Economic Commentary

Lessons from the European Monetary System

by Nicholas V. Karamouzis

Many economists and policymakers have argued that nations outside the ERM could minimize exchange-rate volatility and enhance economic stability if West Germany, Japan, and the United States linked their currencies in a targeted arrangement. Under a target-zone system, countries adjust their national economic policies to maintain their exchange rates within a specific margin around agreed-upon, fixed central exchange rates. Such a system already exists for the major European currencies in the form of the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS). A review of the ERM provides valuable lessons about the operations, costs, and benefits of target-zone arrangements.

The ERM has gone through some periods of strain and must still address several difficult problems. Nevertheless, it has not degenerated into a system of frequent small exchange-rate adjustments, as some critics had forecast. On the contrary, according to some analysts the ERM has reduced the volatility of both bilateral and multilateral exchange rates in large part by fostering the convergence of inflation and income growth rates towards those of the best performer, West Germany.

This Economic Commentary discusses the exchange-rate mechanism of the European Monetary System. The first three sections describe the operation of the ERM. The final section highlights some problems facing the ERM that are germane to the operation of any target-zone system.

The Operating Components of the ERM

The Exchange Rate Mechanism consists of four major components: the European Currency Unit, the parity grid, the divergence indicator, and the credit facilities. Because we are interested in the exchange-rate management of the ERM, we briefly discuss the European Currency Unit and then focus on the parity grid and the divergence indicators.

The European Currency Unit (ECU) is a composite currency, consisting of fixed amounts of 10 European currencies. The quantity of each country’s currency in the ECU reflects that country’s relative economic strength in the European community.

The ERM has also been referred to as the Exchange Rate Mechanism of the European Monetary System (EMS). See Kenneth Rogoff, “Can International Cooperation between Central Bankers Succeed?”, in Essays in International Economics, May 1985, No. 3/4, pp. 199-218.

Three short-term credit mechanisms enable one ERM member central bank to borrow funds from another to finance exchange-market intervention. The Very Short-Term Lending Facility provides an unlimited amount of very short-term credit to finance intervention at the compulsory intervention margins. The Mobilization Mechanism permits temporary exchanges of official ECUs for currencies, mainly to finance intra-marginal intervention, or intervention to influence exchange rates within the permissible bands. The Short-Term Monetary Support provides credits based on a member’s balance of payments and/or the foreign-exchange reserve position. The European Monetary Cooperation Fund coordinates and facilitates all transactions. Official ECUs serve as a means of settlement in these transactions. Each central bank deposits at least 20 percent of its gold and dollar reserves with the European Monetary Cooperation Fund in exchange for official ECUs.

The Parity Grid

Subject to the agreement of all the participants, each member of the exchange-rate mechanism determines a central exchange rate for its currency, which is then denominated in currency units of the ERM. These central rates attempt to establish equilibrium exchange values for the currencies in the EMS. The central rates were set to seek adjustments to the central rates. The ERM countries have adjusted the central rates many times since the establishment of the EMS. With the most recent realignment on January 12, 1987, the ECU central rates have been: 4.8261 Belgian francs, 7.85212 Danish kroner, 2.05835 Deutsche marks, 6.90403 French francs, 2.31043 Dutch guilders, 4.8261 Belgian francs, 7.85212 Danish kroner, 2.05835 Deutsche marks, 6.90403 French francs, 2.31043 Dutch guilders, 4.8261 Belgian francs, 7.85212 Danish kroner, 2.05835 Deutsche marks, 6.90403 French francs, 2.31043 Dutch guilders, 4.8261 Belgian francs, 7.85212 Danish kroner, 2.05835 Deutsche marks, 6.90403 French francs, 2.31043 Dutch guilders, 4.8261 Belgian francs, 7.85212 Danish kroner, 2.05835 Deutsche marks, 6.90403 French francs, 2.31043 Dutch guilders, 4.8261 Belgian francs, 7.85212 Danish kroner, 2.05835 Deutsche marks, 6.90403 French francs, 2.31043 Dutch guilders, 4.8261 Belgian francs, 7.85212 Danish kroner, 2.05835 Deutsche marks, 6.90403 French francs, 2.31043 Dutch guilders.

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Nicholas V. Karamouzis is an assistant economic advisor with the Bank of Greece and a visiting scholar at the Federal Reserve Bank of Cleveland. The author benefited from comments by Richard N. Cooper, of the Federal Reserve Bank of Cleveland, and Martin Eichenauer, of the Foreign Exchange Group of Experts under the Committee of the Central Banks of the Member States of the European Economic Community. He also thanks Gerald H. Anderson, Owen F. Hamilton, and Mark Summerlin for their suggestions.

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10. Actually, a recent study argued that policy cooperation could introduce an inflation bias to the EMS. See Kenneth Rogoff, "Can International Monetary Policy Coordination be Counterproductive?" Journal of International Economics, May 1985, No. 3/4, pp. 199-218.
They are: Belgium-Luxembourg, Denmark, Italy, and the Netherlands. EMS refers to countries that are members of the European Monetary System.

Throughout this paper, a “narrow band” shows the position of each currency before it reaches the upper limit from the lower limit against the Danish kroner, it probably would reach an upper intervention limit. The Bundesbank will buy marks at 0.26810 and sell kroner to commercial banks at 3.73900. The German kroner should strengthen against the Danish kroner, so that the Danish central bank will sell kroner to commercial banks at 3.79086. The Bundesbank will buy marks at 0.29150.

A convenient way to monitor the relative position of each currency in the band is to calculate the “narrow band of fluctuations.” Usually the narrow band shows the position of each currency relative to the weakest currency in the group. The expression of the weakest currency’s market exchange rate vis-a-vis each participant country as a percentage deviation from the weak currency’s central rate vis-a-vis each participant country.

The Divergence Indicator

A number of the ERM member countries must introduce policies to reduce the pressure on the exchange rates. European policymakers generally can employ three complimentary policies to deal with short-term pressures on their exchange rates: 1) intramarginal intervention, 2) full use of the exchange-rate bands and intervention at the upper and lower boundary of the margins, and 3) adjustment of interest rates.

In each case we have calculated the deviations of the other ERM currencies from the Belgian franc.

As a result, small profit opportunities may induce large capital movements, which, other things equal, will require larger amounts of intervention to defend the parities. The experience with the January 12, 1987 realignment confirms this view. In January, the volume of speculative capital movements over-\n
The ERM provides valuable insights into the economic arrangements, and illustrates the problems that such mechanisms are likely to encounter. The most important lesson is that the ERM illustrates that the exchange-rate stability afforded by any target-zone arrangement requires a coordination of economic-policy objectives. Nations should achieve convergence of those economic variables that directly affect exchange rates, such as fiscal deficits, current-account imbalances, and real economic growth differentials.

ERM countries against the Belgian franc are shown in Chart 1. Denmark, Ireland, and France.

ERM countries must introduce policies to deal with short-term pressures on their exchange rates.

When a currency crosses its “threshold of divergence,” the authorities of the country concerned should implement corrective policies. On several occasions, however, the divergence indicator also suggests that the intervention indicator also suffers from inherent technical problems. The ERM members need to modify the divergence indicator and to develop new indicators that trigger consultation and policy discussion among the participants.

CHART 1

The Narrow Band on May 26, 1987*

*The Italian lira is not included.

SOURCE: Author.

Table 1

Parity grid

<table>
<thead>
<tr>
<th></th>
<th>Germany</th>
<th>Denmark</th>
<th>France</th>
</tr>
</thead>
<tbody>
<tr>
<td>+2.25</td>
<td>3.9056</td>
<td>.84421</td>
<td>.3405</td>
</tr>
<tr>
<td>-2.50</td>
<td>2.5238</td>
<td>1.2772</td>
<td>1.2772</td>
</tr>
<tr>
<td>+2.25</td>
<td>.50810</td>
<td>.10089</td>
<td>.8925</td>
</tr>
<tr>
<td>Central rate</td>
<td>.26216</td>
<td>.09786</td>
<td>.8785</td>
</tr>
<tr>
<td>-2.25</td>
<td>.26300</td>
<td>.09589</td>
<td>.85970</td>
</tr>
<tr>
<td>+2.50</td>
<td>.27400</td>
<td>10.451</td>
<td>.9180</td>
</tr>
<tr>
<td>Irish pound</td>
<td>.26296</td>
<td>1.05661</td>
<td>1.0566</td>
</tr>
<tr>
<td>-2.25</td>
<td>.26190</td>
<td>9.9913</td>
<td>8.7580</td>
</tr>
<tr>
<td>+2.25</td>
<td>.30495</td>
<td>1.1632</td>
<td>.1138</td>
</tr>
<tr>
<td>Central rate</td>
<td>.298164</td>
<td>1.13772</td>
<td>.11229</td>
</tr>
<tr>
<td>-2.25</td>
<td>.291100</td>
<td>1.10210</td>
<td>.10825</td>
</tr>
</tbody>
</table>

A. All exchange rates are expressed in terms of national currencies rather than in terms of ECUs.


5. The figure ± 2.25 percent is only an approximation, as the exception allowed for 1.25 percent.

6. This is calculated as follows: The Danish kroner/Belgian franc market rate on May 26th was 0.184765; the central rate was 0.184937. Subtracting the ratio: 0.184765/0.184937 from one gives 0.0187 or 1.87 percent. In a similar way, we can calculate the deviations of the other ERM currencies from the Belgian franc.

Table 1  

<table>
<thead>
<tr>
<th>Parity Grida</th>
<th>Germany</th>
<th>Denmark</th>
<th>France</th>
</tr>
</thead>
<tbody>
<tr>
<td>+2.25</td>
<td>2.27531</td>
<td>3.0906</td>
<td>3.1462</td>
</tr>
<tr>
<td>2.5</td>
<td>-2.25</td>
<td>-2.25541</td>
<td>-2.21</td>
</tr>
<tr>
<td>-2.25</td>
<td>2.24896</td>
<td>2.9578</td>
<td>2.9241</td>
</tr>
<tr>
<td>-4.5</td>
<td>2.16956</td>
<td>2.9153</td>
<td>2.8913</td>
</tr>
</tbody>
</table>

The German mark is set at 1.35 per ECU. When the French franc is at this rate, the Belgian franc is ECU 3.4915 and the Danish krone is 1.7545. Doing the arithmetic, we arrive at the rate of 2.9578 Danish kroner per ECU or 1.35 mark/DKR. The reader can verify that the rate of 2.27531 mark/SEK is in line with this currency grid.

The Divergence Indicator

A divergence indicator of the ERM must intervene when its currency reaches the 2.5 percent band against any other ERM currency. Ideally, ERM members would like to know when to prepare to act before their exchange rates reach the 2.5 percent bands. A divergence indicator attempts to provide such an early warning signal.

The exchange-rate stability afforded by any target-zone arrangement requires a coordination of economic-policy objectives. Nations should achieve convergence of those economic variables that directly affect exchange rates, such as fiscal deficits, current-account imbalances, and real economic growth differentials. Among the ERM countries, the fundamental monetarist divergence of exchange rates is slowing. Although monetary policies also have become similar, the participants do not agree that zero inflation should be the ultimate objective of the European Economic Community. Consequently, monetary authorities in the ERM countries often face a dilemma between the change-rate stability and interest-rate stability, and face a conflict between domestic and external objectives.

The European experience has shown that a progressive change-rate policy is the most effective means of stabilizing exchange rates, particularly when countries coordinate their policies. The need for such coordinated policies has increased as ERM countries have lifted restrictions on capital flows to commercial transactions and because of political or policy constraints, EMS members eventually will need to realign the central rates.

The Observations on the ERM

The EMU values provide a useful illustration about exchange-rate arrangements, and illustrates the problems that such mechanisms are likely to encounter. The main lesson is that the EUR is the currency of the future.
Many economists and policymakers have argued that the participating countries could minimize exchange-rate volatility and enhance economic stability if West Germany, Japan, and the United States linked their currencies in a target-zone arrangement. Under a target-zone arrangement, countries adjust their national economic policies to maintain their exchange rates within a specified margin around agreed-upon, fixed central exchange rates. Such a system already exists for the major European currencies in the form of the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS). A review of the ERM provides valuable lessons about the operations, costs, and benefits of target-zone arrangements. The European Monetary System began operating in March 1979. Its purpose is to foster monetary stability in the European Economic Community, which is a prerequisite for achieving the economic and monetary union of Europe. All members of the European Economic Community, except Portugal, have signed the EMS Agreement, but Greece, Britain, and Spain have opted not to participate in the Exchange Rate Mechanism.

The ERM has gone through some periods of strain and must still address some difficult problems. Nevertheless, it has not degenerated into a system of frequent small exchange-rate adjustments, as some critics had forecast. On the contrary, according to some analysts, the ERM has reduced the volatility of both nominal and real exchange rates in large part by fostering the convergence of inflation and money growth rates towards those of the best performer, West Germany.10

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The European Currency Unit (ECU) is a composite currency, consisting of fixed amounts of 10 European currencies. The quantity of each country’s currency in the ECU reflects that country’s relative economic strength in the European community. The ECU functions as an unit of account, as a means of settlement, and as a reserve asset for the members of the ERM. Recently, it has received growing use as a unit of account and as a means of payment in private transactions. Since the ECU is a composite currency, the exchange value is less prone to large exchange-rate swings than are individual currencies.

Three short-term credit mechanisms enable one ERM member to borrow funds from another to finance exchange-market intervention. The Very Short-Term Financing Facility provides an unlimited amount of very short-term credit to finance intervention at the compensation or margin intervention. The Mobilization Mechanism permits temporary exchanges of ordinary ECUs for currencies, mainly to finance intra-marginal intervention, or intervention to influence exchange rates within the permissible bands. The Short-Term Monetary Support provides credits based on a member’s balance of payments and/or the foreign-exchange reserves position. The European Monetary Cooperation Fund coordinates and facilitates all transactions. Official ECUs serve as a means of settlement in these transactions. Each central bank deposits at least 20 percent of its gold and dollar reserves with the European Monetary Cooperation Fund in exchange for official ECUs.

The Parity Grid

Subject to the agreement of all the participants, each member of the exchange-rate mechanism determines a central exchange rate for its currency, which is denominated in currency units per ECU. These central rates attempt to establish equilibrium exchange values for the currencies and to seek adjustments to the central rates. The ERM countries have adjusted the central rates for each country’s currency since the establishment of the EMS. With the most recent realignment on January 12, 1987, the ECU central rate has been increased.1

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