In this connection see the paper by N. Thygesen (1988).

3. Exchange rate adjustments

Realignments in the EMS do give rise to joint decision-making with the goal to prevent excessive (competitive) devaluations and to make strong and weak currencies share the political burden of realignment(10).

To the extent that inflation rates and other factors of importance for competitiveness vary from country to country in the EMS realignments require adjustments of a large number of currencies in the EMS and therefore tend to be relatively complex. If there is a realignment between the strongest and the weakest currency in the system the (n-2) remaining currencies may follow the strongest, the weakest or remain in between. At any rate the exchange rate of any currency needs to be adjusted with respect to at least one, but usually more than one, other currency in the EMS.

One often hailed advantage of the ERS is its symmetry : weak and strong currencies have to share the burden. But lacking a precise assignment rule the division of the required adjustment can only be the result of negotiation and arm-twisting. In the following, exchange rate realignments in an ECU-ERS are examined from this comparative viewpoint.

When an exchange rate moves to intervention limits this is either due to a temporary shock and is then best financed or it requires some policy adjustment, such as a realignment. For simplicity of exposition, but without lack of generality, the discussion focusses on three currencies, the third currency standing for the aggregate of n-2 currencies in the ERS. Suppose $w_1 = 0.3$, $w_2 = 0.1$ and $w_3 = 0.6$ and consider a case where $\hat{e}_{12} = -8/3$, $\hat{e}_{13} = -2/3$, $\hat{e}_{23} = 2(11)$: currency 1 appreciates with respect to currency 2 and less so with respect to currency 3. A bilateral viewpoint would suggest a policy correction necessary in country 1, in country 2, or even in country 3. This view neglects however the weight of each currency as revealed by the ECU rates : $\hat{E}_1 = -2/3$, $\hat{E}_2 = 2$, $\hat{E}_3 = 0$. Focussing on ECU rates suggests that the problem is with currency 2 because the currency is depreciating with respect to both currencies 1 and 3. The appropriate signal would of course be provided in the present arrangement by the divergence indicator and is directly provided in an ECU-ERS. It might be useful to retain the divergence indicator in the sense that whenever a certain percentage (say 80%) of the maximum divergence, say 2%, is reached a concerted examination of the situation is required.

Because ECU margins are uniform currencies with smaller ECU weights would reach their divergence zone more rapidly and their bilateral rates would be more constrained. However, this would not mean that small currencies would always have to assume the adjustment. Suppose $\hat{e}_{23} = 0$ and $\hat{e}_{12} = \hat{e}_{13} = -20/7$ then $\hat{E}_1 = -2$, $\hat{E}_2 = \hat{E}_3 = 6/7$. Hence if currency 1

(10) Whilst it is clear that in economic terms it does not matter whether currency A is revalued or currency B is devalued, politicians seem to attach importance to such differences.

(11) All numbers are percentages.

appreciates with respect to all other currencies there the presumption of a necessary policy adjustment falls exclusively on country 1. By contrast, under the present bilateral system the problem is not located with any particular currency.

Thus, an ECU-ERS gives clear and unambiguous signals for policy assignments, singling out those currencies that deviate most from average performance and forcing small countries to preserve smaller bilateral deviations.

What happens if timely adjustment is prevented through intervention either because a permanent shock is erroneously taken for a temporary shock or justified by a desire of preventing too frequent adjustments? To focus the analysis it is assumed that inflation differentials are appropriate measures for equilibrium realignments. For example, suppose that since the last realignment inflation in country 1 has been zero, in country 2, 10 percent and in country 3, 20 percent. With the present system there are an infinity of equivalent adjustments from which a choice is to be made in lengthy, politically motivated realignment negotiations. For example, currency 2 could be devalued by 10 % and currency 3 by 20 % both with respect to currency 1 ; or currency 1 could be revalued by 10 % and currency 3 devalued by 10 % with respect to currency 2 ; or currency 1 could be revalued by 20 % and currency 2 by 10 % with respect to currency 3. The choice of passive currency was clear under the Bretton Woods system, in the EMS it is a matter of negotiation and usually a realignment reflects some average measure comprising revaluations and devaluations. In an ECU system negotiation could be eliminated and instead the ECU formulae could be used to yield the following adjustments : $\hat{E}_1 = -7\%$, $\hat{E}_2 = 3\%$, $\hat{E}_3 = 13\%$. Instead of assigning through negotiation to a particular currency a passive nth-currency status, the ECU becomes the nth-currency and all ECU rates are adjusted reflecting the size of each currency and the size of the divergence with respect to average.

To sum up, the ECU-ERS would guarantee more symmetry than the present system which, in fact, is centered on the Deutschmark. If the inflation rate in Germany were consistently below inflation rates in most other EMS countries the Deutschmark would have to appreciate with respect to the ECU whilst no other realignment would be necessary in the absence of inflation differentials among the remaining (n-1) countries. This compares favourably with the present system where in some circumstances all exchange rates might require realignment and difficult negotiations are necessary to settle the contribution of revaluations and devaluations.

However, Germany would still retain its dominant influence where it is most desirable, namely on European price stability : the particular organization of a fixed exchange rate system has no consequence for that matter. If Germany maintains the lowest inflation rate in the EMS then realignments need to be geared to the German inflation rate and not to an EMS average.

4. Conclusions

One objective of this paper is to examine the properties of an exchange rate system centered on the ECU. It seems that such an ECU-ERS would contribute to a deepening of the ECU market, to developing the ECU into an international reserve currency and to lessen the dependence of EMS currencies on the Dollar. The ECU-ERS would focus on the divergence of each EMS currency with respect to the average of the remaining EMS currencies and bilateral relations would assume much less importance. It would also automatically supersede some of the artificial and unsatisfactory parts of the EMS, notably the divergence indicator (integral part of the proposed ERS), bilateral financing support at margins (financial support to be obtained from the EMCF) and partial settlement in ECUs (all interventions are carried out directly in ECU).

As far as the ECU is concerned the difference between official and private ECUs would become irrelevant and ECU creations by the EMCF would correspond to swaps and to permanent reserve creation. ECU investments by central banks would deepen the ECU market and contribute to a reduction of the actual imbalance in favour of ECU borrowings.

Exchange rate realignments would benefit from clearer assignment rules for the distribution of exchange rate adjustments and would de-emphasize bilateral conflict.

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