chapter

21

# The International Monetary System: Past, Present, and Future

LEARNING GOALS:

After reading this chapter, you should be able to:

- Understand how the gold standard operated
- Describe how the postwar Bretton Woods System operated and why it collapsed
- Know how the present international monetary system works
- Identify the major international economic problems facing the world today

## 21.1 Introduction

In this chapter, we examine the operation of the international monetary system from the gold standard period to the present. Fragments of this experience were presented as examples when the various mechanisms of balance-of-payments adjustment were examined. We now bring it all together and evaluate the process of balance-of-payments adjustment and, more broadly, open-economy macroeconomic policies and performance as they actually occurred under the various international monetary systems that existed from 1880 to the present. Although the approach is historical, the evaluation of the operation of the various international monetary systems will be conducted in terms of the analytical framework developed in Chapters 16 through 20.

An international monetary system (sometimes referred to as an international monetary *order* or *regime*) refers to the rules, customs, instruments, facilities, and organizations for effecting international payments. International monetary systems can be classified according to the way in which exchange rates are determined or according to the form that international reserve assets take. Under the exchange rate classification, we can have a fixed exchange rate system with a narrow band of fluctuation about a par value, a fixed exchange rate system with a wide band of fluctuation, an adjustable peg system, a crawling peg system, a managed floating exchange rate system, or a freely floating exchange rate system. Under the

international reserve classification, we can have a gold standard (with gold as the only international reserve asset), a pure fiduciary standard (such as a pure dollar or exchange standard without any connection with gold), or a gold-exchange standard (a combination of the previous two).

The various classifications can be combined in various ways. For example, the gold standard is a fixed exchange rate system. However, we can also have a fixed exchange rate system without any connection with gold, but with international reserves comprised of some national currency, such as the U.S. dollar, that is no longer backed by gold. Similarly, we can have an adjustable peg system or a managed float with gold and foreign exchange or with only foreign exchange as international reserves. Under a freely floating exchange rate system, there is theoretically no need for reserves since exchange rate changes automatically and immediately correct any balance-of-payments disequilibrium as it develops. Throughout the period of our analysis, most of the international monetary systems possible were in operation at one time or another or for some nations, as described in this chapter.

A good international monetary system is one that maximizes the flow of international trade and investments and leads to an "equitable" distribution of the gains from trade among the nations of the world. An international monetary system can be evaluated in terms of adjustment, liquidity, and confidence. Adjustment refers to the process by which balance-of-payments disequilibria are corrected. A good international monetary system is one that minimizes the cost of and the time required for adjustment. Liquidity refers to the amount of international reserve assets available to settle temporary balance-of-payments disequilibria. A good international monetary system is one that provides adequate international reserves so that nations can correct balance-of-payments deficits without deflating their own economies or being inflationary for the world as a whole. Confidence refers to the knowledge that the adjustment mechanism is working adequately and that international reserves will retain their absolute and relative values.

In Section 21.2, we examine the gold standard as it operated from about 1880 to 1914 and the experience between World War I and World War II. The gold standard was a fixed exchange rate system with gold as the only international reserve asset. The interwar period was characterized first by a system of flexible exchange rates and subsequently by the attempt to reestablish the gold standard—an attempt doomed to failure. Sections 21.3, 21.4, and 21.5 examine the establishment, operation, and collapse of the Bretton Woods system, the fixed or adjustable peg gold-exchange standard that operated from the end of World War II until August 1971. From then through March 1973, an adjustable peg dollar standard prevailed. Section 21.6 examines the operation of and the problems facing the present managed floating exchange rate system. Finally, the appendix presents the composition and value of international reserves from 1950 to 2011.

## 21.2 The Gold Standard and the Interwar Experience

In this section, we examine first the gold standard as it operated from about 1880 to the outbreak of World War I in 1914. Then we examine the interwar experience with flexible exchange rates between 1919 and 1924 and the subsequent attempt to reestablish the gold standard. (This attempt failed with the deepening of the Great Depression in 1931.)

## 21.2A The Gold Standard Period (1880–1914)

The *gold standard* operated from about 1880 to 1914. Under this standard, as explained in Section 16.6A, each nation defined the gold content of its currency and passively stood ready to buy or sell any amount of gold at that price. Since the gold content in one unit of each currency was fixed, exchange rates were also fixed. This was called the *mint parity*. The exchange rate could then fluctuate above and below the mint parity (i.e., within the *gold points*) by the cost of shipping an amount of gold equal to one unit of the foreign currency between the two monetary centers.

The exchange rate was determined within the gold points by the forces of demand and supply and was prevented from moving outside the gold points by gold shipments. That is, the tendency of a currency to depreciate past the *gold export point* was halted by gold outflows from the nation. These gold outflows represented the deficit in the nation's balance of payments. Conversely, the tendency of a nation's currency to appreciate past the *gold import point* was halted by gold inflows. These gold inflows measured the surplus in the nation's balance of payments. Since deficits were supposed to be settled in gold and nations had limited gold reserves, deficits could not go on forever but had to be corrected quickly.

The adjustment mechanism under the gold standard, as explained by *Hume*, was the automatic *price-specie-flow mechanism* (see Section 16.6B), which operated as follows. Since each nation's money supply consisted of either gold itself or paper currency backed by gold, the money supply would fall in the deficit nation and rise in the surplus nation. This would cause internal prices to fall in the deficit nation and rise in the surplus nation (the *quantity theory of money*). As a result, the exports of the deficit nation would be encouraged and its imports discouraged until its balance-of-payments deficit was eliminated. The opposite would occur in the surplus nation.

Passively allowing its money supply to change for balance-of-payments considerations meant that a nation could not use monetary policy for achieving full employment without inflation. But this created no difficulties for classical economists, since they believed that there was an automatic tendency in the economic system toward full employment without inflation.

For the adjustment process to operate, nations were not supposed to *sterilize* (i.e., neutralize) the effect of a balance-of-payments deficit or surplus on the nation's money supply. On the contrary, the *rules of the game* of the gold standard required a deficit nation to reinforce the adjustment process by further restricting credit and a surplus nation to further expand credit. However, *Nurkse and Bloomfield* found that monetary authorities often did not follow the rules of the game during the period of the gold standard but sterilized part, though not all, of the effect of a balance-of-payments disequilibrium on the nation's money supply. *Michaely* argued that this was necessary to moderate the adjustment process and prevent an excessive reduction in the deficit nation's money supply and an excessive increase in the surplus nation's money supply.

This is how the adjustment mechanism was supposed to have worked under the gold standard. In reality, *Taussig* and some of his students at Harvard found in the 1920s that the adjustment process seemed to work much too quickly and smoothly and with little, if any, actual transfers of gold among nations. Taussig found that balance-of-payments disequilibria were settled mostly by international capital flows rather than through gold shipments (as described above). That is, when the United Kingdom had a balance-of-payments deficit,

its money supply fell, interest rates rose, and this attracted a short-term capital inflow to cover the deficit.

The United Kingdom reinforced this incentive for capital inflows by deliberately raising its discount rate (called the *bank rate* then), which increased interest rates and capital inflows even more. Furthermore, the reduction in the U.K. money supply as a result of a deficit seems to have reduced domestic economic activity more than prices, and this discouraged imports (as described by the automatic *income* adjustment mechanism discussed in Chapter 17). The opposite process corrected a surplus in the U.K. balance of payments.

Not only did most of the adjustment under the gold standard not take place as described by the price-specie-flow mechanism, but if the adjustment process was quick and smooth, this was due to the special conditions that existed during the period of the gold standard. This was a period of great economic expansion and stability throughout most of the world. The pound sterling was the only important international currency and London the only international monetary center. Therefore, there could be no lack of confidence in the pound and shifts into other currencies and to other rival monetary centers. There was greater price flexibility than today, and nations subordinated internal to external balance. Under such circumstances, any international monetary system would probably have worked fairly smoothly.

Reestablishing the gold standard today without at the same time recreating the conditions that ensured its smooth operation during the 30 years or so before World War I would certainly lead to its collapse. Nevertheless, the period of the gold standard is surrounded by an aura of nostalgia about "the good old days" that is difficult to dispel and that to some extent lingers on even today. However, it is improbable that the gold standard or anything closely resembling it will be reestablished in the foreseeable future.

## 21.2B The Interwar Experience

With the outbreak of World War I, the classical gold standard came to an end. Between 1919 and 1924, exchange rates fluctuated wildly, and this led to a desire to return to the stability of the gold standard. In April 1925, the United Kingdom reestablished the convertibility of the pound into gold *at the prewar price* and lifted the embargo on gold exports that it had imposed at the outbreak of World War I. Other nations followed the United Kingdom's lead and went back to gold. (The United States had already returned to gold in 1919.) However, the new system was more in the nature of a gold-exchange standard than a pure gold standard in that both gold and currencies convertible into gold (mostly pounds but also U.S. dollars and French francs) were used as international reserves. This economized on gold, which (at the prewar price and in the face of a substantial increase in other prices as a result of the war) had become a much smaller percentage of the total value of world trade.

Since the United Kingdom had lost a great deal of its competitiveness (especially to the United States) and had liquidated a substantial portion of its foreign investments to pay for the war effort, reestablishing the prewar parity left the pound grossly overvalued (see the discussion of Cassell's purchasing-power theory in Section 15.2). This led to balance-of-payments deficits and to deflation as the United Kingdom attempted to contain its deficits. On the other hand, France faced large balance-of-payments surpluses after the franc was stabilized at a depreciated level in 1926.

Seeking to make Paris an international monetary center in its own right, France passed a law in 1928 requiring settlement of its balance-of-payments surpluses in gold rather than in

pounds or other currencies. This was a serious drain on the meager U.K. gold reserves and led to a shift of short-term capital from London to Paris and New York. When France also sought to convert all of its previously accumulated pounds into gold, the United Kingdom was forced in September 1931 to suspend the convertibility of the pound into gold, which devalued the pound, and the gold-exchange standard came to an end. (The United States actually went off gold in 1933.)

While France's decision to convert all of its pounds into gold was the immediate cause of the collapse of the gold-exchange standard, the more fundamental causes were (1) the lack of an adequate adjustment mechanism as nations sterilized the effect of balance-of-payments disequilibria on their money supplies in the face of grossly inappropriate parities, (2) the huge destabilizing capital flows between London and the emerging international monetary centers of New York and Paris, and (3) the outbreak of the Great Depression (to which the malfunction of the international monetary system contributed). However, it is likely that any international monetary system would have collapsed under the tremendous strain of worldwide depression.

There followed, from 1931 to 1936, a period of great instability and competitive devaluations as nations tried to "export" their unemployment. The United States even devalued the dollar (by increasing the dollar price of gold from $20.67 to $35 an ounce) in 1933–1934, from a position of balance-of-payments *surplus*, in order to stimulate its exports. Needless to say, this was a serious policy mistake. Expansionary domestic policies would have stimulated the U.S. economy and at the same time corrected or reduced its balance-of-payments surplus. By 1936, exchange rates among the major currencies were approximately the same as they had been in 1930, before the cycle of competitive devaluations began. The only effect was that the value of gold reserves was increased. However, most foreign exchange reserves had been eliminated by mass conversions into gold as protection against devaluations.

This was also a period when nations imposed very high tariffs and other serious import restrictions, so that international trade was cut almost in half. For example, in 1930 the United States passed the *Smoot–Hawley Tariff Act*, which raised U.S. import duties to an all-time high (see Section 9.6A). By 1939, of course, depression gave way to full employment—and war.

According to *Nurkse*, the interwar experience clearly indicated the prevalence of destabilizing speculation and the instability of flexible exchange rates. This experience strongly influenced the Allies at the close of World War II to establish an international monetary system with some flexibility but with a heavy emphasis on fixity as far as exchange rates were concerned. (This is discussed in the next section.) More recently, the interwar experience has been reinterpreted to indicate that the wild fluctuations in exchange rates during the 1919–1924 period reflected the serious pent-up disequilibria that had developed during World War I and the instability associated with postwar reconstruction, and that in all likelihood no fixed exchange rate system could have survived during this period.

## 21.3 The Bretton Woods System

In this section, we describe the Bretton Woods system and the International Monetary Fund (the institution created to oversee the operation of the new international monetary system and provide credit to nations facing temporary balance-of-payments difficulties).

## 21.3A The Gold-Exchange Standard (1947–1971)

In 1944, representatives of the United States, the United Kingdom, and 42 other nations met at Bretton Woods, New Hampshire, to decide on what international monetary system to establish after the war. The system devised at Bretton Woods called for the establishment of the International Monetary Fund (IMF) for the purposes of (1) overseeing that nations followed a set of agreed upon rules of conduct in international trade and finance and (2) providing *borrowing* facilities for nations in *temporary* balance-of-payments difficulties.

The new international monetary system reflected the plan of the American delegation, drawn up by *Harry D. White* of the U.S. Treasury, rather than the plan submitted by *John Maynard Keynes*, who headed the British delegation. Keynes had called for the establishment of a *clearing union* able to *create* international liquidity based on a new unit of account called the "bancor," just as a national central bank (the Federal Reserve in the United States) can create money domestically. The IMF opened its doors on March 1, 1947, with a membership of 30 nations. With the admission of the Soviet Republics and other nations during the 1990s, IMF membership reached 187 at the beginning of 2012. Only a few countries, such as Cuba and North Korea, are not members.

The Bretton Woods system was a gold-exchange standard. The United States was to maintain the price of gold fixed at $35 per ounce and be ready to exchange on demand dollars for gold at that price without restrictions or limitations. Other nations were to fix the price of their currencies in terms of dollars (and thus implicitly in terms of gold) and intervene in foreign exchange markets to keep the exchange rate from moving by more than 1 percent above or below the par value. Within the allowed band of fluctuation, the exchange rate was determined by the forces of demand and supply.

Specifically, a nation would have to draw down its dollar reserves to purchase its own currency in order to prevent it from depreciating by more than 1 percent from the agreed par value, or the nation would have to purchase dollars with its own currency (adding to its international reserves) to prevent an appreciation of its currency by more than 1 percent from the par value. Until the late 1950s and early 1960s, when other currencies became fully convertible into dollars, the U.S. dollar was the only intervention currency, so that the new system was practically a gold-dollar standard.

Nations were to finance temporary balance-of-payments deficits out of their international reserves and by borrowing from the IMF. Only in a case of fundamental disequilibrium was a nation allowed, after the approval of the Fund, to change the par value of its currency. Fundamental disequilibrium was nowhere clearly defined but broadly referred to large and persistent balance-of-payments deficits or surpluses. Exchange rate changes of less than 10 percent were, however, allowed without Fund approval. Thus, the Bretton Woods system was in the nature of an adjustable peg system, at least as originally conceived, combining general exchange rate stability with some flexibility. The stress on fixity can best be understood as resulting from the strong desire of nations to avoid the chaotic conditions in international trade and finance that prevailed during the interwar period.

After a period of transition following the war, nations were to remove all restrictions on the full convertibility of their currencies into other currencies and into the U.S. dollar. Nations were forbidden to impose additional trade restrictions (otherwise currency convertibility would not have much meaning), and existing trade restrictions were to be removed gradually in multilateral negotiations under the sponsorship of GATT (see Section 9.6B).

Restrictions on international liquid capital flows were, however, permitted to allow nations to protect their currencies against large destabilizing, or "hot," international money flows.

Borrowing from the Fund (to be described below) was restricted to cover temporary balance-of-payments deficits and was to be repaid within three to five years so as not to tie up the Fund's resources in long-term loans. *Long-run* development assistance was to be provided by the International Bank for Reconstruction and Development (IBRD or World Bank) and its affiliates, the International Finance Corporation (established in 1956 to stimulate *private* investments in developing nations from indigenous and foreign sources) and the International Development Association (established in 1960 to make loans at subsidized rates to the poorer developing nations).

The Fund was also to collect and propagate balance-of-payments, international trade, and other economic data of member nations. Today the IMF publishes, among other things, *International Financial Statistics* and *Direction of Trade Statistics*, the most authoritative sources of comparable time series data on the balance of payments, trade, and other economic indicators of member nations.

## 21.3B Borrowing from the International Monetary Fund

Upon joining the IMF, each nation was assigned a quota based on its economic importance and the volume of its international trade. The size of a nation's quota determined its voting power and its ability to borrow from the Fund. The total subscription to the Fund was set in 1944 at $8.8 billion. As the most powerful nation, the United States was assigned by far the largest quota, 31 percent. Every five years, quotas were to be revised to reflect changes in the relative economic importance and international trade of member nations. At the end of 2011, the total subscription of the Fund had grown to 238.0 billion SDRs ($369.2 billion) through increases in membership and periodic increases in quotas. The U.S. quota had declined to 16.80 percent of the total, the quotas of Japan and Germany were, respectively, 6.25 and 5.83, and that of France and the United Kingdom was 4.30 percent. China, with 10.0 percent of the global economy, had a quota of 3.82 percent.

Upon joining the IMF, a nation was to pay 25 percent of its quota to the Fund in gold and the remainder in its own currency. In borrowing from the Fund, the nation would get convertible currencies approved by the Fund in exchange for depositing equivalent (and additional) amounts of its own currency into the Fund, until the Fund held no more than 200 percent of the nation's quota in the nation's currency.

Under the original rules of the Fund, a member nation could borrow no more than 25 percent of its quota in any one year, up to a total of 125 percent of its quota over a five-year period. The nation could borrow the first 25 percent of its quota, the gold tranche, almost automatically, without any restrictions or conditions. For further borrowings (in subsequent years), the credit tranches, the Fund charged higher and higher interest rates and imposed more and more supervision and conditions to ensure that the deficit nation was taking appropriate measures to eliminate the deficit.

Repayments were to be made within three to five years and involved the nation's repurchase of its own currency from the Fund with other convertible currencies approved by the Fund, until the IMF once again held no more than 75 percent of the nation's quota in the nation's currency. The Fund allowed repayments to be made in currencies of which it held less than 75 percent of the issuing nation's quota. If before a nation (Nation A) completed

repayment, another nation (Nation B) borrowed Nation A's currency from the Fund, then Nation A would end repayment of its loan as soon as the Fund's holdings of Nation A's currency reached 75 percent of its quota.

If the Fund's holding of a nation's currency fell below 75 percent of its quota, the nation could borrow the difference from the Fund without having to repay its loan. This was called the super gold tranche. In the event that the Fund ran out of a currency altogether, it would declare the currency "scarce" and allow member nations to discriminate in trade against the scarce-currency nation. The reason for this was that the Fund viewed balance-of-payments adjustments as the joint responsibility of both deficit and surplus nations. However, the Fund has never been called upon to invoke this scarce-currency provision during its many years of operation.

A nation's gold tranche plus its super gold tranche (if any), or minus the amount of its borrowing (if any), is called the nation's net IMF position. Thus, the nation's net IMF position is given by the size of its quota minus the Fund's holding of its currency. The amount of gold reserves paid in by a nation upon joining the Fund was called the nation's reserve position in the Fund and was added to the nation's other international reserves of gold, Special Drawing Rights (SDRs—see the next section), and other convertible currencies to obtain the total value of the nation's international reserves (see Section 13.3).

## 21.4 Operation and Evolution of the Bretton Woods System

In this section, we examine the operation of the Bretton Woods system from 1947 until it collapsed in 1971. We also examine the way in which the system evolved over the years in response to changing conditions from the blueprint agreed upon in 1944.

### 21.4A Operation of the Bretton Woods System

While the Bretton Woods system envisaged and allowed changes in par values in cases of fundamental disequilibrium, in reality industrial nations were very reluctant to change their par values until such action was long overdue and was practically forced on them by the resulting destabilizing speculation. Deficit nations were reluctant to devalue their currencies because they regarded this as a sign of national weakness. Surplus nations resisted needed revaluations, preferring instead to continue accumulating international reserves. Thus, from 1950 until August 1971, the United Kingdom devalued only in 1967; France devalued only in 1957 and 1969; West Germany *revalued* in 1961 and 1969; and the United States, Italy, and Japan never changed their par values. Meanwhile, Canada (defying the rules of the IMF) had fluctuating exchange rates from 1950 to 1962 and then reinstituted them in 1970. Developing nations, on the other hand, devalued all too often.

The unwillingness of industrial nations to change their par values as a matter of policy when in fundamental disequilibrium had two important effects. First, it robbed the Bretton Woods system of most of its flexibility and the mechanism for adjusting balance-of-payments disequilibria. We will see in Section 21.5 that this played a crucial role in the collapse of the system in August 1971. Second, and related to the first point, the reluctance of industrial nations to change their par value when in fundamental disequilibrium gave rise

to huge destabilizing international capital flows by providing an excellent one-way gamble for speculators.

Specifically, a nation such as the United Kingdom, with chronic balance-of-payments deficits over most of the postwar period, was plagued by huge liquid capital outflows in the expectation that the pound would be devalued. Indeed, these expectations became self-fulfilling, and the United Kingdom was forced to devalue the pound in 1967 (after a serious deflationary effort to avoid the devaluation). On the other hand, a nation such as West Germany, with chronic balance-of-payments surpluses, received huge capital inflows in the expectation that it would revalue the mark. This made revaluation of the mark inevitable in 1961 and again in 1969.

The convertibility of the dollar into gold resumed soon after World War II. The major European currencies became convertible for current account purposes de facto in 1958 and de jure, or formally, in 1961. The Japanese yen became formally convertible into U.S. dollars and other currencies in 1964. As pointed out in Section 21.3A, capital account restrictions were permitted to allow nations some protection against destabilizing capital flows. Despite these restrictions, the postwar era experienced periods of huge destabilizing capital flows, which became more frequent and more disruptive, culminating in the collapse of the Bretton Woods system in August 1971. These large destabilizing "hot" money flows were facilitated by the establishment and rapid growth of *Eurocurrency markets* during the 1960s (see Section 14.7).

Under the *Trade Expansion Act of 1962* and *GATT* auspices (see Section 9.6C), the United States initiated and engaged in wide-ranging multilateral trade negotiations (the *Kennedy Round*), which lowered average tariffs on manufactured goods to less than 10 percent. However, many nontariff barriers to international trade remained, especially in agriculture and on simple manufactured goods, such as textiles, which are of special importance to developing nations. This was also the period when several attempts were made at economic integration, the most successful being the European Union (EU), then called the European Common Market (see Section 10.6A).

## 21.4B Evolution of the Bretton Woods System

Over the years, the Bretton Woods system evolved (until 1971) in several important directions in response to changing conditions. In 1962, the IMF negotiated the General Arrangements to Borrow (GAB) up to $6 billion from the so-called Group of Ten most important industrial nations (the United States, the United Kingdom, West Germany, Japan, France, Italy, Canada, the Netherlands, Belgium, and Sweden) and Switzerland to supplement its resources, if needed, to help nations with balance-of-payments difficulties. This sum of $6 billion was over and above the periodic increases in the Articles of Agreement that established the IMF. The GAB was renewed and expanded in subsequent years.

Starting in the early 1960s, member nations began to negotiate standby arrangements. These refer to advance permission for future borrowings by the nation at the IMF. Once a standby arrangement was negotiated, the nation paid a small commitment charge of one-fourth of 1 percent of the amount earmarked and was then able to borrow up to this additional amount *immediately* when the need arose at a 5.5 percent charge per year on the amount actually borrowed. Standby arrangements were usually negotiated by member nations as a first line of defense against anticipated destabilizing hot money flows. After

several increases in quotas, the total resources of the Fund reached $28.5 billion by 1971 (of which $6.7 billion, or about 23.5 percent, was the U.S. quota). By the end of 1971, the Fund had lent about $22 billion (mostly after 1956), of which about $4 billion was outstanding. The Fund also changed the rules and allowed member nations to borrow up to 50 percent of their quotas in any one year (up from 25 percent).

National central banks also began to negotiate so-called swap arrangements to exchange each other's currency to be used to intervene in foreign exchange markets to combat hot money flows. A central bank facing large liquid capital flows could then sell the foreign currency forward in order to increase the forward discount or reduce the forward premium on the foreign currency and discourage destabilizing hot money flows (see Sections 14.3 to 14.6). Swap arrangements were negotiated for specific periods of time and with an exchange rate guarantee. When due, they could either be settled by a reverse transaction or be renegotiated for another period. The United States and European nations negotiated many such swap arrangements during the 1960s.

The most significant change introduced into the Bretton Woods system during the 1947–1971 period was the creation of Special Drawing Rights (SDRs) to supplement the international reserves of gold, foreign exchange, and reserve position in the IMF. Sometimes called *paper gold*, SDRs are accounting entries in the books of the IMF. SDRs are not backed by gold or any other currency but represent genuine international reserves *created* by the IMF. Their value arises because member nations have so agreed. SDRs can only be used in dealings among central banks to settle balance-of-payments deficits and surpluses and not in private commercial dealings. A charge of 1.5 percent (subsequently increased to 5 percent and now based on market rates) was applied on the amount by which a nation's holdings of SDRs fell short of or exceeded the amount of SDRs allocated to it. The reason for this was to put pressure on both deficit and surplus nations to correct balance-of-payments disequilibria.

At the 1967 meeting of the IMF in Rio de Janeiro, it was agreed to create SDRs in the amount of $9.5 billion to be distributed to member nations according to their quotas in the IMF in three installments in January 1970, 1971, and 1972. Further allocations of SDRs were made in the 1979–1981 period (see Section 21.6A). The value of one SDR was originally set equal to one U.S. dollar but rose above $1 as a result of the devaluations to the dollar in 1971 and 1973. Starting in 1974, the value of SDRs was tied to a basket of currencies, as explained in Section 21.6A.

In 1961 the so-called *gold pool* was started by a group of industrial nations under the leadership of the United States to sell officially held gold on the London market to prevent the price of gold from rising above the official price of $35 an ounce. This was discontinued as a result of the gold crisis of 1968 when a *two-tier gold market* was established. This kept the price of gold at $35 an ounce in official transactions among central banks, while allowing the commercial price of gold to rise above the official price and be determined by the forces of demand and supply in the market. These steps were taken to prevent depletion of U.S. gold reserves.

Over the years, membership in the IMF increased to include most nations of the world. Despite the shortcomings of the Bretton Woods system, the postwar period until 1971 was characterized by world output growing quite rapidly and international trade growing even faster. Overall, it can thus be said that the Bretton Woods system served the world community well, particularly until the mid-1960s (see Case Study 21-1).

## CASE STUDY 21-1 Macroeconomic Performance under Different Exchange Rate Regimes

Table 21.1 presents some indicators of the macroeconomic performance of the United Kingdom and the United States under the gold standard, in the interwar period, and during the post-World War II period, under fixed and flexible exchange rates. The table shows that the growth in per capita income in both the United Kingdom and the United States was higher during the post-World War II period than during the gold standard period, inflation was higher, and unemployment was lower, except for the United Kingdom during 1973–2011. Thus, aside from the lower inflation rate, the macroeconomic performance of both countries was not better during the gold standard period as compared with the post-World War II period. On the other hand, the interwar period, dominated as it was by the Great Depression, was characterized by a generally worse macroeconomic performance than either under the gold standard or in the post-World War II period. The only exception is that the growth in real per capita income during the interwar period (despite the Great Depression) in the United States exceeded its growth during the gold standard period. Caution should be exercised, however, in comparing pre- to post-World War II not only because data for the former period were of poorer quality but also (and more importantly) because many other factors affecting growth were different in the two periods.

**TABLE 21.1. Macroeconomic Performance of the United States and the United Kingdom under Different Exchange Rate Regimes, 1870–2011**

| | Average Growth in Real per Capita Income per Year | Rate of Inflation | Rate of Unemployment |
|---|---|---|---|
| Gold Standard: | | | |
| United Kingdom (1870–1913) | 1.0 | −0.7 | 4.3[a] |
| United States (1879–1913) | 1.4 | 0.1 | 6.8[b] |
| Interwar period: | | | |
| United Kingdom (1919–1938) | 0.6 | −4.6 | 13.3 |
| United States (1919–1940) | 1.6 | −2.5 | 11.3 |
| Post-World War II period— Fixed exchange rate period: | | | |
| United Kingdom (1946–1972) | 1.7 | 3.5 | 1.9 |
| United States (1946–1972) | 2.2 | 1.4 | 4.6 |
| Post-World War II period— Flexible exchange rate period: | | | |
| United Kingdom (1973–2011) | 2.0 | 5.9 | 7.5 |
| United States (1973–2011) | 2.8 | 4.2 | 6.5 |

[a]1888–1913; [b]1890–1913.

*Sources:* M. D. Bordo, "The Classical Gold Standard: Some Lessons for Today," in *Readings in International Finance* (Chicago: Federal Reserve Bank of Chicago, 1987), pp. 83–97; M. Friedman and A. J. Schwartz, *A Monetary History of the United States* (Princeton, N.J.: Princeton University Press, 1963); and Organization for Economic Cooperation and Development, *Economic Outlook* (Paris: OECD, various issues).

## 21.5 U.S. Balance-of-Payments Deficits and Collapse of the Bretton Woods System

In this section, we briefly examine the causes of the U.S. balance-of-payments deficits over most of the postwar period and their relationship to the collapse of the Bretton Woods system in August 1971. We then consider the more fundamental causes of the collapse of the system and their implications for the present managed floating exchange rate system.

### 21.5A U.S. Balance-of-Payments Deficits

From 1945 to 1949, the United States ran huge balance-of-payments surpluses with Europe and extended Marshall Plan aid to European reconstruction. With European recovery more or less complete by 1950, the U.S. balance of payments turned into deficit. Up to 1957, U.S. deficits were rather small, averaging about $1 billion each year. These U.S. deficits allowed European nations and Japan to build up their international reserves. This was the period of the dollar shortage. The United States settled its deficits mostly in dollars. Surplus nations were willing to accept dollars because (1) the United States stood ready to exchange dollars for gold at the fixed price of $35 an ounce, making the dollar "as good as gold"; (2) dollars could be used to settle international transactions with any other nation (i.e., the dollar was truly an international currency); and (3) dollar deposits earned interest while gold did not.

Starting in 1958, U.S. balance-of-payments deficits increased sharply and averaged over $3 billion per year. Contributing to the much larger U.S. deficits since 1958 was first the huge increase in capital outflows (mostly direct investments in Europe) and then the high U.S. inflation rate (connected with the excessive money creation during the Vietnam War period), which led, starting in 1968, to the virtual disappearance of the traditional U.S. trade balance surplus. The United States financed its balance-of-payments deficits mostly with dollars so that by 1970, foreign official dollar holdings were more than $40 billion, up from $13 billion in 1949. (Foreign private dollar holdings were even larger, and these could also be potential claims on U.S. gold reserves.) At the same time, U.S. gold reserves declined from $25 billion in 1949 to $11 billion in 1970.

Because the dollar was an international currency, the United States felt that it could not devalue to correct its balance-of-payments deficits. Instead, it adopted a number of other policies which, however, had only very limited success. One of these was the attempt in the early 1960s to keep short-term interest rates high to discourage short-term capital outflows, while at the same time trying to keep long-term interest rates relatively low to stimulate domestic growth (operation twist). The United States also intervened in foreign exchange markets and sold forward strong currencies, such as the German mark, to increase the forward discount and discourage liquid capital outflows under covered interest arbitrage (see Section 14.6). It also intervened in the spot market in support of the dollar.

The resources for these interventions in the spot and forward markets were usually obtained from swap arrangements with other central banks and from standby arrangements with the IMF. The United States took additional steps to encourage its exports, reduced military and other government expenditures abroad, and tied most of its foreign aid to be spent in the United States. Furthermore, during the 1963–1968 period, the United States introduced

a number of direct controls over capital outflows. These were the Interest Equalization Tax, the Foreign Direct Investment Program, and restrictions on bank loans to foreigners.

As the U.S. deficits persisted and rose over time, U.S. gold reserves declined while foreign-held dollar reserves grew to the point where in the early 1960s they began to exceed the U.S. gold reserves. To discourage foreign official holders of dollars from converting their excess dollars into gold at the Federal Reserve and further reducing U.S. gold reserves, the United States created the so-called Roosa bonds. These were medium-term treasury bonds denominated in dollars but with an exchange rate guarantee. Nevertheless, U.S. gold reserves continued to decline, while foreign-held dollar reserves continued to rise. By 1970, they exceeded total U.S. gold reserves by a multiple of about 4.

In the face of large and persistent U.S. balance-of-payments deficits and sharply reduced U.S. gold reserves, it became evident that a realignment of parities was necessary. The United States sought unsuccessfully in 1970 and early 1971 to persuade surplus nations, particularly West Germany and Japan, to revalue their currencies. The expectation then became prevalent that the United States would sooner or later have to devalue the dollar. By now international capital markets had become highly integrated through Eurocurrency markets. This led to huge destabilizing capital movements out of dollars and into stronger currencies, particularly the German mark, the Japanese yen, and the Swiss franc. On August 15, 1971, President Nixon was forced to suspend the convertibility of dollars into gold. The "gold window" had been shut. The Bretton Woods system was dead. At the same time, the United States imposed wage and price controls as well as a temporary 10 percent import surcharge, to be lifted after the required currency realignment took place.

The ability of the United States to settle its balance-of-payments deficits with dollars had conferred an important privilege on the United States that was not available to other nations (which faced the strict limitation imposed by their limited supplies of gold and foreign exchange on the balance-of-payments deficits that they could incur). The benefit accruing to a nation from issuing the currency or when its currency is used as an international currency is referred to as seigniorage. However, the United States paid a heavy price for its seigniorage privilege. It was unable to devalue the dollar (as other nations, such as the United Kingdom and France, occasionally did) without bringing down the Bretton Woods system. The use of monetary policy was more constrained in the United States than in other nations. Consequently, the United States had to rely more heavily on fiscal policy to achieve domestic objectives and on ad hoc measures (such as controls over capital flows) to correct balance-of-payments deficits.

It is difficult to determine whether on balance the United States benefited or was harmed as a result of the dollar becoming an international currency. In any event, France, Germany, Japan, and other surplus nations began to view the United States as abusing its position as the world's banker by supplying excessive liquidity with its large and persistent balance-of-payments deficits. The unwillingness of Germany and Japan to revalue forced the United States to devalue the dollar, thus bringing the Bretton Woods system down. To a large extent, this was a political decision to remove the United States from its unique position as the "world's banker" or to take away from the United States this "exorbitant" privilege (to use Charles de Gaulle's words). The irony of it all is that the dollar remained an international currency without any backing of gold after the Bretton Woods system collapsed in August 1971 and even after the dollar was allowed to fluctuate in value in March 1973. Indeed, the amount of foreign-held dollars has risen dramatically in the years since 1971 (see Section 21.6).

## 21.5B Collapse of the Bretton Woods System

As explained earlier, the *immediate cause* of the collapse of the Bretton Woods system was the expectation in late 1970 and early 1971, in the face of huge balance-of-payments deficits, that the United States would soon be forced to devalue the dollar. This led to a massive flight of liquid capital from the United States, which prompted President Nixon to suspend the convertibility of the dollar into gold on August 15, 1971, and to impose a temporary 10 percent import surcharge.

In December 1971, representatives of the Group of Ten nations met at the Smithsonian Institution in Washington, D.C., and agreed to increase the dollar price of gold from $35 to $38 an ounce. This implied a devaluation of the dollar of about 9 percent. At the same time, the German mark was revalued by about 17 percent, the Japanese yen by about 14 percent, and other currencies by smaller amounts with respect to the dollar. In addition, the band of fluctuation was increased from 1 percent to 2.25 percent on either side of the new central rates, and the United States removed its 10 percent import surcharge. Since the dollar remained inconvertible into gold, the world was now essentially on a dollar standard. President Nixon hailed this Smithsonian Agreement as the "most significant monetary agreement in the history of the world" and promised that the dollar "would never again be devalued."

However, with another huge U.S. balance-of-payments deficit in 1972 ($9 billion—see Table 13.3), it was felt that the Smithsonian Agreement was not working and that another devaluation of the dollar was required. This expectation led to renewed speculation against the dollar and became self-fulfilling in February 1973, when the United States was once again forced to devalue the dollar, this time by about 10 percent (achieved by increasing the official price of gold to $42.22 an ounce). At the same time, the dollar remained inconvertible into gold. In March 1972, the original six member nations of the European Common Market decided to let their currencies float jointly against the dollar with a *total* band of fluctuation of only 2.25 percent, instead of the 4.5 percent agreed on in December 1971. This was named the *European snake* or the "snake in the tunnel" and lasted until March 1973.

When speculation against the dollar flared up again in March 1973, monetary authorities in the major industrial nations decided to let their currencies float either independently (the U.S. dollar, the British pound, the Japanese yen, the Italian lira, the Canadian dollar, and the Swiss franc) or jointly (the German mark, the French franc, and the currencies of six other central and northern European nations—the snake with the maximum total spread of 2.25 percent between the strongest and the weakest currency with respect to the dollar). The present managed floating exchange rate system was born. France abandoned the snake in 1974, Norway in 1977, and Sweden in 1978. (The United Kingdom, Italy, and Ireland had not joined in 1973.)

While the immediate cause of the collapse of the Bretton Woods system was the huge balance-of-payments deficits of the United States in 1970 and 1971, the *fundamental* cause is to be found in the interrelated problems of liquidity, adjustment, and confidence. Liquidity refers to the amount of international reserves available in relation to the need for them. International reserves comprise official holdings of gold, foreign exchange (mostly U.S. dollars), the reserve position of member nations in the IMF, and SDRs. Table 21.2 shows that most of the increase in liquidity under the Bretton Woods system resulted from the increase in official holdings of foreign exchange, mostly dollars, to finance U.S. balance-of-payments deficits.

■ TABLE 21.2. International Reserves, 1950–1973, Selected Years
(billions of U.S. dollars, at year end)

| | 1950 | 1960 | 1969 | 1970 | 1971 | 1972 | 1973 |
|---|---|---|---|---|---|---|---|
| Gold (at official price) | 33 | 38 | 39 | 37 | 36 | 36 | 36 |
| Foreign exchange | 13 | 19 | 33 | 45 | 75 | 96 | 102 |
| SDRs | — | — | — | 3 | 6 | 9 | 9 |
| Reserve position in the IMF | 2 | 4 | 7 | 8 | 6 | 6 | 6 |
| Total | 48 | 61 | 79 | 93 | 123 | 147 | 153 |

*Source:* International Monetary Fund, *International Financial Statistics Yearbook*, 1989.

In Table 21.2, all international reserves are expressed in terms of U.S. dollars, even though the IMF now expresses all international reserves in terms of SDRs. One SDR was equal to $1 up to 1970, about $1.09 in 1971 and 1972, and about $1.21 in 1973 (see Section 21.6A). Gold reserves were valued at the official price of gold of $35 an ounce up to 1970, at $38 an ounce in 1971 and 1972, and at $42.22 an ounce in 1973. Valued at the London free market price of gold of $112.25 an ounce prevailing at the end of 1973, total world gold reserves were $115 billion. For simplicity, all reserves were valued in U.S. dollars instead of SDRs and gold reserves were valued at official prices.

International liquidity is needed so that nations can finance temporary balance-of-payments deficits without trade restrictions while the adjustment mechanisms supposedly operate to eventually correct the deficit. Inadequate liquidity hampers the expansion of world trade. On the other hand, excessive liquidity leads to worldwide inflationary pressures. But this raised a serious dilemma, according to *Robert Triffin* (1961). Under the Bretton Woods system, most liquidity was provided by an increase in foreign exchange arising from U.S. balance-of-payments deficits. However, the longer these balance-of-payments deficits persisted and the more unwanted dollars accumulated in foreign hands, the smaller was the confidence in the dollar. The dollar shortage of the 1950s had given way to the dollar glut of the 1960s.

It was in response to this problem and in the hope that the United States would soon be able to correct its deficits that the IMF decided to create $9.5 billion of SDRs in 1967. These SDRs were distributed in three installments in January 1970, 1971, and 1972, at the very time when the world was suffering from excessive increases in liquidity resulting from huge U.S. balance-of-payments deficits. Note that the increase in SDRs from 1970 to 1971 and 1972 shown in Table 21.2 reflects not only the new installments of SDRs distributed to member nations in January of 1971 and 1972 but also the increase in the dollar value of SDRs as a result of the dollar devaluation in December 1971. Similarly, there was no new distribution of SDRs between 1972 and 1973, but the value of one SDR rose from about $1.09 in 1972 to $1.21 in 1973.

As we have seen, the United States was unable to correct its large and persistent balance-of-payments deficits primarily because of its inability to devalue the dollar. Thus, the Bretton Woods system lacked an adequate adjustment mechanism that nations would be willing and able to utilize as a matter of policy. U.S. balance-of-payments deficits persisted, and this undermined confidence in the dollar. Thus, the fundamental cause of the collapse of the Bretton Woods system is to be found in the interrelated problems of adjustment, liquidity, and confidence.

## 21.6 The International Monetary System: Present and Future

In this section, we examine the operation of the present managed floating exchange rate system, discuss present IMF operation, identify the most important monetary and trade problems, and evaluate proposals for reforms.

### 21.6A Operation of the Present System

Since March 1973, the world has had a managed floating exchange rate system. Under such a system, nations' monetary authorities are entrusted with the responsibility to intervene in foreign exchange markets to smooth out short-run fluctuations in exchange rates without attempting to affect long-run trends. This could be achieved by a policy of leaning against the wind (see Section 20.6D). To be sure, this system was not deliberately chosen but was imposed on the world by the collapse of the Bretton Woods system in the face of chaotic conditions in foreign exchange markets and huge destabilizing speculation.

In the early days of the managed floating system, serious attempts were made to devise specific rules for managing the float to prevent competitive exchange rate depreciations (which nations might use to stimulate their exports), thus possibly returning to the chaotic conditions of the 1930s. However, as the worst fears of abuse did not materialize, all of these attempts failed. Indeed, the 1976 Jamaica Accords formally recognized the managed floating system and allowed nations the choice of foreign exchange regime as long as their actions did not prove disruptive to trade partners and the world economy. These Jamaica Accords were ratified and took effect in April 1978.

At the beginning of 2012, half of the 187 nations that were members of the IMF had opted for some form of exchange rate flexibility. These included practically all the industrial nations and many large developing nations, so that more than four-fifths of total world trade moved between nations with managed exchange rates, either independently or jointly (as in the European Union). Most of the remaining nations adopted the currency of another nation (i.e., dollarized), operated under a currency board arrangment (CBA), or pegged their currencies to the U.S. dollar, the euro, or a basket of currencies (see Section 20.6 and Table 20.4). During the period from 1974 to 1977, again from 1981 to 1985, and since the early 1990s, the United States generally followed a policy of benign neglect by not intervening in foreign exchange markets to stabilize the value of the dollar.

In March 1979, the European Monetary System (EMS) was formed and in January 1999, the European Monetary Union (EMU) came into existence with the creation of the euro (which began actual circulation at the beginning of 2002) and the European Central Bank (ECB) beginning operation (see Section 20.4).

Under the present managed float, nations still need international reserves in order to intervene in foreign exchange markets to smooth out short-run fluctuations in exchange rates. At present, such interventions are still made mostly in dollars. In January 1975, U.S. citizens were allowed for the first time since 1933 to own gold (other than in jewelry), and the United States sold a small portion of its gold holdings on the free market. The price of gold on the London market temporarily rose above $800 an ounce in January 1980, but it soon fell and stabilized at about half of its peak price; it then rose to the all-time price high

■ TABLE 21.3. International Reserves in 2011 (billions of U.S. dollars and SDRs, at year end)

| | U.S. Dollars | SDRs |
|---|---|---|
| Foreign exchange | 10,196.4 | 6,641.3 |
| SDRs | 313.4 | 204.1 |
| Reserve position in the IMF | 150.9 | 98.3 |
| Total minus gold | 10,660.7 | 6,943.7 |
| Gold at official price | 34.8 | 22.7 |
| Total with gold at official price | 10,695.5 | 6,966.4 |

*Source:* International Monetary Fund, *International Financial Statistics* (Washington, D.C.: IMF, March 2012).

of $1,896.50 an ounce on September 5, 2001. As part of the Jamaica Accords, the IMF sold one-sixth of its gold holdings on the free market between 1976 and 1980 (and used the proceeds to aid the poorest developing nations) to demonstrate its commitment to eliminate gold (the "barbarous relic"—to use Keynes's words) as an international reserve asset. The official price of gold was abolished, and it was agreed that there would be no future gold transactions between the IMF and member nations. The IMF also continued to value its gold holdings at the pre-1971 official price of $35 or 35 SDRs an ounce. However, it may be some time before gold completely "seeps out" of international reserves—if it ever will. In the fall of 1996, the IMF agreed to sell about $2 billion of its gold holdings and use the proceeds to reduce the foreign debt of the poorest developing countries.

One SDR was valued at $1.00 up to 1971, $1.0857 after the dollar devaluation of December 1971, and $1.2064 after the subsequent dollar devaluation of February 1973. In 1974, the value of one SDR was made equal to the weighted average of a basket of 16 leading currencies in order to stabilize its value. In 1981, the number of currencies included in the basket was reduced to five and, with the advent of the euro, to the following four (with their respective relative weights in 2001 given in parentheses): U.S. dollar (45 percent); euro (29 percent); Japanese yen (15 percent); and British pound (11 percent). At the end of 2011, one SDR was valued at $1.5353.

Since 1974, the IMF has measured all reserves and other official transactions in terms of SDRs instead of U.S. dollars. Table 21.3 shows the composition of international reserves both in U.S. dollars and in SDRs (valued at $1.5353 at the end of 2011). For the composition of international reserves from 1950 to 2011 in terms of SDRs, as presented by the IMF, see Table 21.7 in the appendix.

## 21.6B Current IMF Operation

Several recent changes have occurred in the operation of the IMF. The quotas of IMF member nations have been increased across the board several times, so that at the end of 2011, resources totaled $369.2 billion (up from $8.8 billion in 1947). Members are generally required to pay 25 percent of any increase in their quota in SDRs or in currencies of other members selected by the Fund, with their approval, and the rest in their own currency. New members pay in their quota in the same way. The old gold tranche is now called the first-credit tranche.

The IMF has also renewed and expanded the General Arrangements to Borrow (GAB) ten times since setting them up in 1962; and in 1997, it extended it with the New Arrangement to Borrow (NAB), so that at the end of 2011, the IMF could lend up to SDR $564.2 billion to supplement its regular resources. Central bankers also expanded their swap arrangements to over $54 billion and their standby arrangements to $92 billion. Borrowing rules at the Fund were also relaxed, and new credit facilities were added that greatly expanded the overall maximum amount of credit available to a member nation. However, this total amount of credit consists of several different credit lines subject to various conditions. The IMF loans are now specified in terms of SDRs. There is an initial fee, and the interest charged is based on the length of the loan, the facility used, and prevailing interest rates. Besides the usual surveillance responsibilities over the exchange rate policies of its members, the Fund has recently broadened its responsibilities to include help for members to overcome their structural problems.

The new credit facilities set up by the IMF include (1) the Extended Fund Facility (EFF), established in 1974 for long-term assistance to support members' structural reforms to address balance of payments difficulties of a long-term character; (2) the Supplemental Reserve Facility (SRF), established in December 1997 during the Asian Crisis, to provide short-term assistance for balance-of-payments difficulties related to crises of market confidence; (3) the Compensatory and Contingency Financing Facility (CCFF), set up in 1963 to provide medium-term assistance for temporary export shortfalls or cereal import excesses; (4) the flexible credit line (FCL), created in March 2009, to provide assistance in crisis prevention; (5) the Precautionary Credit Line (PCL), available to a wider group of countries than the FCL; (6) the Post-Catastrophe Debt Relief (PCDR) Trust, established to allow the Fund to join international debt relief efforts when poor countries are hit by the most catastrophic of natural disasters; and the Systematic Transformation Facility (STF) to provide longer-term assistance for deep-seated balance of payments difficulties of a structural nature to encourage poverty-reducing growth.

A member country's overall access to Fund resources is now up to 200 percent of its quota in any single year, or twice the old cumulative limit of 100 percent, with a cumulative limit of 600 percent of a member's quota. The recipients of the loans as well as the type of loans made by the Fund also changed significantly over time. During the first 20 years of its existence, industrial countries accounted for over half of the use of Fund resources, and loans were made primarily to overcome short-term balance-of-payments problems. Since the early 1980s, most loans have been made to developing countries, and an increasing share of these loans has been made for the medium term in order to overcome structural problems. Total Fund credit and loans outstanding were $14.0 billion in 1980, $41.0 billion in 1986, and $100 billion at the end of 2011.

In the face of the huge international debt problems of many developing countries since 1982, particularly the large countries of Latin America, the IMF engaged in a number of debt rescheduling and rescue operations. As a condition for the additional loans and special help, the IMF usually required reductions in government spending, in growth of the money supply, and in wage increases in order to reduce imports, stimulate exports, and make the country more nearly self-sustaining. Such IMF conditionality, however, proved to be very painful and led to riots and even the toppling of governments during the late 1980s and 1990s. It also led to accusations that the IMF did not take into account the social needs of debtor nations and the political consequences of its demands, and that its policies were "all head and no heart." Partly in response to these accusations, the IMF has become more

flexible in its lending activities in recent years and has begun to grant even medium term loans to overcome structural problems (something that was traditionally done only by the World Bank).

In 2006, the Fund proposed some fundamental reforms of its mission toward more multilateral surveillance, such as addressing the issue of global imbalances of big member countries like the United States and China, as well as providing greater representation to Asian emerging markets, especially China, to reflect their growing economic importance, rather than focusing (as in past decades) primarily on the challenges of global poverty of its low-income members and on international financial crises that affected only a small group of vulnerable emerging-market economies.

By way of summary, Table 21.4 presents the most important dates in modern monetary history.

**TABLE 21.4. Important Dates in Modern Monetary History**

| | |
|---|---|
| 1880–1914 | Classical gold standard period |
| April 1925 | United Kingdom returns to the gold standard |
| October 1929 | United States stock market crashes |
| September 1931 | United Kingdom abandons the gold standard |
| February 1934 | United States raises official price of gold from $20.67 to $35 an ounce |
| July 1944 | Bretton Woods Conference |
| March 1947 | IMF begins operation |
| September 1967 | Decision to create SDRs |
| March 1968 | Two-tier gold market established |
| August 1971 | United States suspends convertibility of the dollar into gold—end of Bretton Woods system |
| December 1971 | Smithsonian Agreement (official price of gold increased to $38 an ounce; band of allowed fluctuation increased to 4.5%) |
| February 1973 | United States raises official price of gold to $42.22 an ounce |
| March 1973 | Managed floating exchange rate system comes into existence |
| October 1973 | OPEC selective embargo on petroleum exports and start of sharp increase in petroleum prices |
| January 1976 | Jamaica Accords (agreement to recognize the managed float and abolish the official price of gold) |
| April 1978 | Jamaica Accords take effect |
| Spring 1979 | Second oil shock |
| March 1979 | Establishment of the European Monetary System (EMS) |
| January 1980 | Gold price rises temporarily above $800 per ounce |
| September 1985 | Plaza agreement to intervene to lower value of dollar |
| Fall 1986 | New round of GATT multilateral trade negotiations begins |
| February 1987 | Louvre agreement to stabilize exchange rates |
| October 1987 | New York Stock Exchange collapses and spreads to other stock markets around the world |
| 1989–1990 | Democratic and market reforms begin in Eastern Europe and German reunification occurs |
| December 1991 | Maastricht Treaty approved calling for European Union to move toward monetary union by 1997 or 1999 |
| December 1991 | Soviet Union dissolved and Commonwealth of Independent States (CIS) formed |
| September 1992 | United Kingdom and Italy abandon Exchange Rate Mechanism (ERM) |
| January 1, 1993 | European Union (EU) becomes a single unified market |

*(continued)*

■ TABLE 21.4. *(continued)*

| | |
|---|---|
| August 1, 1993 | European Monetary System allows ±15% fluctuation in exchange rates |
| December 1993 | Uruguay Round completed and World Trade Organization (WTO) replaces GATT |
| January 1, 1994 | North American Free Trade Agreement (NAFTA) comes into existence |
| January 1, 1994 | Creation of the European Monetary Institute (EMI) as the forerunner of the European Central Bank by the European Union |
| January 1, 1999 | Introduction of the single currency (the euro) and European Union-wide monetary policy by the European Central Bank (ECB) |
| October 2000 | Euro falls to lowest level with respect to the dollar |
| January 1, 2002 | Euro begins circulation as the currency of the 12-member European Monetary Union (EMU) |
| December 2006 | U.S. current account deficit reaches all-time high of 6 percent of GDP |
| July 15, 2008 | Euro reaches the all-time high of $1.60 |
| September 15, 2008 | Lehman Brothers files for bankruptcy, leading to full global financial crisis |
| September 5, 2011 | Gold price reaches the all-time high of $1,896.50 an ounce |
| February 2012 | Greece restructures its debt, thus avoiding default and possibly abandoning the euro |

## 21.6c Problems with Present Exchange Rate Arrangements

The present international monetary system faces a number of serious and closely interrelated international monetary problems today. These are (1) the large volatility and the wide and persistent misalignments of exchange rates; (2) the failure to promote greater coordination of economic policies among the leading industrial nations; and (3) the inability to prevent international financial crises or to deal with them adequately when they do arise.

We have seen in Sections 14.5A and 15.5A that since 1973 exchange rates have been characterized by very large volatility and overshooting. This state of affairs can discourage the flow of international trade and investments. Much more serious is the fact that under the present managed floating exchange rate system large exchange rate disequilibria can arise and persist for several years (see Figure 14.3 and Section 14.5A). This is clearly evident from the large appreciation of the dollar from 1980 to 1985 and its even larger depreciation from February 1985 until the end of 1987. More recently, the yen–dollar exchange rate swung from 85 yen to the dollar in April 1995, to 132 yen to the dollar in February 2002, and 78 at the end of 2011. From January 1, 1999, to October 2000, the euro depreciated from $1.17 to $0.82, before rising to $1.36 in December 2004, falling to $1.18 in November 2005, and then rising to the all-time high of $1.60 on July 15, 2008. The excessive appreciation of the dollar during the first half of the 1980s and the overvaluation of the late 1990s and early 2000s has been associated with large and unsustainable trade deficits and calls for protectionism in the United States. It has also led to renewed calls for reform of the present international monetary system, along the lines of establishing target zones of allowed fluctuations for the major currencies and more international policy coordination among the leading nations. The earlier debate on the relative merits of fixed versus flexible rates has now been superseded by discussions of the optimal degree of exchange rate flexibility and policy cooperation.

Some increased cooperation has already occurred. For example, in September 1985, the United States negotiated with Germany, Japan, France, and the United Kingdom (in the

so-called Plaza Agreement in New York City), a coordinated effort to intervene in foreign exchange markets to lower the value of the dollar. In 1986, the United States negotiated with Japan and Germany a simultaneous coordinated reduction in interest rates to stimulate growth and reduce unemployment (which exceeded 10 percent of the labor force in most nations of Europe during most of the 1980s) without directly affecting trade and capital flows (see Section 18.6C). The leading industrial nations are now paying much more attention to the international repercussions of their monetary and other policy changes. In February 1987, the G-7 nations agreed at the Louvre to establish soft reference ranges or target zones for the dollar–yen and the dollar–mark exchange rates (without, however, much success). Other examples of international monetary cooperation were the quick, coordinated response to the October 1987 worldwide stock market crash; to the September 11, 2001, terrorist attacks on the United States; and to some extent to the deep recession in advanced economies and sharply reduced growth in emerging markets in 2008–2009.

A closely related problem to exchange rate misalignments is the huge dollar overhang, or large quantity of dollars held by foreigners and ready to move from monetary center to monetary center in response to variations in international interest differentials and expectations of exchange rate changes. These "hot money" flows have been greatly facilitated by the extremely rapid growth of Eurocurrency markets (see Section 14.7). One proposal of long standing aimed at eliminating this problem involves converting all foreign-held dollars into SDRs by the introduction of a substitution account by the IMF. No action, however, has been taken on this proposal, and there are several unresolved problems, such as what interest rate to pay on these SDRs and the procedure whereby the United States can buy these dollars back from the IMF. At least for the foreseeable future, the dollar will likely remain the leading international and intervention currency (see Case Studies 14-1 and 14-2).

## 21.6D Proposals for Reforming Present Exchange Rate Arrangements

Several proposals have been advanced to reduce exchange rate volatility and avoid large exchange rate misalignments. One proposal, first advanced by *Williamson* (1986), is based on the establishment of *target zones*. Under such a system, the leading industrial nations estimate the equilibrium exchange rate and agree on the range of allowed fluctuation. Williamson suggested a band of allowed fluctuation of 10 percent above and below the equilibrium exchange rate. The exchange rate is determined by the forces of demand and supply within the allowed band of fluctuation and is prevented from moving outside the target zones by official intervention in foreign exchange markets. The target zones would be soft, however, and would be changed when the underlying equilibrium exchange rate moves outside of or near the boundaries of the target zone. Though not made explicit, the leading industrial nations seemed to have agreed upon some such "soft" target or "reference zones" for the exchange rate between the dollar and the yen and between the dollar and the German mark at the Louvre agreement in February 1987 (but with the allowed band of fluctuation much smaller than the $\pm 10$ percent advocated by Williamson). During the early 1990s, however, this tacit agreement was abandoned in the face of strong market pressure which saw the dollar depreciate very heavily with respect to the yen.

Critics of target zones believe that target zones embody the worst characteristics of fixed and flexible exchange rate systems. As in the case of flexible rates, target zones allow

substantial fluctuation and volatility in exchange rates and can be inflationary. As in the case of fixed exchange rates, target zones can only be defended by official interventions in foreign exchange markets and thus reduce the monetary autonomy of the nation. In response to this criticism, *Miller and Williamson* (1988) extended their blueprint to require substantial policy coordination on the part of the leading industrial nations so as to reduce the need for intervention in foreign exchange markets to keep exchange rates within the target zones.

Other proposals for reforming the present international monetary system are based exclusively on extensive policy coordination among the leading countries. The best and most articulate of these proposals is the one advanced by *McKinnon* (1984, 1988). Under this system, the United States, Japan, and Germany (now the European Monetary Union) would fix the exchange rate among their currencies at their equilibrium level (determined by purchasing-power parity) and then closely coordinate their monetary policies to keep exchange rates fixed. A tendency for the dollar to depreciate vis-à-vis the yen would signal that the United States should reduce the growth rate of its money supply, while Japan should increase it. The net overall increase in the money supply of these three countries (or areas) would then be expanded at a rate consistent with the noninflationary expansion of the world economy.

Another proposal advocated by the IMF Interim Committee in 1986 was based on the development of *objective indicators* of economic performance to signal the type of coordinated macropolicies for nations to follow, under the supervision of the Fund, in order to keep the world economy growing along a sustainable noninflationary path. These objective indicators are the growth of GNP, inflation, unemployment, trade balance, growth of the money supply, fiscal balance, exchange rates, interest rates, and international reserves. A rise or fall in these objective indicators in a nation would signal the need for respectively restrictive or expansionary policies for the nation. Stability of the index for the world as a whole would be the anchor for noninflationary world expansion.

As long as nations have very different inflation–unemployment trade-offs, however, effective and substantial macroeconomic policy coordination is practically impossible. For example, during the 1980s and early 1990s, the United States seemed unable or unwilling to reduce its huge budget deficit substantially and rapidly. Germany has been unwilling to stimulate its economy even though it faced a high rate of unemployment, and Japan has been very reluctant to dismantle its protectionistic policies to allow more imports from the United States so as to help reduce the huge trade imbalance between the two nations. Empirical research has also shown that nations gain from international policy coordination about three-quarters of the time but that the welfare gains from coordination, when they occur, are not very large (see Section 20.7).

Another class of proposals for reforming the present international monetary system is based on the premise that huge international capital flows in today's highly integrated international capital markets are the primary cause of exchange rate instability and global imbalances afflicting the world economy today. These proposals are, therefore, based on restricting international speculative capital flows. *Tobin* (1978) would do this with a transaction tax that would become progressively higher the shorter the duration of the transaction in order "to put some sand in the wheels of international finance." *Dornbusch and Frankel* (1987) would instead reduce financial capital flows internationally with dual exchange rates—a less flexible one for trade transactions and a more flexible one for purely financial transactions not related to international trade and investments. By restricting international "hot money" flows through capital market segmentation or the decoupling of asset markets, *Tobin, Dornbusch, and Frankel* believed that the international financial system could be

made to operate much more smoothly and without any need for close policy coordination by the leading industrial countries, which they regard as neither feasible nor useful. Critics of these proposals, however, point out that it is next to impossible to separate "nonproductive" or speculative capital flows from "productive" ones related to international trade and investments. Finally, there is the single world currency advocated by *Mundell* because "a global economy requires a global currency."

It remains to be seen, however, if the leading nations are prepared to give up some of their autonomy in the coming years in order to have greater success in achieving their economic objectives. In the end, reform of the present international monetary system is likely to involve improving the functioning of the present system rather than replacing the present system by establishing a brand new one [see *Kenen* (1983, 2007); *Goldstein* (1995); *Eichengreen* (1999, 2008); *Salvatore* (2000, 2002, 2005, 2010, 2011, 2012); *Rajan* (2008, 2010); *Truman* (2006, 2009); *Dooley, Folkets-Landau, and Garbar* (2009); *Ghosh, Ostry, and Tsangarides* (2010); *Stigliz* (2010); *Klein and Shambaugh* (2010); *Reinhart and Rogoff* (2010); and *Razin and Rosefielde* (2011)].

## 21.6E Financial Crises in Emerging Market Economies

Another serious problem facing the present international monetary system is its seeming inability to prevent international financial crises in emerging and advanced market economies. There have been six crises in emerging markets since the mid-1990s: Mexico in 1994–1995, Southeast Asia in 1997–1999, Russia in summer 1998, Brazil in 1999, and Turkey and Argentina in 2001–2002 (see Case Studies 21-2 and 21-3). The IMF

### CASE STUDY 21-2 The Anatomy of a Currency Crisis: The Collapse of the Mexican Peso

In December 1994, Mexico found itself in the grip of an intense financial crisis that triggered the deepest recession the country had faced in decades. The immediate cause for the crisis was the sharp increase in U.S. interest rates during 1994, which reversed the large United States to Mexico capital flow. This was aggravated by the political crisis triggered by the armed rebellion in the southern state of Chiapas in January 1994 and the murder of two high political officials later in 1994.

In order to reverse the resulting massive capital outflows, Mexico started to issue short-term, dollar-denominated securities and sharply increased domestic interest rates. Fearful that Mexico would not be able to service its loan obligations, however, foreign investors continued to pull funds out of Mexico. This forced Mexico to devalue the peso by 15 percent from 3.500 pesos to the dollar to 4.025 on December 20, 1994. But this was too little too late, and in the face of continued loss of international reserves, Mexico was forced to let the peso float. The peso then depreciated to 7 pesos to the dollar by March 1995 and reached nearly 8 pesos to the dollar in December 1995.

In order to help Mexico and to prevent the spread of the financial crisis to other emerging markets (particularly Argentina and Brazil), the United States organized an international support package of nearly $48 billion through the IMF in January 1995, which succeeded in calming financial markets and containing the crisis to Mexico. But very high interest rates and deep budget deficit cuts plunged Mexico into a deep recession in 1995. It was only in 1996 that the bottom of the recession was reached and growth resumed in Mexico.

*Source:* Federal Reserve Bank of Atlanta, "A Predictable and Avoidable Mexican Meltdown," *Economics Update*, December 1996, pp. 1–3.

## CASE STUDY 21-3 Chronology of Economic Crises in Emerging Markets: From Asia to Argentina

Table 21.5 presents the chronology of the economic crises in emerging markets from the late 1990s to the present. The economic crises of the 1990s in emerging markets started in Thailand in July 1997. By fall 1997 the crisis had spread to the Philippines, South Korea, Indonesia, and Malaysia; by summer 1998 to Russia; and in January 1999 to Brazil. It also affected China, Taiwan, Hong Kong, and Singapore, as well as Mexico and Argentina and, to some extent, most other developing countries. By the end of 1999, the crisis was more or less over, and growth resumed in most emerging markets, except Indonesia and Russia. In 2001, however, a banking and financial crisis erupted in Turkey, and in 2002, Argentina faced a total financial, economic, and political collapse. Both of these crises, however, were more or less resolved by 2003. In 2008–2009, growth in most emerging markets slowed significantly as a result of the deep recession engulfing most advanced economies (see Case Study 21-5).

### TABLE 21.5. Chronology of Economic Crises in Emerging Markets from the Late 1990s

| | |
|---|---|
| **1997** | |
| May 15 | Thailand announces capital controls in an effort to ease the pressure on the baht. |
| July 2 | Thailand devalues the baht by 15 to 20 percent. |
| July 14 | The Philippines and Indonesia devalue the peso and the rupiah, respectively. |
| August 20 | Thailand and the IMF agree on a $17 billion financial stabilization package. |
| October 27 | The Dow Jones Industrial Average falls 554 points amid Asian fears. |
| October 31 | Indonesia and the IMF agree on a $23 billion financial support package. |
| November 7 | Financial markets in Argentina, Brazil, Mexico, and Venezuela fall sharply. |
| November 17 | South Korea abandons its defense of the won. |
| December 3 | South Korea and the IMF agree on a $57 billion financial assistance package. |
| December | The South Korean won and the Indonesian rupiah collapse. |
| December 30 | Foreign banks agree to roll over South Korea's $100 billion short-term debt. |
| **1998** | |
| Early March | The Indonesian economy verges on hyperinflation; rioting erupts. The government subsidizes food imports, violating the IMF program. |
| April 10 | Indonesia signs a new letter of intent with the IMF for a new reform program. |
| Early May | The economic situation in Indonesia deteriorates; more frequent and larger riots erupt. |
| May 19 | Political upheaval in Indonesia causes markets in Russia to fall sharply amid fears of spreading financial contagion. |
| May 21 | Suharto resigns as president of Indonesia; B. J. Habbie takes over. |
| May 26 | The South Korean stock market hits an 11-year low. |
| May 27 | The Russian Central Bank triples interest rates to 150% to encourage foreign capital to stay. |
| July 13 | Russia and the IMF agree on an emergency $22.6 billion financial stabilization package. |
| August 17 | Russia devalues the ruble and defaults on payments on its short-term debt. |
| Late September | The New York Federal Reserve Bank coordinates a bailout of Long-Term Capital Management, a hedge fund with some $100 billion in liabilities. |
| November 13 | Brazil negotiates a $41.5 billion IMF/World Bank/multicountry rescue package. |

*(continued)*

## CASE STUDY 21-3 (Continued)

### TABLE 21.5. *(continued)*

| | |
|---|---|
| **1999** | |
| January 8 | Brazil devalues the real by 8 percent in the face of large capital outflows. |
| January 15 | Brazil allows the real to float freely on world markets, and the real declines by 35 percent. |
| January 27 | China denies rumors that it will devalue the yuan; China's growth rate declines. |
| Late 1999 | Financial crises in emerging markets declared over; growth resumes. |
| **2001** | |
| February | Turkey suffers banking crisis and lets the currency (the lira) float. |
| December | Argentina defaults on its debt (largest in history). |
| **2002** | |
| January | Argentina experiences end of currency board arrangements and devaluation of peso and plunges into financial, economic, and political turmoil; IMF refuses to grant loans without credible plan for economic restructuring. |
| February 4 | Turkey receives IMF loan of $12.8 billion. |
| August 7 | Brazil receives $30 billion grant to help it avoid new financial crisis. |
| **2005** | |
| June | Argentina restructures its foreign debt with about 75 percent of its bondholders. |
| July | China revalues its currency by 2 percent and breaks its exchange rate peg to the dollar. |
| November | Brazil pays off its outstanding IMF debt early. |
| **2006** | |
| January | Argentina pays off its outstanding IMF debt early. |

*Source:* Inter-American Development Bank, 1999; updated by the author.

estimated that the cumulative loss of output as a percentage of GDP over the years of the most recent crises was 30 for Mexico, 82 for Indonesia, 57 for Thailand, 39 for Malaysia, and 27 for Korea (there are no estimates for Brazil, Russia, Turkey, or Argentina).

Although the fundamental problem that led to these crises was different, the process was very similar. Each crisis started as a result of a massive withdrawal of short-term liquid funds at the first sign of financial weakness in the nation. Foreign investors poured funds into many emerging markets during the early 1990s after these nations liberalized their capital markets in order to take advantage of high returns and in order to diversify their portfolios, but immediately withdrew their funds on a massive scale at the first sign of economic trouble in the nation—thereby precipitating a crisis. The danger for the international monetary system is that such crises could spread to the rest of the world, including advanced countries.

The heavy currency devaluation that usually accompanies a financial crisis leads to a further serious economic harm to a developing country. This is due to the fact that developing countries, as opposed to advanced ones, are usually forced to borrow in terms of a major foreign currency (the dollar, euro, or yen) because lenders worry (based on past experience) about being repaid with a devalued currency of the nation. Thus, when a developing country's currency is devalued, the domestic-currency value of its debt increases by the percent of the devaluation (i.e., there is transfer of wealth to foreign lenders). The inability of a

developing country to borrow in its own currency was called the original sin by *Eichengreen and Hausmann* (1999)—and the name stuck. In recent years, some habitual past "sinners," such as Mexico and Brazil, have been able to borrow in their own currency. Still, many private borrowers in developing countries continue to borrow in dollars and thus would face a problem if the nation's currency is devalued or depreciates.

A number of measures have been proposed, and some steps have already been taken to avoid or minimize such crises in the future and thus greatly strengthen the *architecture of the present international monetary system* and improve its functioning. These include (1) increasing transparency in international monetary relations, (2) strengthening banking and financial systems, and (3) promoting greater private-sector involvement.

Increased transparency is essential because markets cannot work efficiently without adequate, reliable, and timely information. To this end, the IMF established the *Special Data Dissemination Standards (SDDS)* in 1996 and the *General Data Dissemination System (GDDS)* in 1997 (enhanced in 2001 by the *Data Quality Assessment Framework*). These *early-warning financial indicators*, such as the budget and current account deficit, long-term and short-term foreign debts, and international reserves as percentages of GDP, could signal which emerging country or countries might be heading for trouble. The hope is that foreign investors would take note of the potential problem and avoid pouring excessive funds into the nation or nations, thus possibly avoiding a crisis.

The second way of improving the architecture of the present international monetary system is by strengthening emerging markets' banking and financial systems. Weakness in the banking systems was common to all emerging markets that were involved in financial crises during the past decade. A weak banking and financial system invites a financial crisis and guarantees its severity. The banking and financial system can be strengthened by improving supervision and prudential standards, and making sure that banks meet capital requirements, make adequate provisions for bad loans, and publish relevant and timely information on their loan activity. It is also important to deal with insolvent institutions promptly and effectively. Implementing these policies is difficult, especially when a nation's banking and financial system is already in trouble, but a sound financial system is essential for the health and growth of the entire economy. The IMF has been formulating standards or codes of good practice in accounting, auditing, corporate governance, payments and settlements systems, insurance, and banking, and some of these are already being implemented as part of the IMF surveillance function.

The third way of strengthening the present international monetary system is to get much greater private-sector involvement in resolving a financial crisis in emerging markets by rolling over and renegotiating loans or providing new money rather than rushing for the exit, as a precondition for IMF official assistance. The logic is that lenders should be compelled to take some responsibility for the crisis by having lent too much short-term funds to an emerging market for nonproductive purposes. That is, lenders should be "bailed in" rather than be allowed to bail out and rush for the exit door. To this end, the IMF has proposed the creation of a *Sovereign Debt Restructuring Mechanism (SDRM)* for quickly returning an emerging market economy facing a financial problem to sustainability.

Financial crises are not confined to emerging markets, however. In 2008–2009, the United States and most other advanced nations faced a serious financial and economic crisis (see Case Study 21-4). It was at this time that the Group of Twenty (G-20) economies "seized power" and essentially replaced the G-7 (or G-8, which includes Russia) as the steering

## CASE STUDY 21-4 The Financial Crisis in the United States and Other Advanced Economies

The U.S. subprime mortgage crisis started in the United States in 2007 and from there it spread to the rest of the financial sector and the real economy of the United States and the world in 2008. This was the first global financial crisis of the twenty-first century and the most serious financial crisis in a generation. The losses from the crisis have been estimated in the trillions of dollars in the United States alone.

Subprime mortgages are housing loans issued to borrowers facing a high risk of being unable to meet their mortgage payments. Many of these subprime mortgages were made at variable rates in 2003 and 2004 when the U.S. lending rate was the lowest in 50 years and led to a serious housing bubble (home prices rising very rapidly and excessively). When the Fed started to increase interest rates in June 2004 to fight inflationary pressures, many subprime borrowers defaulted on their mortgages, housing prices fell, and financial institutions faced huge losses, write-downs, and failures. Troubles in the U.S. housing market then brought to light other questionable and downright fraudulent financial activities and led to a system-wide financial crisis. The financial crisis was thus caused by deregulation or inadequate regulations of the financial activities of investment banks, by the inadequate application of regulations that were already on the books (i.e., rating agencies and the SEC not doing their job), by unfortunate economic policies (granting home mortgages to people who could not afford them), by outright fraud (such as Madoff's incredible $65 billion Ponzi scheme), and by economic greed (CEOs and financial firms caught in a gigantic profit-seeking scheme regardless of risk).

The result was that banks stopped making loans, consumers reduced spending, and what started as a purely financial crisis spilled to the real sector of the economy, plunging the United States into deep recession (which officially started in December 2007) despite trillions of dollars spent by the U.S. government to refinance and rescue banks and on the stimulus packages. More or less the same thing occurred in other advanced countries, which also fell into deep recession in 2008. In our highly globalized and interdependent world, recession in advanced countries then sharply reduced growth in emerging markets.

Some people blame the operation of the international monetary system for the present financial crisis. But the present crisis has a domestic origin and a better working international monetary system would not have led to contagion in other advanced countries if they had not faced the same financial excesses that occurred in the United States. In the medium term, the United States needs to save more and learn to live within its means. Some adjustment seems to have started with the U.S. savings rate rising since 2008. By 2010, growth had resumed in most countries, but growth remained slow.

*Source:* D. Salvatore, "The Global Financial Crisis: Predictions, Causes, Effects, Policies, Reforms and Prospects," *Journal of Economic Asymmetries*, December 2010, pp. 1–20.

committee of the world economy. In 2009, the G-20 included the finance ministers and central bank governors of the following 19 countries: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, and the United States. The twentieth member was the European Union, which is represented by the rotating Council presidency and the European Central Bank. In addition to these 20 members, the following forums and institutions, as represented by their respective chief executive officers, participate in meetings of the G-20: International Monetary Fund (IMF), World Bank (WB), International

Monetary and Financial Committee (MFC), and Development Committee (DC) of the IMF and World Bank. The G-20 met in London in April 2009 to propose policies to overcome the deep financial and economic crisis and push for reforms to prevent future crises based on (1) strengthening financial supervision and regulation, (2) fostering international policy coordination, (3) reforming the IMF, and (4) maintaining open markets. Other meetings followed aimed primarily at reforming the international financial system and providing a new direction for the world economy, but to date (2012), not many concrete steps have been taken to attain these goals.

## 21.6F Other Current International Economic Problems

The problems arising from the present exchange rate arrangements and from the global financial and economic crises that we've discussed are closely related to other serious economic problems facing the world today: (1) slow growth and high unemployment in advanced economies after the "great recession"; (2) trade protectionism in advanced countries in the context of a rapidly globalizing world; (3) large structural imbalances in the United States, slow growth in Europe and Japan, and insufficient restructuring in transition economies of Central and Eastern Europe; (4) deep poverty in many developing economies; and (5) resource scarcity, environmental degradation, and climate change that endanger growth and sustainable world development. This section suggests possible solutions to these interrelated problems at which we can arrive after the study of international economics.

1. *Slow Growth and High Unemployment in Advanced Economies after the Great Recession*
   In 2010 and 2011, advanced economies experienced slow growth and high unemployment as they came out of the most serious financial and economic crisis since the Great Depression of 1929. The United States and other advanced nations responded by rescuing banks and other financial institutions from bankruptcy, slashing interest rates, and introducing huge economic stimulus packages. These efforts, however, only succeeded in preventing the economic recession from being deeper than otherwise. Even though the recession was officially over in 2010, slow growth and high unemployment remain the most serious economic problems facing most advanced nations today. These problems are even greater for Greece, Ireland, Portugal, Spain, and Italy (all members of the 17-nation European Monetary Union), which remain in deep crisis from overborrowing, unsustainable budget deficits, and loss of international competitiveness.

   Advanced economies could try to stimulate growth and reduce unemployment with additional expansionary fiscal and monetary policies, but with already large and unsustainable budget deficits and huge amounts of excess liquidity already in the system, these policies may be ineffective and could even backfire. Larger budget deficits could discourage private consumption because consumers anticipate paying higher taxes in the future to pay for the higher budget deficits. Similarly, by adding more liquidity when so much is already in the system may not stimulate investments and growth and only pose greater inflationary pressures in the future. To increase growth it may be more promising to further restructure the economy and improve education and infrastructures. But these policies take years to bear fruit, are difficult to implement in times of slow growth, and require additional expenditures at a time when most nations face already high and unsustainable budget deficits.

**2.** *Trade Protectionism in Advanced Countries in the Context of a Rapidly Globalizing World*

We have seen in Section 9.3 that since the mid-1970s, there has been a rapid proliferation of nontariff trade barriers (NTBs) to the point where they now represent the most serious threat to the postwar trading system and the world's welfare. By interfering with the flow of international trade, rising protectionism leads to a misallocation of resources internationally, a slowdown in structural adjustments in mature economies and growth in developing economies, and it raises the specter of trade wars. The problem has been rendered more complex by the breakup of the world into three major trading blocs: the North American Free Trade Agreement (NAFTA, including the United States, Canada, and Mexico); the European bloc or European Union (EU); and a much less defined and looser Asian bloc (see Section 10.6).

The successful completion of the Uruguay Round in December 1993 went a long way toward reducing or at least putting an end to increased protectionism in the world today. As pointed out in Section 9.7b, however, many serious trade problems remain. Some sectors (such as insurance) were not included in the agreement, agricultural subsidies remain high, patent protection for pharmaceuticals is disappointing, and trade in computer chips is still subject to tariffs. Although tightened, antidumping action and safeguards are still possible, and so the potential for serious trade disputes remains. These problems were to be addressed in a new round of multilateral trade negotiations (the Doha Round) launched in November 2011 in Doha, Qatar (which, however, all but failed). Regional trade agreements are no substitute for true multilateralism.

Technological change, globalization, and increased competition from the manufactured exports of emerging economies, especially China, are held responsible for widespread firm downsizing, job insecurity, and stagnant wages in the United States and other advanced countries. The solution to these problems is not to restrict trade and reduce international competition but to increase job training and create a labor force more skilled and prepared for the new information-age jobs that open up in telecommunications, computers, biomedical, and other high-tech fields. But this requires that workers in the United States and other advanced economies continuously upgrade their skills to meet the needs of the new high-tech jobs that open up, that they are willing to move to where the jobs are created, and accept more skilled immigrants will the United States and other advanced economies remain internationally competitive. This is the price that workers in rich countries have to pay for the higher productivity, wages, and standards of living that the "new economy" brings.

**3.** *Structural Imbalances in Advanced Economies and Insufficient Restructuring in Transition Economies*

Today, many advanced economies face deep structural problems that hamper their growth. The United States faces deep structural imbalances in the form of excessive spending and inadequate national saving. This means that the United States is living beyond its means by borrowing excessively abroad. The result is huge and unsustainable trade deficits, a depreciated dollar, and unstable financial conditions (see Case Study 21-5). Being such a huge economy, U.S. economic problems quickly become global economic problems in our interdependent world. The United States needs to cut its spending deeply and sharply increase its savings rate in order to overcome its serious structural imbalance. While this cannot be easily or quickly accomplished, the United States does not seem to be trying sufficiently hard to resolve its problems.

## CASE STUDY 21-5 Trade Imbalances of the Leading Industrial Nations

One of the most serious global imbalances facing the world economy today is the large and chronic trade deficits of the United States and the United Kingdom and surplus of Germany (among advanced nations). Table 21.6 shows that the U.S. trade deficit increased from $25.5 billion in 1980 to $110.3 billion in 1990, $443.9 billion in 2000, to a high of $832.9 billion in 2006 (not shown in the table), and it was $735.2 billion in 2011. Germany's trade surplus rose from $2.1 billion in 1960 to the all-time high of $273.5 billion in 2007 (not shown in the table), and it was $214.6 billion in 2011. In 2011, Japan, the United Kingdom, France, and Italy had trade deficits, respectively, of $20.6 billion, $159.8 billion, $102.3 billion, and $24.7 billion, while Canada had nearly balanced balance.

The U.S. dollar appreciated by nearly 40 percent on a trade-weighted basis from 1981 to 1985, but then depreciated even more from 1985 to 1988, but the U.S. trade deficit started to decline only in 1988. Despite record trade deficits, the U.S. dollar appreciated sharply from 1995 until 2000 because rapid growth attracted huge amounts of foreign capital to the United States. The U.S. trade deficit continued to increase until 2006 even though the dollar started to depreciate in mid-2005. The current U.S. trade deficit is unsustainable in the long run as is the large trade surplus of Germany (among advanced nations).

**TABLE 21.6. Trade Imbalances of the Leading Industrial Countries, 1960–2011, Selected Years (in billions of U.S. dollars)**

| Country | 1960 | 1970 | 1980 | 1990 | 1995 | 2000 | 2005 | 2008 | 2011 |
|---|---|---|---|---|---|---|---|---|---|
| United States | 4.9 | 2.6 | −25.5 | −110.3 | −172.3 | −443.9 | −777.8 | −827.1 | −735.2 |
| Japan | 0.3 | 4.0 | 2.1 | 69.3 | 131.8 | 116.7 | 94.0 | 38.1 | −20.6 |
| Germany | 2.1 | 5.7 | 7.9 | 68.5 | 65.1 | 56.4 | 194.9 | 267.2 | 214.6 |
| United Kingdom | −1.1 | 0.0 | 3.4 | −32.5 | −19.0 | −49.9 | −124.7 | −173.5 | −159.8 |
| France | 0.6 | 0.3 | −14.1 | −13.3 | 11.0 | −3.2 | −27.8 | −87.3 | −102.3 |
| Italy | −0.6 | −0.2 | −15.9 | −1.5 | 39.7 | 9.5 | 0.6 | −2.8 | −24.7 |
| Canada | −0.2 | 3.0 | 7.9 | 9.5 | 25.9 | 45.0 | 51.7 | 43.8 | 2.2 |

*Sources:* International Monetary Fund, *International Financial Statistics Yearbook*, various years; and D. Salvatore, "Global Imbalances," *Princeton Encyclopedia of the World Economy* (Princeton University Press, 2008).

Europe faces a somewhat different structural problem that dampened its growth and led to high unemployment even before the recent global financial crisis. Most European countries have overgenerous social security benefits and inflexible labor markets, which discourage work and job creation in the face of globalization and international competition. With high unemployment, Europe imports less than it would otherwise and tends to restrict trade in the vain effort to protect jobs. Again, we see how in our interdependent world, a national or regional problem quickly becomes a general global problem. The emerging consensus is that solving Europe's unemployment problem requires scaling down social security benefits and eliminating the regulations that hinder labor market flexibility (if it is very difficult to fire workers, employers will think twice before hiring them). But this is more easily said than done, especially since Europeans are justifiably proud of their high wages and comprehensive social-labor.

Japan suffered three recessions and anemic growth from the early 1990s, when the real estate bubble burst and left many banks with huge amounts of noncollectible loans. Banks then stopped making loans, even to deserving businesses, and the nation plunged into economic stagnation. Japan tried almost everything to overcome its problem. It lowered interest rates to practically zero to stimulate private investments, it undertook huge public works to build roads and other infrastructure (often not needed) in order to jump-start and stimulate the economy, and it kept the exchange rate undervalued to stimulate exports. Nevertheless, it wasn't until 2004 that Japan seemed to finally emerge from economic crisis—only to fall back into deep recession during the recent global financial crisis. Japan must cut its excessive budget deficit and national debt, and correct the serious inefficiencies in its distribution system. But, as was pointed put earlier, it is difficult to restructure the economy, eliminate inefficiencies, and cut budgets in the face of slow growth.

Although considerable progress has been made in restructuring and establishing market economies in *transition economies* (the former centrally planned economies of Central and Eastern Europe and the Soviet Unon), the process is far from complete. As pointed out in Section 10.6E, these countries need massive amounts of foreign capital and technology, as well as more liberal access to Western markets, in order to establish full-fledged market economies. Slow growth and high unemployment in Western Europe, however, retarded progress. Ten transition economies (eight in Central and Eastern Europe plus Cyprus and Malta) were admitted into the European Union in 2004, Bulgaria and Romania entered in 2008, and five have formally adopted the euro. These countries are facilitating their process of economic restructuring and integration into the world economy, and closing their large gaps in standard of living with other advanced economies.

**4.** *Deep Poverty in Many Developing Countries*

Even though many developing countries are now growing very rapidly, many of the poorest developing nations, particularly those in sub-Saharan Africa, face deep poverty, unmanageable international debts, economic stagnation, and widening international inequalities in living standards. These conditions pose serious problems for the world economy. An international economic system that has spread the benefits from international trade and specialization so unevenly can hardly be said to be functioning properly—not to mention equitably. And a world where millions of people starve not only is unacceptable from an ethical point of view but also can hardly be expected to be a peaceful and tranquil world. Chapters 8 and 11 estimated the reasons that international inequalities in standards of living between the rich and the poorest developing countries of the world are so large and widening and suggested what can be done to overcome them.

Over the years, the United Nations Conference on Trade and Development (UNCTAD) and other international forums have advanced many proposals to improve conditions in developing nations and stimulate their development. These proposals lost some of their immediacy during the 1980s and 1990s because developed countries (especially Western Europe, Japan, and the United States) were absorbed with their own domestic problems of monetary and exchange rate instability, slow growth, structural imbalances, and high unemployment. As part of the demands for a New

International Economic Order (NIEO—see Section 11.6C), developing countries have been demanding both greater access for their exports to developed country markets and much greater flow of aid.

The successful completion of the Uruguay Round in December 1993 only partially addressed the trade problems facing developing countries. The foreign aid granted by developed countries has stagnated despite the fact that the problems faced by the poorest developing countries remain oppressively high (see Case Study 11-5). The *Millennium Declaration* in September 2000 set precise objectives incorporating specific targets for reducing income poverty, tackling other sources of human deprivation, and promoting sustainable development by 2015 (see Case Study 11-6). Most important, the Doha Round was to address the trade problem, but, as pointed out earlier, it has all but failed. The hope now is that the Group of Twenty (G-20) will be more successful in addressing the serious trade problems of the poorest developing countries.

**5.** *Resource Scarcity, Environmental Degradation, Climate Change, and Sustainable Development*

Growth in rich countries and development in poor countries are today threatened by resource scarcity, environmental degradation, and climate change. In the face of rapidly growing demand, particularly by China and India, and supply rigidities in producing nations, the price of petroleum, other raw materials, and food has risen sharply during the past few years. In many emerging market economies, protection of the environment takes a back seat to the growth imperative. Environmental pollution is dramatic in some parts of China, and in South America the Amazon forest is rapidly being destroyed. We are witnessing very dangerous climate changes that may have increasingly dramatic effects on life on Earth in all countries, but especially in the poorest developing ones. These problems, however, can be only adequately analyzed and addressed by a joint effort of all the sciences together, a major worldwide cooperative effort, and a change in world governance.

It is clear from this discussion that the international economic problems facing the world today are closely interrelated. For example, excessive U.S. trade and budget deficits lead to protectionism and dollar depreciation, which affect all countries, developed and developing. They also show the strong links between international trade discussed in the first half of the text (Chapters 2–12) and international finance discussed in the second half (Chapters 13–21).

Despite their seriousness, the world has faced similar, and sometimes even worse, problems in the past. The hope is that the world can tackle the current economic, financial, social, political, and environmental challenges in the spirit of cooperation and mutual understanding.

## SUMMARY

**1.** In this chapter, we examined the operation of the international monetary system from the gold standard period to the present. An international monetary system refers to the rules, customs, instruments, facilities, and organizations for effecting international payments. International monetary systems can be classified according to the way in which exchange rates are determined or according to the form that international reserve assets take. A good international monetary system is one that maximizes the flow of

international trade and investments and leads to an equitable distribution of the gains from trade among nations. An international monetary system can be evaluated in terms of adjustment, liquidity, and confidence.

2. The gold standard operated from about 1880 to the outbreak of World War I in 1914. Most of the actual adjustment under the gold standard seems to have taken place through stabilizing short-term capital flows and induced income changes, rather than through induced changes in internal prices, as postulated by the price-specie-flow mechanism. Adjustment was also greatly facilitated by buoyant and stable economic conditions. The period from 1919 to 1924 was characterized by wildly fluctuating exchange rates. Starting in 1925, Britain and other nations attempted to reestablish the gold standard. This attempt failed with the deepening of the Great Depression in 1931. There followed a period of competitive devaluations as each nation tried to "export" its unemployment. This, together with the serious trade restrictions imposed by most nations, cut international trade almost in half.

3. The Bretton Woods system agreed upon in 1944 called for the establishment of the International Monetary Fund (IMF) for the purposes of (1) overseeing that nations followed a set of agreed rules of conduct in international trade and finance and (2) providing borrowing facilities for nations in temporary balance-of-payments difficulties. This was a gold-exchange standard with gold and convertible currencies (only U.S. dollars at the beginning) as international reserves. Exchange rates were allowed to fluctuate by only 1 percent above and below established par values. Par values were to be changed only in cases of fundamental disequilibrium and after approval by the Fund. Each nation was assigned a quota in the Fund, depending on its importance in international trade. A nation had to pay 25 percent of its quota in gold and the remaining 75 percent in its own currency. A nation in balance-of-payments difficulties could borrow 25 percent of its quota from the Fund each year by depositing more of its currency in exchange for convertible currencies, until the Fund held no more than 200 percent of the nation's quota in the nation's currency.

4. Under the Bretton Woods system, industrial nations in fundamental disequilibrium were very reluctant to change par values. The convertibility of the dollar into gold resumed soon after the war, and that of other industrial nations' currencies resumed by the early 1960s. Tariffs on manufactured goods were lowered to an average of less than 10 percent by 1971. Through increased membership and quota increases, the resources of the Fund rose to $28.5 billion by 1971. The Fund also negotiated the General Arrangements to Borrow to further augment its resources. Nations negotiated standby arrangements with the Fund and swap arrangements with other central banks. The IMF also began to allow member nations to borrow up to 50 percent of their quota in any one year. In 1967 the IMF decided to create $9.5 billion of Special Drawing Rights (distributed in 1970–1972) to supplement international reserves. In 1961 the gold pool was set up, but it collapsed in 1968 and the two-tier system was established. During the Bretton Woods period, the European Union and the Eurocurrency markets came into existence, world output grew rapidly, and international trade grew even faster.

5. Use of the dollar as the principal international currency conferred the benefit of seigniorage on the United States, but the United States could not devalue to correct balance-of-payments deficits and its monetary policy was seriously constrained. The immediate cause of the collapse of the Bretton Woods system was the huge balance-of-payments deficit of the United States in 1970 and the expectation of an even larger deficit in 1971. This led to massive destabilizing speculation against the dollar, suspension of the convertibility of the dollar into gold on August 15, 1971, and a realignment of currencies in December 1971. The fundamental cause of the collapse of the Bretton Woods system is to be found in the lack of an adequate adjustment mechanism. The persistence of U.S. balance-of-payments deficits provided for the system's liquidity but also led to loss of confidence in the dollar. The dollar was devalued again in February 1973. In March 1973, in the face of continued speculation against the dollar, the major currencies were allowed to fluctuate either independently or jointly.

6. Since March 1973, the world has operated under a managed float (formally recognized in the Jamaica Accords, which took effect in April 1978). In March 1979, the European Monetary System was formed, in October 1988, the European Central Bank was created, the euro was introduced on January 1, 1999, and

began circulating on January 1, 2002, as the single currency of the European Monetary Union. Borrowing at the IMF has been relaxed, and significant new credit facilities have been created. The most significant monetary problems facing the world today are the excessive fluctuations and large misalignments in exchange rates. Target zones and greater international macroeconomic policy coordination have been advocated to overcome them. During the past decade, there were a series of financial and economic crises in Mexico, Southeast Asia, Russia, Brazil, Turkey, and Argentina, and in 2008–2009 in the United States and most other advanced economies. Proposed solutions by the G-20 include strengthening financial supervision and regulation, fostering international policy coordination, reforming the IMF, and maintaining open markets. Other serious international economic problems are (1) slow growth and high unemployment in advanced economies after the "great recession," (2) trade protectionism in advanced countries in the context of a rapidly globalizing world, (3) large structural imbalances in the United States, slow growth in Europe and Japan, and insufficient restructuring in transition economies of Central and Eastern Europe, (4) deep poverty in many developing economies, and (5) resource scarcity, environmental degradation, and climate change that endanger growth and sustainable world development.

## KEY TERMS

Adjustment, p. 688
Benign neglect, p. 702
Bretton Woods system, p. 692
Confidence, p. 688
Credit tranches, p. 693
Currency convertibility, p. 692
Dollar glut, p. 701
Dollar overhang, p. 707
Dollar shortage, p. 698
Dollar standard, p. 700
First-credit tranche, p. 703
Fundamental disequilibrium, p. 692
General Arrangements to Borrow (GAB), p. 695
Gold tranche, p. 693
Group of Twenty (G-20), p. 712
IMF conditionality, p. 704
International Bank for Reconstruction and Development (IBRD or World Bank), p. 693
International Development Association, p. 693
International Finance Corporation (IFC), p. 693
International Monetary Fund (IMF), p. 692
International monetary system, p. 687
Intervention currency, p. 692
Jamaica Accords, p. 702
Liquidity, p. 688
Net IMF position, p. 694
New Arrangement to Borrow (NAB), p. 704
Original sin, p. 712
Roosa bonds, p. 699
Seigniorage, p. 699
Smithsonian Agreement, p. 700
Special Drawing Rights (SDRs), p. 696
Standby arrangements, p. 695
Subprime mortgage crisis, p. 713
Substitution account, p. 707
Super gold tranche, p. 694
Swap arrangements, p. 696

## QUESTIONS FOR REVIEW

1. What is meant by an international monetary system? How can international monetary systems be classified?
2. What are the characteristics of a good international monetary system? How can an international monetary system be evaluated?
3. How was adjustment to balance-of-payments disequilibria under the gold standard explained by Hume? How did adjustment actually take place under the gold standard?
4. What type of international monetary system operated from 1920 to 1924? What happened between 1925 and 1931? What happened after 1931?
5. What are the two basic functions of the International Monetary Fund?
6. What is meant by the Bretton Woods system being a gold-exchange standard? How were exchange rates determined under the Bretton Woods system? Under what conditions were nations allowed to change their exchange rates?

7. What was the procedure for nations to borrow from the IMF?
8. In what way did the Bretton Woods system operate as intended? In what way did it not? How did the Bretton Woods system evolve over the years?
9. What is meant by the General Arrangements to Borrow? standby arrangements? swap arrangements? Special Drawing Rights? gold pool? two-tier gold market?
10. What was meant by the dollar shortage? dollar glut? What were Roosa bonds? What was the purpose of the Interest Equalization Tax and the Foreign Direct Investment Program?
11. What is meant by seigniorage?
12. What was the Smithsonian Agreement? What is meant by the European snake? the dollar standard? adjustment, liquidity, confidence?
13. What was agreed on at the Jamaica Accords?
14. How is the value of the SDR determined today? What additional credit facilities have been set up by the IMF?
15. What are the major problems facing the world today? What is being proposed to solve them?

## PROBLEMS

*1. Explain:

**(a)** How economic conditions today differ from those prevailing under the gold standard period.

**(b)** Why the different economic conditions today would make the reestablishment of a smoothly working gold standard impossible.

2. With respect to a nation with a $100 million quota in the IMF, indicate how the nation was to pay in its quota to the IMF and the amount that the nation could borrow in any one year under the original rules. How are the rules different today?
3. Explain the procedure whereby the nation of Problem 2 borrowed the maximum amount allowed from the IMF for the first year under the original rules.
4. Explain the procedure whereby the nation of Problem 2 borrowed the maximum amount allowed from the IMF in each year after it had already borrowed the maximum amount allowed in the first year under the original rules.
5. With regard to the nation of Problem 2, explain how and when the nation was to repay its loan to the IMF under the original rules.

*= Answer provided at www.wiley.com/college/salvatore.

6. Explain what happens if the nation of Problem 2 (call it Nation A) stops borrowing after the first year, but before it repays its loan, another nation borrows $10 of Nation A's currency from the IMF.

*7. **(a)** Explain how a nation could attempt to discourage large destabilizing international capital inflows under the Bretton Woods system by intervening in the *forward* market.

**(b)** Can the same be done under the present international monetary system?

*8. **(a)** Explain how a nation could attempt to discourage large destabilizing international capital inflows under the Bretton Woods system by intervening in the *spot* market.

**(b)** Can the same be done under the present international monetary system?

9. Explain the role of the dollar under the Bretton Woods system.
10. Explain with respect to the Bretton Woods system:

**(a)** The immediate cause of its collapse.

**(b)** The fundamental cause of its collapse.

11. Explain briefly the operation of the present international monetary system.
12. **(a)** Explain the fundamental reason for the Mexican currency crisis of December 1994.

**(b)** How does the International Monetary Fund propose to avoid the recurrence of similar crises in the future?

**13.** With regard to the Mexican crisis of December 1994, indicate the lesson that it provides (a) for developing countries relying heavily on short-term capital inflows and (b) on how to deal with a currency crisis once it starts.

**14.** **(a)** Explain the fundamental causes of the economic crises in emerging markets in the second half of the 1990s.

**(b)** What is being proposed to avoid similar crises in the future?

**15.** Identify the most significant international economic problems facing the world today.

# APPENDIX

## A21.1 International Reserves: 1950–2011

In this appendix, we present historical data on the amount of international reserves in terms of SDRs, as reported by the IMF. The IMF includes gold reserves only at the official price of SDR 35 an ounce. Table 21.7 includes gold reserves at SDR market prices. The table also reports the dollar value of one SDR at year end. A few of the totals in the table are subject to very small rounding errors. The SDR market price of gold was practically identical to the official price of SDR 35 per ounce until the two-tier gold market was established in 1968. Note the sharp increase in foreign exchange reserves (mostly dollars) and gold reserves at market prices since the breakdown of the Bretton Woods system in 1971. The decline in SDR reserves in 1992 was due to many IMF members using SDRs to pay for quota increases at the IMF.

***Problem*** (a) Calculate the ratio of the total dollar value of international reserves (with gold measured at market values) to the total dollar value of world imports in 1950, 1955, 1965, 1970, 1980, 1985, 1990, 1995, 2000, 2005, and from 2008–2011. (b) What can you say about the change in international liquidity over the years? (c) Why may international liquidity be excessive under the present international monetary system?

**TABLE 21.7.** International Reserves, 1950–2011 (billions of SDRs, at year end)

| | | 1950 | 1955 | 1960 | 1965 | 1966 | 1967 | 1968 | 1969 |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Foreign exchange | 13.3 | 16.7 | 18.5 | 24.0 | 25.7 | 29.4 | 32.6 | 32.9 |
| 2. | SDRs | — | — | — | — | — | — | — | — |
| 3. | Reserve position in the Fund | 1.7 | 1.9 | 3.6 | 5.4 | 6.3 | 5.7 | 6.5 | 6.7 |
| 4. | Total reserves minus gold | 15.0 | 18.6 | 22.1 | 29.4 | 32.0 | 35.2 | 39.1 | 39.8 |
| 5. | Gold at SDR 35/ounce | 32.2 | 35.0 | 37.9 | 41.8 | 40.8 | 39.6 | 38.7 | 38.9 |
| 6. | Total with gold at SDR 35/ounce | 48.2 | 53.6 | 60.0 | 71.2 | 72.8 | 74.6 | 77.8 | 78.7 |
| 7. | Gold at SDR market price | 33.0 | 35.0 | 38.6 | 41.9 | 41.1 | 39.4 | 46.4 | 45.7 |
| 8. | Total with gold at market price in SDRs | 48.0 | 53.6 | 60.7 | 71.3 | 73.1 | 74.8 | 85.5 | 79.0 |
| 9. | U.S. dollars per SDR | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

*(continued)*

## TABLE 21.7. *(continued)*

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 45.1 | 74.6 | 95.7 | 101.8 | 126.2 | 137.3 | 160.2 | 202.3 | 222.5 | 248.6 | 292.6 | 291.9 |
| 2. | 3.1 | 5.9 | 8.7 | 8.8 | 8.9 | 8.8 | 8.7 | 8.1 | 8.1 | 12.5 | 11.8 | 16.4 |
| 3. | 7.7 | 6.4 | 6.3 | 6.2 | 8.8 | 12.6 | 17.7 | 18.1 | 14.8 | 11.8 | 16.8 | 21.3 |
| 4. | 56.2 | 87.1 | 110.9 | 116.8 | 144.0 | 158.7 | 186.6 | 228.5 | 245.5 | 272.9 | 321.3 | 329.7 |
| 5. | 37.0 | 36.0 | 35.8 | 35.9 | 35.8 | 35.7 | 35.5 | 36.0 | 36.3 | 33.1 | 33.5 | 33.5 |
| 6. | 93.2 | 123.1 | 146.7 | 152.7 | 179.8 | 194.4 | 222.2 | 264.5 | 281.8 | 306.0 | 354.7 | 363.1 |
| 7. | 39.6 | 38.7 | 52.9 | 82.6 | 133.0 | 140.3 | 109.1 | 125.3 | 154.0 | 220.5 | 455.4 | 406.8 |
| 8. | 95.8 | 125.8 | 163.8 | 199.4 | 277.0 | 299.0 | 295.7 | 353.8 | 399.5 | 493.8 | 776.6 | 736.4 |
| 9. | 1.0000 | 1.0857 | 1.0857 | 1.2064 | 1.2244 | 1.1707 | 1.1618 | 1.2417 | 1.3028 | 1.3173 | 1.2754 | 1.1640 |

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 284.7 | 308.8 | 349.1 | 347.9 | 363.8 | 455.9 | 494.4 | 545.1 | 611.3 | 646.2 | 673.3 | 750.3 |
| 2. | 17.7 | 14.4 | 16.5 | 18.2 | 19.5 | 20.2 | 20.2 | 20.5 | 20.4 | 20.6 | 12.9 | 14.6 |
| 3. | 25.5 | 39.1 | 41.6 | 38.7 | 35.3 | 31.5 | 28.3 | 25.5 | 23.7 | 25.9 | 33.9 | 32.8 |
| 4. | 327.9 | 362.3 | 407.1 | 404.9 | 418.7 | 507.6 | 542.8 | 591.1 | 655.4 | 692.6 | 720.1 | 797.7 |
| 5. | 33.4 | 33.3 | 33.3 | 33.4 | 33.3 | 33.1 | 33.1 | 32.9 | 32.9 | 32.9 | 32.5 | 32.2 |
| 6. | 361.2 | 395.6 | 440.3 | 438.2 | 452.0 | 540.8 | 576.0 | 624.0 | 688.3 | 725.5 | 752.6 | 829.9 |
| 7. | 324.1 | 383.4 | 348.9 | 274.8 | 286.0 | 297.7 | 307.5 | 273.0 | 253.1 | 237.5 | 231.6 | 241.4 |
| 8. | 652.0 | 745.7 | 756.1 | 679.6 | 704.6 | 805.3 | 850.3 | 864.0 | 908.3 | 929.8 | 951.7 | 1,039.0 |
| 9. | 1.1031 | 1.0470 | 0.9802 | 1.0984 | 1.2232 | 1.4187 | 1.3457 | 1.3142 | 1.4227 | 1.4304 | 1.3750 | 1.3736 |

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 812.8 | 934.9 | 1,089.2 | 1,197.9 | 1,167.6 | 1,298.3 | 1,485.8 | 1,630.6 | 1,770.9 | 2,035.5 | 2,413.4 | 3,022.5 |
| 2. | 15.8 | 19.8 | 18.5 | 20.5 | 20.4 | 21.5 | 21.5 | 21.5 | 21.5 | 21.5 | 21.5 | 21.5 |
| 3. | 31.7 | 36.7 | 38.0 | 47.1 | 60.6 | 54.8 | 47.4 | 56.9 | 66.1 | 66.5 | 55.8 | 28.6 |
| 4. | 860.3 | 991.3 | 1,145.8 | 1,265.5 | 1,248.6 | 1,371.6 | 1,551.7 | 1,707.1 | 1,856.8 | 2,122.1 | 2,489.6 | 3,071.3 |
| 5. | 32.0 | 31.8 | 31.8 | 31.2 | 33.9 | 37.7* | 37.3 | 37.0 | 36.6 | 36.0 | 35.4 | 34.7 |
| 6. | 890.4 | 1,020.1 | 1,177.6 | 1,296.7 | 1,282.5 | 1,409.3 | 1,589.0 | 1,744.1 | 1,893.4 | 2,158.1 | 2,525.0 | 3,106.0 |
| 7. | 240.4 | 236.1 | 245.2 | 218.9 | 202.3 | 219.1 | 228.4 | 228.0 | 238.3 | 251.3 | 266.3 | 308.6 |
| 8. | 1,100.7 | 1,227.4 | 1,391.0 | 1,484.4 | 1,450.9 | 1,590.7 | 1,817.4 | 1,972.1 | 2,131.7 | 2,409.4 | 2,791.3 | 3,414.6 |
| 9. | 1.4599 | 1.4865 | 1.4380 | 1.3493 | 1.4080 | 1.3725 | 1.3029 | 1.2567 | 1.3595 | 1.4860 | 1.5530 | 1.4293 |

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| 1. | 3,491.8 | 4,242.6 | 4,769.2 | 5,207.8 | 6,014.9 | 6,644.1 |
| 2. | 21.5 | 21.5 | 21.4 | 204.0 | 204.1 | 204.1 |
| 3. | 17.5 | 13.7 | 25.1 | 38.7 | 48.8 | 98.3 |
| 4. | 3,527.9 | 4,275.1 | 4,813.4 | 5,447.2 | 6,263.4 | 6,935.6 |
| 5. | 34.3 | 33.7 | 33.7 | 34.3 | 34.7 | 35.1 |
| 6. | 3,562.2 | 4,308.8 | 4,847.1 | 5,481.5 | 6,298.1 | 6,970.7 |
| 7. | 393.5 | 424.8 | 545.6 | 608.8 | 788.3 | 1,024.8 |
| 8. | 3,955.7 | 4,733.6 | 5,392.7 | 6,090.3 | 7,086.4 | 7,995.5 |
| 9. | 1.5044 | 1.5803 | 1.5403 | 1.5677 | 1.5400 | 1.5353 |

*The IMF recalculated amount of its gold holdings.

*Source:* International Monetary Fund, *International Financial Statistics* (Washington, D.C.: IMF, 1985, 1998, 2002, and 2012).

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## INTERNet

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http://www.imf.org

http://www.oecd.org

http://www.bis.org

http://www.wto.org

http://www.worldbank.org

For historical exchange rate, interest rate, and price of gold data during the gold standard, see:

http://www.nber.org/databases/macrohistory/contents/index.html

For the operation of the international monetary system and International Monetary Fund, as well as proposals for reforms of the international monetary system, see:

http://www.imf.org/external/pubs/ft/weo/2011/01/index.htm

To compare price discipline under fixed and flexible exchange rate systems, examine historical CPI data for various countries at:

http://www.economagic.com/blsint.htm

For the Special Drawing Rights (SDR) "valuation basket: percentage weights," see:

http://www.imf.org/external/np/exr/facts/sdr.htm

GDP and trade data are found at:

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Financial data on emerging markets and their crises are found at:

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