CHAPTER 4

The International Monetary System

Opening Case 4: The Euro – A Story of Change

On January 1, 2002, the euro (€) officially became the national currency for 300 million people in 12 countries – Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and the Netherlands. This move constituted a major change in the region and has resulted in many fundamental changes. In this case, the broad changes will be discussed, and then some of the specifics of the process will be explored by focusing on Italy's transition from the lira to the euro.

The euro was first used by monetary authorities and businesses on January 1, 1999. On July 1, 2002, euro coins and notes officially replaced the national coins and notes of the 12 Euroland countries. In recent years, the euro has been associated with deeper capital markets and increasing demands by shareholders for better corporate governance. Steps have also been taken to pool economic data and to better coordinate banking oversight across national boundaries. And the euro has helped drive long overdue industry consolidations, from telecommunications to airlines. Overall, the euro has become the world's second-largest currency in terms of gross domestic product and has assisted in the recent trend of slow but sure market-opening liberalization in Europe.

The euro has also resulted in positive daily life benefits for European citizens. For example, when these citizens travel to other euro countries, they can more easily compare prices, and they will not have to stop at a foreign-exchange window and hand over a foreign-exchange commission. Consumers are already gaining from their new ability to compare prices in one currency. In 2001, the website of the French national railway system started quoting a single, euro-denominated price, instead of 12 different prices; the result was consumer savings of as much as 20 percent. In short,

economic life in Europe has become simpler, and this is generally good for both consumers and businesses.

To help further examine the impact of the currency change, the history of the euro in one nation, Italy, will be discussed. Like most of its European Union (EU) partners, Italy opted to phase in the euro gradually over 2 months. The lira, which traces its origins back to AD 794 and Charlemagne's libra, ran alongside the new currency from January 2002 until the end of February 2002, before it was officially decommissioned on March 1, 2002 (although it is still possible to exchange lira for euros at the Bank of Italy for another 10 years).

This transition period was not easy for Italy. According to the retailers' association Confcommercio, only 37 percent of Italians were aware that checks must be written in euros as of January 1, 2002, while about 80 percent believed that the lira would continue to circulate after February 28, 2002. Furthermore, a survey conducted in July 2001 by a public think tank showed that 30 percent of Italians were still not sure what the euro was, about 43 percent were unaware of the timetable for the changeover, and only 21 percent knew how much a euro would actually be worth (1,936.27 lira).

Beyond these public knowledge problems, the transition was not free. It is estimated that the total changeover cost approximately 5 trillion lira ($2.3 billion). Much of this expense fell on the business sector, which carried the overall costs of training and upgrading equipment, estimated at $934 million. Confcommercio figured that big retailers spent some 0.3 percent of yearly sales preparing for the euro, while small shopkeepers ended up investing as much as 2 percent of their revenues.

To combat these problems, the Italian government took some preventive steps. First, shops and supermarkets were required to offer euro–lira calculators at checkout points, and special toll-free numbers were created to help customers to report irregularities. Second, little yellow and blue euro converters were sent to every Italian home. In the end though, after the anxieties of the first few days of the changeover had passed, Italians decided that the gadget really was not very useful and became comfortable with the new currency.

There were also some practical changes that came with the new currency. The single euro is a coin and the bills are larger than the lira bills. Therefore, the biggest Christmas present in Italy in 2001 was a euro-sized wallet. Also, vending machines, which are ubiquitous in Italy, had to be refitted for the euro. This often resulted in pricing changes. In one humorous example, access to the only public toilet in Voghera, a small town in northern Italy, now costs almost twice as much as it did before the changeover. "It is all a question of coins," the local administrators replied. "It is too complicated to modify the token dispenser."

This example also illustrates the single biggest problem Italy has had with the transition – inflation. Before the euro was implemented, prices for goods could vary by as much as 50 percent between nations. The transition therefore resulted in price fluctuations to correct these differences; and it was southern countries such as Italy in particular, which are poorer than their northern neighbors, that felt the impact of these fluctuations. Additionally, there was suspicion in Italy, as in other countries, that prices were raised due to opportunistic rounding during the changeover. With an

official exchange rate fixed at 1,936.27 lira per euro, opportunistic round-number readjustments were inevitable.

Therefore, the changeover to the euro resulted in inflation, especially for the small things that people buy every day – food, coffee, and haircuts. Higher-priced items, such as cars and computers, have held steady or even in some cases declined in price due to increased competition across the European Union. As the economist Katinka Barish of the Centre for European Reform noted, "You might have competition on a Euro-wide basis for cars, but you cannot do that on things like kebabs." For example, prices in cafés and restaurants rose 4.3 percent in 2002 – nearly double the general inflation rate. Importantly, this is the inflation that people notice most, resulting in a large difference between perceived inflation and actual inflation.

Italian consumers have been particularly indignant about price increases and some groups have led strikes in which consumers vowed to stop buying things for a day. One consumer, Jose Elorrieta, a Milan engineer and university professor with two young daughters, says that the price of the high-end cured ham his family buys for Christmas nearly doubled in 2002, to 60 euros a kilogram, or about $28 a pound, compared with 36 euros a kilogram, or $16.80 a pound, at the end of 2001. "It is the same story with clothes, with shoes – everything has gone up brutally, and it is almost exclusively due to the introduction of the euro," complains Mr Elorrieta, who says he has cut back on holiday spending as a result.

The government has taken steps to combat inflation. The prime minister's mother complained that pasta prices had trebled since the euro's launch and, in response, he took action. To combat Italy's fast-rising prices, he called for a 3-month freeze on electric, gas, and postal prices. Even with these initial hiccups, however, the introduction of the euro should be positive for both Italy and the continent. The move to a standardized system, cooperation, and more accountability should result in economic growth for the region. As the examination of Italy's process shows, the change has not been completely smooth, but overall it has been positive.

Sources: Anonymous, "Happy New Euro," *The Wall Street Journal*, Dec., 2001; J. Casison, "Currency Conversion: The Euro Becomes a Reality," *Incentive*, Jan. 2002; N. D'Aquino, "Rome: Berlusconi Gets Popular Points for Euro Converter," *Europe*, Apr. 2002; A. Galloni, "Euro's First Noel Hits Sour Notes With Shoppers," *The Wall Street Journal*, Dec., 2002; S. Jewkes, "Arrivederci Lira," *Europe*, Dec./Jan. 2002; G. Winestock and G. T. Sims, "What the Euro Has Been Up To for the Past Three Years – Tuesday is Debut of Cash, but Common Currency Already Has Made a Mark," *The Wall Street Journal*, Dec., 2001; and T. Vlahou and C. Power, "Europe's Gouging Gap; Created to Unite the Continent, the Euro has Inspired Fury over Price Rises, Particularly in the Poorer South," *Newsweek*, Oct. 2002.

The **international monetary system** consists of laws, rules, institutions, instruments, and procedures, which involve international transfers of money. These elements affect foreign-exchange rates, international trade and capital flows, and balance-of-payments adjustments. Foreign-exchange rates determine prices of goods and services across national boundaries. These exchange rates also affect international loans and foreign investment. Hence the international monetary

system plays a critical role in the financial management of multinational business and economic policies of individual countries.

This chapter has five major sections. The first section provides an overview of a successful foreign-exchange system. The second section presents a history of the international monetary system, from the gold standard of the late nineteenth century to the hybrid exchange system that prevails today. The third section describes the International Monetary Fund and special drawing rights. The fourth section discusses the European Monetary System. The fifth section examines proposals for further international monetary reform.

4.1 A Successful Foreign-Exchange System

A multinational company's access to international capital markets and its freedom to move funds across national boundaries are subject to a variety of national constraints. These constraints are frequently imposed to meet international monetary agreements on determining exchange rates. Constraints may also be imposed to correct the balance-of-payments deficit or to promote national economic goals.

A successful exchange system is necessary to stabilize the international payment system. To be successful, an exchange system should meet three conditions:

1 Balance-of-payments deficits or surpluses by individual countries should not be too large or prolonged.
2 Such deficits or surpluses should be corrected in ways that do not cause unacceptable inflation or physical restrictions on trade and payments for either individual countries or the whole world.
3 The maximum sustainable expansion of trade and other international economic activities should be facilitated.

Theoretically, continuous balance-of-payments deficits and surpluses cannot exist around the world. Under a system of freely flexible exchange rates, a foreign-exchange market clears itself in the same way a competitive market for goods does. Just like every commodity price, each exchange rate moves to a level at which demand and supply are equal. Under a system of fixed exchange rates, central banks or other designated agencies buy and sell on the open market to absorb surpluses and to eliminate deficiencies of foreign currencies at the fixed exchange rates.

4.1.1 Currency values and terminology

A **foreign-exchange rate** is the price of one currency expressed in terms of another currency. A **fixed exchange rate** is an exchange rate that does not fluctuate or that changes within a predetermined band. The rate at which the currency is fixed or pegged is called the "**par value**." A floating or **flexible exchange rate** is an exchange rate that fluctuates according to market forces.

Although governments do not attempt to prevent fundamental changes in the exchange rate between their own currency and other currency, they typically attempt to maintain orderly trading conditions in the market. A flexible exchange system has a number of advantages:

1 Countries can maintain independent monetary and fiscal policies.
2 Flexible exchange rates permit a smooth adjustment to external shocks.
3 Central banks do not need to maintain large international reserves to defend a fixed exchange rate.

However, a flexible exchange system has several disadvantages. First, exchange rates under a pure version of this system are highly unstable, thereby discouraging the flow of world trade and investment. Second, flexible exchange rates are inherently inflationary, because they remove the external discipline on government economic policy.

A system of fixed exchange rates provides the stability of exchange rates, but it has some disadvantages:

1 The stability of exchange rates may be too rigid to take care of major upheavals such as wars, revolutions, and widespread disasters.
2 Central banks need to maintain large international reserves to defend a fixed exchange rate.
3 Fixed exchange rates may result in destabilizing speculation that causes the exchange rate to "overshoot" its natural equilibrium level. Overshoot (beyond fair value) is natural after devaluation. For example, all three developing-country financial crises since 1980 – the Latin American crisis of the 1980s, the Mexican peso crisis of 1994, and the Asian crisis of 1997–8 – occurred under fixed exchange rate regimes.

Four concepts – appreciation, depreciation, revaluation (upvaluation), and devaluation – are all related to changing the value of a currency. An **appreciation** is a rise in the value of a currency against other currencies under a floating-rate system. A **depreciation** is a decrease in the value of a currency against other currencies under a floating-rate system. Under a system of floating rates, a country's exchange rate will appreciate if it raises interest rates to attract capital. Similarly, its exchange rate will "depreciate" if it reduces interest rates.

A **revaluation** is an official increase in the value of a currency by the government of that currency under a fixed-rate system. A **devaluation** is an official reduction in the par value of a currency by the government of that currency under a fixed-rate system. Under a system of fixed rates, a country may "devalue" its exchange rate by setting a lower intervention price at which it will intervene in the foreign-exchange market. It may "revalue" or "upvalue" its exchange rate by setting a higher intervention price.

4.1.2 Currency boards

A **currency board** is a monetary institution that only issues currency to the extent that it is fully backed by foreign reserves. In other words, a currency board is an extreme form of the fixed exchange rate regime under which local currency is fully backed by the US dollar or any other chosen currency. Its major attributes include:

1 An exchange rate that is fixed not just by policy, but by law.
2 A reserve requirement to the extent that a country's reserves are equal to 100 percent of its notes and coins in circulation.
3 A self-correcting balance-of-payments mechanism, where a payments deficit automatically contracts the money supply and thus the amount of spending as well.
4 No central bank under a currency board system.

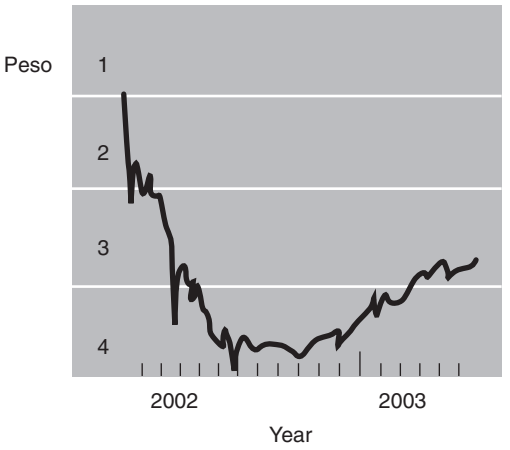

Figure 4.1 Argentine pesos per US dollar (inverted scale)
Source: *The Wall Street Journal*, July 2, 2003, p. A6.

Thus, in addition to promoting price stability, a currency board also compels the government to follow a responsible fiscal policy.

The first currency board was established in Mauritius, which was then a colony of Great Britain, in 1849. The use of currency boards eventually spread to 70 British colonies. The introduction of currency board like arrangements in Hong Kong (1983), Estonia (1990), Argentina (1991), Lithuania (1994), Bulgaria (1997), and Bosnia (1998) constitutes a small resurgence in their use worldwide.

Characteristics of countries that are candidates for currency boards include: a small, open economy; a desire for further close integration with a particular neighbor or trading partner; a strong need to import momentary stability; and a well-regulated financial system. During the Asian financial crisis of 1997–8, advocates of currency boards had pushed for their wider use – in particular, for Indonesia, Russia, and the Ukraine. A currency board, however, is unlikely to be successful without the solid fundamentals of adequate reserves, fiscal discipline, and a well-supervised financial system, in addition to the rule of law.

A recent episode with the Argentine peso shows that even a currency board arrangement cannot be completely safe from a possible collapse. The currency board structure fixed the peso–dollar exchange rate at parity through much of the 1990s by requiring that every peso in circulation be backed by either gold or the US dollar. Argentina's adoption of a currency board system in 1991 curtailed its chronic inflation dramatically and attracted a substantial amount of foreign investment for the first few years. However, a strong dollar eventually hurt exports from Argentina and caused a protracted economic downturn. Argentina abandoned the peso–dollar parity in January 2002 by first devaluing the peso to Ps1.40 per dollar and then floating it completely. As shown in figure 4.1, daily peso changes have become a way of life since then.

Perhaps the most prominent form of a rigidly fixed system is dollarization, the use of the US dollar as the official currency of the country. Several countries have adopted the US dollar as their official currency because they have suffered currency devaluation for many years. Panama has used the dollar as its official currency since 1907. Ecuador adopted the dollar as its official

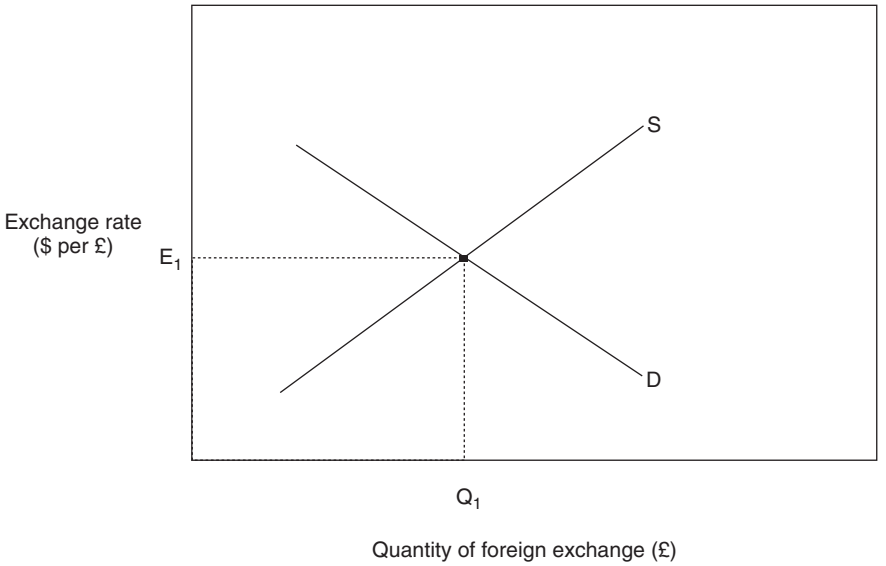

Figure 4.2 Market determination of exchange rates

currency in January 2000. In January 2001, El Salvador became the third country south of the Rio Grande to abandon its domestic currency in favor of the dollar. A country that dollarizes removes any currency volatility, thereby eliminating the possibility of future currency crises. One major argument against dollarization has to do with the loss of sovereignty over monetary policy.

4.1.3 Market equilibrium

Demand for foreign exchange comes from debit items in the balance of payments, such as imports and capital outflows. As the foreign-exchange rate falls, the corresponding quantity of the foreign exchange demanded rises. Alternatively, as the exchange rate increases, the corresponding quantity demanded falls. In short, there is an inverse relationship between the exchange rate and the quantity demanded. This inverse relationship explains why the demand curve for foreign exchange is downward sloping.

The supply of foreign exchange comes from credit items in the balance of payments, such as exports and capital inflows. As the foreign-exchange rate falls, the corresponding quantity of foreign exchange supplied also falls. As the exchange rate increases, the corresponding quantity supplied also increases. This direct relationship between exchange rate and quantity supplied explains why the supply curve for foreign exchange is upward sloping.

Figure 4.2 shows the downward-sloping demand curve D and the upward-sloping supply curve S. The intersection of these two curves indicates the equilibrium exchange rate (E_1) and quantity (Q_1). If the actual exchange rate is below the equilibrium point E_1, the rate will eventually rise because demand exceeds supply. If the actual exchange rate is above point E_1, the rate will eventually fall because supply exceeds demand.

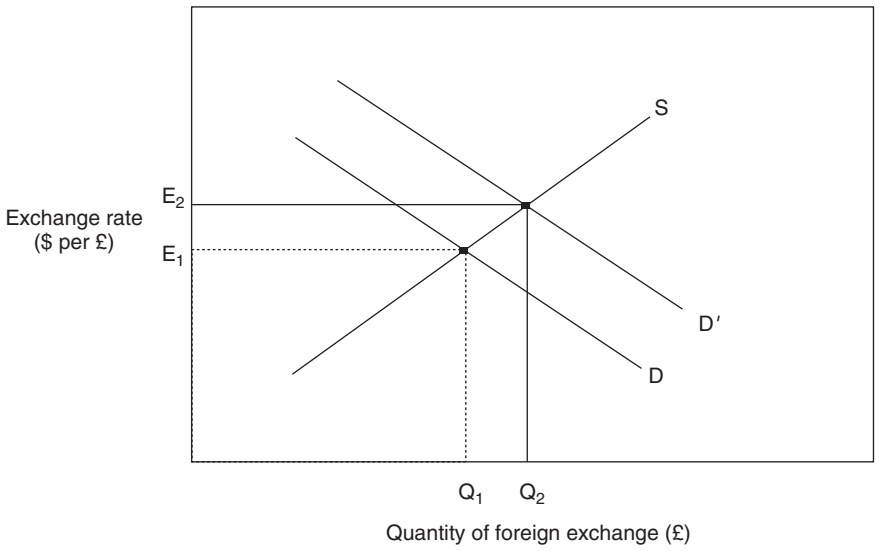

Figure 4.3 How an increase in demand for pounds affects the equilibrium

Demand and supply for foreign exchange could change over time. These changes cause demand and supply schedules to shift upward or downward. Factors that cause demand and supply schedules to shift include relative inflation rates, relative interest rates, relative income levels, and government intervention. Determinants of currency demand and supply are discussed with the aid of a two-country model consisting of the United States and the United Kingdom. Because the UK has not adopted the euro as its currency, it continues to use the pound as its currency. Here, we assume that the US dollar is the domestic currency and that the British pound is the foreign exchange.

SHIFT OF THE DEMAND CURVE An upward shift of the pound demand schedule could be caused by a higher inflation rate in the USA, lower interest rates in the USA, an increase in the US income level, and/or the US government purchase of the pound. Figure 4.3 shows that these factors cause a shift in the demand curve for pounds to the right (from D to D′). If the demand curve shifts from D to D′, the equilibrium exchange rate rises to E_2. Remember that domestic residents, such as Americans, who want British goods, services, and financial assets, create demand for pounds. These factors raise the US demand for pounds in the following ways:

1 If the USA has a higher inflation rate than the UK, then the US demand for cheaper British goods rises and thus causes the US demand for pounds to rise.
2 If the USA has lower interest rates than the UK, then the US demand for pounds increases because capital funds would move from the USA to the UK to capture higher interest.
3 If US income increases faster than British income, the US demand for British goods rises and thus the US demand for pounds also increases.
4 If the US government buys pounds to increase dollars in the currency market, then the US demand for pounds increases.

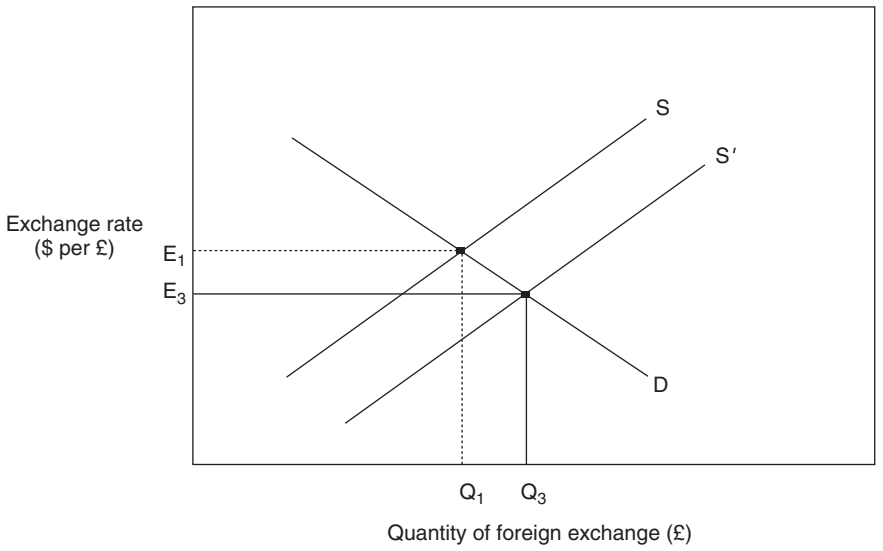

Figure 4.4 How an increase in supply of pounds affects the equilibrium

You now know why these four events could increase the US demand for pounds. Because the quantity of pounds demanded at any exchange rate is higher, the demand curve shifts to the right. That is why the equilibrium exchange rate appreciates (or rises) from E_1 to E_2.

SHIFT OF THE SUPPLY CURVE A downward shift of the pound supply schedule could be caused by a higher inflation rate in the UK, lower interest rates in the UK, an increase in the UK income level, and/or the UK government purchase of the dollar. Figure 4.4 shows that these factors cause a shift in the supply curve for pounds to the right (from S to S′). If the supply curve shifts from S to S′, the equilibrium exchange rate falls from E_1 to E_3. Remember that non-US residents, such as British people, who want American goods, services, and financial assets, determine the supply of pounds. These factors raise the supply of pounds in the following ways:

1 If the UK has a higher inflation rate than the USA, then the supply of pounds rises because British people will convert pounds to dollars to buy more US goods.
2 If the UK has lower interest rates than the USA, then capital funds will move from the UK to the USA and thus the supply of pounds rises.
3 If UK income rises faster than US income, then the supply of pounds increases because British people will buy more US goods.
4 If the UK government buys dollars to release more pounds in the currency market, then the supply of pounds increases.

You should now understand why these four events could increase the supply of pounds. Because the quantity of pounds supplied at any exchange rate is higher, the supply curve shifts to the right. This is why the equilibrium exchange rate depreciates (falls) from E_1 to E_3.

4.1.4 Prevailing exchange rate arrangements

As part of a move to greater flexibility since 1976, the International Monetary Fund (IMF) has allowed member countries to have an exchange rate arrangement of their choice, as long as they properly communicate their arrangement to the IMF. Each year, the IMF receives information from its member countries and classifies each country into one of eight categories. Each of these regimes is explained below. The numbers in parentheses indicate the number of countries that employed each exchange rate arrangement as of January 31, 2003:

- *Exchange arrangements with no separate legal tender* (40). The currency of another country circulates as the sole legal tender, or the member belongs to a monetary or currency union in which the members of the union share the same legal tender.
- *Currency board arrangements* (8). A monetary regime based on an implicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate, combined with restrictions on the issuing authority to ensure the fulfillment of its legal obligation.
- *Other conventional fixed-peg arrangements* (40). The country pegs its currency (formally or *de facto*) at a fixed rate to a major currency or a basket of currencies, where the exchange rates fluctuate within a narrow margin of at most ±1 percent around a central rate.
- *Pegged exchange rates within horizontal bands* (5). The value of the currency is maintained within margins of fluctuations around a formal or *de facto* fixed peg that are wider than ±1 percent around a central rate.
- *Crawling pegs* (4). The currency is adjusted periodically in small amounts at a fixed, pre-announced rate or in response to changes in selective quantitative indicators.
- *Exchange rates within crawling bands* (6). The currency is maintained within certain fluctuation margins around a central rate that is adjusted periodically at a fixed pre-announced rate, or in response to changes in selective quantitative indicators.
- *Managed floating with no pre-announced path for the exchange rate* (42). The monetary authority influences the movements of the exchange rate through active intervention in the foreign-exchange markets, without specifying or pre-committing to a pre-announced path for the exchange rate.
- *Independent floating* (41). 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 at establishing a level for it.

4.2 A Brief History of the International Monetary System

4.2.1 The pre-1914 gold standard: a fixed exchange system

In the pre-1914 era, most of the major trading nations accepted and participated in an international monetary system called the gold standard. Under the **gold standard**, countries used gold as a medium of exchange and a store of value. The gold standard had a stable exchange rate. During this period before World War I, a nation's monetary unit was defined as a certain weight of gold.

The gold standard as an international monetary system worked adequately before World War I because of London's dominance in international finance. The keystone of the system was confidence in the stability of the British financial system. London was the financial center for almost 90 percent of world trade, which was organized around sterling as the sole reserve currency. Commercial transactions such as factoring receivables and discounting bills from all corners of the world took place in London. Sterling was convenient because it was universally used and convertible into gold at the Bank of England. Trade and loans were denominated in sterling rather than gold.

The Bank of England backed sterling with an unbelievably small amount of gold reserve, estimated at 2 or 3 percent of the total money supply. The Bank of England maintained this small gold reserve because it manipulated the bank rate to safeguard the gold stock. The bank rate was the rate at which the Bank of England rediscounted commercial paper. Gold outflows increased the bank rate, thus attracting short-term deposits into London. Gold inflows were met by decreases in the bank rate. Such manipulations produced unmatched stability in the capital markets.

4.2.2 Monetary disorder: 1914–45: a flexible exchange system

The gold standard, as an international monetary system, worked well until World War I interrupted trade patterns and ended the stability of exchange rates for currencies of major industrial countries. The value of currencies fluctuated fairly widely in terms of gold during World War I and in the early 1920s. After World War I, the UK was not the world's only major creditor nation; the USA started to emerge as a leading creditor too.

Several attempts were made to restore the gold standard during the 1920s. The USA returned to the gold standard in 1919, the UK in 1925, and France in 1928. However, these attempts failed, mainly because of the Great Depression of 1929–32 and the international financial crisis of 1931. In other words, country after country devalued its currency to stimulate its exports. Governments also resorted to exchange controls in an attempt to manipulate their net exports. Of course, with the onslaught of World War II, hostile countries used foreign-exchange controls to finance their war effort.

4.2.3 Fixed exchange rates: 1945–73

The international monetary disorder of the 1930s justified the relative rigidity of the postwar par value system designed at Bretton Woods in 1944. The **Bretton Woods Agreement** was signed by representatives of 44 countries at Bretton Woods, New Hampshire, in 1944, to establish a system of fixed exchange rates. Under this system, each currency was fixed by government action within a narrow range of values relative to gold or some currency of reference. The US dollar was used most frequently as a reference currency to establish the relative prices of all other currencies.

At the end of World War II, the leading nations of the free world recognized that the reconstruction of the world economy would depend on establishing a workable international monetary system. At the international conference held at Bretton Woods, they agreed to establish a new monetary order, which centered on the IMF and the International Bank for Reconstruction

and Development (the World Bank). The IMF provides short-term balance-of-payments adjustment loans, while the World Bank makes long-term development and reconstruction loans. The basic purpose of this new monetary system was to facilitate the expansion of world trade and to use the US dollar as a standard of value.

The Bretton Woods Agreement emphasized the stability of exchange rates by adopting the concept of fixed but adjustable rates. The keystones of the system were that no provision was made for the USA to change the value of gold at $35 per ounce and that each country was obligated to define its monetary unit in terms of gold or dollars. While other currencies were not required to exchange their currencies for gold, US dollars remained convertible into gold at $35 per ounce. Thus, each country established par rates of exchange between its currency and the currencies of all other countries. Each currency was permitted to fluctuate within ±1 percent of par value by buying or selling foreign exchange and gold as needed. However, if a country's currency became too weak to maintain par value, it could devalue its currency up to 10 percent without formal approval by the IMF.

4.2.4 *The breakdown of the Bretton Woods system*

Depreciation and appreciation occurred rarely before 1971, thanks to the fixed exchange rate system administered by the IMF. The key elements of the Bretton Woods system were the stable value of the US dollar in terms of gold and its convertibility into gold at least for foreign central banks. The late 1940s marked the beginning of large deficits in the US balance of payments. By 1971, the US payments deficit exploded. America's chronic payments deficits turned into a spectacular dilution of US gold and other reserves during the 1960s and early 1970s. Hence many people were not surprised to observe that the dollar had to be devalued in 1971 and again in 1973. Moreover, on August 15, 1971, President Nixon, in a famous speech designed to deal with US inflation and international monetary problems, stated that the USA had decided to:

1 Suspend the conversion of dollars into gold.
2 Permit the dollar to float in relation to other currencies.
3 Impose a 10 percent surcharge on most imports.
4 Impose direct controls on wages and prices.

All of these actions were taken without prior consultation with the IMF.

THE SMITHSONIAN AGREEMENT From August to December 1971, most major currencies were permitted to fluctuate. US dollars fell in value against a number of major currencies. Several countries caused major concern by imposing some trade and exchange controls. It was feared that such protective measures might become sufficiently widespread to curtail international commerce. In order to solve these problems, the world's leading trading countries, called the "Group of Ten," produced the Smithsonian Agreement on December 18, 1971. This "Group of Ten" consisted of the USA, Belgium, England, France, West Germany, Italy, Japan, the Netherlands, Sweden, and Switzerland.

The USA agreed to devalue the dollar from $35 per ounce of gold to $38 (an 8.57 percent devaluation). In return, the other countries agreed to revalue their currencies against the dollar. Actual revaluations ranged from 7.4 percent by Canada to 16.9 percent by Japan. Finally, these

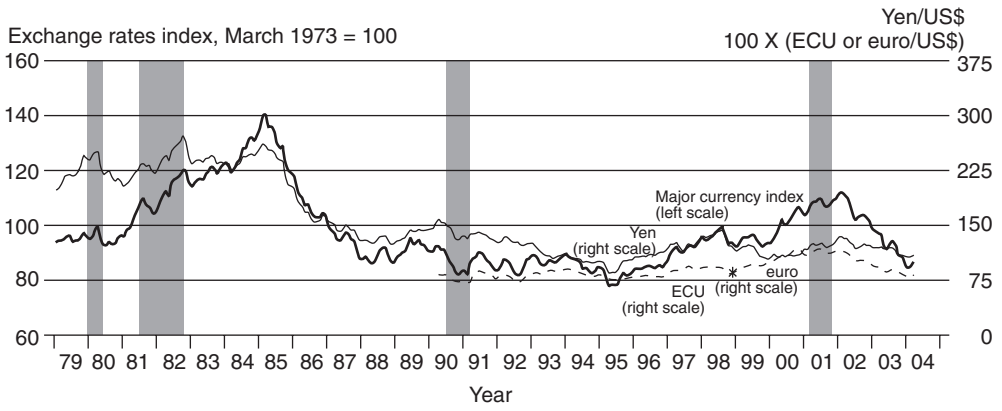

Figure 4.5 The US dollar under floating exchange rates

Source: *National Economic Trends*, Federal Reserve Bank of St. Louis, May 2004, p. 18.

10 countries agreed to expand the trading band from 1 percent to 2.25 percent in either direction.

The Smithsonian Agreement was a historical event in international monetary affairs, but it failed to reduce speculation. Government controls on foreign exchange, likewise, did not decrease. For all practical purposes, the Agreement came to an end in March 1973, because most "Group of Ten" countries allowed their currencies to float according to market forces. Thus, the system of pegged but adjustable rates, based on the 1944 Bretton Woods Agreement, collapsed.

4.2.5 The post-1973 dirty floating system

Figure 4.5 shows the nominal exchange rate index of the US dollar from 1978 to 2004, along with two other exchange rates: the dollar–euro rate and the dollar–yen rate. This index is an indicator how the external value of the US dollar has moved relative to other industrial-country currencies.

As shown in figure 4.5, daily exchange rate changes have become a way of life since 1973, when the Bretton Woods Agreement collapsed. Moreover, since then, exchange rates have become much more volatile and less predictable due to a number of unexpected events affecting international monetary order. The most important events include the oil crisis of late 1973, loss of confidence in the US dollar between 1977 and 1978, the second oil crisis in 1978, the formation of the European Monetary System in 1979, diversification of monetary reserves by central banks after 1979, the surprising strength of the US dollar between 1981 and 1985, the sinking US dollar between February 1985 and 1988, the surprising strength of the US dollar between January and June 1989, the end of the Marxist revolution in 1990, the dissolution of the Soviet Union in December 1991, European currency crises in September 1992 and in July 1993, the creation of a single European market in 1993, a 40 percent depreciation of the Mexican peso between December 1994 and January 1995, the Asian financial crisis in 1997–8, other emerg-

ing market currency crises (such as Russia in 1998, Brazil in 1999, Turkey in 2001, and Argentina and Venezuela in 2002), and the replacement of eurozone currencies with the euro in 2002.

From the end of World War II to 1973, international business and multinational corporations operated under a fixed exchange system. Since 1973, most industrial and many developing countries have permitted their currencies to float, with frequent government intervention in the exchange market. This monetary system is known by various terms, such as free float, managed float, dirty float, partial float, and others on a primarily market-determined exchange rate. Governments have frequently intervened to maintain orderly markets and to keep their average exchange rate at a level desirable for their economic policy.

4.2.6 *The Jamaica Agreement of January 1976*

Because the Bretton Woods Agreement was based on the system of fixed exchange rates, the IMF had to change its Articles of Agreement in order to permit floating exchange rates. The Jamaica Agreement of 1976 formalized the existing system of floating exchange rates. Important IMF member countries held a series of negotiations during 1973–6, which led to an agreement to change some aspects of the Bretton Woods system. The Board of Governors of the IMF approved these changes in April 1976, and they came into effect 2 years later. This amendment legalized the existing system of floating exchange rates and permitted each member to peg or to float the value of its currency. The amendment also terminated the par value system based on gold. Thus, the fixed exchange system based on the Bretton Woods Agreement officially ended in 1976, although, practically speaking, it had died in 1973.

4.2.7 *The Plaza Agreement and the Louvre Accord*

As shown in figure 4.5, the dollar's spectacular rise in the period 1980–5 and its equally spectacular fall in the period 1985–8 deserve some discussion. The US dollar peaked in March 1985 and then began a long downhill slide. The slide is largely attributable to the Plaza Agreement of September 1985. In late September 1985, leaders of the Group of Five (the USA, France, Japan, the UK, and West Germany) met at the Plaza Hotel in New York and reached the so-called "Plaza Agreement." They announced that it would be desirable for major currencies to appreciate against the US dollar and they pledged to intervene in exchange markets to achieve this objective.

This coordinated program to bring down the value of the US dollar worked too well. In February 1987, major industrial countries reconvened at the Louvre, in Paris, and reached a new agreement known as the "Louvre Accord." They agreed that exchange rates had been realigned sufficiently and pledged to support stability of exchange rates around their current levels. The Plaza Agreement and the Louvre Accord ended the dollar's dramatic rise and fall during the period from 1980 to 1987.

4.2.8 *The September 1992 currency crisis in Europe*

The Maastricht Treaty, named after the provincial Dutch town that hosted the EEC summit in mid-December 1991, signaled to many a no-turning-back on the road to European unity.

However, Europe's plans for economic union experienced a setback in September 1992, because turbulent trading amid the chaos surrounding an apparent breakdown of the European Monetary System (EMS) racked world currency markets. Although the roots of the currency crisis lay in Germany's high interest rates, the UK took center stage. The crisis began when Norman Lamont, Chancellor of the Exchequer, announced on September 16 that the UK would withdraw from the EMS.

Pressures leading to this turmoil had built up for several months since the Danes, in a referendum in May 1992, narrowly opposed ratification of the Maastricht Treaty. Europe's once-solid monetary system was suddenly plunged into turmoil. On September 17, 1992, the UK and Italy both suspended their currencies from the EMS, after the values of the pound and the lira fell below the floor set by that system. The UK, Italy, and Spain then devalued their currencies. Ireland, Spain, and Portugal reimposed limited controls on capital flows. European currency fluctuations against the US dollar from September 11 to September 18 ranged from as little as 4 percent for the Belgian franc to as much as 12 percent for the Italian lira. Sweden, not an EMS member, increased its key lending rate to 500 percent to defend the informal link between its krona and the mark.

Currency traders and analysts estimate that Europe's major central banks lost $6 billion in their futile attempts to support weak currencies in September 1992. British, French, German, Italian, and Spanish central banks together spent approximately $150 billion to assist the pound, franc, lira, peseta, and krona. Even with an affirmative French vote on the Maastricht Treaty in the referendum of September 20, many analysts doubted whether the movement toward monetary, economic, and political union would continue.

THE CAUSES OF THE CRISIS At the center of this turmoil in currency markets was Germany's Bundesbank. To control inflation caused by Germany's own reunification, the German central bank raised interest rates. Germany's problems can be dated to mid-1990, when West Germany handed East Germans one powerful Western mark for each Eastern mark. This action was followed by commitments from Bonn to invest heavily in the rehabilitation of East Germany and to finance the withdrawal of Russian troops from Germany.

These events resulted in an inflation rate of almost 4 percent – high by German standards. The German Bundesbank sought to control the inflation with a single instrument: short-term interest rates pegged between 8 and 9 percent. In other words, Germany's tight money policy posed enormous problems for Europe's weaker economies, none of which would have imposed their high interest rates had their currencies not been tied to the mark by the exchange rate system. The governments of countries such as the UK, Italy, and Spain then faced a difficult choice: either raise interest rates or spend the huge sums of money required to boost their currencies to the agreed-upon levels. In fact, these countries had used both approaches for some time, but they were too little and too late to save the EMS.

4.2.9 The July 1993 currency crisis in Europe

On July 1, 1993, wave after wave of currency selling by investors forced European governments to all but abandon their system of managing exchange rates. The economics ministers of the EU rushed off to the EU headquarters in Brussels that weekend, scrambling to save the EMS. This crisis had been triggered by the German central bank's decision not to lower its discount rate. The ministers debated all manner of possible solutions, including devaluing most of the curren-

cies, or even removing the mark from the EMS. By July 4 (Monday), they finally agreed to drastically widen the bands within which member currencies could fluctuate against other member currencies, to 15 percent of a central value, from ±2.25 percent, in most cases. The net effect of their decision was essentially a free float that meant that European central banks were no longer forced to prop up their currencies every time speculators pushed a currency to the limits of the narrower fluctuation band.

Pundits assumed that governments would abandon their commitment to a stable monetary policy and their dedication to the anti-inflation fight. However, the wider band had worked pretty well. The unsettling results on European currencies from the July actions uncovered fundamental weaknesses in the plan for a united Europe, but they also increased the chances of stability and growth. The July currency crisis has actually imposed a discipline on governments and central banks. Most EU countries have made progress on reducing their total debt as a percentage of GDP. Despite more generous central-bank credit policies, consumer prices have increased at a moderate rate across the continent. At the same time, the central banks have lowered key interest rates to help lift their economies out of recession. These salutary effects have occurred because most European countries had high interest rates and low inflation. Since then, there have been multiple expansions in European markets due to interest rate reductions and expectations of improved earnings. This chaos actually improved the possibility of the formation of the EU's monetary union on January 1, 1999.

4.2.10 The Mexican peso crisis of December 1994

In December 1994, Mexico faced a balance-of-payments crisis. Investors lost confidence in Mexico's ability to maintain the exchange rate of the peso within its trading band. Intense pressure on the peso in foreign-exchange markets threatened to exhaust Mexico's international reserves.

On December 20, the Mexican government announced its decision to devalue the peso against the dollar by 14 percent. This decision, however, touched off a panic situation to sell pesos. As a result, on December 22, the peso fell against the dollar by as much as 40 percent, compelling the Mexican government to float the peso. A rash of speculative attacks against other Latin American currencies – Argentina (peso), Brazil (real), Peru (new sol), and Venezuela (bolivar) – broke out immediately through what became known as the "tequila" effect. Several countries that are not part of Latin America – Thailand, Hong Kong, the Philippines, and Hungary – also suffered brief speculative attacks. However, only few countries actually devalued their currencies. Argentina was the only other country that suffered a sharp recession as a result of the Mexican peso crisis.

On January 31, 1995, the IMF and the US government put together a $50 billion package to bail out Mexico. We discuss this peso crisis in detail through two mini-cases: one at the end of this chapter and another at the end of chapter 9.

4.2.11 The Asian financial crisis of 1997–8

For three decades, East Asian countries were held up as economic icons. Their typical blend of high savings and investment rates, autocratic political systems, export-oriented businesses, restricted domestic markets, government capital allocation, and controlled financial systems were

hailed as ideal ingredients for strong economic growth for developing countries. Well, such a government-directed economic strategy turned out to be outdated in the late 1990s, as global economic integration began to advance amid intensified international competition. As a result, in July 1997, currency turmoil erupted in Thailand, spreading to other Asian countries, then to Russia, and ultimately to Latin America. In fact, this crisis, the worst since the 1980s debt crisis, had pushed one third of the globe into recession during 1998.

During the second half of 1997, currencies and stock markets plunged across East Asia, while hundreds of banks, builders, and manufacturers went bankrupt. In the fourth quarter of 1997, the IMF arranged emergency rescue packages of $18 billion for Thailand, $43 billion for Indonesia, and $58 billion for Korea. By the end of 1998, the Asian crisis of 1997 had spread to Russia, Brazil, and many other countries. Again, the IMF arranged bailout packages of $23 billion for Russia in July 1998 and $42 for Brazil in November 1998. This means that from late 1997 to late 1998, IMF-led rescue packages for Asia, Russia, and Brazil racked up some $184 billion to keep world markets safe. We will discuss this crisis in detail in chapter 11. Table 4.1 shows major currency events from 1914 to 2002.

4.3 The International Monetary Fund

The **International Monetary Fund (IMF)** was created at the Bretton Woods conference as a weak kind of central banks' central bank, to make the new monetary system feasible and workable. Its major purpose was to assist members that would have structural trade problems or currencies that were highly unstable in value. The IMF permitted its deficit members to buy with their local currencies some of its own holdings of convertible currencies. These deficit countries were expected to buy back, with gold or other convertible currencies, the local currencies they had sold to the IMF after they had improved their balance of payments. Thus, the IMF's major weapon is the power to declare its members ineligible to utilize its holdings of international reserves.

The IMF was created in 1944 by 30 countries, but today it consists of some 180 member countries. Article I of the IMF Articles of Agreement clearly set forth its objectives as follows:

1 To promote international monetary cooperation.
2 To facilitate the balanced growth of international trade.
3 To promote exchange stability.
4 To eliminate exchange restrictions.
5 To create standby reserves.

The IMF established rules and procedures to keep participating countries from going too deeply into balance-of-payments deficits. Those countries with short-term payments difficulties could draw upon their reserves. The amount of such reserves is defined in relation to each member's quota. This quota is determined on the basis of such factors as trade, national income, and international payments. Each member is required to contribute 75 percent of its quota in its own currency and 25 percent in special drawing rights or convertible currencies.

These quotas for IMF members are reviewed at least every 5 years, to determine whether quotas should be increased to accommodate the growth of the world economy. Germany and Japan share second place in terms of quota size after the USA, followed by France and the UK,

Table 4.1 The history of the international monetary system

1914	The breakdown of the gold standard; monetary disorder began
1934	The US dollar pegged at $35 per ounce of gold
1944	The conference at Bretton Woods, New Hampshire, established a fixed exchange system based on the US dollar; the IMF and the World Bank created
1958	The European Economic Community established
1963	The USA levied "Interest Equalization Tax" on foreign borrowings in US capital markets
1963	The USA imposed voluntary controls on capital outflows from US banks and companies
1968	The USA imposed mandatory controls on foreign investment by US companies
1970	Special drawing rights created
1971	On August 15, the US dollar floated; the convertibility of the US dollar eliminated; an import surcharge imposed
	On December 17, the Smithsonian Agreement reached; the US dollar devalued from $35 per ounce of gold to $38
1972	A snake (2.25%) within a tunnel (4.5%) established
1973	The US dollar devalued from $38 to $42.22 in March
1973	The Organization for Petroleum Exporting Countries (OPEC) imposed an oil embargo, eventually quadrupling world prices of oil
1976	An IMF meeting in Jamaica, known as the "Jamaica Agreement," legalized the existing floating system
1978	The EEC established the European Monetary System (EMS), which officially replaced a snake within a tunnel; this was a joint floating system
1982	The Latin American debt crisis
1985	The "Group of Five" countries reached the Plaza Agreement, to reduce the value of the US dollar
1987	The major industrialized countries reached the Louvre Accord, to support stability and exchange rates around their current levels
1992	High German interest rates caused the "September 1992 currency crisis in Europe"; Italy and the UK withdrew from the EMS
1993	The July 1993 currency crisis in Europe forced the EEC to widen the allowable deviation band to ±15%
1993	A single European Community was created; the name of the EEC was changed to the European Union (EU)
1994	The Mexican peso suffered major devaluation (40%) and began to float
1997	In July, currency turmoil erupted in Thailand and spread to Indonesia, South Korea, and other South Asian countries
1999	On January 1, 11 European countries launched a single European currency called the euro, with a common monetary policy established by an independent European Central Bank
2001	On January 1, Greece adopted the euro
2001	On January 8, the Argentine peso, whose value had been fixed to the US dollar at parity since 1991 through a currency board, was first devalued to Ps1.4 per dollar and then floated
2002	On January 1, the euro began public circulation and was traded alongside the national currencies; on March 1, the euro replaced the national currencies of eurozone countries
2004	On May 1, the EU accepted 10 new members

which have equal quotas. The voting power of the members is determined by 250 "basic votes," plus one vote for each SDR 100,000 of quota. Because of its large quota, the USA still holds close to 20 percent of the total votes.

IMF members borrow by exchanging their own currencies for convertible currencies of other member countries. A member country may draw, virtually at will, 100 percent of its quota from the IMF at any time; the 100 percent of its quota is called the reserve tranche. A country could borrow beyond this amount up to an additional 100 percent of its quota; this 100 percent is called the credit tranche. Thus, a member country could conceivably borrow 200 percent of its quota in convertible currencies. But in order to borrow more than 100 percent of its quota, a member must accept restrictions imposed by the IMF to ensure that steps are being taken to correct the borrower's currency problems.

Global Finance in Action 4.1

The Case for an Asian Monetary Fund

Between 1990 and 1996, capital inflows to emerging market countries rose from $60 billion to $194 billion. No one carefully monitored these capital flows. When problems developed in Asia in 1997, neither the IMF nor the private lenders knew the true magnitude of the debts of some of these countries. The provision of the IMF Articles of Agreement requiring surveillance and the decision to strengthen surveillance following the 1995 Mexican crisis had proved to be of little use.

In exchange for the IMF emergency aid package of $119 billion, Korea, Indonesia, and Thailand agreed to adopt contractional macroeconomic policies and to undergo structural economic reforms. However, the IMF quickly lifted these traditional contractional measures, because these three countries had relatively small amounts of foreign debt and current-account deficits. This policy mistake on the part of the IMF prompted the East Asian economies to revive the idea of creating an Asian Monetary Fund (AMF). In September 1997, Japan surprised the international community by offering $100 billion as initial capital for creating the AMF, to stabilize the exchange rates in the region. A Japanese version of the AMF did not materialize because of pressure from the IMF and the USA, but the concept has continued to persist.

Some economists hold that there are at least four rationales for a regional monetary fund. First, a regional monetary fund is needed because any IMF support package is not sufficient in a case of currency crisis for middle-income countries, such as the East Asian countries. Second, the East Asian countries are underrepresented in the quota formula of the IMF. Third, contagions of currency crisis tend to be geographically concentrated, as demonstrated in the 1997–8 Asian crisis. Fourth, both regional surveillance and peer pressures are important in an attempt to prevent a currency crisis.

Sources: S. H. Kim and M. Haque, "The Asian Financial Crisis of 1997: Causes and Consequences," *Multinational Business Review*, Spring 2002, pp. 37–44; Youn Suk Kim, "Rationale for An Asian Monetary Fund," *The Journal of Korean Economy*, Fall 2001, pp. 229–48; and Allen H. Metzer, "Asian Problems and the IMF," *The Cato Journal*, Winter 1998, pp. 267–8.

Table 4.2 The composition of the special drawing rights

Currency	*1981–5*	*1986–90*	*1991–5*	*1996–2000*	*2001–5*
US dollar	42%	42%	40%	39%	41%
Euro	–	–	–	–	33%
German mark	19%	19%	21%	21%	–
Japanese yen	13%	15%	17%	18%	15%
British pound	13%	12%	11%	11%	11%
French franc	13%	12%	11%	11%	–

Source: The International Monetary Fund, Washington, DC.

4.3.1 Special drawing rights

The IMF had been concerned about the lack of growth in gold holdings and about the consequent lack of growth in international reserves, which was slower than the growth in world trade. To solve these problems, the IMF created **special drawing rights (SDRs)** as an artificial international reserve in 1970.

The IMF uses a simplified basket of several major currencies to determine its daily valuation. The weight for each currency is changed periodically. As shown in table 4.2, the current percentage weights for these currencies are 45 percent for the US dollar, 29 percent for the euro, 15 percent for the Japanese yen, and 11 percent for the British pound. The weight reflects the relative importance of each country in world trade and the amount of the currency held as reserves by members of the IMF.

THE USE OF SPECIAL DRAWING RIGHTS The IMF has the authority to extend the range of official holders of SDRs beyond its member countries and the IMF's General Resources Account. It has designated about 20 organizations as prescribed holders. Each of these institutions can acquire and use SDRs in transactions and operations with other prescribed holders and with any of the IMF's member countries. Prescribed holders have the same degree of freedom as IMF members to use SDRs for a variety of international transactions.

IMF members may also use SDRs in a variety of voluntary transactions and operations by agreement among themselves and with prescribed holders. More specifically, IMF members and prescribed holders buy and sell SDRs both spot and forward; borrow, lend, or pledge SDRs; use SDRs in swaps and in settlement of financial obligations; or make donations (grants) using SDRs.

The SDR is an international reserve asset created by the IMF in 1970 and allocated to its members to supplement existing reserve assets. All member countries of the IMF are eligible to receive allocation of SDRs and may use SDRs in transactions and operations among themselves, with prescribed holders, and with the IMF itself.

The SDR is used as a unit of account, or as a basis for the unit of account, by a number of international and regional organizations. The SDR has also been used to denominate private financial instruments. The use of the SDR as a unit of account is explained, in part, by the fact that the value of the SDR tends to be more stable than that of any single currency in the basket, since it is a weighted average of the exchange rates of the four major currencies in which the prices of goods and services in international trade are denominated.

4.4 The European Monetary Union

Many attempts to establish monetary unions across national borders have failed, but a few successful unions still exist today. For example, member countries of the Central African Franc Zone and the Eastern Caribbean Currency Union use the franc and the Eastern Caribbean dollar as their respective single common currencies. A **monetary union** is a formal arrangement in which two or more independent countries agree to fix their exchange rates or to employ only one currency to carry out all transactions. One of the most ambitious efforts to date has to do with the EU, which has strived toward a European Monetary Union (EMU) since 1957. Full union was achieved on January 1, 2002, which enabled participating member countries to carry out transactions with one currency through one central bank, under one monetary policy. This section presents a history of the European monetary system (EMS), from the snake within a tunnel of the 1970s to the EU's recent moves in the direction of monetary union.

4.4.1 The snake within a tunnel

In May 1972, the EEC agreed to allow its currencies to fluctuate a maximum of 2.25 percent against one another, while permitting a 4.5 percent fluctuation against other currencies. This system became known as a "snake within a tunnel." The "snake" was the narrower band of 2.25 percent permitted among the EEC countries and the "tunnel" was the wider band of 4.5 percent allowed by the Smithsonian Agreement.

The UK, Ireland, and Denmark joined the EEC in 1973. This was followed by a series of international monetary crises, such as the devaluation of the US dollar in February. In mid-March, the values of all major currencies were permitted to fluctuate according to market forces. Thus, the tunnel was gone in March 1973, but EEC countries had tried to maintain the snake. Some of these attempts were short-lived. For instance, France, after withdrawing from the snake and rejoining it several times, finally abandoned the snake in March 1976. Many causes of conflict between domestic economic goals and exchange stability intensified domestic pressures on many other participating countries to abandon the snake. The number of participating countries in the snake fell to six by late 1978: the German mark, the Dutch guilder, the Norwegian krone, the Belgian franc, the Danish krone, and the Luxembourg franc. The three main initial members of the snake – the UK, France, and Italy – had abandoned it some years earlier.

4.4.2 The European Currency Unit

Serious problems had raised questions about the snake's survival. The sharp decline in the exchange rate of the US dollar during the second half of 1978 further bolstered the desire of European countries for exchange stability. On December 5, 1978, the EEC adopted a resolution to establish the EMS, which came into effect on March 13, 1979. The EMS was a complex exchange rate and intervention system combined with large credit facilities. The institutional arrangements of the EMS included (1) a currency basket, (2) an exchange rate mechanism with rules of intervention, and (3) several credit facilities.

First, the European Currency Unit (ECU) was the cornerstone of the EMS. The ECU was used as the denominator for the exchange rate mechanism; that is, as the basis for a "divergence

indicator" to show when one currency diverges from the average of the other participating currencies. The ECU was also used as the denominator for operations under both the intervention and credit mechanisms. The value of an ECU was a weighted average value of a basket of all EEC currencies. Each currency's weight was decided by the relative importance of that country's economy in the total EEC output and the overall share of that country's trade in the total intra-EC trade. Weights were normally revised every 5 years.

Second, the ECU was based on a fixed, but adjustable, exchange rate system. Each participating currency has a central rate in terms of ECUs. These central rates determined a grid of bilateral central rates. Participating currencies were allowed to fluctuate within a margin of ±2.25 percent (±6 percent for Italy and Spain) from their bilateral central rates. Italy and Spain were allowed to fluctuate their currency up to 6 percent on either side of their bilateral central rates. However, a number of currency crises in recent years forced EU governments to drastically widen the band after July 1993.

Third, to facilitate compulsory intervention, EMS participants created short-term and medium-term financing facilities. A short-term facility provides short-term financing for temporary balance-of-payments deficits. A medium-term facility was also available for balance-of-payments assistance, but its use was subject to certain conditions.

4.4.3 From the European Currency Unit to the euro

The EU's decision to switch their monetary union from the ECU to the euro came about in December 1991, when EU leaders met at Maastricht, in the Netherlands, and signed the Maastricht Treaty. The Maastricht Treaty specified a timetable for the creation of a monetary union. Under their accord, EU leaders agreed to establish a single European currency, called the euro, by January 1, 1999, with a common monetary policy established by an independent European Central Bank.

Since the crises of September 1992 and July 1993, EU countries had repeatedly affirmed their intent to continue the process of economic and financial integration. In order to join the monetary union, European countries were required to meet the five convergence criteria:

1 An inflation rate that is no more than 1.5 percentage points above the average of the three lowest-inflation countries.
2 A long-term government bond rate that is no more than 2 percentage points above the average bond rate of the three lowest-inflation countries.
3 A deficit that does not exceed 3 percent of gross domestic product (GDP).
4 Government debt that does not exceed 60 percent of GDP.
5 An exchange rate that had remained within the standard bands (±2.25 percent) of the exchange rate mechanism for at least 2 years prior to joining the monetary union.

The eurozone, commonly known as Euroland, came into being on January 1, 1999 with 11 of the EU's 15 members – Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. The UK, Sweden, and Denmark met the five financial requirements for qualification, but chose not to join the eurozone. Greece was the only country that failed to meet the required economic criteria, but Greece joined the eurozone on January 1, 2001. The EU accepted 10 new members on May 1, 2004: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. Table 4.3 shows that the com-

Table 4.3 How the EU and the USA stack up as of December 2002

Economic variables	*USA*	*European Union*
Population	293 million	452 million
Imports	$1.26 trillion	$2.783 trillion
Exports	$714.5 billion	$2.88 trillion
Foreign-exchange reserves	$83 billion	$520 billion
Total GDP	$10.45 trillion	$11.0 trillion
Unemployment rate	6.2%	8.3%

Sources: *The CIA Factbook*, The Economist Intelligence Unit, London, and the International Monetary Fund, Washington, DC.

bination of 25 European countries and the new currency could create a powerful global trade competitor to the USA and the dollar. The EU will become even stronger for years to come, as there are currently seven other applicants working toward membership: Bulgaria, Turkey, Croatia, the Ukraine, Russia, Georgia, and Switzerland.

THE CREATION OF THE EURO Economists regard the creation of the euro as the most important development in the international monetary system since the Bretton Woods Agreement collapsed in 1973. The **euro** is a new currency unit, which replaced the individual currencies of the participating member countries and the ECU over a 3-year period from 1999 to 2002.

Effective January 1, 1999, the European Central Bank (ECB) began to conduct monetary policy with the euro. For up to 3 years after that date, national governments, many banks, and some businesses conducted transactions in a single currency. New EU bank notes and coins did not reach the person on the street until the start of 2002. On January 1, 2002, euro bank notes and coins were issued. National currencies continued to be accepted in trade for a short transition period, which ended in all participating member countries by the end of February 2002. This means that national notes and coins had coexisted with the euro for 2 months. Consequently, Europe's age-old dream of creating a single unified currency became a reality on January 1, 2002.

The adoption of the euro as a common currency would eliminate exchange rate risk between eurozone countries and facilitate cross-border price comparisons. Lower risk and price transparency would encourage more trade and capital flows across European borders. Another advantage of a single European currency is the elimination of currency costs associated with transactions between European countries. The EU has estimated that businesses in Europe spent $13 billion per year to convert money from one EU currency to another. Thus businesses, along with ordinary citizens, would clearly benefit from the euro through such lower currency conversion costs across European borders. A monetary authority known as the Eurosystem manages the new currency. A European Central Bank (ECB) and the national central banks of participating countries make up the Eurosystem. But the ECB, with a staff of 520, actually sets monetary policy for the 12 nations of the eurozone. It is housed in a silver-colored skyscraper in the heart of Frankfurt, Germany's traditional banking capital.

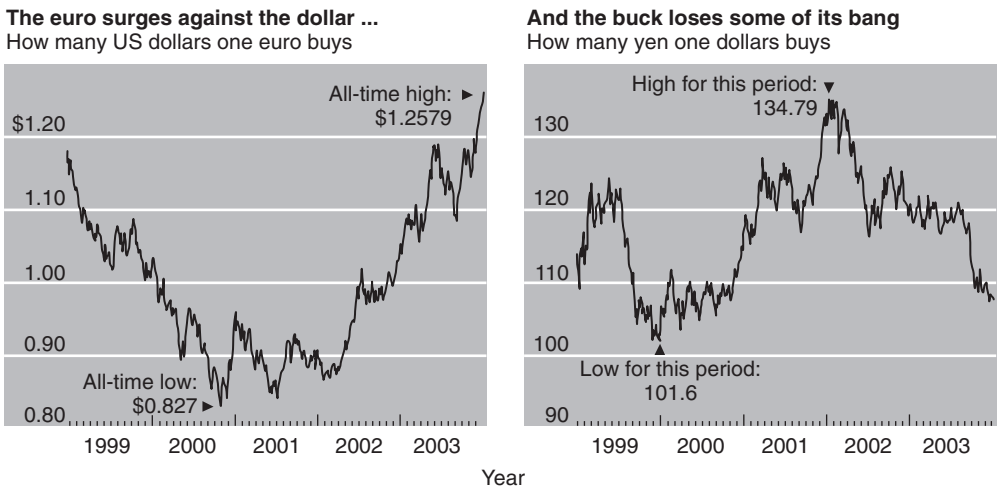

Figure 4.6 The US dollar's doldrums fuel the euro's rise
Source: *The Wall Street Journal*, Jan. 2, 2004, p. R13.

The bank's key aim is to maintain price stability, a mandate written into the 1992 Maastricht Treaty. The bank has so far guarded its independence fiercely, so that it can support the economic policies of EU nations without the expense of price stability. The chiefs of the national central banks travel to Frankfurt twice a month to debate and decide common policies.

Figure 4.6 depicts the euro's percentage change against the dollar since its inception. On December 1, 1999, the euro fell to parity with the US dollar for the first time since its introduction at $1.18 per euro on January 1 of that year. The continuous depreciation of the euro reached a low point of $0.80 per euro in October 2000, which indicates a 32 percent decline of the euro against the dollar for the first 2 years since its inception. The depreciation of the euro during this period reflects the strong performance of the US economy and the large European investment in the USA.

From the start of 2002, however, the euro began to appreciate against the dollar, reached roughly its original exchange rate of $1.18 by the early 2003, and tumbled to $1.2579 on December 31, 2003. "The dollar faces a long-term slow-motion crisis of confidence for several negative factors," said Anne Parker Mills, a foreign-exchange economist at Brown Brothers Harriman & Company in New York (Sesit 2004). These negative factors include the twin deficits in the US federal budget (–$500 billion in 2004) and the US current account (–$500 billion in 2003), continued risks of terrorist attacks against the USA, the resurgence of protectionism, and the possibility that Asian central banks could choose to reduce their huge dollar holdings.

Global Finance in Action 4.2

Europe's Ambitious Bid for a More Perfect Union

At a summit in Greece on June 20, 2003, European heads of state inspected the latest EU draft constitution. The draft aims to emulate the Founding Fathers of the USA. If the draft becomes the legal foundation of Europe, it would create a perfect union of the 25 member states as of 2004. These 25 states have a combined population of 450 million and an economy nearly 90 percent as large as that of the USA.

One of the long-term French goals has been to give the EU a common foreign and defense policy. The draft reflects that goal by proposing a powerful "foreign minister" and requiring that member states unreservedly support the union's policies in "a spirit of loyalty and solidarity." Some heads of member governments suspect that the purpose here is to fulfill the Gaullist dream of Europe becoming a world power that would rival the USA. Their fears were reinforced when France opposed the US invasion of Iraq in early 2003.

Source: George Melloan, "Europe's Ambitious Bid for a More Perfect Union," *The Wall Street Journal*, June 17, 2003, p. A17.

4.5 Proposals for Further International Monetary Reform

The Bretton Woods system had three basic defects: (1) pegged parities, (2) dollar disequilibrium, and (3) inadequate international reserves. Some important reforms introduced to solve these problems include special drawing rights, the Smithsonian Agreement, the snake within a tunnel, and the EMS. Nevertheless, these reforms were inadequate to maintain orderly markets.

4.5.1 Volatile exchange rates

When major industrial countries abandoned the fixed exchange rate system in 1973 in favor of a floating-rate system, they saw their decision as a triumph for the free market. Many economists expected exchange rates to be fairly stable under the flexible exchange rate system. They also expected that the flexible exchange rate system would reduce national trade imbalances. Major exchange rates have been more volatile since 1974. The trade imbalances of many countries have been larger and more persistent since 1974.

In other words, the costs of flexible exchange rates have been greater than expected. Consequently, a consensus has grown that the world should return to stable but flexible policy rules. These and other problems have recently increased the need for further international monetary reform. Proposals for further international monetary reform may be divided into two broad categories: proposals for greater flexibility and other proposals.

4.5.2 Proposals for greater flexibility

A system of additional flexibility, or even a system of freely flexible exchange rates, has been suggested to restructure the current international monetary system so that deficit countries might solve their payments problems. It seems reasonable to assume that fixed exchange rates, which existed under the gold standard before World War I, are now practically impossible. Moreover, fixed but adjustable exchange rates could not accommodate highly diversified modern economies more than one half-century after the Bretton Woods Agreement. Countries differ too much in price levels, wage costs, monetary policies, and international capital flows to keep fixed exchange rates.

A WIDER BAND A wider band has been frequently suggested as an alternative to the present international monetary system. The Bretton Woods Agreement allowed a band of 2.25 percent, and the Smithsonian Agreement approved a band of 4.5 percent. Proponents of this wider band would like to see it expanded further. They argue that a wider band would allow central banks to enjoy freedom to pursue independent monetary policies.

THE CRAWLING PEG The **crawling peg** is a proposal that would provide for regular modification of par value according to an agreed-upon formula. Under this system, a country would permit its currency to appreciate or depreciate slowly, rather than fight to maintain a band of certain percentages around par value. The crawling peg would provide relatively stable exchange rates for those nations, which consider this stability essential for international transactions. Balance-of-payments problems would also be self-adjusted through the international price mechanism rather than through exchange controls, restrictions on the growth of national income and employment, price controls, or other unpopular internal policies.

THE CRAWLING BAND A **crawling band** combines a wider band and a crawling peg. In other words, this proposal is a compromise between the inflexible exchange rates of the gold standard and a system of completely fluctuating exchange rates. Each parity level would be adjusted upward or downward as a moving average of the actual exchange rates that could fluctuate within a wider band: (1) within 1 year, the exchange rate parity would be allowed to move a predetermined maximum – say, 2 percent – and this 2 percent is called the annual crawling peg; (2) this slowly crawling peg would be surrounded by a wider band within which the actual exchange rate could fluctuate.

4.5.3 Other proposals

A number of proposals ask for the creation of a super-central institution that would perform the same function for an international economy as the commercial banking system performs for a domestic economy. John Keynes (Machlup 1964), for instance, proposed the establishment of an International Clearing Union that would create an international currency called the "bancor." Under this system, deficit countries would be able to borrow bancors to finance their deficits.

To illustrate another viewpoint, Robert Triffin (1968) proposed the creation of reserves by an international institution such as the IMF. Under this proposal, surplus countries would be required to deposit a portion of their holdings in key currencies (dollars, special drawing rights,

yen, and pounds) in the IMF instead of holding them as monetary reserves. On the basis of these deposits, the IMF could create necessary international monetary reserves through its loans to deficit countries.

Another proposal calls for enlarging the number of reserve countries. To reduce exchange risk, many central banks have recently diversified their portfolios of reserve assets to include Japanese yen, euros, special drawing rights, and gold. An increased number of reserve countries would spread the reserve-currency burden more evenly than before and leave the monetary system less vulnerable to attack. Freely flexible exchange rates, discussed in the earlier part of this chapter, have been frequently suggested to reform the international monetary system. Completely flexible exchange rates have never been tried. It is unlikely that they ever will be.

SUMMARY

Financial managers must understand the international monetary system if they are to manage multinational businesses efficiently. Foreign-exchange rates determine the prices of goods and services that multinational companies buy and sell across national boundaries. These exchange rates also have an impact on foreign investments.

Considered historically, the international monetary system of the late nineteenth century evolved into the current dirty floating system. The pre-1914 gold standard represents one extreme of the international monetary system. Under this system, the exchange rate for each currency was fixed in terms of gold. The flow of gold restored the balance-of-payments equilibrium. In the case of a deficit, a gold outflow would take place to finance an external deficit. In the case of a surplus, a gold inflow would occur to eliminate an external surplus.

World War I ended the stability of exchange rates for currencies of major trading partners. The world then experienced international monetary disorder from 1914 to 1945. The Great Depression of 1929–32 and the international financial crisis afterwards resulted in international monetary chaos. To summarize the international monetary system from 1914 to 1945, we find a mixture of widely fluctuating exchange rates and controlled exchange rates.

The Bretton Woods Agreement of 1944 marked a new era for the operation of the international monetary system, which was a system of fixed exchange rates based on a revised gold standard, called the gold exchange standard. Each currency was fixed within a narrow range of value in relation to gold or the US dollar. Many member countries were unable or unwilling to abide by the Bretton Woods Agreement, because its provisions were complex and because their interests conflicted. Nevertheless, the Bretton Woods Agreement and the activity of the IMF were the main features of the international monetary system from 1945 to 1973.

Two problems raised serious questions about the function of the Bretton Woods Agreement as the international monetary system. First, the growth of monetary reserves was inadequate. Second, effective balance-of-payments adjustments could not be achieved under the Agreement. Attempts to save the Bretton Woods Agreement through the introduction of SDRs and the Smithsonian Agreement failed when the whole system collapsed in 1973. Since 1973, the international monetary system has been characterized by a confusing mixture of freely floating, managed floating, joint floating, and fixed rates.

Questions

1 Some governments and economists have repeatedly suggested that the international monetary system return to a system of fixed exchange rates. Discuss the pros and cons of the fixed exchange rate system.
2 Why did the US dollar become so weak and the Bretton Woods Agreement fail in 1973?
3 Analysts said that President Nixon's speech delivered on August 15, 1971 was designed to prepare Americans for a multipolar world, because American decline – both economically and militarily – was inevitable. List the decisions announced in this famous speech.
4 List those events that would change a country's demand for and supply of foreign exchange.
5 What are some alternative exchange rate systems?
6 List the objectives of the International Monetary Fund (IMF).
7 What are special drawing rights (SDRs)? How is the value of the SDR determined?
8 What is a currency board? What are the solid fundamentals in order to have a successful currency board? How did the currency board that pegged the Argentinian peso to the US dollar during the 1990s affect Argentina's current account and thus its economy?
9 What is dollarization? What are the arguments for and against dollarization?
10 When do volatile exchange rates exist?
11 The major industrialized countries have practiced the floating exchange rate system since 1973. Under the floating-rate system, economists expected exchange rates to be fairly stable and trade imbalances to fall. Have these two expectations been realized?
12 What are the advantages of a common currency such as the euro?

REFERENCES

Antinolfi, G. and T. Keister, "Dollarization as a Monetary Arrangement for Emerging Market Economies," *Review*, Federal Reserve Bank of St. Louis, Nov./Dec. 2001, pp. 29–39.

Bloughten, J. M., *Fifty Years After Bretton Woods: The Future of IMF and World Bank*, Washington, DC: International Monetary Fund, 1995.

Cooper, R. N., *The International Monetary System: Essays in World Economics*, Cambridge, MA: The MIT Press, 1987.

Hickman-Riggs, L. and W. A. Riggs, "The Creation of the Euro," *Management Accounting Quarterly*, Spring 2001, pp. 35–40.

Kim, S. H. and M. Haque, "The Asian Financial Crisis of 1997: Causes and Consequences," *Multinational Business Review*, Spring 2002, pp. 37–44.

Kim, Y. S., "Rationale for An Asian Monetary Fund," *The Journal of Korean Economy*, Fall 2001, pp. 229–48.

Kopcke, R. W., "Currency Boards: Once and Future Monetary Regimes," *New England Economic Review*, May/June 1999, pp. 21–37.

Machlup, F., *Plans for Reform of the International Monetary System*, Princeton, NJ: Princeton University Press, 1964.

Metzer, A. H., "Asian Problems and the IMF," *The Cato Journal*, Winter 1998, pp. 267–8.
Sesit, M. R., "Dollar Face Further Pressure under US Deficits, Protectionism," *The Wall Street Journal*, Jan. 2, 2004, p. R13.
Triffin, R., *Our International Monetary System: Yesterday, Today, and Tomorrow*, New York: Random House, 1968.
White, J. A., "Flexible Exchange Rates: An Idea Whose Time Has Passed?" *Economic Review*, Federal Reserve Bank of Atlanta, Sept./Oct. 1990, pp. 2–15.
Wynne, M. A., "The European System of Central Banks," *Economic Review*, Federal Reserve Bank of Dallas, First Quarter 1999, pp. 2–13.

Case Problem 4: The Mexican Peso Crisis of December 1994

Before the December 1994 devaluation, the Mexican government had essentially pegged the peso to the US dollar through its exchange rate stabilization program. Mexico permitted its exchange rate to fluctuate within a band of 2 percent. However, in December 1994 Mexico faced a balance-of-payments crisis. Investors lost confidence in Mexico's ability to maintain the exchange rate of the peso within its trading band, in part because of Mexico's large current-account deficit, which had reached almost $28 billion in that year. Intense pressure on the peso in foreign-exchange markets threatened to exhaust Mexico's international reserves. This pressure eventually compelled the Mexican government to float the peso and led to the now-famous peso crisis between December 1994 and early 1995.

Exchange rate stabilization programs by developing countries are very difficult to pursue effectively over protracted periods. In programs such as that of Mexico, devaluation is not unusual, even when care is taken to address the typical problems by using exchange rate pegging as only a part of the overall program. After taking office on December 1, 1988, President Carlos Salinas used "pegging" as an important element of a broader program that included reduced government spending, tax reform, deregulation, privatization, and significant trade liberalization – including rapid reductions in tariffs and quotas through entries into the General Agreement on Tariffs and Trade (GATT), into the North American Free Trade Agreement (NAFTA), and into the Organization for Economic Cooperation and Development (OECD). This broader economic program reduced the number of government-owned enterprises from 1,100 in 1987 to 220 in 1994, decreased inflation from 159 percent in 1987 to 7 percent in 1994, eliminated the nation's budget deficit, increased exports to the USA by 35 percent, and cut wage increases in half between 1987 and 1994. The real sector of the Mexican economy was healthy, not sick.

The key, then, was not to balance the current account with the rest of the world, but to balance trade deficits with voluntary investment inflows. Mexico ran current-account deficits of $25 billion in 1992 and $23 billion in 1993, and during this time not only maintained the peso at around $3.1, but accumulated large foreign reserves. In 1994, the current-account deficit was only slightly higher – $27 billion after 11 months. The problem came with the inflows, as political turmoil shook investor confidence.

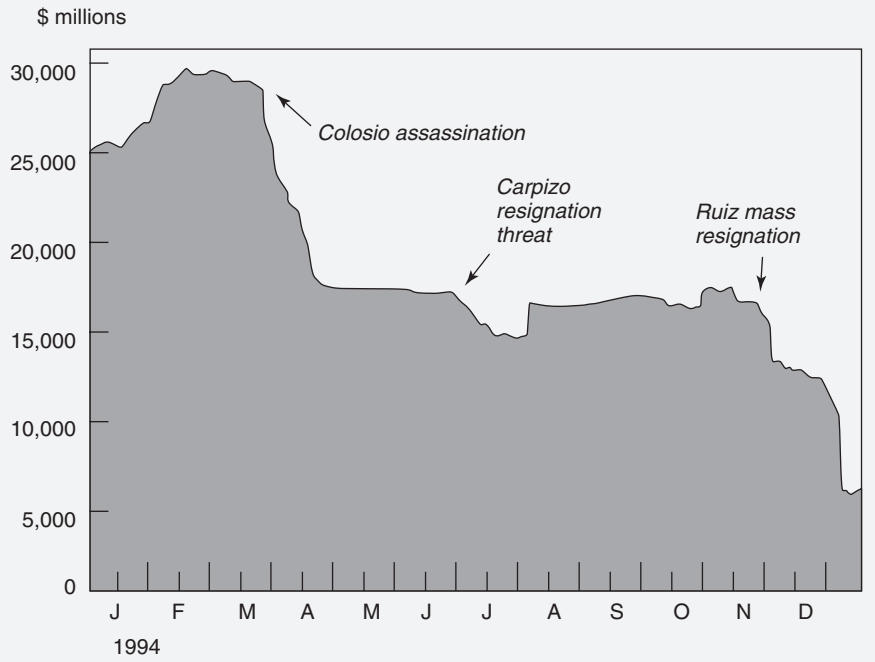

Figure 4.7 Mexican international reserves in 1994

The biggest shock came in March 1994, when presidential candidate Luis Colosio was assassinated. Ernesto Zedillo, who had been Salinas's Planning and Budget Minister, was Colosio's hastily selected replacement; he was elected in August as the new president. Colosio's killing, a year-long peasant rebellion in southern Mexico, and the September 1993 assassination of the ruling party secretary Francisco Ruiz had combined to weaken international investor confidence, while creating an image of Mexico as politically unstable. Consequently, foreign-exchange reserves had fallen from a peak of $30 billion before the Colosio assassination on March 23 to about $12 billion at the Zedillo inauguration on December 1 (see figure 4.7).

Mexico decided to devalue, widening the bands on the exchange rate on December 20 and going to a freely floating rate on December 22. The latter decision was actually forced, because the earlier one collapsed as investor confidence in the peso disappeared. Widening the bands clearly presaged devaluation and led to a massive capital flight from the peso, and loss of $6 billion – or half of the remaining reserves – in one day. Judging by their public economic plans, the Mexican authorities had in mind an exchange rate of 4.07 pesos to the dollar, a 14 percent devaluation from the earlier 3.50 floor. But with confidence imploding, the peso dropped immediately to 5.80, a 40 percent devaluation (see figure 4.8).

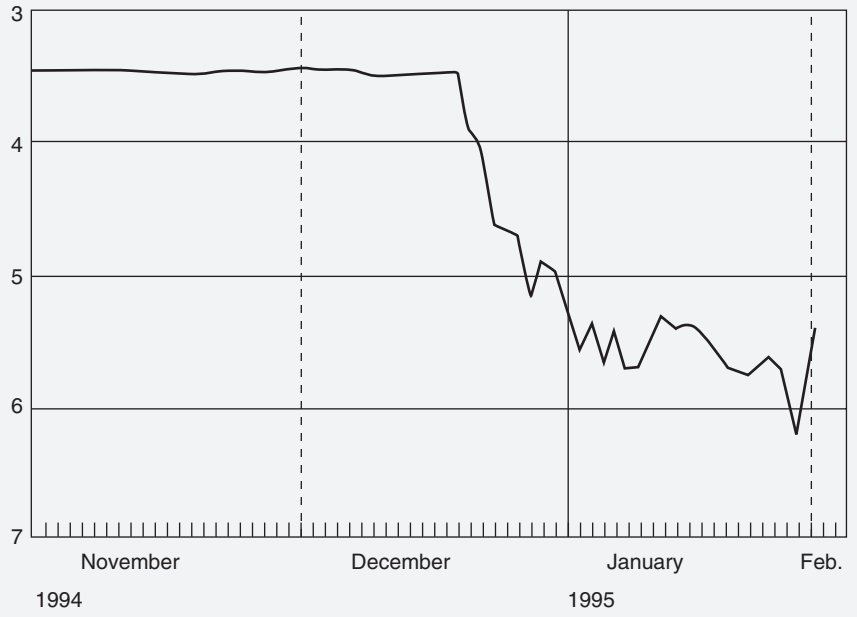

Figure 4.8 Mexican pesos per US dollar (inverted scale)

Case Questions

1 Normally, economists suggest that exchange rate pegging by developing countries such as Mexico ought to be a temporary stabilization tool, ultimately followed by a managed float, a crawling band, or a floating exchange rate system. Briefly define each of these three exchange regimes.
2 Approximately $24 billion had fled Mexico in a run on the peso between April 1 and December 21, 1994. What is capital flight? How does it differ from capital flows? What were the major causes of capital flight in Mexico?
3 Explain the Mexican rescue package of $50 billion arranged by the USA and the International Monetary Fund to avert a broader financial crisis.
4 In making this unusual commitment (a $50 billion rescue package), was the world unintentionally rewarding Mexican mismanagement? What was to keep the same problems from causing another financial crisis that would require another rescue plan in the future?
5 Given all of Mexico's problems, how risky was the US $20 billion aid package?

6 The home page of the International Monetary Fund (IMF), www.imf.org, provides IMF-related news, their contracts, and an update on their most recent activities. Use this web page to find out about current IMF loans to its member countries.

Sources: T. Carrington, "Some Questions and Answers About Clinton's New Plan to Aid Mexico," *The Wall Street Journal*, Feb. 2, 1995, p. A5; T. Carrington, T. D. Rogers, and R. Wartzman, "Clinton Hastily Drops Mexican Rescue Plan, Gives New Aid Instead," *The Wall Street Journal*, Feb. 1, 1995, pp. A1, A6.