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## Avoiding Speculative Attacks on EMS Currencies: A Proposal

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CENTER DISCUSSION PAPER NO. 547

AVOIDING SPECULATIVE ATTACKS ON EMS CURRENCIES:

A PROPOSAL

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### Abstract

In this paper we describe a set of changes in the management of the European Monetary System (mostly strict enforcement of mechanisms already present in the 1978 Resolution of the European Council establishing the EMS) that would enable the member Central Banks to maintain discretionary power over the timing of realignments of their exchange rate parities. We think that this is an important issue now that restrictions to capital movements, believed to have limited the amount of speculation in exchange rate markets, are progressively abolished. We do not propose a system that would, alone, remove the need for periodical readjustments of the EMS exchange rate parity. We suggest, rather, a cooperative policy which could prevent such realignments to be forced by speculators.

## Introduction

A common feature to fixed and semi-fixed exchange rate systems is the problem of the realignments of the parities. As long as the economic structures of the countries joining a fixed exchange rate system differ in any relevant way, or as long as national and fiscal policies lack sufficient coordination, periodical readjustments of the parities are unavoidable.

The question that we want to address here is how monetary authorities can choose the timing of these realignments. The existing speculative attack literature (e.g. Krugman (1979), Flood and Garber(1984)) stresses that ,if monetary policies are committed to targets other than the exchange rate, then the timing of realignments is not a matter of choice for the monetary authorities. In this case, the timing of a devaluation or revaluation is determined by the behavior of profit maximizing speculators. This lack of control may be undesirable for several reasons. From a political point of view, there are periods which are more favorable than others for a devaluation (revaluation). The monetary authorities may wish to avoid to be forced by speculators to devalue (revalue) during "bad times". Moreover, whenever a devaluation is triggered by a speculative attack, the profit deriving from the revaluation of the international reserves will accrue to the small group of speculators which succeeded in gaining possession of the central bank's foreign assets. From a

public finance point of view, however, it is preferable that such capital gain be received by the public authorities, so that it could be used to finance their expenditure.

It has been argued that during the functioning of the EMS, the monetary authorities of countries involved in realignments were sometimes successful in choosing the timing of the devaluation, and in retaining possession of their international reserves. It is believed that this discretionary ability is due to the widespread use of capital controls which make speculation infeasible under many circumstances. However, capital controls can be very costly, since they prevent an efficient allocation of resources among the European Community. For this reason, the community members are progressively dismantling these restrictions on international trade.

The question now is whether and how the monetary authorities can maintain some degree of freedom in exchange rate decisions, once the capital controls are completely removed. In this note we will argue that this could be achieved by expanding and enforcing mechanisms which are already prescribed in the original document establishing the EMS. We want to stress, however, that we are not suggesting that realignments can or should be eliminated altogether. Our goal here is much more limited. Given that realignments are bound to occur, we want to illustrate mechanisms through which the monetary authorities may retain some control over their timing.

The remainder of this note is organized as follows. In section two, we describe the essential elements triggering a speculative attacks. In section three, we present our idea for preventing speculative attack from occurring. In section four, we discuss the issue of the credibility of the mechanism we propose. Section five concludes.

## 2. Essential Features of a Speculative Attack

The basic idea underlying the speculative attack literature is that the monetary authorities will be forced to devalue as soon as it becomes profitable to run their international reserves. This occurs as soon as the exchange rate expected to prevail right after the speculative attack (the shadow exchange rate) exceeds the given parity. For simplicity, in the following we consider the case of a currency facing a possible devaluation, and we assume that, if this happens, a flexible exchange rate regime will be established.<sup>1</sup> The shadow exchange rate depends crucially on the level of high powered money expected to be in circulation after the speculative attack. Keeping other things constant,<sup>2</sup> a

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<sup>1</sup> None of the results would change if we considered also the possibility of a revaluation, or if we assumed that a new fixed exchange rate would be established after the speculative attack. For more details, see Grilli (1986).

<sup>2</sup> In general, the shadow exchange rate depends on other variables like domestic output, foreign prices and interest rates (see for example Flood and Garber (1984)). In this analysis we consider these variables as exogenously given, and concentrate our attention on the crucial policy variable, i.e the monetary base.

higher level of post-attack monetary base implies a higher (i.e. more depreciated) exchange rate:

$$\tilde{e}_t = e(\tilde{M}_t).$$

The necessary condition for a speculative attack is:

$$\tilde{e}_t \geq \bar{e}$$

where  $\bar{e}$  is the official (fixed) parity. Avoiding a speculative attack, therefore, implies avoiding a post attack monetary base that exceeds some crucial threshold ( $\tilde{M}^*$ ). In order to determine the post-attack monetary base it is useful to consider the asset side of the central bank balance sheet. In each point in time  $t$ , the monetary base can be divided into two components: (i) the part which is backed by domestic securities ( $DC_t$ ), and (ii) the part which is backed by international reserves ( $\bar{e}R_t$ ). In the post-attack flexible exchange rate regime, foreign reserves are fixed at the level ( $\bar{R}$ ) at which the monetary authority abandoned the defense of the parity. Note that  $\bar{R}$  is, within certain limits,

a matter of choice of the monetary authorities and is the crucial policy variable in our proposal. The post-attack (shadow) money supply at time  $t$  is therefore given by  $\tilde{M}_t = DC_t + \bar{e}\bar{R}$ . Note that, for given  $\bar{R}$ , a large increase in  $DC_t$  may trigger a speculative attack.

### 3. Borrowing International Reserves to Avoid Speculative Attacks.

Note first that  $\bar{R}$  does not need to be positive. By borrowing international reserves, the domestic monetary authorities can make  $\bar{R}$  negative. Indeed, the monetary authorities do not need to actually borrow to reduce  $\bar{R}$ . All that is needed is that they have the potential ability to do so, and that speculators expect them to follow such a policy whenever the exchange rate is under pressure.<sup>3</sup> Suppose that the monetary authorities have access to a potentially unlimited line of credit in foreign currency, and that they are expected to use such credit whenever attacked by speculators. This implies that  $\bar{R} = -\infty$ , so that  $\tilde{e}_t$  would be always below any positive  $\bar{e}$ . In fact, the line of credit does not need to be infinite in size. It is sufficient (but not necessary) that the monetary authorities could borrow  $B_t^* = DC_t/\bar{e}$ . Since this

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<sup>3</sup> The issue of the credibility of such a policy is a crucial one and will be addressed in the next section.



implies  $\bar{eR} = -DC_t$ , the central bank would be able to set the post attack money supply at zero, making the existence of an excess supply of domestic currency impossible for any positive level of the exchange rate. In practice, the necessary line of credit will be much smaller than  $B_t^*$  so that the following analysis has to be considered just as a useful benchmark. If the monetary authorities could borrow  $B_t^*$ , then any attempt to force a devaluation by running the central bank's international reserves would be unsuccessful. Rational speculators, realizing this, would never attempt an attack: de facto the line of credit will never be used!<sup>4</sup>

In this way, temporary crises generated by unavoidable, transitory excesses of monetary base (for example for budget financing needs) will have no effect on the exchange rate. On the other hand, if the shock to money creation is permanent, a devaluation is unavoidable in the long run. However, the monetary authorities can avoid a speculative attack by threatening to use the line of credit whenever attacked, and choose the time of the devaluation in a way perceived as random by the speculators. It may seem that during the period of randomization the speculators may want to run the international reserves of the central bank

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<sup>4</sup> The fact that borrowing international reserves may prevent the collapse of a fixed exchange rate regime during temporary crises has been already pointed out by Grilli (1986) and Buitier (1986).

anyway, and convert domestic assets into foreign assets in order to profit from a possible devaluation. However, speculators will be willing to hold domestic assets, since they are compensated for the risk of a devaluation by an higher domestic interest rate, as implied by the open interest parity condition.

A necessary condition for this policy to be credible is that the domestic monetary authorities could feasibly borrow  $B_t^*$ . Will the foreign authorities be willing to provide such considerable lines of credit? We know that in equilibrium the lending will never take place, so that it will not inflict any cost on the lending central banks. However, if the speculators do not believe the policy is feasible and run the domestic international reserves, the loans will have to be made. Nonetheless, once again, the operation will not impose any cost on the foreign authorities. In fact, once the loans are made, and the speculators realize that the policy is indeed pursued and the parity will not collapse, they will stop the attack and surrender the foreign currency to the domestic central bank. The domestic monetary authorities, in turn, will satisfy the loan by returning the foreign currency to their foreign counterpart. The whole operation will simply involve the creation and the (almost) immediate retirement of foreign monetary base. It will not have any inflationary effects for the foreign country since the newly created currency never actually circulates.

In operational terms, we propose that the central banks

joining the EMS make a formal commitment to provide each other with potentially unlimited, short term lines of credit, if under speculative exchange rate pressure. Note that the resolution of the European Council establishing the EMS (December 5, 1978) already prescribes similar kinds of arrangements. Paragraph 3.7 of this Act reads as follows: "A very short-term facility of unlimited amount will be established. Settlements will be made 45 days after the end of the month of intervention with the possibility of prolongation for another three months for amounts limited to the size of debtor quotas in the short term monetary support". Our proposal, therefore, simply requires making this short term facility automatic, and a credible commitment of the national central banks to provide and use (if necessary) such a credit line.

#### 4. Credibility

If the potential speculators believe that this arrangement is operative they will not attack. Thus, a smooth functioning of this agreement requires its credibility. Note that, up to now, we have not identified any costs of participating in the agreement, but only benefits. It may seem, therefore, that a rational central banker will always be willing to enter this kind of arrangement. However, this plan, as any other, involves potential risks. These risks are related to the incentive that a borrower has to

repudiate her debts and to request lines of credit when not eligible. While we think that repudiation of debt obligations among EMS country is not a serious threat, the second problem deserves some discussion. High debt countries, in fact, may have an incentive to claim to be under speculative attack and use the lines of credit to finance their deficit, thus imposing inflationary pressures on the lending countries. If the governments of these countries lack the necessary political credibility to commit to the arrangement, other countries may refuse to lend to them. This problem could be avoided if speculative attacks could be unambiguously identified, for example by indicators like the rate of depletion of international reserves. But even if verification were impossible, results from the reputational literature suggests that these type of cheating may not occur. A Central Bank that employs this kind of strategy and break the international agreement suffers a loss in its economic welfare and political reputation.

In principle, explicit sanctions could be prescribed against countries which violate the arrangement. In practice, however, it may be hard to reconcile these sanctions with the sovereignty of each individual country. A more relevant source of reputational costs is related to the future economic consequences of the decision of breaking the agreement. If a Central Bank cheats and it is expelled from the system for some time, she will not be able to take advantage of the benefits of the agreement. In

particular, she will not be able to borrow if subject to a real speculative attack. In general, a Central Bank will value more this loss of reputation: (i) the less the Central Bank discounts the future; (ii) the longer the Central Bank expects to be prevented from reentering the system; (iii) the more likely it is that this Central Bank will need a line of credit in the future; (iv) the more risk averse the Central Bank is.

Moreover, independence from the fiscal authorities (which seem to be increasing) may greatly reduce the Central Bank's incentives to cheat, by breaking the link between budget decisions and seigniorage decisions. But what if governments are politically unable to commit themselves and these reputational and economic costs are not perceived to be sufficient to discourage the cheating? Can we still guarantee the feasibility of the agreement? In this case our proposal should include a (possibly) more radical prescription which, however, is perfectly in the spirit of the original Act establishing the EMS. This will require an active role of the European Monetary Fund (EMF), an institution that has been missing for too long. If a Central Bank decides to invoke the lines of credit, during the period of exchange rate emergency it will have to automatically surrender its autonomy, and act under the supervision of the EMF. In this way, the lines of credit could be directly monitored by the lender countries, thus avoiding the moral hazard problem. We think that this point should be given serious thought since, by assigning to

the EMF the partial function of lender of last resort (even if for limited contingencies), it would practically create the embryo of an European Central Bank. This will represent an important step toward a real European monetary unification.

### Conclusions

In this note we make the following proposal for the EMS. The Central Banks of the member countries should make a formal commitment to provide each other with potentially unlimited, short run lines of credit, if under speculative exchange rate pressure. The member banks should agree on a clear set of contingencies which triggers these lines of credit, and the possibility of monitoring the parties involved with these credit lines should be granted. These short term lines of credit should not be used to avoid necessary realignments of parities, but simply to allow the Central Banks to choose the timing of the re-adjustments of the exchange rate.

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