The monetary and economic disorders of the past fifteen years... are a reaction to a world monetary system that has no historical precedent. We have been sailing on uncharted waters and it has been taking time to learn the safest routes.

MILTON FRIEDMAN
Winner of Nobel Prize in Economics

Chapter Learning Objectives

- To distinguish between a free float, a managed float, a target-zone arrangement, and a fixed-rate system of exchange rate determination
- To describe how equilibrium in the foreign exchange market is achieved under alternative exchange rate systems, including a gold standard
- To identify the three categories of central bank intervention under a managed float
- To describe the purposes, operation, and consequences of the European Monetary System
- To describe the origins, purposes, and consequences of the European Monetary Union and the euro
- To identify the four alternatives to devaluation under a system of fixed exchange rates
- To explain the political realities that underlie government intervention in the foreign exchange market
- To describe the history and consequences of the gold standard
- To explain why the postwar international monetary system broke down
- To describe the origins of, and proposed mechanisms to deal with, the various emerging market currency crises that have occurred during the past decade

Key Terms

austerity
Bank for International Settlements (BIS)
“beggar-thy-neighbor”
devolution
Breton Woods Agreement
Breton Woods system
clean float
Common Market
conditionality
dirty float
euro
European Central Bank
European Currency Unit (ECU)
European Community (EC)
European Monetary System (EMS)
European Monetary Union (EMU)
European Union (EU)
exchange-rate mechanism
fiat money
Over the past five decades, increasing currency volatility has subjected the earnings and asset values of multinational corporations, banks, and cross-border investors to large and unpredictable fluctuations in value. These currency problems have been exacerbated by the breakdown of the postwar international monetary system established at the Bretton Woods Conference in 1944. The main features of the Bretton Woods system were the relatively fixed exchange rates of individual currencies in terms of the U.S. dollar and the convertibility of the dollar into gold for foreign official institutions. These fixed exchange rates were supposed to reduce the riskiness of international transactions, thus promoting growth in world trade.

However, in 1971 the Bretton Woods system fell victim to the international monetary turmoil it was designed to avoid. It was replaced by the present regime of rapidly fluctuating exchange rates, resulting in major problems and opportunities for multinational corporations. The purpose of this chapter is to help managers, both financial and nonfinancial, understand what the international monetary system is and how the choice of system affects currency values. It also provides a historical background of the international monetary system to enable managers to gain perspective when trying to interpret the likely consequences of new policy moves in the area of international finance. After all, although the types of government foreign-exchange policies may at times appear to be limitless, they are all variations on a common theme.

3.1 Alternative Exchange Rate Systems

The international monetary system refers primarily to the set of policies, institutions, practices, regulations, and mechanisms that determine the rate at which one currency is exchanged for another. This section considers five market mechanisms for establishing exchange rates: free float, managed float, target-zone arrangement, fixed-rate system, and the current hybrid system.

As we shall see, each of these mechanisms has costs and benefits associated with it. Nations prefer economic stability and often equate this objective with a stable exchange rate. However, fixing an exchange rate often leads to currency crises if the nation attempts to follow a monetary policy that is inconsistent with that fixed rate. At the same time, a nation may decide to fix its exchange rate in order to limit the scope of monetary policy, as in the case of currency boards described in Chapter 2. On the other hand, economic shocks can be absorbed more easily when exchange rates are
allowed to float freely, but freely floating exchange rates may exhibit excessive volatility, which hurts trade and stifles economic growth. The choice of a particular exchange rate mechanism depends on the relative importance that a given nation at a given point in time places on the trade-offs associated with these different systems.

**Free Float**

We already have seen that free-market exchange rates are determined by the interaction of currency supplies and demands. The supply-and-demand schedules in turn are influenced by price level changes, interest differentials, and economic growth. In a free float, as these economic parameters change—for example, because of new government policies or acts of nature—market participants will adjust their current and expected future currency needs. In the two-country example of Germany and the United States, the shifts in the euro supply-and-demand schedules will in turn lead to new equilibrium positions. Over time, the exchange rate will fluctuate randomly as market participants assess and react to new information, much as security and commodity prices in other financial markets respond to news. These shifts and oscillations are illustrated in Exhibits 3.1 and 3.2a for the dollar/euro exchange rate; $D_t$ and $S_t$ are the hypothetical euro demand and supply curves, respectively, for period $t$. Exhibit 3.2b shows how the dollar/euro exchange rate actually changed during a seven-day period in August 2001. Such a system of freely floating exchange rates is usually referred to as a *clean float*.

**Managed Float**

Not surprisingly, few countries have been able to long resist the temptation to intervene actively in the foreign exchange market in order to reduce the economic uncertainty associated with a clean float. The fear is that too abrupt a change in the value of a nation’s currency could imperil its export industries (if the currency appreciates) or lead to a higher rate of inflation (if the currency depreciates). Moreover, the experience with
Exhibit 3.2A  Fluctuating Exchange Rates

Dollar price of one euro

$0.9110

$0.9120

$0.9130

$0.9140

$0.9150

$0.9160

$0.9170

$0.9180

$0.9190

$0.9200

Time

2001/08/16

2001/08/17

2001/08/20

2001/08/21

2001/08/22

2001/08/23

2001/08/24

Exhibit 3.2B  Actual Changes in the Dollar/Euro Exchange Rate: August 16–24, 2001
3.1 · Alternative Exchange Rate Systems

Floating rates has not been encouraging. Instead of reducing economic volatility, as they were supposed to do, floating exchange rates appear to have increased it. Exchange rate uncertainty also reduces economic efficiency by acting as a tax on trade and foreign investment. Therefore, most countries with floating currencies have attempted, through central bank intervention, to smooth out exchange rate fluctuations. Such a system of managed exchange rates, called a **managed float**, is also known as a **dirty float**.

Managed floats fall into three distinct categories of central bank intervention. The approaches, which vary in their reliance on market forces, are as follows:

1. **Smoothing out daily fluctuations.** Governments following this route attempt only to preserve an orderly pattern of exchange rate changes. Rather than resisting fundamental market forces, these governments occasionally enter the market on the buy or sell side to ease the transition from one rate to another; the smoother transition tends to bring about longer-term currency appreciation or depreciation. One variant of this approach is the “crawling peg” system used at various times by some countries, such as Poland, Russia, Brazil, and Costa Rica. Under a crawling peg, the local currency depreciates against a reference currency or currency basket on a regular, controlled basis. For example, during the 1990s, the Polish zloty depreciated by 1% a month against a basket of currencies. Currently, the Costa Rican colon depreciates by about 0.7% per month against the dollar.

2. **“Leaning against the wind.”** This approach is an intermediate policy designed to moderate or prevent abrupt short- and medium-term fluctuations brought about by random events whose effects are expected to be only temporary. The rationale for this policy—which is primarily aimed at delaying, rather than resisting, fundamental exchange rate adjustments—is that government intervention can reduce for exporters and importers the uncertainty caused by disruptive exchange rate changes. It is questionable, however, whether governments are more capable than private forecasters of distinguishing between fundamental and temporary (irrational) values.

3. **Unofficial pegging.** This strategy evokes memories of a fixed-rate system. It involves resisting, for reasons clearly unrelated to exchange market forces, any fundamental upward or downward exchange rate movements. Thus, Japan historically has resisted revaluation of the yen for fear of its consequences for Japanese exports. With unofficial pegging, however, there is no publicly announced government commitment to a given exchange rate level.

**Target-Zone Arrangement**

Many economists and policymakers have argued that the industrialized countries could minimize exchange rate volatility and enhance economic stability if the United States, Germany, and Japan linked their currencies in a target-zone system. Under a **target-zone arrangement**, 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 existed for the major European currencies participating in the European Monetary System and was the precursor to the euro, which is discussed later in this chapter.
Fixed-Rate System

Under a fixed-rate system, such as the Bretton Woods system, governments are committed to maintaining target exchange rates. Each central bank actively buys or sells its currency in the foreign exchange market whenever its exchange rate threatens to deviate from its stated par value by more than an agreed-on percentage. The resulting coordination of monetary policy ensures that all member nations have the same inflation rate. Put another way, for a fixed-rate system to work, each member must accept the group's joint inflation rate as its own. A corollary is that monetary policy must become subordinate to exchange rate policy. In the extreme case, those who fix their exchange rate via a currency board system surrender all control of monetary policy. The money supply is determined solely by people's willingness to hold the domestic currency.

With or without a currency board system, there is always a rate of monetary growth (it could be negative) that will maintain an exchange rate at its target level. If it involves monetary tightening, however, maintaining the fixed exchange rate could mean a high interest rate and a resultant slowdown in economic growth and job creation.

Under the Bretton Woods system, whenever the commitment to the official rate became untenable, it was abruptly changed and a new rate was announced publicly. Currency devaluation or revaluation, however, was usually the last in a string of temporizing alternatives for solving a persistent balance-of-payments deficit or surplus. These alternatives, which are related only in their lack of success, included foreign borrowing to finance the balance-of-payments deficit, wage and price controls, import restrictions, and exchange controls. The last have become a way of life in many developing countries. Nations with overvalued currencies often ration foreign exchange, whereas countries facing revaluation (an infrequent situation) may restrict capital inflows.

In effect, government controls supersede the allocative function of the foreign exchange market. The most drastic situation occurs when all foreign exchange earnings must be surrendered to the central bank, which, in turn, apportions these funds to users on the basis of government priorities. The buying and selling rates need not be equal, nor need they be uniform across all transaction categories. Exhibit 3.3 lists the most frequently used currency control measures. These controls are a major source of market imperfection, providing opportunities as well as risks for multinational corporations.

Austerity brought about by a combination of reduced government expenditures and increased taxes can be a permanent substitute for devaluation. By reducing the nation's budget deficit, austerity will lessen the need to monetize the deficit. Lowering the rate of money supply growth in turn will bring about a lower rate of domestic inflation (disinflation). Disinflation will strengthen the currency's value, ending the threat of devaluation. However, disinflation often leads to a short-run increase in unemployment, a cost of austerity that politicians today generally consider to be unacceptable.

The Current System of Exchange Rate Determination

The current international monetary system is a hybrid, with major currencies floating on a managed basis, some currencies freely floating, and other currencies moving in and out of various types of pegged exchange rate relationships. Exhibit 3.4 presents a currency map that describes the various zones and blocs linking the world's currencies as of December 31, 2004.
3.2 A Brief History of the International Monetary System

Almost from the dawn of history, gold has been used as a medium of exchange because of its desirable properties. It is durable, storable, portable, easily recognized, divisible, and easily standardized. Another valuable attribute of gold is that short-run changes in its stock are limited by high production costs, making it costly for governments to manipulate. Most important, because gold is a commodity money, it ensures a long-run tendency toward price stability. The reason is that the purchasing power of an ounce of gold, or what it will buy in terms of all other goods and services, will tend toward equality with its long-run cost of production.

For these reasons, most major currencies, until fairly recently, were on a gold standard, which defined their relative values or exchange rates. The gold standard essentially involved a commitment by the participating countries to fix the prices of their domestic currencies in terms of a specified amount of gold. The countries maintained these prices by being willing to buy or sell gold to anyone at that price. For example, from 1821 to 1914, Great Britain maintained a fixed price of gold at £4.2474 per ounce. The United States, during the 1834–1933 period, maintained the price of gold at $20.67 per ounce (with the exception of the Greenback period from 1861–1878). Thus, over the period 1834–1914 (with the exception of 1861–1878), the dollar:pound exchange rate, referred to as the par exchange rate, was perfectly determined at

\[
\frac{\$20.67/\text{ounce of gold}}{\£4.2474/\text{ounce of gold}} = \£4.8665/\£1
\]

The value of gold relative to other goods and services does not change much over long periods of time, so the monetary discipline imposed by a gold standard should ensure long-run price stability for both individual countries and groups of countries. Indeed, there was remarkable long-run price stability in the period before

Exhibit 3.3 Typical Currency Control Measures

- Restriction or prohibition of certain remittance categories such as dividends or royalties
- Ceilings on direct foreign investment outflows (e.g., the elaborate U.S. Office of Foreign Direct Investment controls in effect 1968–1975)
- Controls on overseas portfolio investments
- Import restrictions
- Required surrender of hard-currency export receipts to central bank
- Limitations on prepayments for imports
- Requirements to deposit in interest-free accounts with central bank, for a specified time, some percentage of the value of imports and/or remittances
- Foreign borrowings restricted to a minimum or maximum maturity
- Ceilings on granting of credit to foreign firms
- Imposition of taxes and limitations on foreign-owned bank deposits
- Multiple exchange rates for buying and selling foreign currencies, depending on category of goods or services each transaction falls into
### Exhibit 3.4: Exchange Rate Arrangements (as of December 31, 2004)

<table>
<thead>
<tr>
<th>Exchange arrangements with no separate legal tender (40)</th>
<th>Another Currency as Legal Tender</th>
<th>CFA Franc Zone¹</th>
<th>Euro Zone</th>
<th>ECCU²</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Timor (U.S. dollar)</td>
<td>Benin</td>
<td></td>
<td>Austria</td>
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<tr>
<td>Ecuador (U.S. dollar)</td>
<td>Burkina Faso</td>
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<td>Belgium</td>
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<tr>
<td>El Salvador (U.S. dollar)</td>
<td>Cameroon</td>
<td></td>
<td>Finland</td>
<td></td>
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<tr>
<td>Kiribati (Australian dollar)</td>
<td>Central African Republic</td>
<td></td>
<td>France</td>
<td></td>
</tr>
<tr>
<td>Marshall Islands (U.S. dollar)</td>
<td>Chad</td>
<td></td>
<td>Germany</td>
<td></td>
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<tr>
<td>Micronesia (U.S. dollar)</td>
<td>Congo</td>
<td></td>
<td>Greece</td>
<td></td>
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<tr>
<td>Palau (U.S. dollar)</td>
<td>Cote d’Ivoire</td>
<td></td>
<td>Ireland</td>
<td></td>
</tr>
<tr>
<td>Panama (U.S. dollar)</td>
<td>Equatorial Guinea</td>
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<td>Italy</td>
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<tr>
<td>San Marino (euro)</td>
<td>Gabon</td>
<td></td>
<td>Luxembourg</td>
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<td></td>
<td>Mali</td>
<td></td>
<td>Netherlands</td>
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<td></td>
<td>Niger</td>
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<td>Portugal</td>
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<td></td>
<td>Senegal</td>
<td></td>
<td>Spain</td>
<td></td>
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<td></td>
<td>Togo</td>
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<thead>
<tr>
<th>Currency board arrangement (7)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Bosnia and Herzegovina (euro)</td>
<td>Djibouti (U.S. dollar)</td>
<td>Hong Kong (U.S. dollar)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brunei Darussalam (Singapore dollar)</td>
<td>Estonia (euro)</td>
<td>Lithuania (euro)</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Against a Single Currency</th>
<th>Against a Composite</th>
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</thead>
<tbody>
<tr>
<td><strong>Other conventional fixed peg arrangements</strong></td>
<td></td>
</tr>
<tr>
<td>Aruba</td>
<td>Malaysia</td>
</tr>
<tr>
<td>Bahamas</td>
<td>Maldives</td>
</tr>
<tr>
<td>Bahrain</td>
<td>Namibia</td>
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<tr>
<td>Barbados</td>
<td>Nepal</td>
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<tr>
<td>Belize</td>
<td>Netherlands Antilles</td>
</tr>
<tr>
<td>Bhutan</td>
<td>Oman</td>
</tr>
<tr>
<td>Cape Verde</td>
<td>Qatar</td>
</tr>
<tr>
<td>China, P. R.</td>
<td>Saudi Arabia</td>
</tr>
<tr>
<td>Comoros</td>
<td>Seychelles</td>
</tr>
<tr>
<td>Eritrea</td>
<td>Swaziland</td>
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<tr>
<td>Guinea</td>
<td>Syria</td>
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<tr>
<td>Iraq</td>
<td>Turkmenistan</td>
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<tr>
<td>Jordan</td>
<td>Ukraine</td>
</tr>
<tr>
<td>Kuwait</td>
<td>United Arab Emirates</td>
</tr>
<tr>
<td>Lebanon</td>
<td>Venezuela</td>
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<tr>
<td>Lesotho</td>
<td>Zimbabwe</td>
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<tr>
<td>Macedonia</td>
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<thead>
<tr>
<th>Within a Cooperative Arrangement</th>
<th>Other Band Arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pegged exchange rates within horizontal bands (5)</strong></td>
<td></td>
</tr>
<tr>
<td>Aruba</td>
<td>Denmark</td>
</tr>
<tr>
<td>Bahamas</td>
<td>Slovenia</td>
</tr>
<tr>
<td>Bahrain</td>
<td></td>
</tr>
<tr>
<td>Barbados</td>
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<td>Belize</td>
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<td>Bhutan</td>
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<tr>
<td>Cape Verde</td>
<td></td>
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<tr>
<td>China, P. R.</td>
<td></td>
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<tr>
<td>Comoros</td>
<td></td>
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<tr>
<td>Eritrea</td>
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<td>Guinea</td>
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<td>Kuwait</td>
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<tr>
<td>Lebanon</td>
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<tr>
<td>Lesotho</td>
<td></td>
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<tr>
<td>Macedonia</td>
<td></td>
</tr>
</tbody>
</table>

| **Crawling pegs (6)**                                       |                                 |
| Aruba                                                       |                                |                  |
| Bahamas                                                     |                                |                  |
| Bahrain                                                     |                                |                  |
| Barbados                                                    |                                |                  |
| Belize                                                      |                                |                  |
| Bhutan                                                      |                                |                  |
| Cape Verde                                                  |                                |                  |
| China, P. R.                                                |                                |                  |
| Comoros                                                     |                                |                  |
| Eritrea                                                     |                                |                  |
| Guinea                                                      |                                |                  |
| Iraq                                                        |                                |                  |
| Jordan                                                      |                                |                  |
| Kuwait                                                      |                                |                  |
| Lebanon                                                     |                                |                  |
| Lesotho                                                     |                                |                  |
| Macedonia                                                   |                                |                  |

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¹ CFA Zone: The CFA (Community Currency Area) is a currency union of 14 African countries including France and five smaller islands. The currency is the CFA franc (XOF).

² ECCU: European Community Currency Unit, a currency unit used by some member countries of the European Union before the introduction of the euro.
### Exchange Rate Arrangements as of December 31, 2004 (Continued)

<table>
<thead>
<tr>
<th>Exchange rates within crawling bands (1)</th>
<th>Belarus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managed floating with no preannounced path for exchange rate (51)</td>
<td>Afghanistan Georgia Mauritania Sao Tome and Principe Algeria Ghana Mauritius Serbia and Montenegro Angola Guatemala Moldova Singapore Argentina Guyana Mongolia Slovak Rep. Bangladesh India Myanmar Suriname Burundi Indonesia Nigeria Tajikistan Cambodia Iran Pakistan Thailand Croatia Jamaica Paraguay Uzbekistan Czech Republic Kazakhstan Peru Vietnam Egypt Kenya Romania Zambia Ethiopia Kyrgyzstan Russia Zimbabwe Gambia Laos Rwanda</td>
</tr>
<tr>
<td>Independently floating (35)</td>
<td>Albania Iceland Norway Switzerland Armenia Israel Papua New Guinea Tanzania Australia Japan Philippines Turkey Brazil Korea Poland Uganda Canada Liberia Sierra Leone United Kingdom Chile Madagascar Somalia United States Colombia Malawi South Africa Uruguay Congo Mexico Sri Lanka Yemen Dominican Republic New Zealand Sweden</td>
</tr>
</tbody>
</table>

**Exchange Rate Arrangements with No Separate Legal Tender**: The currency of another country circulates as the sole legal tender or the member belongs to a monetary or currency union in which the same legal tender is shared by the members of the union.

**Currency Board Arrangements**: A monetary regime based on an implicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate.

**Other Conventional Fixed Peg Arrangements**: The country pegs its currency at a fixed rate to a major currency or a basket of currencies where the exchange rate fluctuates within a narrow margin of at most ±1% around a central rate.

**Pegged Exchange Rates Within Horizontal Bands**: The value of the currency is maintained within margins of fluctuations around a fixed peg that are wider than ±1% around a central rate.

**Crawling Peg**: The currency is adjusted periodically in small amounts at a fixed preannounced rate or in response to changes in selective quantitative indicators.

**Exchange Rates Within Crawling Bands**: The currency is maintained within certain fluctuation margins around a central rate that is adjusted periodically at a fixed preannounced rate or in response to changes in selective quantitative indicators.

**Managed Floating with No Preannounced Path for the Exchange Rate**: The monetary authority influences the movements of the exchange rate through active intervention in the foreign exchange market without specifying or precommitting to a preannounced path for the exchange rate.

**Independent Floating**: The exchange rate is market determined, with any foreign exchange intervention aimed at moderating the rate of change and preventing undue fluctuations in the exchange rate, rather than establishing a level for it.

---

1. All countries use the CFA franc, with 665.957 CFA francs = 1 euro. Prior to the euro, 100 CFA francs = 1 French franc.
2. The ECCM (Eastern Caribbean Currency Union) countries use the East Caribbean dollar (ECS), which is fixed to the U.S. dollar at the rate of EC$2.70 = U.S. $1.00.

World War I, during which most countries were on a gold standard. As Exhibit 3.5 shows, price levels at the start of World War I were roughly the same as they had been in the late 1700s before the Napoleonic Wars began.

This record is all the more remarkable when contrasted with the post–World War II inflationary experience of the industrialized nations of Europe and North America. As shown in Exhibit 3.6, 1995 price levels in all these nations were several times as high as they were in 1950. Even in Germany, the value of the currency in 1995 was only one-quarter of its 1950 level, whereas the comparable magnitude was less than one-tenth for France, Italy, and the United Kingdom. Although there were no episodes of extremely rapid inflation, price levels rose steadily and substantially.

The Classical Gold Standard

A gold standard is often considered an anachronism in our modern, high-tech world because of its needless expense; on the most basic level, it means digging up gold in one corner of the globe for burial in another corner. Nonetheless, until recently, discontent with the current monetary system, which produced more than two decades of worldwide inflation and widely fluctuating exchange rates, prompted interest in a return to some form of a gold standard. (This interest has abated somewhat with the current low inflation environment.)

<table>
<thead>
<tr>
<th>Nation</th>
<th>CPI, 1950</th>
<th>CPI, 1995</th>
<th>Loss of Purchasing Power during Period (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>100</td>
<td>578</td>
<td>82.7%</td>
</tr>
<tr>
<td>France</td>
<td>100</td>
<td>1,294</td>
<td>92.3%</td>
</tr>
<tr>
<td>Germany</td>
<td>100</td>
<td>388</td>
<td>74.2%</td>
</tr>
<tr>
<td>Italy</td>
<td>100</td>
<td>2,163</td>
<td>95.4%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>100</td>
<td>603</td>
<td>83.4%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>100</td>
<td>1,617</td>
<td>93.8%</td>
</tr>
<tr>
<td>United States</td>
<td>100</td>
<td>622</td>
<td>83.9%</td>
</tr>
</tbody>
</table>
To put it bluntly, calls for a new gold standard reflect a fundamental distrust of government’s willingness to maintain the integrity of fiat money. Fiat money is nonconvertible paper money backed only by faith that the monetary authorities will not cheat (by issuing more money). This faith has been tempered by hard experience; the 100% profit margin on issuing new fiat money has proved to be an irresistible temptation for most governments.

By contrast, the net profit margin on issuing more money under a gold standard is zero. The government must acquire more gold before it can issue more money, and the government’s cost of acquiring the extra gold equals the value of the money it issues. Thus, expansion of the money supply is constrained by the available supply of gold. This fact is crucial in understanding how a gold standard works.

Under the classical gold standard, disturbances in the price level in one country would be wholly or partly offset by an automatic balance-of-payments adjustment mechanism called the price-specie-flow mechanism. (Specie refers to gold coins.) To see how this adjustment mechanism worked to equalize prices among countries and automatically bring international payments back in balance, consider the example that is illustrated in Exhibit 3.7.

Suppose a technological advance increases productivity in the non-gold-producing sector of the U.S. economy. This productivity will lower the price of other goods and services relative to the price of gold, and the U.S. price level will decline. The fall in
U.S. prices will result in lower prices of U.S. exports; export prices will decline relative to import prices (determined largely by supply and demand in the rest of the world). Consequently, foreigners will demand more U.S. exports, and Americans will buy fewer imports.

Starting from a position of equilibrium in its international payments, the United States will now run a balance-of-payments surplus. The difference will be made up by a flow of gold into the United States. The gold inflow will increase the U.S. money supply (under a gold standard, more gold means more money in circulation), reversing the initial decline in prices. At the same time, the other countries will experience gold outflows, reducing their money supplies (less gold, less money in circulation) and, thus, their price levels. In final equilibrium, price levels in all countries will be slightly lower than they were before because of the increase in the worldwide supply of other goods and services relative to the supply of gold. Exchange rates will remain fixed.

Thus, the operation of the price-specie-flow mechanism tended to keep prices in line for those countries that were on the gold standard. As long as the world was on a gold standard, all adjustments were automatic, and although many undesirable things might have happened under a gold standard, lasting inflation was not one of them.

Gold does have a cost, however—the opportunity cost associated with mining and storing it. By the late 1990s, with inflation on the wane worldwide, the value of gold as an inflation hedge had declined. Central banks also began selling their gold reserves and replacing them with U.S. Treasury bonds, which, unlike gold, pay interest. The reduced demand for gold has lowered its price and its usefulness as a monetary asset.

**How the Classical Gold Standard Worked in Practice: 1821–1914**

In 1821, after the Napoleonic Wars and their associated inflation, England returned to the gold standard. From 1821 to 1880, more and more countries joined the gold standard. By 1880, most nations of the world were on some form of gold standard. The period from 1880 to 1914, during which the classical gold standard prevailed in its most pristine form, was a remarkable period in world economic history. The period was characterized by a rapid expansion of virtually free international trade, stable exchange rates and prices, a free flow of labor and capital across political borders, rapid economic growth, and, in general, world peace. Advocates of the gold standard harken back to this period as illustrating the standard’s value.

Opponents of a rigid gold standard, in contrast, point to some less-than-idyllic economic conditions during this period: a major depression during the 1890s, a severe economic contraction in 1907, and repeated recessions. Whether these sharp ups and downs could have been prevented under a fiat money standard cannot be known.

**The Gold Exchange Standard and Its Aftermath: 1925–1944**

The gold standard broke down during World War I and was briefly reinstated from 1925 to 1931 as the Gold Exchange Standard. Under this standard, the United States and England could hold only gold reserves, but other nations could hold both gold and dollars or pounds as reserves. In 1931, England departed from gold in the face of massive gold and capital flows, owing to an unrealistic exchange rate, and the Gold Exchange Standard was finished.
Competitive Devaluations. After the devaluation of sterling, 25 other nations devalued their currencies to maintain trade competitiveness. These “beggar-thy-neighbor” devaluations, in which nations cheapened their currencies to increase their exports at others’ expense and to reduce imports, led to a trade war. Many economists and policy makers believed that the protectionist exchange rate and trade policies fueled the global depression of the 1930s.

Bretton Woods Conference and the Postwar Monetary System. To avoid such destructive economic policies in the future, the Allied nations agreed to a new post-war monetary system at a conference held in Bretton Woods, New Hampshire, in 1944. The conference also created two new institutions—the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (World Bank)—to implement the new system and to promote international financial stability. The IMF was created to promote monetary stability, whereas the World Bank was set up to lend money to countries so they could rebuild their infrastructure that had been destroyed during the war.

Role of the IMF. Both agencies have seen their roles evolve over time. The IMF now oversees exchange rate policies in member countries (currently totaling 182 nations) and advises developing countries about how to turn their economies around. In the process, it has become the lender of last resort to countries that get into serious financial trouble. It is currently exploring new ways to monitor financial health of member nations so as to prevent another Mexico-like surprise. Despite these efforts, the IMF was blindsided by the Asian crisis and wound up leading a $118 billion attempt to shore up Asian financial systems. It was also blindsided by the Russian crisis a year later. Critics argue that by bailing out careless lenders and imprudent nations, IMF rescues make it too easy for governments to persist with bad policies and for investors to ignore the risks these policies create. In the long run, by removing from governments and investors the prospect of failure—which underlies the market discipline that encourages sound policies—these rescues magnify the problem of moral hazard and so make imprudent policies more likely to recur.

Moral hazard refers here to the perverse incentives created for international lenders and borrowers by IMF bailouts. Anticipating further IMF bailouts, investors underestimate the risks of lending to governments that persist in irresponsible policies.

In theory, the IMF makes short-term loans conditional on the borrower’s implementation of policy changes that will allow it to achieve self-sustaining economic growth. This is the doctrine of conditionality. However, a review of the evidence suggests that the IMF creates long-term dependency. For example, 41 countries have been receiving IMF credit for 10 to 20 years, 32 countries have been borrowing from the IMF for between 20 and 30 years, and 11 nations have been relying on IMF loans for more than 30 years. This evidence explains why IMF conditionality has little credibility.

\[1\] As economist Allan H. Meltzer puts it, “Capitalism without failure is like religion without sin. It doesn’t work. Bankruptcies and losses concentrate the mind on prudent behavior.”
Role of the World Bank. The World Bank is looking to expand its lending to developing countries and to provide more loan guarantees for businesses entering new developing markets. But here too there is controversy. Specifically, critics claim that World Bank financing allows projects and policies to avoid being subject to the scrutiny of financial markets and permits governments to delay enacting the changes necessary to make their countries more attractive to private investors. Moreover, critics argue that the World Bank should take the money it is now lending to countries like China with investment-grade ratings and to poor countries that achieve little from the loans and reallocate these freed-up funds to poor countries that make credible efforts to raise their living standards. In this way, the World Bank would accomplish far more poverty reduction with its resources.

Role of the Bank for International Settlements. Another key institution is the Bank for International Settlements (BIS), which acts as the central bank for the industrial countries’ central banks. The BIS helps central banks manage and invest their foreign exchange reserves, and, in cooperation with the IMF and the World Bank, helps the central banks of developing countries, mostly in Latin America and Eastern Europe. The BIS also holds deposits of central banks so that reserves are readily available.

Illustration

Competitive Devaluations in 2003

Unfortunately, despite Bretton Woods, competitive devaluations have not disappeared. According to the Wall Street Journal (June 6, 2003, p. B12), “A war of competitive currency devaluations is rattling the $1.2 trillion-a-day global foreign exchange market... The aim of the devaluing governments: to steal growth and markets from others, while simultaneously exporting their problems, which in this case is the threat of deflation.”

Currency analysts argue that the environment in 2003—of slow growth and the threat of deflation—has encouraged countries such as Japan, China, and the United States to pursue a weak currency policy. For example, analysts believe that the Bush administration is looking for a falling dollar to boost U.S. exports, lift economic growth, battle deflationary pressure, push the Europeans to cut interest rates, and force Japan to overhaul its stagnant economy.

The weapons in this war include policy shifts, foreign exchange market intervention, and interest rates. For example, the foreign exchange market widely views the Bush administration as having abandoned the long-standing strong-dollar policy and welcoming a weaker dollar. Japan has tried to keep its currency from rising against the dollar by selling a record ¥3.98 billion ($33.4 billion) in May 2003 alone. A strong yen hurts Japanese exports and growth and aggravates deflationary tendencies. On the other hand, if Japan succeeds in pushing down the yen sufficiently, South Korea and Taiwan could try to devalue their currencies to remain competitive.

China, meanwhile, has stuck with an undervalued yuan to bolster its economy. Another currency analyst attributed Canada’s growth over the past decade to an undervalued Canadian dollar: “They’ve been the beggar-thy-neighbor success story.”2 On June 5, 2003, the

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European Central Bank entered the competitive devaluation fray by cutting the euro interest rate by a half percentage point. Over the past year, the euro had appreciated by 27% against the dollar, making European business less profitable and less competitive and hurting European growth.

The ultimate fear: an ongoing round of competitive devaluations that degenerates into the same kind of pre-Bretton Woods protectionist free-for-all that brought on the Great Depression.

The Bretton Woods System: 1946–1971

Under the Bretton Woods Agreement, implemented in 1946, each government pledged to maintain a fixed, or pegged, exchange rate for its currency vis-à-vis the dollar or gold. As one ounce of gold was set equal to $35, fixing a currency’s gold price was equivalent to setting its exchange rate relative to the dollar. For example, the Deutsche mark (DM) was set equal to 1/140 of an ounce of gold, meaning it was worth $0.25 ($35/140). The exchange rate was allowed to fluctuate only within 1% of its stated par value (usually less in practice).

The fixed exchange rates were maintained by official intervention in the foreign exchange markets. The intervention took the form of purchases and sales of dollars by foreign central banks against their own currencies whenever the supply-and-demand conditions in the market caused rates to deviate from the agreed-on par values. The IMF stood ready to provide the necessary foreign exchange to member nations defending their currencies against pressure resulting from temporary factors. Any dollars acquired by the monetary authorities in the process of such intervention could then be exchanged for gold at the U.S. Treasury, at a fixed price of $35 per ounce.

These technical aspects of the system had important practical implications for all trading nations participating in it. In principle, the stability of exchange rates removed a great deal of uncertainty from international trade and investment transactions, thus promoting their growth for the benefit of all the participants. Also, in theory, the functioning of the system imposed a degree of discipline on the participating nations’ economic policies.

For example, a country that followed policies leading to a higher rate of inflation than that experienced by its trading partners would experience a balance-of-payments deficit as its goods became more expensive, reducing its exports and increasing its imports. The necessary consequences of the deficit would be an increase in the supply of the deficit country’s currency on the foreign exchange markets. The excess supply would depress the exchange value of that country’s currency, forcing its authorities to intervene. The country would be obligated to “buy” with its reserves the excess supply of its own currency, effectively reducing the domestic money supply. Moreover, as the country’s reserves were gradually depleted through intervention, the authorities would be forced, sooner or later, to change economic policies to eliminate the source of the reserve-draining deficit. The reduction in the money supply and the adoption of

3The IMF supplemented its foreign exchange reserves by creating a new reserve asset, the Special Drawing Right (SDR). The SDR serves as the IMF’s unit of account. It is a currency basket whose value is the weighted average of the currencies of five nations (United States, Germany, France, Japan, and Great Britain; the euro is the currency used for France and Germany). The weights, which are based on the relative importance of each country in international trade, are updated periodically.
restrictive policies would reduce the country’s inflation, thus bringing it in line with the rest of the world.

In practice, however, governments perceived large political costs accompanying any exchange rate changes. Most governments also were unwilling to coordinate their monetary policies, even though this coordination was necessary to maintain existing currency values.

The reluctance of governments to change currency values or to make the necessary economic adjustments to ratify the current values of their currencies led to periodic foreign exchange crises. Dramatic battles between the central banks and the foreign exchange markets ensued. Those battles invariably were won by the markets. However, because devaluation or revaluation was used only as a last resort, exchange rate changes were infrequent and large.

In fact, Bretton Woods was a fixed exchange-rate system in name only. Of 21 major industrial countries, only the United States and Japan had no change in par value during the period 1946–1971. Of the 21 countries, 12 devalued their currencies more than 30% against the dollar, four had revaluations, and four were floating their currencies by mid-1971 when the system collapsed. The deathblow for the system came on August 15, 1971, when President Richard Nixon, convinced that the “run” on the dollar was reaching alarming proportions, abruptly ordered U.S. authorities to terminate convertibility even for central banks. At the same time, he devalued the dollar to deal with America’s emerging trade deficit.

The fixed exchange-rate system collapsed along with the dissolution of the gold standard. There are two related reasons for the collapse of the Bretton Woods system. First, inflation reared its ugly head in the United States. In the mid-1960s, the Johnson administration financed the escalating war in Vietnam and its equally expensive Great Society programs by, in effect, printing money instead of raising taxes. This lack of monetary discipline made it difficult for the United States to maintain the price of gold at $35 an ounce.

Second, the fixed exchange-rate system collapsed because some countries—primarily West Germany, Japan, and Switzerland—refused to accept the inflation that a fixed exchange rate with the dollar would have imposed on them. Thus, the dollar depreciated sharply relative to the currencies of those three countries.

The Post–Bretton Woods System: 1971 to the Present

In December 1971, under the Smithsonian Agreement, the dollar was devalued to 1/38 of an ounce of gold, and other currencies were revalued by agreed-on amounts vis-à-vis the dollar. After months of such last-ditch efforts to set new fixed rates, the world officially turned to floating exchange rates in 1973.

OPEC and the Oil Crisis of 1973–1974. October 1973 marked the beginning of successful efforts by the Organization of Petroleum Exporting Countries (OPEC) to raise the price of oil. By 1974, oil prices had quadrupled. Nations responded in various ways to the vast shift of resources to the oil-exporting countries. Some nations, such as the United States, tried to offset the effect of higher energy bills by boosting spending, pursuing expansionary monetary policies, and controlling the price of oil.
The result was high inflation, economic dislocation, and a misallocation of resources without bringing about the real economic growth that was desired. Other nations, such as Japan, allowed the price of oil to rise to its market level and followed more prudent monetary policies.

The first group of nations experienced balance-of-payments deficits because their governments kept intervening in the foreign exchange market to maintain overvalued currencies; the second group of nations, along with the OPEC nations, wound up with balance-of-payments surpluses. These surpluses were recycled to debtor nations, setting the stage for the international debt crisis of the 1980s.

U.S. Dollar Crisis of 1977–1978. During 1977–1978, the value of the dollar plummeted, and U.S. balance-of-payments difficulties were exacerbated as the Carter Administration pursued an expansionary monetary policy that was significantly out of line with other strong currencies. The turnaround in the dollar’s fortunes can be dated to October 6, 1979, when the Fed (under its new chairman, Paul Volcker) announced a major change in its conduct of monetary policy. From here on, in order to curb inflation, it would focus its efforts on stabilizing the money supply, even if that meant more volatile interest rates. Before this date, the Fed had attempted to stabilize interest rates, indirectly causing the money supply to be highly variable.

The Rising Dollar: 1980–1985. This shift had its desired effect on both the inflation rate and the value of the U.S. dollar. During President Ronald Reagan’s first term in office (1981–1984), inflation plummeted and the dollar rebounded extraordinarily. This rebound has been attributed to vigorous economic expansion in the United States and to high real interest rates (owing largely to strong U.S. economic growth) that combined to attract capital from around the world.

The Sinking Dollar: 1985–1987. The dollar peaked in March 1985 and then began a long downhill slide. The slide is largely attributable to changes in government policy and the slowdown in U.S. economic growth relative to growth in the rest of the world.

By September 1985, the dollar had fallen about 15% from its March high, but this decline was considered inadequate to dent the growing U.S. trade deficit. In late September of 1985, representatives of the Group of Five, or G-5 nations (the United States, France, Japan, Great Britain, and West Germany), met at the Plaza Hotel in New York City. The outcome was the Plaza Agreement, a coordinated program designed to force down the dollar against other major currencies and thereby improve American competitiveness.

The policy to bring down the value of the dollar worked too well. The dollar slid so fast during 1986 that the central banks of Japan, West Germany, and Britain reversed their policies and began buying dollars to stem the dollar’s decline. Believing that the dollar had declined enough and in fact showed signs of “overshooting” its equilibrium level, the United States, Japan, West Germany, France, Britain, Canada, and Italy—also known as the Group of Seven, or G-7 nations—met again in February 1987 and agreed to an ambitious plan to slow the dollar’s fall. The Louvre Accord, named for the Paris landmark where it was negotiated,
called for the G-7 nations to support the falling dollar by pegging exchange rates within a narrow, undisclosed range, while they also moved to bring their economic policies into line.

As always, however, it proved much easier to talk about coordinating policy than to change it. The hoped-for economic cooperation faded, and the dollar continued to fall (see Exhibit 3.8).

**Recent History: 1988–2005.** Beginning in early 1988, the U.S. dollar rallied somewhat and then maintained its strength against most currencies through 1989. It fell sharply in 1990 but then stayed basically flat in 1991 and 1992, while posting sharp intrayear swings. The dollar began falling again in 1993, particularly against the yen and DM, and it fell throughout most of 1994 and 1995 before rallying again in 1996. The dollar continued its upward direction through December 2001 owing to the sustained strength of the U.S. economy. Even after the U.S. economy began to slow in late 2000, it still looked strong compared to those of its major trading partners. However, in 2002, the sluggishness of the U.S. economy and low U.S. interest rates, combined with the fear of war in Iraq (and later the actual war) and concerns over the large U.S. trade and budget deficits, resulted in a significant decline in the value of the dollar relative to the euro and other currencies. This decline continued until 2005 despite subsequent U.S. economic recovery, at which point it began to rise again. The dollar’s future course is unpredictable given the absence of an anchor for its value.
Following the terrorist attacks on the World Trade Center and the Pentagon, the Swiss franc soared in value as investors sought a safe haven no longer provided by the United States. The Swiss franc rose still further after Afghanistan’s Taliban leaders declared a holy war against the United States and the United States faced a bioterrorism threat from anthrax (see Exhibit 3.9). However, the ensuing war in Afghanistan and military successes there, combined with renewed prospects for a U.S. recovery, brought a reminder of American strength—and a stronger dollar. As the Swiss franc lost some of its luster, it fell toward its pre–September 11 value.

Assessment of the Floating-Rate System

At the time floating rates were adopted in 1973, proponents said that the new system would reduce economic volatility and facilitate free trade. In particular, floating exchange rates would offset international differences in inflation rates so that trade, wages, employment, and output would not have to adjust. High-inflation countries would see their currencies depreciate, allowing their firms to stay competitive without having to cut wages or employment. At the same time, currency appreciation would
not place firms in low-inflation countries at a competitive disadvantage. Real exchange rates would stabilize, even if permitted to float in principle, because the underlying conditions affecting trade and the relative productivity of capital would change only gradually; and if countries would coordinate their monetary policies to achieve a convergence of inflation rates, then nominal exchange rates would also stabilize.

**Currency Volatility Has Increased.** The experience to date, however, is disappointing. The dollar’s ups and downs have had little to do with actual inflation and a lot to do with expectations of future government policies and economic conditions. Put another way, real exchange rate volatility has increased, not decreased, since floating began. This instability reflects, in part, nonmonetary (or real) shocks to the world economy, such as changing oil prices and shifting competitiveness among countries, but these real shocks were not obviously greater during the 1980s or 1990s than they were in earlier periods. Instead, uncertainty over future government policies has increased.

Given this evidence, a number of economists and others have called for a return to fixed exchange rates. To the extent that fixed exchange rates more tightly constrain the types of monetary and other policies governments can pursue, this approach should make expectations less volatile and, hence, promote exchange rate stability.

**Requirements for Currency Stability.** Although history offers no convincing model for a system that will lead to long-term exchange rate stability among major currencies, it does point to two basic requirements. First, the system must be credible. If the market expects an exchange rate to be changed, the battle to keep it fixed is already lost. Second, the system must have price stability built into its very core. Without price stability, the system will not be credible. Recall that under a fixed-rate system, each member must accept the group’s inflation rate as its own. Only a zero rate of inflation will be mutually acceptable. If the inflation rate is much above zero, prudent governments will defect from the system.

Even with tightly coordinated monetary policies, freely floating exchange rates would still exhibit some volatility because of real economic shocks. However, this volatility is not necessarily a bad thing because it could make adjustment to these shocks easier. For example, it has been argued that flexible exchange rates permitted the United States to cope with the buildup in defense spending in the early 1980s and the later slowdown in defense spending. Increased U.S. defense spending expanded aggregate U.S. demand and shifted output toward defense. The stronger dollar attracted imports and thereby helped satisfy the civilian demand. As the United States cut back on defense spending, the weakening dollar helped boost U.S. exports, making up for some of the decline in defense spending. To the extent that this argument is correct, the dollar’s movements helped buffer the effects of defense spending shifts on American living standards.

Individual countries can peg their currencies to the dollar or other benchmark currency. However, the Asian and other crises demonstrate that the only credible system for such pegging is a currency board or dollarization. Every other system is too subject to political manipulation and can be too easily abandoned. Even a currency board can come unglued, as we saw in the case of Argentina, if the government pursues sufficiently wrong-headed economic policies.
3.3 • The European Monetary System and Monetary Union

An alternative system for a fixed-rate system is monetary union. Under **monetary union**, individual countries replace their local currencies with a common currency. An example of monetary union is the United States, with all 50 states sharing the same dollar. In a far-reaching experiment, Europe embarked on monetary union in 1999, following its experiences with the European Monetary System.

3.3 The European Monetary System
and Monetary Union

The **European Monetary System** (EMS) began operating in March 1979. Its purpose was to foster monetary stability in the **European Community** (EC), also known as the **Common Market**. As part of this system, the members established the European Currency Unit, which played a central role in the functioning of the EMS. The **European Currency Unit (ECU)** was a composite currency consisting of fixed amounts of the 12 European Community member currencies. The quantity of each country’s currency in the ECU reflects that country’s relative economic strength in the European Community. The ECU functioned as a unit of account, a means of settlement, and a reserve asset for the members of the EMS. In 1992, the EC became the **European Union (EU)**. The EU currently has 25 member states.

**The Exchange Rate Mechanism**

At the heart of the system was an **exchange rate mechanism (ERM)**, which allowed each member of the EMS to determine a mutually agreed-on central exchange rate for its currency; each rate was denominated in currency units per ECU. These central rates attempted to establish equilibrium exchange values, but members could seek adjustments to the central rates.

Central rates established a grid of bilateral cross-exchange rates between the currencies. Nations participating in the ERM pledged to keep their currencies within a 15% margin on either side of these central cross-exchange rates (± 2.25% for the DM/guilder cross rate). The upper and lower intervention levels for each currency pair were found by applying the appropriate margin to their central cross-exchange rate.

The original intervention limits were set at 2.25% above and below the central cross rates (Spain and Britain had 6% margins) but were later changed. Despite good intentions, the ERM came unglued in a series of speculative attacks that began in 1992. By mid-1993, the EMS had slipped into a two-tiered system. One tier consisted of a core group of currencies tightly anchored by the DM. That tier included the Dutch guilder, the French, Belgian, and Luxembourg francs, and at times the Danish krone. The other tier consisted of weaker currencies such as those of Spain, Portugal, Britain, Italy, and Ireland.

**Lessons from the European Monetary System**

A review of the European Monetary System and its history provides valuable insights into the operation of a target-zone system and illustrates the problems that such mechanisms are likely to encounter. Perhaps the most important lesson the EMS illustrates is that the exchange rate stability afforded by any target-zone arrangement requires a
coordination of economic policy objectives and practices. Nations should achieve convergence of those economic variables that directly affect exchange rates—variables such as fiscal deficits, monetary growth rates, and real economic growth differentials. Although the system helped keep its member currencies in a remarkably narrow zone of stability between 1987 and 1992, it had a history of ups and downs. By January 12, 1987, when the last realignment before September 1992 occurred, the values of the EMS currencies had been realigned 12 times despite heavy central bank intervention. Relative to their positions in March 1979, the Deutsche mark and the Dutch guilder soared, while the French franc and the Italian lira nose-dived. Between 1979 and 1988, the franc devalued relative to the DM by more than 50%.

The reason for the past failure of the European Monetary System to provide the currency stability it promised is straightforward: Germany's economic policymakers, responding to an electorate hypersensitive to inflation, put a premium on price stability; in contrast, the French pursued a more expansive monetary policy in response to high domestic unemployment. Neither country was willing to permit exchange rate considerations to override political priorities.

The experience of the EMS also demonstrates once again that foreign exchange market intervention not supported by a change in a nation's monetary policy has only a limited influence on exchange rates. For example, the heavy intervention before the EMS realignment on January 12, 1987 was generally not accompanied by changes in national monetary policies. West Germany, in particular, made only small adjustments to monetary policy in response to its increasingly undervalued currency. Consequently, the intervention failed to contain speculation that the DM would revalue, and a realignment became unavoidable.

The Currency Crisis of September 1992

The same attempt to maintain increasingly misaligned exchange rates in the EMS occurred again in 1992. And once again, the system broke down—in September 1992.

The Catalyst. The catalyst for the September currency crisis was the Bundesbank's decision to tighten monetary policy and force up German interest rates both to battle inflationary pressures associated with the spiraling costs of bailing out the former East Germany and to attract the inflows of foreign capital needed to finance the resulting German budget deficit. To defend their currency parities with the DM, the other member countries had to match the high interest rates in Germany (see Exhibit 3.10). The deflationary effects of high interest rates were accompanied by a prolonged economic slump and even higher unemployment rates in Britain, France, Italy, Spain, and most other EMS members.

As the costs of maintaining exchange rate stability rose, the markets began betting that some countries with weaker economies would devalue their currencies or withdraw them from the ERM altogether rather than maintain painfully high interest rates at a time of rising unemployment.

The High Cost of Intervention. To combat speculative attacks on their currencies, nations had to raise their interest rates dramatically: 15% in Britain and Italy,
13.75% in Spain, 13% in France, and an extraordinary 500% in Sweden. They also intervened aggressively in the foreign exchange markets. British, French, Italian, Spanish, and Swedish central banks together spent the equivalent of roughly $100 billion trying to prop up their currencies, with the Bank of England reported to have spent $15 billion to $20 billion in just one day to support the pound. The Bundesbank spent another $50 billion in DM to support the ERM. All to no avail.

On September 14, the central banks capitulated but not before losing an estimated $4 billion to $6 billion in their mostly futile attempt to maintain the ERM. Despite these costly efforts, Britain and Italy were forced to drop out of the ERM, and Spain, Portugal, and Ireland devalued their currencies within the ERM. In addition, Sweden, Norway, and Finland were forced to abandon their currencies’ unofficial links to the ERM.

The Exchange Rate Mechanism Is Abandoned in August 1993

The final straw was the currency crisis of August 1993, which actually was touched off on July 29, 1993, when the Bundesbank left its key lending rate, the discount rate, unchanged. Traders and investors had been expecting the Bundesbank to cut the discount rate to relieve pressure on the French franc and other weak currencies within the ERM. As had happened the year before, however, the Bundesbank largely disregarded the pleas of its ERM partners and concentrated on reining in 4.3% German inflation and its fast-growing money supply. Given the way the ERM worked, and the central role played by the Deutsche mark, other countries could not both lower interest rates and keep their currencies within their ERM bands unless Germany did so.

The Catalyst. The French franc was the main focus of the ERM struggle. With high real interest rates, recession, and unemployment running at a post–World War II high of 11.6%, speculators doubted that France had the willpower to stay with the Bundesbank’s tight monetary policy and keep its interest rates high, much less raise them to defend the franc. Speculators reacted logically: They dumped the French franc
and other European currencies and bought DM, gambling that economic pressures, such as rising unemployment and deepening recession, would prevent these countries from keeping their interest rates well above those in Germany. In other words, speculators bet—rightly, as it turned out—that domestic priorities would ultimately win out despite governments’ pledges to the contrary.

**Governments Surrender to the Market.** Despite heavy foreign exchange market intervention (the Bundesbank alone spent $35 billion trying to prop up the franc), the devastating assault by speculators on the ERM forced the franc to its ERM floor. Other European central banks also intervened heavily to support the Danish krone, Spanish peseta, Portuguese escudo, and Belgian franc, which came under heavy attack as well.

It was all to no avail, however. Without capital controls or a credible commitment to move to a single currency in the near future, speculators could easily take advantage of a one-sided bet. The result was massive capital flows that overwhelmed the central banks’ ability to stabilize exchange rates. Over the weekend of July 31–August 1, the EU finance ministers agreed essentially to abandon the defense of each other’s currencies and the European Monetary System became a floating-rate system in all but name only.

**A Postmortem on the EMS.** The currency turmoil of 1992–1993 showed once again that a genuinely stable European Monetary System, and eventually a single currency, requires the political will to direct fiscal and monetary policies at that European goal and not at purely national ones. In showing that they lacked that will, European governments proved once again that allowing words to run ahead of actions is a recipe for failure.

On the other hand, despite its problems, the EMS did achieve some significant success. By improving monetary policy coordination among its member states, the EMS succeeded in narrowing inflation differentials in Europe. In 1980, the gap between the highest inflation rate (Italy’s 21.2%) and the lowest (West Germany’s 5.2%) was 16 percentage points. By 1990 the gap had narrowed to less than 4 percentage points. The narrowing of inflation rates in turn reduced exchange rate volatility until 1992. Indeed, from January 1987 to September 1992, currencies remained fixed. Moreover, Germany’s importance to the European economy and the Bundesbank’s unwillingness to compromise its monetary policy forced other members of the EMS to adjust their monetary policies to more closely mimic Germany’s low-inflation policy. As a result, inflation rates tended to converge toward Germany’s lower rate (see Exhibit 3.11).

To summarize, the EMS was based on Germany’s continuing ability to deliver low inflation rates and low real interest rates. As long as Germany lived up to its end of the bargain, the benefits to other EMS members of following the Bundesbank’s policies would exceed the costs. But once the German government broke that compact by running huge and inflationary deficits, the costs to most members of following a Bundesbank monetary policy designed to counter the effects of the government’s fiscal policies exceeded the benefits. Put another way, the existing exchange rates became unrealistic given what would have been required of the various members to maintain those exchange rates. In the end, there was no real escape from market forces.
European Monetary Union

Many politicians and commentators pointed to the turmoil in the EMS as increasing the need for the European Union to move toward monetary union. This view prevailed and was formalized in the Maastricht Treaty. Under this treaty, the EU nations would establish a single central bank with the sole power to issue a single European currency called the euro as of January 1, 1999. On that date, conversion rates would be locked in for member currencies, and the euro would become a currency, although euro coins and bills would not be available until 2002. All went as planned. Francs, marks, guilders, schillings, and other member currencies were phased out until, on January 1, 2002, the euro replaced them all.

Maastricht Convergence Criteria. In order to join the European Monetary Union (EMU), European nations were supposed to meet tough standards on inflation, currency stability, and deficit spending. According to these standards, known as the Maastricht criteria, government debt could be no more than 60% of gross domestic product (GDP), the government budget deficit could not exceed 3% of GDP, the inflation rate could not be more than 1.5 percentage points above the average rate of Europe’s three lowest-inflation nations, and long-term interest rates could not be more than 2 percentage points higher than the average interest rate in the three lowest-inflation nations. The restrictions on budget deficits and debt, codified in the Stability and Growth Pact, were designed to impose fiscal discipline on imprudent governments and stop them from undermining the euro. It should be noted that most countries, including Germany, fudged some of their figures through onetime maneuvers (redefining government debt or selling off government assets) or fudged the criteria (Italy’s debt/GDP ratio was 121%) in order to qualify. Nonetheless, on May 2, 1998, the European parliament formally approved the historic decision to launch the euro with 11 founder nations—Germany, France, Italy, Spain, the Netherlands, Belgium, Finland, Portugal, Austria, Ireland, and Luxembourg. Britain, Sweden, and Denmark opted out of the launch. On January 1, 2001, Greece became the twelfth country to join the euro-zone when it was finally able to meet the economic convergence criteria. Britain is currently debating whether to join EMU and retire the pound sterling (see Mini-Case: Britain—In or Out for the Euro).
Launch of the Euro. As planned, on January 1, 1999, the 11 founding member countries of the European Monetary Union (EMU) surrendered their monetary autonomy to the new European Central Bank and gave up their right to create money; only the European Central Bank is now able to do so. Governments can issue bonds denominated in euros, just as individual American states can issue dollar bonds. However, like California or New York, member nations are unable to print the currency needed to service their debts. Instead, they can only attract investors by convincing them they have the financial ability (through taxes and other revenues) to generate the euros to repay their debts. The conversion rates between the individual national currencies and the euro are presented in Exhibit 3.12.

EMU and the European Welfare State. The truth is that monetary union is as much about reining in the expensive European welfare state and its costly regulations as it is about currency stability. Because of high taxes, generous social welfare and jobless benefits, mandatory worker benefit packages, and costly labor market regulations that make it expensive to hire and difficult to fire workers—all of which reduce incentives to work, save, invest, and create jobs—and diminished competitiveness—fostered by onerous regulations on business as well as state subsidies and government protection to ailing industries—job growth has been stagnant throughout Western Europe for three decades. (Western Europe failed to create a single net new job from 1973 to 1994, a period in which the United States generated 38 million net new jobs.) As a result, the European unemployment rate in the late 1990s was averaging about 12% (in contrast to less than 5% for the United States). However, although crucial for strong and sustained economic growth, limiting the modern welfare state is politically risky; too many people live off the state.

Enter the Maastricht Treaty. European governments could blame the strict Maastricht criteria they had to meet to enter the EMU for the need to take the hard

<table>
<thead>
<tr>
<th>Currency Symbol</th>
<th>1 euro =</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austrian schilling</td>
<td>ATS 13.7603</td>
</tr>
<tr>
<td>Belgian franc</td>
<td>BEF 40.3399</td>
</tr>
<tr>
<td>Dutch guilder</td>
<td>NLG 2.20371</td>
</tr>
<tr>
<td>Finnish markka</td>
<td>FIM 5.94573</td>
</tr>
<tr>
<td>French franc</td>
<td>FRF 6.55937</td>
</tr>
<tr>
<td>Greek drachma</td>
<td>GRD 340.75</td>
</tr>
<tr>
<td>German mark</td>
<td>DEM 1.95583</td>
</tr>
<tr>
<td>Irish punt</td>
<td>IEP 0.787564</td>
</tr>
<tr>
<td>Italian lira</td>
<td>ITL 1936.27</td>
</tr>
<tr>
<td>Luxembourg franc</td>
<td>LUF 40.3399</td>
</tr>
<tr>
<td>Portuguese escudo</td>
<td>PTE 200.482</td>
</tr>
<tr>
<td>Spanish peseta</td>
<td>ESP 166.386</td>
</tr>
</tbody>
</table>
3.3 • The European Monetary System and Monetary Union

steps that most economists believe are necessary for ending economic stagnation: curbing social-welfare expenditures, including overly generous pension, unemployment, and health-care benefits and costly job creation programs; reducing costly regulations on business; increasing labor market flexibility (primarily by lowering the cost to companies of hiring and firing workers and relaxing collective bargaining rules); cutting personal, corporate, and payroll taxes (the latter exceed 42% of gross wages in Germany); and selling off state-owned enterprises (a process known as privatization). Thus, the greatest benefit from monetary union likely will be the long-term economic gains that come from the fiscal discipline required for entry. If, however, Europe does not take this opportunity to reform its economic policies, the costs of monetary union will be high because member nations no longer will be able to use currency or interest rate adjustments to compensate for the pervasive labor market rigidities and expensive welfare programs that characterize the modern European economy.

ILLUSTRATION  Sweden Rejects the Euro

On September 14, 2003, Swedish voters soundly rejected a proposal to adopt the euro and kept the krona, despite the overwhelming support of the nation’s business and political establishment and a last-minute wave of sympathy following the stabbing death of the country’s popular and pro-euro foreign minister, Anna Lindh. A critical reason for the defeat: fears that adhering to the budget rules necessary to become a member of EMU would force Sweden to become more competitive and cut taxes. That, in turn, would compel Sweden to slash its generous and expensive cradle-to-grave social welfare system. Moreover, when Swedish voters went to the polls, the Swedish economy was stronger than the Euroland economy, its budget was in surplus (in contrast to large Euroland deficits), and unemployment was well below the Euroland average. The European Central Bank was criticized for keeping interest rates too high for too long, stifling growth, and Euroland cooperation on fiscal policy was in disarray (with the rules for budget deficits under the Maastricht criteria flouted by France and Germany). The perception that Sweden was conducting economic policy more intelligently than Euroland and with superior results made joining EMU less appealing as well.

Fortunately, Europe has begun to enact structural changes such as tax cuts and pension reforms to stimulate growth. For example, France, Germany, and Portugal have enacted cuts in personal and corporate taxes. In addition, Germany is starting to revamp its costly retirement, health-care, and welfare systems and modify its rigid labor laws, while France and Italy are attempting to overhaul their expensive pension systems. Nonetheless, there is strong resistance to these necessary changes. One sign of this resistance is that in March 2005, largely at the behest of France and Germany, which had violated the 3% of GDP budget deficit ceiling for three years in a row, the EU finance ministers agreed to render almost meaningless the rules of the Stability and Growth Pact. Another is the rejection of the European constitution in May/June 2005 by France and the Netherlands, largely because of concerns that it threatened the European welfare state.
Consequences of EMU. Although the full impact of the euro has yet to be felt, its effects have already been profound. Business clearly benefits from EMU through lower cross-border currency conversion costs. For example, Philips, the giant Dutch electronics company, estimates that a single European currency saves it $300 million a year in currency transaction costs. Overall, the EU Commission estimates that prior to the euro, businesses in Europe spent $13 billion a year converting money from one EU currency to another. Ordinary citizens also bore some substantial currency conversion costs. A tourist who left Paris with 1,000 francs and visited the other 11 EU countries, exchanging her money for the local currency in each country but not spending any of it, would have found herself with fewer than 500 francs when she returned to Paris. Multinational firms will also find corporate planning, pricing, and invoicing easier with a common currency.

 Adoption of a common currency benefits the European economy in other ways as well. It eliminates the risk of currency fluctuations and facilitates cross-border price comparisons. Lower risk and improved price transparency encourage the flow of trade and investments among member countries and has brought about greater integration of Europe’s capital, labor, and commodity markets and a more efficient allocation of resources within the region as a whole. Increased trade and price transparency, in turn, has intensified Europe-wide competition in goods and services and spurred a wave of corporate restructurings and mergers and acquisitions.

 Once the euro arrived, companies could no longer justify, or sustain, large price differentials within Euroland. Many companies have responded by changing their pricing policies so as to have single pan-European prices, or at least far narrower price differentials than in the past. Similarly, big retailers and manufacturers are increasingly buying from their suppliers at a single euro price, as opposed to buying locally in each country in which they operate.

 The evidence so far appears to show that EMU has resulted in a lower cost of capital and higher expected cash flows for the firms in countries that adopted the euro. The lower cost of capital is particularly pronounced for firms in countries with weak currencies prior to EMU. Such countries suffered from credibility problems in their monetary policies that resulted in high real interest rates before adopting the euro. The lower cost of capital and higher expected cash flows have had their predicted effect on
corporate investment, with one study showing that investments for EMU firms have grown 2.5% more annually than for non-EMU firms after 1999.4

On a macroeconomic level, monetary union—such as exists among the 50 states of the United States, where the exchange rate between states is immutably set at 1—provides the ultimate in coordination of monetary policy. Inflation rates under monetary union converge, but not in the same way as in the EMS. The common inflation rate is decided by the monetary policy of the European Central Bank. It would tend to reflect the average preferences of the people running the bank, rather than giving automatic weight to the most anti-inflationary nation as in the current system. Thus, for the European Monetary Union to be an improvement over the past state of affairs, the new European Central Bank must be as averse to inflation as Europe’s previous de facto central bank—the Bundesbank.

To ensure the European Monetary Union’s inflation-fighting success, the new central bankers must be granted true independence along with a statutory duty to devote monetary policy to keeping the price level stable.

Even now, after being in existence for several years, independence of the European Central Bank is an unsettled issue. Germans, who favor a strong, fiercely independent ECB modeled on the Bundesbank, fear the French will politicize it by using it to push job-creation and other schemes requiring an expansionist (and, hence, inflationary) monetary policy. Many French see the Germans as favoring price stability over compassion for the unemployed. This dispute points out a hard reality: The ECB will find it difficult to be tough on inflation without the benefit of a uniformly prudent fiscal policy across all its member states.

Another important issue in forming a monetary union is that of who gets the benefits of seigniorage—the profit to the central bank from money creation. In other words, who gets to spend the proceeds from printing money? In the United States, the answer is the federal government. In the case of Europe, however, this issue has not been resolved.

An unspoken reason for strong business support for the European Monetary Union is to boost growth by breaking the lock hold of government and unions on European economies. As described earlier, meeting the Maastricht criteria—particularly the one dealing with the reduced budget deficit—was expected to help diminish the role of the state in Europe and its tax-financed cradle-to-grave benefits. Many economists believe that only by cutting back on government and its generous—and increasingly unaffordable—social welfare programs and costly business and labor market regulations can the stagnant economies of Western Europe start to grow again and create jobs.

Performance of the Euro. The euro was born in optimism given the size and economic potential of the European Union (see Exhibit 3.13). However, reality set in quickly. Although many commentators felt the euro would soon replace the U.S. dollar as the world’s de facto currency, Exhibit 3.14 shows that until 2002 the euro mostly

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4Arturo Bris, Yrjö Koskinen, and Mattias Nilsson, “The Real Effects of the Euro: Evidence from Corporate Investments,” Yale University, working paper, June 2004 (http://faculty.som.yale.edu/~ab364/euroinv.pdf). This paper also summarizes much of the earlier evidence on the corporate effects of the euro.
The euro's decline during this period has been attributed to the robustness of the U.S. economy combined with the slowness of many European countries in performing the necessary restructuring of their economies that the euro was supposed to initiate. As one currency analyst said, “The U.S. economy is considered flexible, dynamic and productive; that contrasts with a view of Europe as a region burdened with high taxes, labor and product rigidities and bloated bureaucracies.”

Exhibit 3.13 Comparative Statistics for the EMU Countries

<table>
<thead>
<tr>
<th></th>
<th>Euro 11</th>
<th>United States</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>290 million</td>
<td>267 million</td>
<td>127 million</td>
</tr>
<tr>
<td>GDP</td>
<td>$8.2 trillion</td>
<td>$8.6 trillion</td>
<td>$3.4 trillion</td>
</tr>
<tr>
<td>Share of world GDP</td>
<td>19%</td>
<td>20%</td>
<td>8%</td>
</tr>
<tr>
<td>Share of world trade</td>
<td>19%</td>
<td>17%</td>
<td>8%</td>
</tr>
<tr>
<td>Stock market capitalization</td>
<td>$3.6 trillion</td>
<td>$9.5 trillion</td>
<td>$2.0 trillion</td>
</tr>
</tbody>
</table>

1Represents the initial 11 nations in the European Monetary Union.


Exhibit 3.14 The Euro Rides a Rollercoaster

Data source: U.S. Federal Reserve System. Rates are noon buying rates in New York City for cable transfers. Data for 9/11/01 are missing owing to the shutdown of financial trading in New York City following the destruction of the World Trade Center.

Following the terrorist attacks on the United States on September 11, the euro rose briefly as the United States looked to be a relatively riskier place to invest in. But the euro soon reversed course again as it became clear that Euroland’s economic environment was worse than earlier thought and investors became more optimistic about U.S. economic growth reviving. Beginning in 2002, however, continuing slow U.S. growth, large U.S. budget deficits, and aggressive Fed lowering of U.S. interest rates, combined with higher yields on euro-denominated securities and signs of structural reform in European economies led to a dramatic rise in the value of the euro. This rise has been greater than many expected, particularly given the continuing sluggish European economic growth and the U.S. economic recovery since 2002.

One explanation for the dollar’s large decline has been the large and growing U.S. trade deficit. This deficit has now reached a point where it is unsustainable (see Chapter 5) and so must be corrected. One such corrective is a large fall in the value of the dollar, which translates into a rise in the euro. Moreover, the euro has risen more than it otherwise would because it must shoulder a disproportionate share of the dollar’s decline. The reason is that—as we have already seen—several U.S. trading partners, such as China and Japan, have resisted a rise in their currencies. In the interlocking world of foreign exchange, if the yuan cannot appreciate against the dollar, then other currencies, and especially the euro, have to compensate by appreciating even more to make up for the fixed yuan. Suppose, for example, that the dollar must decline by 10% to reach its appropriate trade-weighted value. If the yuan remains pegged to the dollar, then other currencies must rise by more than 10% against the dollar to achieve overall balance. However, the euro fell substantially after France (and the Netherlands) rejected a proposed European constitution.

**ILLUSTRATION**  *The French Say Non to a European Constitution and the Euro Responds*

On Sunday, May 29, 2005, French voters resoundingly rejected a proposed constitution for the European Union. The concern expressed by most of these non voters was that the constitution would force open their borders wider, accelerating economic competition and further threatening their treasured welfare state and protections against onerous toil. Three days later, Dutch voters rejected the constitution by an even larger margin. In response, the euro fell dramatically against the dollar (see Exhibit 3.15). The rejection of the European constitution underscored Europe’s political woes and the myriad challenges facing the euro and the Euroland economies. Sunday’s non by 55% of French voters led investors to reassess the prospects of Europe’s ability to manage a common currency without a unified government to back it up. Most importantly, currency traders worried that the French and Dutch votes were part of a broader populist protest against free trade and free markets that would slow the pace of economic integration and reform in Euroland. That would make Europe a less desirable place to invest, reducing the demand for euros. The French and Dutch votes reinforced the view that Europe was unwilling and unable to make tough economic and political decisions. We saw earlier that even before the constitution problems arose, EMU countries had fudged rules to limit government spending considered key to underpinning the currency. They had also fought over a rule to remove cross-border barriers to
services industries, with France and other nations seeking protection from low-cost service providers. As can be seen in Exhibit 3.14, the fear that Europe would reverse course on economic liberalization in response to persistently high unemployment and stagnant economic growth had already resulted in a falling euro earlier in the year.

MINI-CASE  The Euro Reacts to New Information

According to an article in the Wall Street Journal (October 8, 1999), “The European Central Bank left interest rates unchanged but made clear it is seriously considering tightening monetary policy. The euro fell slightly on the ECB’s announcement around midday that it would hold its key refinancing rate steady at 2.5%. But it rebounded as ECB President Wim Duisenberg reinforced expectations that a rate rise is in the works.” In the same story, the Wall Street Journal reported that “the Bank of England didn’t elaborate on its decision to leave its key repo rate unchanged at 5.25%.” At the same time, “sterling remains strong, which reduces the threat of imported inflation as well as continuing to pressure U.K. manufacturers. That could work against higher interest rates, which could send sterling even higher.”

Questions

1. Explain the differing initial and subsequent reactions of the euro to news about the European Central Bank’s monetary policy.
2. How does a strong pound reduce the threat of imported inflation and work against higher interest rates?
On May 1, 2004, the European Union welcomed 10 new countries, bringing total EU membership to 25 nations with a combined population of 455 million. Most of the new members come from the former East Bloc, with two from the Mediterranean area: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. As part of the admissions bargain, countries joining the EU are obligated to strive toward the eventual adoption of the euro upon fulfilment of the convergence criteria. Integration into the monetary union represents a key step toward full economic integration within the EU and has the potential to deliver considerable economic benefits to the new members. In particular, it helps countries to reap the full benefits of the EU's single market, as it works in parallel with the free movement of goods, labor, services, and capital, favoring an efficient allocation of resources. Moreover, the process and prospect of joining EMU may contribute to anchor expectations and support the implementation of sound macroeconomic and structural policies.

Optimum Currency Area

Most discussion of European Monetary Union has highlighted its benefits, such as eliminating currency uncertainty and lowering the costs of doing business. The potential costs of currency integration have been overlooked. In particular, as the discussion of U.S. military spending shifts indicated, it may sometimes pay to be able to change the value of one currency relative to another. Suppose, for example, that the worldwide demand for French goods falls sharply. To cope with such a drop in demand, France must make its goods less expensive and attract new industries to replace its shrinking old ones. The quickest way to do this is to reduce French wages, thereby making its workers more competitive. But this reduction is unlikely to be accomplished quickly. Eventually, high unemployment might persuade French workers to accept lower pay. But in the interim, the social and economic costs of reducing wages by, say, 10% will be high. In contrast, a 10% depreciation of the French franc would achieve the same thing quickly and relatively painlessly.

Conversely, a worldwide surge in demand for French goods could give rise to French inflation, unless France allowed the franc to appreciate. In other words, currency changes can substitute for periodic bouts of inflation and deflation caused by various economic shocks. Once France has entered monetary union, it no longer has the option of changing its exchange rate to cope with these shocks. This option would have been valuable to the ERM, which instead came unglued because of the huge economic shock to its fixed parities brought about by the absorption of East Germany into the German economy.

Taking this logic to its extreme would imply that not only should each nation have its own currency, but so should each region within a nation. Why not a southern
California dollar, or indeed a Los Angeles dollar? The answer is that having separate currencies brings costs as well as benefits.

The more currencies there are, the higher the costs of doing business and the more currency risk exists. Both factors impair the functions of money as a medium of exchange and a store of value, so maintaining more currencies acts as a barrier to international trade and investment, even as it reduces vulnerability to economic shocks.

According to the theory of the optimum currency area, this trade-off becomes less and less favorable as the size of the economic unit shrinks. So how large is the optimum currency area? No one knows. But some economists argue that Europe is not an optimum currency area and so might be better off with four or five regional currencies than with only one. Similarly, some have argued that the United States, too, might do better with several regional currencies to cushion shocks such as those that afflicted the Midwest and the Southwest during the 1980s and the Northeast and California in the 1990s. Nonetheless, the experience with floating exchange rates since the early 1970s will likely give pause to anyone seriously thinking of pushing that idea further. That experience suggests that exchange rate changes can add to economic volatility as well as absorb it. At the same time, economic flexibility—especially of labor markets—is critical to reducing the costs associated with currency union. This flexibility can be attained only through further deregulation, privatization, freer trade, labor market and social welfare reform, and a reduction in economic controls, state subsidies, and business regulations. Absent these changes, especially to reduce the rigidities of Europe’s labor market, European Monetary Union will intensify economic shocks because their effects can no longer be mitigated by exchange rate adjustments.

The great hope of enthusiasts for Europe’s single currency, as for its single market, was that it would unleash pressures that would force its members to reform their sclerotic economies to make them more flexible and competitive. Such competitive pressures were unleashed but the core euro countries, especially France, Germany, and Italy, have responded by first initiating and then resisting the reforms that the euro and single market made necessary. As predicted, the result has been greater vulnerability to economic shocks and difficult economic times.

Such difficulty brought speculation in 2005 that EMU would break apart over its handling of monetary policy. The ECB is trying to steer the economy of a region in which the four largest nations—Germany, France, Italy, and Spain—are growing at very different rates. As a result, the ECB cannot apply an optimal interest rate for any one country. For example, some economists argue that Italy, being in a recession, could use interest rates close to zero, and France and Germany with their slow growth could use interest rates of 1% to 1.5%. Booming Spain, on the other hand, might be better off with an interest rate of 3%. Instead, the ECB’s key short-term rate is 2%, too low for Spain and too high for Italy, Germany, and France. Viewing these problems, some economists claim that Britain has benefited from staying out of the euro because the Bank of England can still set interest rates in line with its own particular facts and circumstances.

Mini-Case  Britain—In or Out for the Euro

The interminable debate in Britain over whether to join the European Monetary Union reached a fever pitch in early 2003. That was when Chancellor of the Exchequer Gordon Brown had promised to make his recommendation to Prime Minister Tony Blair as to whether economic conditions were such as to warrant the move. Although Prime Minister Blair was likely to accept Chancellor Brown's judgment, he also had to pay attention to the intense debate over the euro. This debate went way beyond party lines, splitting political parties and raising passions in a way few other issues do. Business was similarly divided over the merits of EMU. The economy, and how it could be affected by joining the euro, was central to this debate.

Euro-skeptics pointed out that by adopting the euro, Britain would trade control over its own interest rates and monetary policy for a single vote on the governing council of the European Central Bank in Frankfurt, which sets interest rates for Euroland as a whole. Shocks to the economy, like the terrorist attacks of September 11th or a drop in the housing market, make it harder for the ECB to find the right rate. After euro entry, given the limitation on deficits, the British government could face a stark choice between cutting public spending or raising taxes. For many opponents, monetary union would also mean more EU-generated regulation. Moreover, skeptics argued, the benefits of EMU were not readily apparent insofar as Britain had lower unemployment, lower inflation, and higher growth than Euroland.

Despite this dismal view of Britain's prospects if it joined EMU, equally passionate euro enthusiasts argued that Britain was paying a high price for its economic isolation. They pointed out that foreign investment, a cornerstone of Britain's economic prosperity, was in jeopardy. Thousands of foreign businesses, employing hundreds of thousands of workers, had brought new skills and innovations to Britain, raising productivity and boosting prosperity. However, since the advent of the euro, Britain's share of foreign investment in Europe had fallen precipitously. The pro-euro camp's explanation for this sharp decline was that multinationals locating in Britain now had to bear transaction costs and exchange rate uncertainty that they could avoid by basing themselves in EMU countries. Similarly, euro supporters argued that Britain's trade with the European Union, half its overall trade, was stagnating because of these same currency costs and risks. Meanwhile, euro countries are seeing their trade with each other rise dramatically. Supporters, therefore, argued that joining EMU would lead to greater stability and shared growth in the EU. Joining EMU would also facilitate greater economic efficiency and increase competition by allowing British companies and consumers to more easily compare prices and wages with their Euroland counterparts. Skeptics, on the other hand, argued that Britain's lighter regulatory and tax burden were more important for investors and businesses than the euro and these advantages would be lost if Britain joined EMU.

Questions
1. Discuss the pros and cons for Britain of joining EMU.
2. Commentators pointed to the fact that many people in Britain have variable-rate mortgages, as opposed to the fixed-rate mortgages more common in Europe. Britain also has the most flexible labor markets in Europe. How would these factors likely affect Britain's economic costs and benefits of joining the euro?
3. What types of British companies would most likely benefit from joining EMU?
4. Some large multinationals warned that they only chose to invest in Britain on the assumption it would ultimately adopt the euro. Why would multinationals be interested in Britain joining the euro?
3.4 Emerging Market Currency Crises

As we saw in the last chapter, the decade of the 1990s was punctuated by a series of currency crises in emerging markets. First was the Mexican crisis in 1994–1995. That was followed by the Asian crisis two years later in 1997, then the Russian crisis of 1998, and the Brazilian crisis of 1998–1999.

Transmission Mechanisms

The problem with these currency crises is that they tend to be contagious, spreading from one nation to another. There are two principal routes of contagion: trade links and the financial system.

Trade Links. Contagion can spread from one emerging market to another through their trade links. For example, when Argentina is in crisis, it imports less from Brazil, its principal trading partner. As Brazil’s economy begins to contract, its currency will likely weaken. Before long, the contagion will spread from Brazil to its other emerging market trade partners.

Financial System. The second and more important transmission mechanism is through the financial system. As we saw in the case of the Asian currency crisis, trouble in one emerging market often can serve as a wake-up call to investors who seek to exit other countries with similar risky characteristics. For example, Argentina’s problems, which stem from its large budget deficit, focused investor attention on Brazil’s unresolved fiscal problems. Financial contagion can also occur because investors who are leveraged up start selling assets in other countries to make up for their initial losses. Investors may also become more risk averse and seek to rebalance their portfolios by selling off a portion of all their risky assets.

Debt Policy. Crisis-prone countries tend to have one thing in common that promotes contagion: They issue too much short-term debt that is closely linked to the U.S. dollar. When times are good, confident investors gladly buy short-term emerging market bonds and roll them over when they come due. However, when the bad times come and currencies tumble, the cost of repaying dollar-linked bonds soars, savvy investors rush for the exits, and governments find their debt-raising capacity vanishes overnight. Things quickly spiral out of control.

Origins of Emerging Market Crises

The sequence of currency crises has prompted policymakers to seek ways to deal with them. Many of their crisis-fighting proposals involve increasing the International Monetary Fund’s funding and giving it and possibly new international agencies the power to guide global financial markets. However, these proposals could exacerbate the two principal sources of these crises.

Moral Hazard. A number of economists believe that by bailing out first Mexico and then the Asian countries, the IMF actually helped fuel these crises by creating a
moral hazard in lending behavior. Specifically, economists like Milton Friedman and Allan Meltzer argue that the Mexican bailout encouraged investors to lend more money on less stringent terms to the Asian countries than they would have otherwise because of their belief that the IMF would bail them out if trouble hit. The $118 billion Asian bailout by the IMF ($57 billion for South Korea alone) reinforced the view of foreign investors that they were operating with an implicit guarantee from the IMF, which led to the Russian currency crisis and then the Brazilian crisis. At the same time, the provision of an IMF safety net gives recipient governments less incentive to adopt responsible fiscal and monetary policies.

In the case of the Brazilian real crisis, most observers had believed for a long time that the currency was overvalued. When speculators attacked the real in the wake of the Asian currency crisis, the IMF tried to prevent a crisis by providing $41 billion in November 1998 to boost Brazil’s reserves in return for Brazil’s promise to reduce its budget deficit. That strategy broke down, however, when Brazil failed to deliver on promised fiscal reforms and investor confidence collapsed. On January 15, 1999, Brazil floated its currency and began implementing reforms. Arguably, without the IMF bailout package, Brazil would have been forced to act on its fiscal reforms sooner. IMF conditionality once again failed to work.

**Fundamental Policy Conflict.** Underlying the emerging market currency crises is a fundamental conflict among policy objectives that the target nations have failed to resolve and that IMF assistance has only allowed them to drag out. These three objectives are a fixed exchange rate, independent domestic monetary policy, and free capital movement. As we saw in Chapter 2, any two of these objectives are possible; all three are not. Speculators recognized that the attempts by Mexico, Indonesia, Thailand, South Korea, Brazil, Russia, and other countries to achieve these three objectives simultaneously were unsustainable and attacked their currencies, resulting in the inevitable breakdowns in their systems.

**Policy Proposals for Dealing with Emerging Market Crises**

There are three possible ways to avoid these financial crises. One is to impose currency controls, another is to permit currencies to float freely, and the third is to permanently fix the exchange rate by dollarizing, adopting a common currency as the participants in EMU have done, or establishing a currency board.

**Currency Controls.** Some economists have advocated abandoning free capital movement, as Malaysia has done, as a means of insulating a nation’s currency from speculative attacks. However, open capital markets improve economic welfare by channeling savings to where they are most productive. Moreover, most developing nations need foreign capital and the know-how, discipline, and more efficient resource allocation that come with it. Finally, the long history of currency controls should provide no comfort to its advocates. Currency controls have inevitably led to corruption and government misallocation of foreign exchange, hardly prescriptions for healthy growth.

**Freely Floating Currency.** With a freely floating currency, the exchange rate is set by the interplay of supply and demand. As Milton Friedman points out, with a floating
exchange rate, there never has been a foreign exchange crisis. The reason is simple: The floating rate absorbs the pressures that would otherwise build up in countries that try to peg the exchange rate while simultaneously pursuing an independent monetary policy. For example, the Asian currency crisis did not spill over to Australia and New Zealand because the latter countries had floating exchange rates.

**Permanently Fixed Exchange Rate.** Through dollarization, establishment of a currency board, or monetary union, a nation can fix its exchange rate permanently. The key to this system’s viability is the surrender of monetary independence to a single central bank: the European Central Bank for the countries using the euro and the Federal Reserve for countries like Ecuador and Panama that have dollarized. The Federal Reserve is also the *de facto* central bank for countries such as Argentina (until 2002) and Hong Kong that have dollar-based currency boards. It is this loss of monetary independence that is the fundamental difference between a truly fixed-rate and a pegged-rate system such as existed under Bretton Woods. In a truly fixed-rate system, the money supply adjusts to the balance of payments. If there is a balance-of-payments deficit, the supply of currency falls; with a surplus, it rises. With a pegged-rate system, on the other hand, governments can avoid—at least temporarily—allowing their money supply to adjust to a balance-of-payments deficit by borrowing from abroad or running down their foreign exchange reserves to maintain the pegged rate. With a persistent deficit, however, fueled by excessive growth of the money supply, an explosion is inevitable.

Adherence to either a truly fixed exchange rate or a floating exchange rate will help avert foreign exchange crises. Which mechanism is superior depends on a variety of factors. For example, if a country has a major trading partner with a long history of a stable monetary policy, then tying the domestic currency to the partner’s currency would probably be a good choice. In any event, the choice of either system will eliminate the need for the IMF or other international agency to intervene in or usurp the market.

**Better Information.** Little noticed in the discussion of emerging market crises is that financial market collapses in Argentina and Turkey in 2001 were not particularly contagious. For example, debt-rating agencies elevated Mexican bonds to investment grade right in the middle of the Argentine debacle. Similarly, Brazilian and Russian bond prices soared from investor perceptions that their economies were improving. A natural conclusion is that information about emerging markets is improving, allowing investors to distinguish good ones from the bad. Taking this experience to its logical conclusion suggests that the best way to reduce financial market contagion in the future is to develop and disseminate better information about emerging market policies and their consequences. This course of action is exactly what one would expect free markets to undertake on their own, without the need for government intervention.

That being said, contagion can still be a problem when a crisis in one country forces portfolio managers to sell assets in other emerging countries. For example, a sell-off of Brazilian assets in early 2002, sparked by the rise of leftist Brazilian presidential candidate Lula da Silva, meant that some money managers had to sell their holdings in other emerging markets to meet margin calls or redemptions resulting from Brazil. Similarly, contagion can result from investors demanding higher risk premiums for bearing emerging market risk.
3.5 Summary and Conclusions

This chapter examined the process of exchange rate determination under five market mechanisms: free float, managed float, target-zone system, fixed-rate system, and the current hybrid system. In the last four systems, governments intervene in the currency markets in various ways to affect the exchange rate.

Regardless of the form of intervention, however, fixed rates do not remain fixed for long. Neither do floating rates. The basic reason that exchange rates do not remain fixed in either a fixed- or floating-rate system is that governments subordinate exchange rate considerations to domestic political considerations.

We saw that the gold standard is a specific type of fixed exchange-rate system, one that requires participating countries to maintain the value of their currencies in terms of gold. Calls for a new gold standard reflect a fundamental lack of trust that monetary authorities will desist from tampering with the integrity of fiat money.

Finally, we concluded that intervention to maintain a disequilibrium rate is generally ineffective or injurious when pursued over lengthy periods of time. Seldom have policymakers been able to outsmart, for any extended period, the collective judgment of currency buyers and sellers. The current volatile market environment, which is a consequence of unstable U.S. and world financial conditions, cannot be arbitrarily directed by government officials for long.

Examining the U.S. experience since the abandonment of fixed rates, we found that free-market forces did correctly reflect economic realities thereafter. The dollar's value dropped sharply between 1973 and 1980 when the United States experienced high inflation and weakened economic conditions. Beginning in 1981, the dollar's value rose when American policies dramatically changed under the leadership of the Federal Reserve and a new president, but fell when foreign economies strengthened relative to the U.S. economy. Nonetheless, the resulting shifts in U.S. cost competitiveness have led many to question the current international monetary system.

The principal alternative to the current system of floating currencies with its economic volatility is a fixed exchange-rate system. History offers no entirely convincing model for how such a system should be constructed, but it does point to two requirements. To succeed in reducing economic volatility, a system of fixed exchange rates must be credible, and it must have price stability built into its very fabric. Otherwise, the market's expectations of exchange rate changes combined with an unsatisfactory rate of inflation will lead to periodic battles among central banks and between central banks and the financial markets. The recent experiences of the European Monetary System point to the costs associated with the maintenance of exchange rates at unrealistic levels. These experiences also point out that, in the end, there is no real escape from market forces. Most European nations have responded to this reality by forming a monetary union and adopting the euro as their common currency. Some developing nations have gone further and abandoned their currencies altogether by dollarizing, either explicitly or implicitly through a currency board.

A final lesson learned is that one must have realistic expectations of a currency system. In particular, no currency system can achieve what many politicians seem to expect of it—a way to keep all the benefits of economic policy for their own nation while passing along the costs to foreigners (who do not vote) or to future generations (who do not vote yet). The recent series of emerging market crises points to the futility of this exercise.
Questions

1. a. What are the five basic mechanisms for establishing exchange rates?
   b. How does each work?
   c. What costs and benefits are associated with each mechanism?
   d. Have exchange rate movements under the current system of managed floating been excessive? Explain.
2. Find a recent example of a nation’s foreign exchange market intervention and note what the government’s justification was. Does this justification make economic sense?
3. Gold has been called “the ultimate burglar alarm.” Explain what this expression means.
4. Suppose nations attempt to pursue independent monetary and fiscal policies. How will exchange rates behave?
5. The experiences of fixed exchange-rate systems and target-zone arrangements have not been entirely satisfactory.
   a. What lessons can economists draw from the breakdown of the Bretton Woods system?
   b. What lessons can economists draw from the exchange rate experiences of the European Monetary System?
6. How did the European Monetary System limit the economic ability of each member nation to set its interest rate to be different from Germany’s?
7. Historically, Spain has had high inflation and has seen its peseta continuously depreciate. In 1989, however, Spain joined the EMS and pegged the peseta to the DM. According to a Spanish banker, EMS membership means that “the government has less capability to manage the currency but, on the other hand, the people are more trusting of the currency for that reason.”
   a. What underlies the peseta’s historical weakness?
   b. Comment on the banker’s statement.
   c. What are the likely consequences of EMS membership on the Spanish public’s willingness to save and invest?
8. In discussing the European Monetary Union, a recent government report stressed a need to make the central bank accountable to the “democratic process.” What are the likely consequences for price stability and exchange rate stability in the EMS if the ECB becomes accountable to the “democratic process”?
9. In 2003, Chancellor of the Exchequer Gordon Brown called for a national debate on whether Britain should join the European Monetary Union. Discuss the pros and cons for Britain of joining EMU.
10. Comment on the following statement: “With monetary union, the era of protection for European firms and workers has come to an end.”

Problems

1. During the currency crisis of September 1992, the Bank of England borrowed DM 33 billion from the Bundesbank when a pound was worth DM 2.78, or $1.912. It sold these DM in the foreign exchange market for pounds in a futile attempt to prevent a devaluation of the pound. It repaid these DM at the postcrisis rate of DM 2.50:£1. By then, the dollar:pound exchange rate was $1.782:£1.
   a. By what percentage had the pound sterling devalued in the interim against the Deutsche mark? Against the dollar?
   b. What was the cost of intervention to the Bank of England in pounds? In dollars?
2. Suppose the central rates within the ERM for the French franc and DM are FF 6.90403:ECU 1 and DM 2.05853:ECU 1, respectively.
   a. What is the cross-exchange rate between the franc and the mark?
   b. Under the former 2.25% margin on either side of the central rate, what were the approximate upper and lower intervention limits for France and Germany?
   c. Under the new 15% margin on either side of the central rate, what are the current approximate upper and lower intervention limits for France and Germany?
3.5 • Summary and Conclusions

3. A Dutch company exporting to France had FF 3 million due in 90 days. Suppose that the spot exchange rate was FF 1 = Dfl 0.3291.
   a. Under the exchange rate mechanism, and assuming central rates of FF 6.45863/ECU and Dfl 2.16979/ECU, what was the central cross-exchange rate between the two currencies?
   b. Based on the answer to Part a, what was the most the Dutch company could lose on its French franc receivable, assuming that France and the Netherlands stuck to the ERM with a 15% band on either side of their central cross rate?
   c. Redo Part b, assuming the band was narrowed to 2.25%.
   d. Redo Part b, assuming you know nothing about the spot cross-exchange rate.

4. Panama adopted the U.S. dollar as its official paper money in 1904. Currently, $400 million to $500 million in U.S. dollars is circulating in Panama. If interest rates on U.S. Treasury securities are 7%, what is the value of the seigniorage that Panama is forgoing by using the U.S. dollar instead of its own-issue money?

5. By some estimates, $185 billion to $260 billion in currency is held outside the United States.
   a. What is the value to the United States of the seigniorage associated with these overseas dollars? Assume that dollar interest rates are about 6%.
   b. Who in the United States realizes this seigniorage?

Internet Resources

http://www.imf.org/external/fin.htm Web site of the International Monetary Fund (IMF) that takes you directly to information on the IMF, SDRs, exchange rates, position of each country in the IMF, and lending arrangements with member nations.

http://www.imf.org/external/about.htm IMF Web site that discusses the role of the IMF as well as a number of other topics, including debt relief for poor countries and reforming the international monetary system to cope with financial crises.

http://www.ex.ac.uk/~RDavies/arian/llyfr.html Contains a detailed history of money from ancient times to the present.


http://www.sysmod.com/eurofaq.htm Contains answers to frequently asked questions about the euro and EMU as well as links to related Web sites.

Internet Exercises

1. Plot the dollar value of the euro since its inception. How has the euro fared in the past year?
2. What explanations have been given for the decline of the euro in the first three years of its existence?
3. What are the objectives of the ECB? What policy trade-offs does the ECB have to consider?
4. According to the IMF, what are its main purposes?
5. What proposals have been made by the IMF to reduce the incidence and severity of international financial crises?
BIBLIOGRAPHY