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Robert Vehrkamp*

De facto Monetary Union through Forward Interventions

The crises suffered in 1992/93 by the old EMS with its narrow exchange rate bands were largely due to the fact that the central banks' unlimited spot intervention obligations held little credibility for speculators. How can a credible exchange rate guarantee be achieved by improving the intervention mechanism?

With the extension of the exchange rate bands within the European Monetary System (EMS), the participating central banks have changed their intervention policy from a strategy of "massive retaliation" to one of "flexible response".¹ The change of strategy had become necessary after the EMS crises of 1992/93 demonstrated that the previous strategy aimed at safeguarding the narrow exchange margins (+/- 2.25%) was inadequate for providing effective protection against speculative attacks from the markets. The strategy of safeguarding the old EMS by means of an intervention policy was based in the main on the deterrent effect of the spot intervention obligation, unlimited in amount, to which all the central banks involved were subject. A deterrent strategy can only operate successfully if the threat of sanctions is credible. Therefore, in order to avoid speculative attacks, the intervention commitment made by the central banks necessarily has to be credible for the markets.

The problem can be illustrated using Sievert's apposite metaphor. The intervention mechanism is interpreted as the potential deterrent of a "fleet in being": "A 'fleet in being' should make an impression and have an effect without having to fight. In order to do this it must be sufficiently large, preferably larger than any potential opponent. Moreover, its willingness to fight should be beyond question. (...) A 'fleet in being' which never moves in its entirety does not achieve this credibility."² This means that the credibility of a "fleet in being" depends not only on its size and its potential strike power, but also on the cost of its deployment. A deterrent strategy whose implementation undermines the very conditions of

one's own existence becomes a bluff, especially if the threat itself is not of an existential nature.

The intervention assurance made by a central bank committed to maintaining currency stability is therefore only credible as long as keeping this promise poses no serious threat to its task of safeguarding that stability. Following the complete liberalisation of Europe's capital and foreign exchange markets, market operators very quickly revealed the intervention promise of the old EMS to be an "elaborate bluff on the part of the central banks"³ and indeed used this insight to mount – for them – risk-free speculative attacks. The fact that such speculative attacks were without risk can be ascribed in essence to the implausibility of the intervention promise because

- the strike power of the intervention policy's "fleet in being" would have been inadequate, and
- its actual implementation would have involved intolerable liquidity effects and thereby monetary policy costs for the intervening central banks.

¹ In the early 1960s, the USA developed their nuclear deterrent strategy from one of "massive retaliation" to one of "flexible response" in order to avoid the dilemma of having to choose between nuclear apocalypse and capitulation in crisis situations. In times of equal atomic strength between the super powers, a deterrent policy based on nuclear escalation lacked credibility and had become a bluff from the point of view of the opponent. The new strategy proved itself for the first time during the peaceful solution of the Cuba crisis in 1962. Cf. Christian Hacke: Von Kennedy bis Reagan - Grundzüge der amerikanischen Außenpolitik 1960-1984, Stuttgart 1984, pp. 33 ff.; also Helmut Schmidt: Strategie des Gleichgewichts, Stuttgart 1969, pp. 62 ff.

² Olaf Sievert: Deutsche Geldpolitik zwischen nationalem Interesse und europäischer Rücksichtnahme?, in: Auszüge aus Presseartikeln der Deutschen Bundesbank, Nr. 91 (1993), p. 7.

³ "Großbritanniens Probleme mit dem Währungsverbund", in: Neue Zürcher Zeitung, 29./30.9.1992.

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Implausible Intervention Promise

While the intervention commitment of all the participating central banks is, in principle, just as unlimited in amount as the very short-term credit facilities available to the weak currency countries for financing their intervention obligations, the completely asymmetrical settlement rules, the design of which burdens the weak currency countries, lead to considerable constraints on these supposedly unlimited intervention promises.⁴ After a brief period of time, all interventions in support of an attacked currency have to be (re-)financed solely by the weak currency country itself. Looking at the intervention and financing rules of the system as a whole, the unlimited intervention promise of attacked central banks can only be kept for a tightly restricted period of at most 3.5 months due to the settlement obligations which then come into force. The budget restriction of limited intervention reserves, which is temporarily suspended but not fundamentally lifted by the system's financing facilities, is re-established. From the point of view of the markets, the credibility of an attacked central bank's intervention promise is therefore very low.

The unlimited intervention promise made by the anchor currency's central bank also seemed implausible to the markets from the outset, particularly because of the expansive liquidity effect involved in spot interventions. The markets anticipated that, at the latest, the Bundesbank would "opt out" of its intervention policy obligation when its liquidity policy's sterilisation capacity was exhausted.⁵ For a central bank committed to maintaining price level stability, an intervention promise which undermines this existential condition is not credible. Historical experience is unequivocal in providing information on the priority given by the Bundesbank to domestic economic policy and its resulting inclination to opt out of fixed rate systems with spot intervention obligations. In this respect, the EMS crises of 1992/93 are in line with the suspension of Bretton Woods interventions in May 1971 and then

Table 1

Compensation of Devaluation Expectations through Interest Rate Differences

(in % p.a.)

Probability that devaluation will take place	Devaluation of 5% in 10 days	Devaluation of 10% in 10 days
50 %	85	238
70 %	136	442
90 %	201	762

Source: Barry Eichengreen, Charles Wyplosz: The unstable EMS, Brookings Papers on Economic Activity, 1:1993, Washington D.C., p.100.

finally in March 1973. The Bundesbank's tendency to opt out when facing monetary and liquidity policy dilemmas is therefore a particularly reliable aspect of its intervention promises. The promises of unlimited spot interventions made by hard currency central banks committed to currency stability are not credible because monetary and liquidity policy constraints mean they are not sustainable.

Inadequate Interest Rate Policy

In addition to the intervention mechanism, interest rate policy also proved inadequate for the protection of fixed exchange rate bands during the EMS crises. The implementation of interest rate policy is based on the theoretically correct insight that, in principle, any expectation of a change in exchange rates can be compensated for by interest rate differences between the various currencies (see Table 1).⁶ However, the implementation of interest rate policy measures loses credibility whenever the money market rates which are required to compensate for speculative exchange rate expectations become intolerable from the point of view of the national economy as a whole.⁷ Such national economic predicaments faced by central banks as a result of interest rate policy measures can also be anticipated by the markets. Interest rate policy

⁴ For the way the EMS works cf.: Commission of the European Communities: The European Monetary System, Brussels 1979; also the systematic presentation in: Peter Bofinger: Festkurssysteme und geldpolitische Koordination, Baden-Baden 1991, pp. 337-377.

⁵ Cf. Barry Eichengreen, Charles Wyplosz: The unstable EMS, Brookings Papers on Economic Activity, 1:1993, Washington DC, pp. 109f. The short-term sterilisation capacity of the Bundesbank is estimated at 150 billion DM; on the liquidity effects of spot interventions and on the sterilisation policy of the Bundesbank cf.: Deutsche Bundesbank: Zum Einfluß von Auslandstransaktionen auf die Bankenliquidität, Geldmenge und Bankkredit, in: Monatsbericht 1/1993, pp. 19-34.

⁶ Cf. Wolfgang Stützel: Über Währungsspekulanten und den Umgang mit denselben, in: Wolfgang Stützel: Währung in weltoffener Wirtschaft - Lehrstücke der Währungspolitik unter der Herausforderung des Tages, Frankfurt 1973, p. 137; also the table in this paper taken from: Barry Eichengreen, Charles Wyplosz, loc cit, p. 100.

⁷ Cf. the summary of the Swedish Riksbank following its excessive use of interest rate measures during the EMS crisis in the autumn of 1992: "The Swedish experience can be said to confirm that the ability to use high interest rates to defend a fixed exchange rate is exhaustible, especially if the fundamentals are weak to begin with. Persistently high and volatile interest rates have detrimental effects on the real economy and on the financial sector." Lars Hörngren, Hans Lindberg: The Struggle to Turn the Swedish Krona into a Hard Currency, Sveriges Riksbank, Arbetsrapport No. 8, Stockholm 1993, p. 23.

is therefore unsuitable as a "last resort" for guaranteeing exchange rates in a fixed rate system, and like the intervention promise it is not credible, since it too proves to be unsustainable during speculative attacks.

Despite the limited suitability of interest rate policy as a means of defending the exchange rate guarantees of an institutionalised fixed rate system, the credibility of such guarantees cannot be founded on interventions alone, but must be based essentially on the system's monetary and interest rate coordination mechanisms. The institutional economic analysis of fixed rate systems has demonstrated, however, that the monetary coordination mechanism is, in turn, determined to a great extent by the intervention mechanism and its financing (cf. Fig. 1).⁸ Thus it was that in the old EMS the formally symmetrical design of the intervention mechanism was dominated by the asymmetrical financing rules of its unilateral settlement obligations. This asymmetry of the system's dominant financing component led to the high degree of asymmetry regarding monetary adjustment constraints which also burdened the weak currency countries. The asymmetry of adjustment constraints was reinforced by a similar asymmetry in the relative sizes of the member states with regard to intervention policy, since the sterilisation capacity of the hard currency countries for combatting liquidity effects is markedly greater than the intervention reserves of the weak currency countries.

The only truly asymmetrically designed component of the EMS rules to burden the hard currency countries is the exchange rate adjustment mechanism

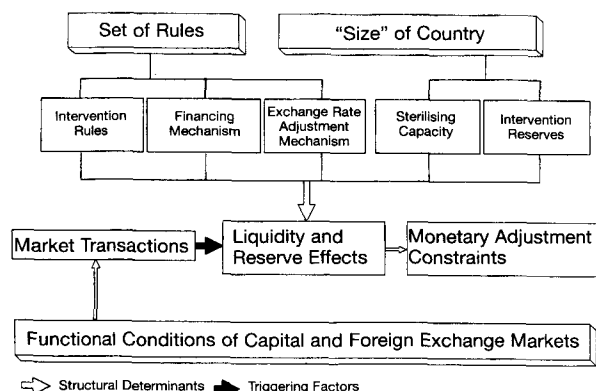
which grants a political right of veto to the weak currency countries against timely realignments of central rates.⁹ Ultimately, any stability-oriented country can only protect itself against the scope for opportunism provided to the weak currency countries by this right of veto by opting out of its intervention and financing obligations. On the whole, the structure of liquidity and financing effects and the resulting constraints on monetary policy are nonetheless clearly designed asymmetrically to the disadvantage of the weak currency countries. How and when the system's constraints are triggered is, however, dictated entirely by the markets. Market-induced pressure to revalue or devalue is both a necessary and a sufficient condition required to do this, irrespective of the fundamental economic rationality on which this pressure is based. Market transactions thus prove to be the *modus operandi* of the system's structures. The fundamental economic rationality of market transactions determines the economic rationality of the system's adjustments constraints. Consequently, even countries primarily committed to monetary stability face considerable monetary and interest rate policy adjustment costs in the course of speculative attacks. If, from the point of view of the markets, such adjustment costs become intolerable, then the underlying exchange rate guarantee also loses credibility.

Criteria for an Intervention Mechanism

This leads to the following three criteria for the design of a credible exchange rate guarantee:

Criterion I: As a "fleet in being", the intervention mechanism must have enough strike power to guarantee a sufficiently credible deterrent effect against speculative attacks. In conditions of fully liberalised capital and foreign exchange markets this effectively means that the intervention promises must be unlimited in amount.

Figure 1
Determinants of Monetary Adjustment Constraints in Institutionalised Fixed Rate Systems



⁸ Cf. Peter Bofinger, *loc cit*, pp. 88-176 and pp. 337-377; also Robert Vohrkamp: The European Monetary System during the phase of transition to European Monetary Union, *Economic Papers* (European Commission), No. 108, July 1994, pp. 9-44. For a similar approach cf. Ronald I. McKinnon: The Rules of the Game: International Money in Historical Perspective, in: *Journal of Economic Literature*, Vol. 31 (March 1993), pp. 1-44.

⁹ The political exchange rate competence within the EMS results from the fact that, ultimately, a unanimous decision of the responsible Council of Ministers is required for realignment decisions; for a description of the realignment procedure cf. Andreas Kees: The Monetary Committee of the European Community, in: *Kredit und Kapital* 2/1987, pp. 258-268. For the interpretation of this situation from the point of view of a hard currency central bank cf. Fritz Scholl: The domain of speculators or a place to correct untenable exchange rate relationships, in: *The Treasurer*, October 1993, p. 55.

Criterion II: The interaction of intervention and financing rules should produce a mechanism for coordinating monetary policy which meets the demands made of a fixed exchange rate system which is suitable for pursuing stability goals. The exchange rate mechanism should not force any country to weaken its commitment to monetary stability. As far as the monetary and liquidity policies of stability-oriented countries are concerned, the system must prove to be sustainable even in the worst case scenario of a speculative attack. Central bank spot intervention obligations, unlimited in amount, are therefore unsuitable from the outset as a "last resort" for maintaining exchange rate guarantees.

Criterion III: The system must also prove to be sustainable for the weak currency countries with regard to their stability policies by minimising their monetary adjustment costs. This requires a credibly institutionalised coordination mechanism for monetary and interest rate policy which on the one hand guarantees the asymmetrical constraint for weak currency countries to converge on the monetary stability standard of the anchor currency country, yet on the other hand also ensures adequate protection against fundamentally irrational attacks and excessively high market credibility and risk premiums.

The old EMS fulfilled none of these three criteria. Its intervention mechanism did not have sufficient strike power because the budget restriction of attacked currencies was only temporarily suspended, but could

not be fundamentally lifted. The system was inadequate from the point of view of monetary stability because in the course of speculative attacks the capacity of the hard currency countries to sterilise liquidity effects was exhausted within just a few days. With regard to stability policy, moreover, it was not sustainable for attacked central banks because there was no effective protection against inadequate monetary and interest rate policy adjustment costs as a result of fundamentally irrational attacks from the markets.

A Reform Option for the EMS

In the following, a reform option for the EMS is presented which meets all three demands to be made of a credible fixed exchange rate system.¹⁰ At the heart of this proposal is the re-introduction of the old EMS narrow exchange rate bands and their ultimate fixation up to the transition to the third phase of EMU. In order to guarantee these exchange rates by means of an intervention policy, the asymmetrical spot intervention mechanism of the old EMS is supplemented by symmetrical forward intervention obligations by the central banks which are unlimited in amount. The same intervention points are valid for the forward intervention mechanism as for the obligatory spot interventions.

¹⁰ For a detailed elucidation see Robert Vehrkamp, loc cit; Robert Vehrkamp: Das Europäische Währungssystem in der Übergangsphase zur Währungsunion - Zukunftsszenarien und Reformoptionen, to be published shortly. For a summary of the proposals see Robert Vehrkamp: Währungsstabilität bis zur Endphase nicht gesichert, in: Handelsblatt, edition No. 147, 2.8.1994.

Wassilios Skouris (Ed.)

Advertising and Constitutional Rights in Europe

A study in comparative constitutional law

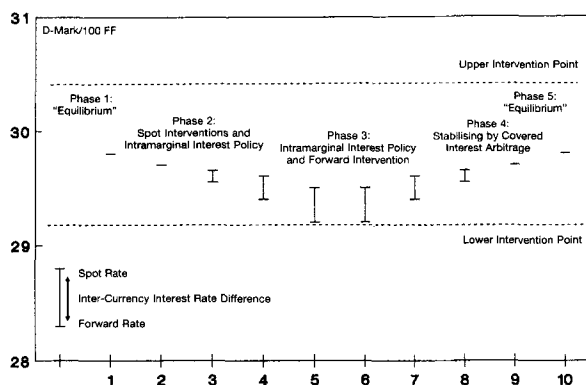
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Figure 2

Interaction of Interest Rate and Intervention Policies in Fixed Rate Systems with Forward Interventions



In contrast to spot interventions, interventions in the forward market have the advantage of avoiding any direct liquidity and reserve effects.¹¹ Compared to spot interventions, the implementation of forward interventions poses no problems for hard currency countries with regard to their limited sterilisation capacity for combatting liquidity effects. The attacked central banks' budget restriction of limited (spot) intervention reserves is lifted. Such a forward intervention mechanism is therefore credible because it proves to be sustainable as far as monetary and intervention policies are concerned even in the worst case scenario of a speculative attack. The system's monetary and interest rate policy coordination mechanism is still determined by the asymmetrical spot intervention mechanism of the old EMS which continues to exist. The interaction of both intervention mechanisms in the course of a speculative attack results in the following schematic sequence of events (see Fig. 2):¹²

Phase 1: In the beginning a stable equilibrium is assumed. The spot rates correspond to the bilateral central rates and the inter-currency interest rate difference tends towards zero; exchange rate stability therefore prevails at a uniform rate of interest.

Phase 2: If a member currency comes under speculative pressure to devalue, the participating central banks will at first try to stabilise exchange rate movements with intramarginal spot interventions. If this fails, then – because of their reserve losses resulting from spot interventions and because of the settlement obligations resulting from the hard currency countries' support intervention – the currencies under attack are forced to relieve the

pressure caused by intervention measures by establishing an inter-currency interest rate difference in favour of their currencies. Assuming covered interest rate parity, the inter-currency interest rate advantage of the attacked currency automatically results in its forward rate being quoted at precisely that number of percentage points below the spot rate.

Phase 3: If the intramarginal inter-currency interest difference also proves insufficient to stabilise the spot rate by stimulating arbitrage-motivated capital movements, then the forward intervention mechanism is activated in order to ultimately combat the speculative attack. This happens automatically as soon as the forward rate has fallen to the lower intervention point. The resulting unlimited forward intervention obligation of all the participating central banks initially prevents the rate falling any further, without any direct liquidity and reserve effects for the intervening central banks. From the point of view of the central banks, the "costs" involved in the forward intervention strategy are zero. For the speculators, however, maturing forward contracts inevitably lead to exchange losses equal to the inter-currency interest rate difference.

Phase 4: With increasing losses on the part of the speculators, speculative attacks ease off. The central banks have superior staying power: "The authorities need only keep their nerves."¹³

Phase 5: The initial equilibrium is restored. Victory over the speculative attacks is itself enough to prevent their re-emergence. The system benefits from the learning effect of microeconomically rational speculators.

Safeguarding through Forward Intervention

The "de facto monetary union of the core European countries through forward interventions" proposed here proves resistant even to speculative attacks from

¹¹ For the principles of forward intervention theory cf. Egon Sohmen: *Wechselkurs und Währungsordnung*, Tübingen 1973, pp. 83-131; also the stimulating illustration and interpretation of the relevant context in Wolfram Engels: *Notenbanktechnik: Instrumente und Verfahren der monetären Stabilitätspolitik*, Frankfurt/Main 1979, pp. 24-53.

¹² For a general illustration of the mechanics of speculative attacks on the exchange rate promises in fixed rate systems cf.: Morris Goldstein et al: *International Capital Markets - Part I: Exchange Rate Management and International Capital Flows*, International Monetary Fund, Washington 1993; also, particularly informative on the course of the autumn 1992 EMS crisis: Group of Ten: *International Capital Markets and Foreign Exchange Markets - A Report to the Ministers and Governors*, Rome 1993.

¹³ Leland B. Yeager: *International Monetary Relations: Theory, History and Policy*, New York 1976, p. 280.

the markets. It is characterised by an efficient division of responsibilities in which the system's intervention policy safeguards are guaranteed by the forward intervention mechanism, and the stability orientation of the whole system around the standard set by the anchor currency is ensured by means of the asymmetrical settlement rules of the spot intervention mechanism. For weak currency countries, the incentive for accepting this asymmetrical linkage of their interest rate policy to that of the anchor currency country lies in the fact that, even in the course of speculative attacks, their risk premiums are limited to negligible intramarginal interest rate differences. For weak currency countries willing to strive for monetary stability, the transfer of credibility inherent in this system as opposed to the old EMS is again considerably improved.

The most popular argument against the effectiveness of forward intervention strategies is that, in the case of forward interventions, the liquidity and reserve effects of spot interventions cannot be fundamentally avoided but are merely postponed until the maturity date of the forward contract.¹⁴ Although this objection is correct in principle it is weakened by the fact that, from the point of view of the speculator, maturing forward contracts inevitably lead to losses amounting to the inter-currency interest rate difference. Accordingly, the tables are turned to the speculators' disadvantage as far as speculative attacks are concerned. Therefore, while in the old EMS the credibility-depleting liquidity and reserve effects of spot interventions occurred for the central banks at the very start of a speculative attack, these effects could only possibly arise in the model proposed here at a point in time when the speculators are already disheartened by the losses they have incurred through forward speculation deals.

Central Bank Autonomy

The proposal of a "de facto monetary union of the core countries through forward interventions" can be integrated into the framework of an overall strategy for the transition to monetary union as follows. Firstly, a monetary autonomy standard for Europe should be created by transferring all responsibility for monetary and exchange rate policy to the central banks involved. Central bank monetary policy autonomy is derived directly from the "institutional" convergence criterion laid down in the Maastricht Treaty (Art. 108). The transfer of exchange rate management responsibility to the central banks is the necessary result of lessons learned from the failure of the old

EMS system with its political exchange rate competence. Fulfilment of the autonomy criteria becomes a precondition for participation in one of the two institutional arrangements of the new, two-tier EMS.

The two-tier EMS consists of a de facto monetary union of the core countries and a modified exchange rate mechanism for the peripheral countries. Initially, the narrow exchange rate margins of the old EMS should be re-established for both tiers of the new EMS. These margins are irrevocably fixed for the de facto monetary union of the core countries and safeguarded by the extended intervention obligations on the forward markets described above. The system's mechanism thus corresponds to the "de facto monetary union through forward interventions" described above. Participation in the core currency union is decided on in accordance with the convergence criteria laid down in the Maastricht Treaty.

As far as the peripheral countries are concerned the exchange rate mechanism is strengthened institutionally compared to the old EMS, in particular by the fact that responsibility for exchange rate realignment is transferred from the governments to the central banks with their monetary autonomy. Timely implementation of fundamentally necessary adjustments to the central rates is thus guaranteed and the likelihood of speculative attacks considerably reduced. As an incentive for meeting the autonomisation directions, the credibility transfer of the old EMS would be re-established, allowing the peripheral countries to reduce their monetary and interest rate policy adjustment costs considerably when converging on the stability level of the core countries. Their entry to the core monetary union can then take place step by step, again in accordance with the convergence criteria laid down in the Maastricht Treaty.

The practical implementation of the reform proposals can be accomplished with a few adjustments to the EMS agreements made between the central banks involved. No alterations to the EC Treaty are necessary. In terms of a successful European integration policy, the rationality of realising the European Monetary Union is met, as is the autonomous central banks' rationality of preserving and strengthening monetary stability.

¹⁴ Cf. Peter Fischer-Erlach: *Handel und Kursbildung am Devisenmarkt*, Stuttgart 1991, pp. 82-88; also the discussion of the relevant literature in Leland B. Yeager, loc cit, pp. 279-285.