The European Monetary System

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In March 1979, nine major European countries, members of the European Economic Community, launched a new experiment in international monetary cooperation—the European Monetary System. The system consists of a number of special arrangements, including a composite common currency unit similar in structure to the Special Drawing Rights of the International Monetary Fund, detailed rules for the maintenance of relatively fixed exchange rates between currencies of the member countries, and an intricate network of mutual credit facilities that will be ultimately administered by an EC supernational monetary authority. This article traces the historical development of the new system, looks at the details of the underlying arrangements, and evaluates its significance.

Historical background

The launching of the European Monetary System represents yet another step toward close economic cooperation between European nations in the post-World War II period. The first steps in that direction were taken in 1950 with the establishment of the European Payments Union that was designed to facilitate settlements of international trade transactions between European countries. In 1951, efforts to promote trade relations between the European nations through removal of trade barriers led to the creation of the European Coal and Steel Community. Under the arrangement, Germany, France, Belgium, Luxembourg, the Netherlands, and Italy dismantled restrictions on the movement of raw steel and coal. The European Coal and Steel Community provided a nucleus for the establishment of the European Economic Community in 1957. The Treaty of Rome signed by the six nations comprising the European Coal and Steel Community established a framework of cooperation toward the ultimate goal of unrestricted movements of goods, services, capital—and people—between the member nations as a means of increasing the standard of living and political stability of the area. The European Economic Community or the EC, as it has come to be known, made great strides over the years of its existence toward the goals of economic and political integration. The intra-EC tariffs were gradually phased out and common tariffs applicable to trade with non-EC countries were established. A common agricultural policy aimed at stabilization of prices and encouragement of trade in agricultural commodities within the EC was established. Under the auspices of the European Parliament, common budgetary policies are being developed, and common standards in patents and other legal matters are being established.

The goal of establishing a monetary union within the European Community was first approved at a conference of national leaders in 1969. The plan called for the completion of the union by 1980, with a common currency. This was to be achieved by gradually narrowing the extent of day-to-day fluctuations in the exchange values of individual EC countries' currencies in terms of each other. Once the exchange values were stabilized and maintained fixed, it would be a mere technicality to "convert" individual national currencies into a common unit. It was hoped that the stability of exchange rates of the currencies of the member countries would be an important stimulant for trade among them, and (particularly after the goal

of the common currency has been achieved) that it would cement the evolving close economic, political, and social ties between them.

The EC blueprint for progress toward the goal of fixed and stable exchange rates between the member countries was drawn within an already existing framework of relatively fixed exchange rates worldwide. The Bretton Woods international monetary system, which was still in existence at that time, required all participating countries to maintain exchange rates of their currencies within 1 percent of the declared par value in terms of the U.S. dollar. By this arrangement, the exchange rates of the EC currencies were held within 2 percent of each other. Progress toward complete stability called for in the EC blueprint appeared fairly easy from this vantage point. However, in 1971, the Bretton Woods System collapsed, and the new international monetary arrangements that were agreed upon by representatives of IMF member nations after months of intensive negotiations in December 1971 at the Smithsonian Institution in Washington allowed for a much wider range of fluctuation. All currencies were permited to fluctuate within a 4½ percent band relative to the dollar. This meant that the EC currencies would fluctuate relative to each other within a total spread of 9 percent.

In order to return to the path toward stability of their exchange rates, Belgium, Luxembourg, France, Italy, the Netherlands, and West Germany entered into a European Joint Float agreement in April 1972. The arrangement became known as "the snake." Shortly after the launching of the snake arrangement by the six, four at that time non-EC countries (Denmark, Ireland, Norway, and the United Kingdom) joined in. Under that arrangement, the exchange rates of the snake-member currencies were to be maintained within a 2¼ percent spread, and were allowed to move jointly within the 4½ percent limits established by the international agreement. The 4½ percent limit for the joint "twists of the snake" became known as the "tunnel." The European monetary arrangement thus acquired the name the "snake in the tunnel."[1]

In the day-to-day functioning of the snake, the exchange rates of the participating members' currencies were maintained within prescribed limits by official intervention in the foreign exchange markets. For example, as the value of one member's currency would begin to rise on the world's exchange markets due to a strong commercial or speculative demand for that currency, one or a combination of the following measures had to be taken: One, the member whose currency was rising would meet the market demand for its currency by purchasing dollars with its own currency. The resulting increase in supply would reduce the upward pressure on the exchange rate. Two, the central banks of the other snake countries would meet the market's demand for that one member's currency by selling it against their own currencies. The currency sold would be typically acquired by them through borrowing on a short-term basis from the central bank of the member whose currency was rising. This, as well as the third alternative, which involved selling dollars against their own currencies from their reserves, would cause their currencies to rise jointly against the U.S. dollar and the rest of the world currencies. However, the extent of the joint rise of the snake currencies would be limited by the 4½ percent limit set by the international monetary arrangement. Thus, as the snake currencies would jointly approach the ceiling of the tunnel, members would be required to moderate their joint rise relative to the dollar by purchasing dollars with their own currencies. A precisely opposite set of measures would be called for when one member's currency would begin to decline in value.

[1]The Dutch and the Belgians entered into a special supplementary arrangement with respect to the exchange rates of their currencies that reflected the particularly close relationship between the economies of these two countries. They agreed to maintain the value of the Belgian franc and the Dutch guilder within a 1 percent band relative to each other and to move jointly within the 2¼ percent band established by the snake relative to other participating EC currencies. The Dutch-Belgian arrangement became known as the "worm," and the European monetary arrangement was known as "the worm within the snake within the tunnel."

After several weeks of relatively smooth functioning, the snake came under severe pressures as the basic economic forces that typically underlie the movements in exchange rates began to assert themselves. In early June 1972, the exchange rate of the British pound came under heavy downward pressure due to internal labor unrest that threatened further deterioration of the country's already poor balance-of-payment position. As the pound was pressed down by commercial orders to sell, the Bank of England and the other central banks of the snake countries tried desperately to hold the pound's exchange rate within the snake's skin by official intervention. However, the market pressures proved stronger than the central banks' resolve. After several days of turmoil in the foreign exchange markets, the effort to maintain the pound sterling within the snake was abandoned; the currency was officially withdrawn and permitted to float freely. Market pressures quickly shifted to the Danish krone. After several days of vain efforts to support it, the krone, too, was forced out of the snake's skin. Italy was forced to withdraw under similar circumstances in early 1973, shortly before market pressures on the U.S. dollar caused a complete collapse of the Smithsonian agreement. The remaining snake members continued their effort to maintain the arrangement, functioning in the environment of freely floating exchange rates that followed the collapse of the Smithsonian tunnel. However, divergent economic conditions in the member countries made the sought-after stability of exchange rates an exceedingly elusive goal. Currencies were forced out of the snake by recurring market pressures, and revaluations and/or devaluations of individual members' currencies had to be undertaken to keep the battered snake alive.

Launching of the EMS

The brief history of the efforts of the EC countries to provide for stability of the exchange rates of their currencies was a stormy one, as the achievement of the ideal of EC-wide stability and unity came under repeated attacks of centrifugal forces of economic realities. But the ideal of exchange rate stability as a means to closer political and economic unification of the community persisted. This, together with the growing frustration of Europeans with the worldwide floating exchange rate regime in general and the volatility of the U.S. dollar in particular, kept the search alive.

In July 1978, a plan for a new European monetary system was presented to and was approved by the heads of state of the nine EC member countries. The launching date was set for January 2, 1979, but a last minute postponement was made necessary by strife within the EC over certain related aspects of the EC's common agricultural policy.

The system was finally launched in March 1979. Seven of the nine EC members—Belgium, Denmark, France, Germany, Ireland, Luxembourg, and the Netherlands—became full participants. Italy decided to participate under modified conditions, and the United Kingdom, while becoming a member of the EMS, elected not to participate in all the arrangements.

The following are the main features of the new system:

The European Currency Unit (ECU). A newly created monetary unit, the ECU is the linchpin of the new system. The ECU does not exist in the physical sense that currencies of individual countries do. It does serve, however, as a monetary asset that participating central banks can hold as reserves. The central banks can also loan and borrow the unit, and it can be used in settling debts between them. Though use of the unit will be limited initially to countries participating in the EMS, it is expected that the ECU could serve eventually as an international reserve asset similar to the Special Drawing Rights issued by the International Monetary Fund and held and used by central banks worldwide.

In addition to its monetary function, the ECU will serve an accounting function, its

value providing a benchmark against which the central rates of individual currencies of the EMS members will be established. Thus, at the inception of the EMS, each of the participating countries formally defined the value of its currency in terms of the number of units of that currency one ECU would "buy."

Valuation of individual currencies in terms of the ECU serves two purposes: (1) it establishes a "central rate" for every currency in terms of other currencies, these relative rates forming a "bilateral grid" of exchange rates linking all EMS currencies; (2) it provides reference points for establishing a "threshold of divergence" that, once reached, will create a presumption for members to take specific economic measures.

In purely technical terms, the ECU is a composite unit consisting of the EC member currencies. It has been defined as the equivalent of the sum of: 3.66 Belgian francs, 0.217 Danish kroner, 1.15 French francs, 0.00759 Irish pounds, 109 Italian lire, 0.14 Luxembourg francs, 0.286 Dutch guilders, 0.0885 British pounds, and 0.828 German marks.

The weights assigned to each currency in the basket are derived from the relative GNP of each member country and that country's share in intra-European trade. The weights will be reexamined every five years, or if the relative value of any currency changes by 25 percent, the weights will be reexamined on request.

In terms of the dollar, the unit is worth about $1.40. The dollar value can be calculated by multiplying the current dollar "price" (the exchange rate) of the individual EC currencies by the weights of these currencies in the ECU valuation basket. This dollar value will, of course, vary from day to day with fluctuations in the exchange rates of the European currencies relative to the dollar.

"Bilateral grid" of the Central Rates of the EMS currencies

(Based on their par values in terms of the ECU as of March 13, 1979)

Value per/In terms unit of/ of	Bel./Lux. franc	German mark	Dutch guilder	Danish krone	French franc	Italian lira	Irish pound
		0.06506	*.07050*	*0.1836*	*0.1503*	*30.85*	*0.0172*
Bel./Lux. franc	—	**0.06363**	**.06895**	**0.17958**	**0.14695**	**29.1**	**0.0168**
		0.06220	*.06740*	*0.1755*	*0.1436*	*27.35*	*0.01642*
German mark	*16.0700*		*1.1081*	*2.8859*	*2.3615*	*484.7*	*0.2698*
	15.7164	—	**1.0837**	**2.8224**	**2.3095**	**457.3**	**0.2639**
	15.3628		*1.0593*	*2.7589*	*2.2575*	*429.9*	*0.2580*
Dutch guilder	*14.8289*	*0.9435*		*2.6630*	*2.1790*	*447.3*	*0.2490*
	14.5026	**0.92277**	—	**2.6044**	**2.1311**	**422.0**	**0.2435**
	14.1763	*0.9020*		*2.5458*	*1.9832*	*396.7*	*0.2380*
Danish krone	*5.6938*	*0.36228*	*0.3926*		*0.8367*	*171.7*	*0.09560*
	5.5685	**0.35431**	**0.38397**	—	**0.8183**	**162.0**	**0.0935**
	5.4432	*0.34634*	*0.3753*		*0.7999*	*152.3*	*0.0893*
French franc	*6.9582*	*0.4427*	*0.4798*	*1.2496*		*209.9*	*0.1169*
	6.8051	**0.4330**	**0.4692**	**1.2221**	—	**198.0**	**0.1143**
	6.6520	*0.4320*	*0.4586*	*1.1946*		*186.1*	*0.1117*
Italian lira	*0.0365*	*0.00232*	*0.00251*	*0.00654*	*0.00535*		*0.000612*
	0.0344	**0.00219**	**0.00237**	**0.00617**	**0.00505**	—	**0.000577**
	0.0323	*0.00206*	*0.00223*	*0.00580*	*0.00475*		*0.000542*
Irish pound	*60.8869*	*3.8742*	*4.1984*	*10.9341*	*8.9472*	*1,836.7*	
	59.5471	**3.7889**	**4.1060**	**10.6935**	**8.7503**	**1,732.7**	—
	58.2073	*3.7036*	*4.0136*	*10.4529*	*8.5534*	*1,628.7*	

Note: The bold face numbers are the Central Rates of the currency in the left hand column in terms of the currency on the top of each column. The italicized numbers are the maximum permitted deviations above and below the Central Rate.

The Bilateral Grid is used in the day-to-day operations of the EMS and is the same as in the snake. Each country must try to maintain the value of its currency relative to others in the EMS by intervening in foreign exchange markets when the exchange rate of its currency is pushed by the underlying market forces toward the maximum permitted deviation. In principle, the country with a currency that appreciates 2¼ percent (6 percent for Italy) above the central rate of another EMS currency established by the bilateral grid will be required to intervene in foreign exchange markets to alter the supply and demand conditions causing the appreciation.

The Threshold of Divergence. A new provision, called the "threshold of divergence," is designed to guard against conditions that recurred under the snake arrangement and were a source of discord among the members. These conditions arose when the value of one member's currency was pushed up on the world's foreign exchange market because of either internal developments in that member's economy or speculative pressures in the foreign exchange market. The other members had been required to follow the upward trend, at times to the detriment of their own economies.

Because of a large surplus in Germany's international trade accounts, for example, the exchange rate of the mark would rise relative to the dollar on world exchange markets. The rise in the value of the mark was part of a normal adjustment that would eventually lead to the elimination of Germany's trade surplus through increases in the prices of German goods in terms of foreign currencies. As the mark rose, however, other member countries were obliged to intervene in the foreign exchange markets to maintain the required relationship of the exchange rates of their currencies relative to the mark. In effect, their currencies rose with the mark relative to the dollar. The resulting appreciation of their currencies relative to the dollar and other non-snake member currencies was undermining their ability to export and, in many instances, led to a worsening of their trade deficits and to domestic unemployment.

The threshold of divergence feature built into the new EMS is intended to prevent such developments. As the currency of one EMS member is pushed by internal or external economic developments out of line with the exchange rates of other member countries, the threshold-of-divergence safeguard is triggered. Once this happens, the other countries are no longer required to "follow the leader" as far as their exchange rate policies are concerned. Rather, it is entirely up to the government of the member country whose currency is out of line to bring the exchange rate back in line through unilateral corrective measures designed to eliminate the market pressures causing the deviation.

Here is how the trigger mechanism is intended to work. As explained above, the external value of the new common currency unit, the ECU, is defined as a weighted average of the external values of individual member currencies. Under this arrangement, as EMS currencies rise (or fall), jointly in value relative to the dollar, the external value of the ECU in terms of the dollar rises (or falls). This leaves the central rates of the EMS member currencies undisturbed in terms of the ECU, and no action is necessary.

If, however, the value of only one member's currency rises (or falls) the weighted average is influenced only marginally, depending on the weight of the currency that is moving. As a result, the external value of the ECU remains relatively stable, as the ECU basket is anchored by the stability

Par Values and the "Thresholds of Divergence" of the EMS currencies in terms of the European Currency Unit
(as of March 13, 1979)

	Lower "Threshold of Divergence"	**Par value**	Upper "Threshold of Divergence"
Bel.-Lux. franc	40.0619	**39.4582**	38.8545
German mark	2.53907	**2.51064**	2.48221
Dutch guilder	2.76179	**2.72077**	2.67975
Danish krone	7.20177	**7.08592**	6.97007
French franc	5.87659	**5.79831**	5.72003
Italian lira	1194.91	**1148.15**	1101.39
Irish pound	0.67367	**0.66264**	0.65160

of the other members' currencies. The exchange rate of the currency that is singularly rising (or falling) against the other exchange rates is now also deviating from its ECU central value.

When the rate deviates by 1.69 percent (4.5 percent for Italy) from its ECU value, the threshold of divergence is reached. The authorities must adopt domestic economic policies to stop further drift. Alternatively, they must officially revalue or devalue their currency.

Supporting Credit Facilities. In carrying out market intervention in support of their currencies, EMS members can use their foreign exchange reserves (primarily dollars) or they can avail themselves of special credit facilities. The special credit facilities have been available to EC countries participating in the predecessor to the EMS, the snake, but they were expanded to meet the needs of the EMS. These facilities include three types of credits structured by the maturity of the "loans."

The first tier consists of almost unlimited amounts of members' currencies that can be borrowed from other participants in the EMS to carry out market intervention. Such loans are available to members for up to 45 days following the end of the month they were made. The loans can be extended, within limits, up to three months.

The second tier consists of credits for three to six months, which can be extended to nine months. The amounts that can be borrowed are limited by the size of the pool of credit (about 14 billion ECUs) and by the member's quota, which is determined, in turn, by the relative size of the member's economy. This quota also determines the member's access to the medium-term financial assistance, which is for a term of two to five years. The third-tier pool of funds totals about 11 billion ECUs. However, borrowing under this facility will be conditional on the member's willingness to follow internal economic policies that will reduce the domestic problems that gave rise to the need to borrow.

The European Monetary Cooperation Fund (EMCF). This institution was set up to administer the various EMS credit arrangements. When a country borrows a currency for intervention, its debt is denominated in ECUs. The debtor country can repay the debt either in the currency it borrowed or in ECUs. A creditor country, however, does not have to accept more than half the repayment in the form of ECUs. The rest of the repayment can be made in the currency borrowed or acceptable international reserves, such as dollars or gold.

Countries that hold more ECUs than their quotas will be paid interest on their excess holdings. Countries that hold fewer ECUs than their quotas will be charged interest on their deficiencies. The interest rate will be equal to the weighted average of the discount rates of the EMS countries. To create an initial supply of ECUs, central banks deposited 20 percent of their gold and dollar reserves with the EMCF and received an equivalent amount of ECUs. Until establishment of the EMCF is formally approved by the legislative bodies of the individual countries participating in the EMS, the deposits will be in the form of revolving three-month swaps.

Functioning of the EMS

The EMS was launched in March 1979 amid hopes of greater monetary stability between the members. Only a few weeks later, however, problems began to surface in the form of upward pressure on the exchange rate of the German mark relative to the U.S. dollar. To counter the mark's rise, monetary authorities in Germany sold marks against dollars in the foreign exchange markets. Despite the intervention, the value of the mark kept rising. Other EMS members were required by the rules of the EMS to intervene in their foreign exchange markets to keep the exchange rates of their currencies in step with the mark.

The intervention by German monetary authorities on behalf of the mark relative to the dollar and the intervention of the other EMS members on behalf of their currencies

relative to the mark were adding to Germany's domestic money supply, threatening to fuel further the already rising inflation rate in Germany. To counter this threat, German authorities moved to tighten domestic credit conditions by raising the central bank discount rate. However, higher interest rates began attracting additional foreign funds to Germany from the Eurodollar market as well as from other EMS countries. This further aggravated the pressure on exchange rates both in Germany and in the other EMS countries. To alleviate these pressures, the other EMS countries were forced to boost their interest rates repeatedly even though their sluggish domestic economic conditions called for an easier monetary policy.

The scenario was reminiscent of the one that plagued the functioning of the snake—yet was unfolding under the new EMS that was presumably structured to be immune to it. It was precisely this scenario that the threshold of divergence mechanism of the EMS was supported to protect the system against. Where did the "fail-safe" system of the EMS fail?

In part, the failure was due to technical difficulties with the threshold of divergence mechanism. Since early summer, the British pound and the Italian lira were rising sharply in value relative to the U.S. dollar and other currencies. Although the United Kingdom does not participate in the exchange rate maintenance scheme of the EMS, and although Italy is only loosely associated, they are both full members of the EMS, and the external values of their currencies are used in computing the value of the ECU. Thus, the rise in the external value of their currencies caused the external value of the ECU to rise. This, in effect, moved the anchor point of the system upward, and the rising German mark remained technically within the stipulated threshold of divergence relative to the ECU, a threshold that once reached would have automatically forced Germany to take unilateral measures to bring the mark into line with the other EMS currencies. The upward drift in the ECU, resulting largely from developments outside the exchange rate adjustment process, neutralized the mechanism, leaving the burden of adjustment with weaker currencies.

For three months, between June and September, the participants in the EMS

History of the Snake

1972

April 24 The snake arrangement launched.
May 1 United Kingdom and Denmark join.
May 23 Norway joins.
June 23 United Kingdom withdraws.
June 27 Denmark withdraws.
Oct. 10 Denmark rejoins.

1973

Feb. 13 Italy withdraws.
March 19 Mark revalued 3 percent; general float begins, with snake no longer constrained by the tunnel.
April 3 European Monetary Cooperation Fund established to support snake.
June 29 Mark revalued 5.5 percent.
Sept. 17 Guilder revalued 5.5 percent.
Nov. 16 Norwegian krone revalued 5 percent.

1974

Jan. 19 France withdraws.

1975

July 10 France rejoins.

1976

March 15 France withdraws.
Oct. 18 Danish krone devalued 4 percent, Norwegian krone and Swedish krona devalued 1 percent, mark revalued 2 percent.

1977

Apr. 4 Swedish krona devalued 6 percent, Danish and Norwegian kroner devalued 3 percent.
Aug. 28 Sweden withdraws, and Norwegian and Danish kroner devalued by 5 percent.

1978

Feb. 10 Norwegian krone devalued 8 percent.
Oct. 16 German mark revalued 2 percent, Danish and Norwegian kroner devalued 2 percent.
Dec. 12 Norway withdraws.

wrestled with the problem of reconciling their domestic economic objectives with the conflicting dictates of the EMS. The impass was finally broken in early September, when the British pound weakened sharply in the foreign exchange markets. The declining external value of the pound led to a reduction in the external value of the ECU, since that value is a weighted average of the values of the EC currencies. With the external value of the ECU down by definition, the ECU value of the German mark rose. This finally triggered the threshold of divergence feature of the EMS, leading to a 2 percent revaluation of the German mark and a 3 percent devaluation of the Danish krone, the weakest member of the EMS.

While the exchange rate adjustments represented a departure from the hoped-for stability of exchange rates within the EC, they at least alleviated internal pressures within the EMS—not for long, however. In a few weeks, new pressures began to surface. Continued concern in Germany over incipient inflation led to further tightening of monetary policy in that country. Interest rates in Germany rose, and other EMS members were forced to nudge their interest rates up as protective measures.

The pressures of rising interest rates were felt most keenly in Denmark, whose currency continued close to the floor of the EMS despite the September devaluation. The official discount rate was increased 2 percent in late October, but the pressure continued. The central bank was forced to intervene heavily to keep the exchange rate within the prescribed limits. Finally, in late November, the krone was devalued by 5 percent and a package of economic measures was introduced, designed to bring Denmark's underlying domestic conditions more in line with its EC partners. At the same time, the Netherlands further boosted its discount rate as a protective measure against the pressures on its currency that were expected as a consequence of Denmark's action. It is still not clear how effective these measures will be in preventing further exchange rate adjustments within the EMS.

Conclusion

It is generally believed that stable exchange rates between currencies of the EC member countries will encourage their economic interaction, paving the way for a closer economic and political union. The snake and the subsequently more elaborate European Monetary System represent the mechanism through which countries of the European Community hope to achieve that goal. Exchange rates, however, are only the tip of the iceberg. Hidden underneath are myriads of intricate economic relationships that must be satisfied for a free market to produce a stable relationship between the exchange rates. Divergent trends in economic developments and divergent economic policies that reflect divergent social values are invariably reflected in divergent exchange rates. The forces of the free market will not bow to the will of kings and prime ministers—nor to the confines of man-made mechanisms!

The snake, the predecessor to the EMS, was plagued with problems because the member countries generally pursued independent policies that reflected their own economic priorities. While the EMS incorporates features that force countries to make adjustments intended to correct the divergences, it remains to be seen whether these innovations will be sufficient to achieve that goal.

Other problems may also arise. For example, to the extent that the countries with higher inflation rates adjust their economic policy to conform with those of low-inflation countries, the EMS would result in a slowing in economic growth in Europe. If the low-inflation countries make the adjustments, inflation will increase in Europe.

The success or failure of the EMS will ultimately depend on the willingness of European countries to sacrifice their own divergent economic objectives for the sake of stable exchange rates. Whether that can be achieved within the still rather heterogeneous European Community remains to be seen.