

CHAPTER 10

The International Monetary System

The sole purpose of the international monetary system is to facilitate international economic exchange. Most countries have national currencies that are not generally accepted as legal payment outside their borders. You wouldn't get very far, for example, if you tried to use dollars to purchase a pint of ale in a London pub. If you want this pint, you have to first exchange your dollars for British pounds. If you are an American car dealer trying to import Volkswagens for your dealership, you will need to find some way to exchange your dollars for euros. If you are an American trying to purchase shares in a Japanese company, you will have to find some way to acquire Japanese yen. International transactions are possible only with an inexpensive means of exchanging one national currency for another. The international monetary system's primary function is to provide this mechanism. When the system functions smoothly, international trade and investment can flourish; when the system functions poorly, or when it collapses completely (as it did in the early 1930s), international trade and investment grind to a halt.

The purpose of the international monetary system is simple, but the factors that determine how it works are more complex. For example, how many dollars it costs an American tourist to buy a British pound, a euro, or 100 Japanese yen (or any other foreign currency) is determined by the sum total of the millions of international transactions that Americans conduct with the rest of the world. Moreover, for these currency prices to remain stable from one month to the next, the United States must somehow ensure that the value of the goods, services, and financial assets that it buys from the rest of the world equals the value of the products it sells to the rest of the world. Any imbalance will cause the dollar to gain or lose value in

terms of foreign currencies. Although these issues may seem remote, they matter substantially to your well-being. For every time the dollar loses value against foreign currencies, you become poorer; conversely, you become richer whenever the dollar gains value. This is true whether you travel outside the United States or not.

This chapter and the next develop a basic understanding of the international monetary system. This chapter presents a few central economic concepts and examines a bit of postwar exchange-rate history. [Chapter 11](#) builds on this base while examining contemporary international monetary arrangements. In the current chapter, we explore one basic question: Why do we live in a world in which currency values fluctuate substantially from week to week, rather than in a world of more stable currencies? The answer we propose is that the international monetary system requires governments to choose between currency stability and national economic autonomy. Given the need to choose, the advanced industrialized countries have elected to allow their currencies to fluctuate in order to retain national autonomy.

THE ECONOMICS OF THE INTERNATIONAL MONETARY SYSTEM

We begin by examining three economic concepts that are central to understanding the international monetary system. We look first at exchange rates and exchange-rate systems. We then examine the balance of payments, and conclude by looking closely at the dynamics of balance-of-payments adjustment.

Exchange-Rate Systems

An exchange rate is the price of one currency in terms of another. As I write this sentence, for example, the dollar–yen exchange rate is 107 which means that 1 dollar will purchase 107 Japanese yen. A currency’s exchange rate is determined by the interaction between the supply of and the demand for currencies in the **foreign exchange market**—the market in which the world’s currencies are traded. When an American business needs yen to pay for goods imported from Japan, for example, it goes to the foreign exchange market and buys them. Thousands of such transactions undertaken by individuals, businesses, and governments each day—some looking to buy yen and sell dollars and others looking to sell yen and buy dollars—determine the price of the dollar in terms of yen and

the prices of all of the world's currencies. Imbalances between the supply of and the demand for currencies in the foreign exchange market cause exchange rates to change. If more people want to buy than sell yen, for example, the yen will gain value, or appreciate. Conversely, if more people want to sell than buy yen, the yen will lose value, or depreciate.

An **exchange-rate system** is a set of rules governing how much national currencies can appreciate and depreciate in the foreign exchange market. There are two prototypical systems: fixed exchange-rate systems and floating exchange-rate systems. In a **fixed exchange-rate system**, governments establish a fixed price for their currencies in terms of an external standard, such as gold or another country's currency. (Under post-World War II arrangements, for example, the United States fixed the dollar to gold at \$35 per ounce.) The government then maintains this fixed price by buying and selling currencies in the foreign exchange market. In order to conduct these transactions, governments hold a stock of other countries' currencies as **foreign exchange reserves**. Thus, if the dollar is selling below its fixed price against the yen in the foreign exchange market, the U.S. government will sell yen that it is holding in its foreign exchange reserves and will purchase dollars. These transactions will reduce the supply of dollars in the foreign exchange market, causing the dollar's value to rise. If the dollar is selling above its fixed price against the yen, the U.S. government will sell dollars and purchase yen. These transactions increase the supply of dollars in the foreign exchange market, causing the dollar's value to fall. The yen the United States acquires then become part of its foreign exchange reserves. Such government purchases and sales of currencies in the foreign exchange market are called foreign exchange market intervention.

In a **floating exchange-rate system**, there are no limits on how much a currency can move in the foreign exchange market. In such systems, governments do not maintain a fixed price for their currencies against gold or any other standard. Nor do governments engage in foreign exchange market intervention to influence the value of their currencies. Instead, the value of one currency in terms of another is determined entirely by the activities of private actors—firms, financial institutions, and individuals—as they purchase and sell currencies in the foreign exchange market. If private demand for a particular currency in the market falls, that currency depreciates. Conversely, if private demand for a particular currency in the market increases, that currency appreciates. In contrast to a fixed exchange-rate system, therefore, a pure floating exchange-rate system calls for no government involvement in determining the value of one currency

in terms of another.

Fixed and floating exchange-rate systems represent the two ends of a continuum. Other exchange-rate systems lie between these two extremes. In a **fixed-but-adjustable exchange-rate system**—the system that lay at the center of the post-World War II monetary system and the European Union (EU)'s regional exchange-rate system between 1979 and 1999—currencies are given a fixed exchange rate against some standard, and governments are required to maintain this exchange rate. However, governments can change the fixed price occasionally, usually under a set of well-defined circumstances. Other systems lie closer to the floating exchange-rate end of the continuum, but provide a bit more stability to exchange rates than a pure float. In a **managed float**, which perhaps most accurately characterizes the current international monetary system, governments do not allow their currencies to float freely. Instead, they intervene in the foreign exchange market to influence their currency's value against other currencies. However, there are usually no rules governing when such intervention will occur, and governments do not commit themselves to maintaining a specific fixed price against other currencies or an external standard. Because all exchange-rate systems fall somewhere between the two extremes, one can usefully distinguish between such systems on the basis of how much exchange-rate flexibility or rigidity they entail.

In the contemporary international monetary system, governments maintain a variety of exchange-rate arrangements. Some governments allow their currencies to float. Others, such as most governments in the EU, have opted for rigidly fixed exchange rates. Still others, particularly in the developing world, maintain fixed-but-adjustable exchange rates. However, the world's most important currencies—the dollar, the yen, and the euro—are allowed to float against each other, and the monetary authorities in these countries engage only in periodic intervention to influence their values. Consequently, the contemporary international monetary system is most often described as a system of floating exchange rates. We will examine the operation of this system in detail in [Chapter 11](#).

Is one exchange-rate system inherently better than another? Not necessarily. Rather than rank systems as better or worse, it is more useful to recognize that all exchange-rate systems embody an important trade-off between exchange-rate stability on the one hand, and domestic economic autonomy on the other. Fixed exchange rates provide exchange-rate stability, but they also prevent governments from using monetary policy to manage domestic economic activity. Floating exchange rates allow

governments to use monetary policy to manage the domestic economy but do not provide much exchange-rate stability. Whether a fixed or a floating exchange rate is better, therefore, depends a lot on the value governments attach to each side of this trade-off. Fixed exchange rates are better for governments that value exchange-rate stability more than domestic autonomy. Floating exchange rates are better for governments that value domestic autonomy more than exchange-rate stability.

The Balance of Payments

The **balance of payments** is an accounting device that records all international transactions between a particular country and the rest of the world for a given period. For instance, any time an American business exports or imports a product, the value of that transaction is recorded in the U.S. balance of payments. Any time an American resident, business, or government loans funds to a foreigner or borrows funds from a foreign financial institution, the value of the transaction is recorded. All of the government's international transactions also are recorded. When the U.S. government spends money in Iraq supporting the military, or provides foreign aid to Egypt, these payments are recorded in the balance of payments. By recording all such transactions, the balance of payments provides an aggregate picture of the international transactions the United States conducts in a given year.

Table 10.1 presents the U.S. balance of payments for 2016, the latest year for which complete data are currently available. The transactions are divided into two broad categories: the current account and the financial account. The **current account** records all current (non-financial) transactions between American residents and the rest of the world. These current transactions are divided into four subcategories. The *trade account* registers imports and exports of goods, including manufactured items and agricultural products. The *service account* registers imports and exports of service-sector activities, such as banking services, insurance, consulting, transportation, tourism, and construction. The *income account* registers all payments into and out of the United States in connection with royalties, licensing fees, interest payments, and profits.

TABLE 10.1

U.S. Balance of Payments, 2016 (Billions of U.S. Dollars)

Current Account	
Trade in Goods	
Imports	-2,208
Exports	1,456
Trade in Services	
Imports	-505
Exports	752
Balance on Goods and Services	-505
Primary Income	
Receipts	814
Payments	-641
Secondary Income	
Receipts	135
Payments	-255
Balance on Current Account	-452
Financial Account	
Net Acquisition of Financial Assets	
Direct Investment Assets	-312
Portfolio Investment Assets	-40
Other Investment Assets	6
Reserve Assets	-2
New Incurrence of liabilities	
Direct Investment Liabilities	479
Portfolio Investment Liabilities	237
Other Investment Liabilities	25
Financial Derivatives, Net	16
Overall Balance (Statistical Discrepancy)	74

Source: U.S. Bureau of Economic Analysis, www.bea.gov/.

The **financial account** registers capital flows between the United States and the rest of the world. Any time an American resident purchases a financial asset—a foreign stock, a bond, or a factory—in another country, this expenditure is registered as an acquisition or capital outflow. Each time a foreigner purchases an American financial asset, the expenditure is registered as a liability or capital inflow. Capital outflows (assets) are registered as negative items and capital inflows (liabilities) are registered as positive items in the **capital account**. In 2016, American residents other than the U.S. government purchased about \$348 billion worth of foreign

financial assets, whereas foreigners (including foreign governments) purchased about \$741 billion of American financial assets. Capital outflows are set against capital inflows to produce a capital-account balance. In 2016, the U.S. financial-account balance was approximately \$378 billion. To calculate the overall balance-of-payments position, simply add the current account and the capital account together. In 2016, the United States ran an overall balance-of-payments imbalance of \$74 billion.

The current and capital accounts must be mirror images of each other. That is, if a country has a current-account deficit, it must have a capital-account surplus. Conversely, if a country has a current-account surplus, it must have a capital-account deficit. Grasping why this relationship must exist is easiest in the case of a country with a current-account deficit. Having a current-account deficit means that the country's total expenditures in a given year—all of the money spent on goods and services and on investments in factories and houses—are larger than its total income in that year. The U.S. case is instructive. American consumers spent a combined total of \$12.8 trillion in 2016. The U.S. government spent an additional \$3.3 trillion. American firms and households invested an additional \$3.1 trillion. Altogether, these expenditures totaled \$19.2 trillion. Yet, American residents earned only \$18.6 trillion in total income in 2016. The difference between what American residents earned and what they spent is thus equal to \$600 billion. Now look back at [Table 10.1](#). The balance on trade in goods and services plus the statistical discrepancy is also approximately \$600 billion. (The two would match exactly if we used exact, rather than rounded, numbers.) Hence, the American current-account deficit equals the difference between American income and American expenditures in a given year.

The United States can spend more than it earned in income because the rest of the world was willing to lend to American residents. The U.S. capital-account surplus thus reflects the willingness of residents of other countries to finance American expenditures in excess of American income. If the rest of the world were unwilling to lend to American borrowers, the United States could not spend more than it earned in income. Thus, a country can have a current-account deficit only if it has a capital-account surplus.

The same logic applies to a country with a current-account surplus. Suppose we divide the world into two countries: the United States and the rest of the world. We know that the United States has a current-account deficit with the rest of the world and thus the rest of the world has a

current-account surplus with the United States. If the United States can have a current-account deficit only if the rest of the world lends money to the United States, then the rest of the world can have a current-account surplus with the United States only if it lends money to American residents. If it doesn't, Americans can't buy as many of the rest of the world's goods. The rest of the world's current-account surplus (as well as the American current-account deficit) then will disappear. Thus, a country with a current-account surplus must have a capital-account deficit. In terms of our income and expenditure framework, a current-account surplus means that the country is spending less than it earns in income. The balance—the country's savings—is lent to countries with current-account deficits.

Balance-of-Payments Adjustment

Even though the current and capital accounts must balance each other, there is no assurance that the millions of international transactions that individuals, businesses, and governments conduct every year will necessarily produce this balance. When they don't, the country faces an imbalance of payments. A country might have a current-account deficit that it cannot fully finance through capital imports, for example, or it might have a current-account surplus that is not fully offset by capital outflows. When an imbalance arises, the country must bring its payments back into balance. The process by which a country does so is called **balance-of-payments adjustment**. Fixed and floating exchange-rate systems adjust imbalances in different ways.

In a fixed exchange-rate system, balance-of-payments adjustment occurs through changes in domestic prices. We can most readily understand this adjustment process through a simple example. Suppose there are only two countries in the world—the United States and Japan—and suppose further that they maintain a fixed exchange rate according to which \$1 equals 100 yen. The United States has purchased 800 billion yen worth of goods, services, and financial assets from Japan, and Japan has purchased \$4 billion of items from the United States. Thus, the United States has a deficit, and Japan a surplus, of \$4 billion.

A Closer Look

The Classical Gold Standard

Governments based their exchange rates on the gold standard prior to

World War I. In this system, governments exchanged national currency notes for gold at a permanently fixed rate of exchange. Between 1834 and 1933, for example, the U.S. government exchanged dollar notes for gold at the rate of \$20.67 per ounce. Because all national currencies were fixed to gold, all national currencies were permanently fixed against each other as well. The gold standard emerged at the center of the international monetary system during the 1870s. Great Britain had adopted the gold standard in the early eighteenth century, but most other currencies remained based on silver or on a combination of silver and gold (a “bimetallic” standard). During the 1870s, most European countries, as well as the United States, abandoned silver as a monetary standard. Much of the rest of the world followed during the 1880s and 1890s. This rapid shift to gold reflected what economists call “network externalities”—the benefit of adopting gold grew in line with the number of countries that had already adopted gold. This exchange-rate stability facilitated the rapid growth of international trade and financial flows in the late nineteenth century.

With exchange rates permanently fixed, prices in each country moved in response to cross-border gold flows; prices rose as gold flowed into the country and fell when gold flowed out. Cross-border gold flows were in turn driven by the relatively autonomous operation of the “price specie-flow mechanism.” The price specie-flow mechanism worked in the following way. Suppose the United States experienced a sudden acceleration of economic growth. With the U.S. money supply (its stock of gold) fixed in the short run, the growth spurt would place downward pressure on American prices (with more goods to buy with a fixed amount of money, the average price of goods must fall). As American prices fell, American exports would rise and American imports would fall, thereby generating a balance-of-payments surplus. This payments surplus would pull gold into the United States from the rest of the world. The resulting monetary expansion would push American prices back up to their initial level. The rest of the world would simultaneously experience countervailing dynamics. It would develop a payments deficit as the necessary counterpart to the American surplus. This deficit would generate a gold outflow—the necessary counterpart to the American gold inflow—and this gold outflow would push prices down in the rest of the world. The price specie-flow mechanism thus imposed recurrent bouts of inflation and deflation on the societies linked by gold.

Governments were not supposed to use their monetary policy to counter these price movements. Instead, governments were supposed to follow the “rules of the game.” These rules required countries losing gold as a result of an external deficit to raise the discount rate—the interest rate at which the central bank loaned to other banks—to restrict domestic credit and slow domestic investment. Tighter credit would reinforce the deflationary pressure caused by gold outflows. Countries accumulating gold as a consequence of an external surplus were expected to lower the discount rate in order to expand credit and boost investment. Lower interest rates would reinforce the inflationary pressure caused by gold inflows. In essence, therefore, the rules of the game required central banks to set monetary policy in response to developments in their balance of payments rather than in response to conditions in the domestic economy. In this way, the gold standard forced governments to subordinate internal price stability to external exchange rate stability.

The resulting instability of domestic prices was substantial. In the United States, for example, domestic prices fell by 28 percent between 1869 and 1879, rose by 11 percent in the following 5 years, fell by an additional 25 percent between 1884 and 1896, and then gradually rose through the next 15 years (Rockoff 1990, 742). The coefficient of variation provides a more systematic measure of domestic price instability. This coefficient is the ratio of the standard deviation of annual percentage change in domestic prices to the average annual percentage change. Greater price instability generates a larger coefficient of variation. Between 1880 and 1913, the coefficient of variation for the United States was 17. In comparison, the coefficient for the post-World War II era—a period of greater exchange-rate flexibility was 0.8 (Bordo 2002). Thus, even though the gold standard stabilized exchange rates, this external stability came at the price of substantial domestic price instability.

Domestic price instability provoked political conflict. One such episode occurred in the United States in the late nineteenth century. Western grain farmers were hit particularly hard by deflation during 1884–1896. Commodity prices fell more rapidly than did the prices of the manufactured goods and services that farmers purchased, thereby reducing farm purchasing power. In addition, most farmers were in debt and falling commodity prices required them to dedicate more of their income to debt service. The West responded by advocating the return to a bimetallic monetary system. They argued that monetizing

silver would expand the money supply and raise commodity prices. The movement peaked in 1896 when the pro-silver wing of the Democratic Party defeated the pro-gold wing at the party's National Convention. This victory was symbolized by the nomination of William Jennings Bryan, who had delivered a passionate speech to the convention in which he avowed that farmers would not be "nailed to a cross of gold," as the party's candidate for the 1896 presidential election. Bryan lost the presidential election to the Republican William McKinley, and the silverites subsequently lost strength as commodity prices rose and remained high until the end of World War I.

This payments imbalance creates an imbalance between the supply of and the demand for the dollar and yen in the foreign exchange market. American residents need 800 billion yen to pay for their imports from Japan. They can acquire this 800 billion yen by selling \$8 billion. Japanese residents need only \$4 billion to pay for their imports from the United States. They can acquire the \$4 billion by selling 400 billion yen. Thus, American residents are selling \$4 billion more than Japanese residents want to buy, and the dollar depreciates against the yen.

Because the exchange rate is fixed, the United States and Japan must prevent this depreciation. Thus, both governments intervene in the foreign exchange market, buying dollars in exchange for yen. Intervention has two consequences. First, it eliminates the imbalance in the foreign exchange market as the governments provide the 400 billion yen that American residents need in exchange for the \$4 billion that Japanese residents do not want. With the supply of each currency equal to the demand in the foreign exchange market, the fixed exchange rate is sustained. Second, intervention changes each country's money supply. The American money supply falls by \$4 billion, and Japan's money supply increases by 400 billion yen.

The change in the money supplies alters prices in both countries. The reduction of the U.S. money supply causes American prices to fall. The expansion of the money supply in Japan causes Japanese prices to rise. As American prices fall and Japanese prices rise, American goods become relatively less expensive than Japanese goods. Consequently, American and Japanese residents shift their purchases away from Japanese products and toward American goods. American imports (and hence Japanese exports) fall, and American exports (and hence Japanese imports) rise. As American imports (and Japanese exports) fall and American exports (and

Japanese imports) rise, the payments imbalance is eliminated. Adjustment under fixed exchange rates thus occurs through changes in the relative price of American and Japanese goods brought about by the changes in money supplies caused by intervention in the foreign exchange market.

In floating exchange-rate systems, balance-of-payments adjustment occurs through exchange-rate movements. Let's go back to our U.S.–Japan scenario, keeping everything the same, except this time allowing the currencies to float rather than requiring the governments to maintain a fixed exchange rate. Again, the \$4 billion payments imbalance generates an imbalance in the foreign exchange market: Americans are selling more dollars than Japanese residents want to buy. Consequently, the dollar begins to depreciate against the yen. Because the currencies are floating, however, neither government intervenes in the foreign exchange market. Instead, the dollar depreciates until the market clears. In essence, as Americans seek the yen they need, they are forced to accept fewer yen for each dollar. Eventually, however, they will acquire all of the yen they need, but will have paid more than \$4 billion for them.

The dollar's depreciation lowers the price in yen of American goods and services in the Japanese market and raises the price in dollars of Japanese goods and services in the American market. A 10 percent devaluation of the dollar against the yen, for example, reduces the price that Japanese residents pay for American goods by 10 percent and raises the price that Americans pay for Japanese goods by 10 percent. By making American products cheaper and Japanese goods more expensive, depreciation causes American imports from Japan to fall and American exports to Japan to rise. As American exports expand and imports fall, the payments imbalance is corrected.

In both systems, therefore, a balance-of-payments adjustment occurs as prices fall in the country with the deficit and rise in the country with the surplus. Consumers in both countries respond to these price changes by purchasing fewer of the now-more-expensive goods in the country with the surplus and more of the now-cheaper goods in the country with the deficit. These shifts in consumption alter imports and exports in both countries, moving each of their payments back into balance. The mechanism that causes these price changes is different in each system, however. In fixed exchange-rate systems, the exchange rate remains stable and price changes are achieved by changing the money supply in order to alter prices inside the country. In floating exchange-rate systems, internal prices remain stable, while the change in relative prices is brought about through exchange-rate movements.

Contrasting the balance-of-payments adjustment process under fixed and floating exchange rates highlights the trade-off that governments face between exchange rate stability and domestic price stability: governments can have a stable fixed exchange rate or they can stabilize domestic prices, but they cannot achieve both goals simultaneously. If a government wants to maintain a fixed exchange rate, it must accept the occasional deflation and inflation caused by balance-of-payments adjustment. If a government is unwilling to accept such price movements, it cannot maintain a fixed exchange rate. This trade-off has been the central factor driving the international monetary system toward floating exchange rates during the last 100 years. We turn now to examine how this trade-off first led governments to create innovative international monetary arrangements following World War II, and then caused the system to collapse into a floating exchange-rate system in the early 1970s.

THE RISE AND FALL OF THE BRETTON WOODS SYSTEM

The **Bretton Woods system** represents both a first and a last in the history of the international monetary system. On the one hand, Bretton Woods represented the first time that governments explicitly made exchange rates a matter of international cooperation. Drawing lessons from their experiences during the interwar period, governments attempted to create an innovative system that would enable them to enjoy exchange-rate stability and domestic economic autonomy. On the other hand, the Bretton Woods system represents the final effort, at least to date, to base the international monetary system on some form of fixed exchange rates. The effort was relatively short lived. The system was not fully implemented until 1959, and by the early 1960s it was beginning to experience the stresses and strains that brought about its collapse into a system of floating exchange rates in the early 1970s.

Creating the Bretton Woods System

American and British policymakers began planning for postwar monetary arrangements in the early 1940s. Harry Dexter White, an economist working at the U.S. Treasury, developed an American plan, and John M. Keynes, an economist who was advising the British Treasury, developed a British plan. Bilateral consultations yielded a joint U.S.–British plan that was published in 1943. This “Joint Statement,” as the plan was called,

served as the basis for the Articles of Agreement that emerged from a multilateral conference attended by 44 countries in Bretton Woods, New Hampshire, in 1944. The international monetary system they built, the Bretton Woods system, provided an explicit code of conduct for international monetary relations and an institutional structure centered on the International Monetary Fund (IMF).

The Bretton Woods system attempted to establish a system of fixed exchange rates in a world in which governments were unwilling to accept the loss of domestic autonomy that such a system required. Governments had become increasingly reluctant to accept the domestic adjustments imposed by fixed exchange rates as a result of a shift in the balance of political power within European political systems following World War I. We will explore these developments in greater detail in [Chapter 12](#). For now, we note only that the growing strength of labor unions ensured that deficit adjustment would occur through falling output and rising unemployment, while the emergence of mass-based democracies made governments reluctant to accept these costs.

The emergence of political constraints on domestic adjustment ruled out a return to rigidly fixed exchange rates following World War II. Yet, floating exchange rates were viewed as no more acceptable. It was widely agreed that the experiment with floating exchange rates in the 1930s had been disastrous. As an influential study published by the League of Nations in 1944 summarized, “If there is anything that the interwar experience has demonstrated, it is that [currencies] cannot be left free to fluctuate from day to day under the influence of market supply and demand” (quoted in Dam 1982, 61). In creating the Bretton Woods system, therefore, governments sought a system that would provide stable exchange rates *and* simultaneously afford domestic economic autonomy. To achieve these goals, the Bretton Woods system introduced four innovations: greater exchange-rate flexibility, capital controls, a stabilization fund, and the IMF.

First, Bretton Woods explicitly incorporated flexibility by establishing fixed-but-adjustable exchange rates. In this arrangement, each government established a central parity for its currency against gold, but could change this price of gold when facing a **fundamental disequilibrium**. Although governments were never able to define this term precisely, it was generally accepted that it referred to payments imbalances large enough to require inordinately painful domestic adjustment. In such cases, a government could devalue its currency. Exchange rates would thus be fixed on a day-to-day basis, but governments could change the exchange rate when they

needed to correct a large imbalance. It was hoped that this element of flexibility would reduce the need for domestic adjustment but still provide stable exchange rates.

Governments were also allowed to limit international capital flows. An important component of the international economy, capital flows allow countries to finance current-account imbalances and to use foreign funds to finance productive investment. Many governments believed, however, that capital flows had destabilized exchange rates during the interwar period. Large volumes of capital had crossed borders, only to be brought back to the home country at the first sign of economic difficulty in the host country. This system resulted in “disequilibrating” capital flows in which countries with current-account deficits shipped capital to countries with current-account surpluses, rather than “equilibrating” flows in which countries with surpluses exported capital to countries with deficits in order to finance current-account deficits. The resulting payments deficits required substantial domestic adjustments that governments were unwilling to accept.

In the early 1930s, most governments began to limit capital flows with **exchange restrictions**—government regulations on the use of foreign exchange. In the most restrictive regimes, the central bank establishes a monopoly on foreign exchange. Any private actor wanting foreign currency or wanting to exchange foreign currency into the domestic currency must petition the central bank, which can then restrict the types of transactions for which it exchanges currencies. It might, for example, refuse to supply foreign currency to a domestic resident who wants to buy financial assets in a foreign country. Alternatively, it might refuse to supply domestic currency to a foreign resident who wants to buy domestic financial assets. By controlling purchases and sales of foreign exchange in this manner, governments can limit financial capital flows into and out of their domestic economies.

Following World War II, the question was whether governments should be allowed to retain these exchange restrictions. American policymakers wanted all restrictions eliminated in order to restore liberal international capital markets. Other governments wanted to retain the restrictions. Keynes, for example, believed that it was “vital” to “have a means ... of controlling short-term speculative movements of flights of currency” (cited in Dam 1982, 98). In the absence of such controls, Keynes argued, exchange rates would be vulnerable to speculative attacks that would force governments to float their currencies. Keynes’s position carried the day. The IMF’s Articles of Agreement required governments to allow residents

to convert the domestic currency into foreign currencies to settle current-account transactions, but they allowed (but did not require) governments to restrict the convertibility of their currency for capital-account transactions. Most governments took advantage of this right, and as a consequence, international capital flows were tightly restricted until the late 1970s.

The Bretton Woods system also created a **stabilization fund**—a credit mechanism consisting of a pool of currencies contributed by member countries. Each country that participated in the Bretton Woods system was assigned a share of the total fund (called a quota), the size of which corresponded to its relative size in the global economy. Each country then contributed to the fund in the amount of its quota, paying 25 percent in gold and the remaining 75 percent in its national currency. As the world's largest economy, the United States had the largest quota, a contribution of \$2.75 billion. Britain had the second-largest quota, a contribution of \$1.3 billion. Other governments had much smaller quotas; France, for example, had a quota of only \$450 million, whereas Panama's was only \$0.5 million. In 1944, the stabilization fund held a total of \$8.8 billion. A government could draw on the fund when it faced a balance-of-payments deficit. Doing so would obviate the need to respond to a small payments deficit by devaluing currency or by imposing barriers to imports (De Vries and Horsefield 1969, 23–24).

Finally, the Bretton Woods system created an international organization, the IMF, to monitor member countries' macroeconomic policies and balance-of-payments positions, to decide when devaluation was warranted, and to manage the stabilization fund. The IMF was intended to limit two kinds of opportunistic behavior. First, the exchange-rate system created the potential for competitive devaluations. Governments could devalue to enhance the competitiveness of their exports. If one government devalued in an attempt to boost exports, other governments would be likely to devalue in response, setting off a tit-for-tat dynamic that would destroy the exchange-rate system (Dam 1982, 63–64). Second, governments might abuse the stabilization fund. Easy access to this fund might encourage governments to run large balance-of-payments deficits. Countries could import more than they exported and then draw on the stabilization fund to finance the resulting deficit. If all governments pursued such policies, the stabilization fund would be quickly exhausted, and countries would face large deficits that they could not finance. Countries would then float their currencies and perhaps restrict imports as well.

The IMF limited such opportunistic behavior by having authority over exchange-rate changes and access to the stabilization fund. For exchange-

rate changes, the Articles of Agreement specified that governments could devalue or revalue only after consulting the IMF, which would then evaluate the country's payments position and either agree or disagree with the government's claim that it faced a fundamental disequilibrium. If the IMF opposed the devaluation, the government could still devalue, but it would not be allowed to draw from the stabilization fund (Dam 1982, 90). The IMF also controlled access to the fund. IMF rules limited the total amount that a government could borrow to 25 percent of its quota per year, up to a maximum of 200 percent of its quota at any one time. It was agreed, however, that governments would not have automatic access to these funds. Each member government's quota was divided into four *credit tranches* of equal size, and drawings from each tranche required approval by the IMF's Executive Board. Approval for drawings on the first tranche was automatic, as these withdrawals represented borrowings against the gold that each member had paid into the stabilization fund. Drawing on the higher credit tranches, however, was conditional. Conditionality required a member government to reach agreement with the IMF on the measures it would take to correct its balance-of-payments deficit before it could draw on its higher credit tranches. Conditionality agreements typically require governments to reduce the growth of the money supply and to reduce government spending. Conditionality thus forces governments to correct the domestic economic imbalances that cause their balance-of-payments problems. The practice of IMF conditionality is controversial, and we will return to it in greater detail in [Chapter 14](#).

Implementing Bretton Woods: From Dollar Shortage to Dollar Glut

Governments had intended to implement the Bretton Woods system immediately following World War II. This proved impossible, however, because European governments held such small foreign exchange reserves (dollars and gold) that they were unwilling to make their domestic currencies freely convertible into foreign currencies. Governments needed to conserve what little foreign exchange they had to import food, capital goods, inputs, and many of the other critical components essential to economic reconstruction. Allowing residents to convert the domestic currency freely into dollars or gold, as the rules of Bretton Woods required, would produce a run on a country's limited foreign exchange reserves. Governments would then have to reduce imports and slow the

pace of economic reconstruction.

An aborted British attempt to restore the convertibility of the pound in 1947 starkly illustrated the threat (Eichengreen 1996, 103). Under pressure from the United States, and with the support of a \$3.75 billion American loan, the British government allowed holders of the British pound to purchase gold and dollars for current-account transactions. Those who held pounds rushed to exchange them for dollars and, in doing so, consumed the American loan and a large share of Britain's other foreign exchange reserves in only 6 weeks. As its reserves dwindled, the British government suspended the convertibility of the pound. Convertibility—and indeed the implementation of the Bretton Woods system—would have to wait until European governments had accumulated sufficient foreign exchange reserves.

In order for European governments to accumulate foreign exchange reserves, however, dollars had to be transferred from the United States to European governments. The U.S. balance-of-payments deficit provided the mechanism through which this transfer was achieved (see [Figure 10.1](#)). Initially, the United States exported dollars through its foreign aid and military expenditures. The Marshall Plan, implemented between 1948 and 1952, is the most prominent example of this American policy. By the late 1950s, however, private capital also was flowing from the United States to Europe (Block 1977). American deficits meant that more dollars flowed out from the United States each year than flowed in. These dollars were accumulated by European governments, which held them as foreign exchange reserves and used them to pay for imports from the United States and other countries. Governments could exchange whatever dollars they held into gold at the official price of \$35 an ounce. By 1959, this mechanism had enabled European governments to accumulate sufficient dollar and gold reserves to accept fully convertible currencies. In 1959, therefore, the Bretton Woods system was finally implemented, almost 15 years after it had been created.

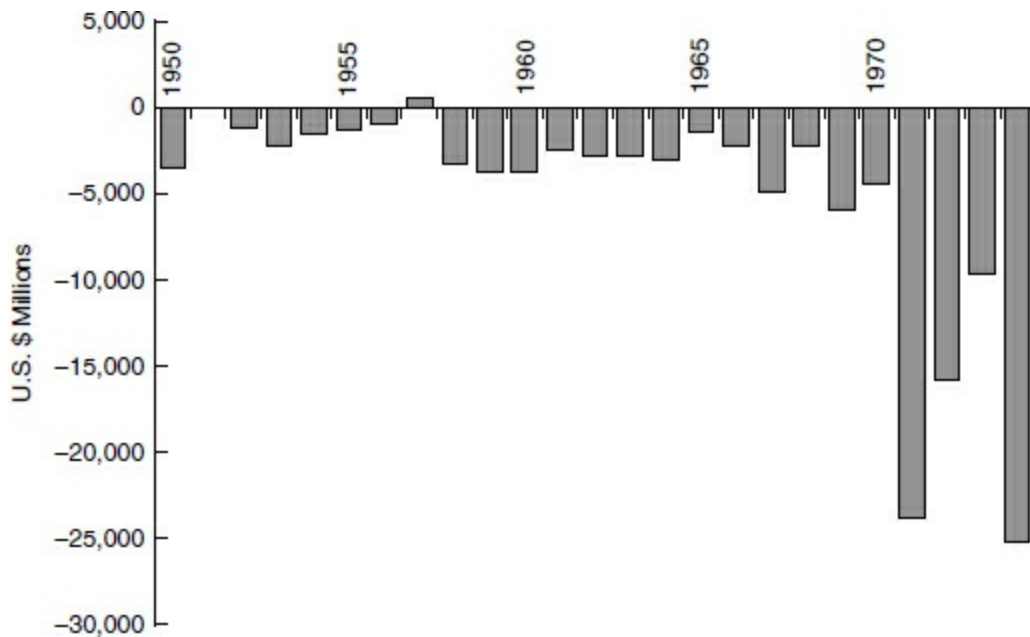


FIGURE 10.1

U.S. Balance of Payments, 1950–1974

Source: Block 1977.

American policy during the 1950s also had an unintended consequence: the dollar became the system’s primary reserve asset. In this role, the dollar became the currency that other governments held as foreign exchange reserves and used to make their international payments and to intervene in foreign exchange markets. This was reasonable: the United States was the largest economy in the world, and at the end of World War II the United States held between 60 and 70 percent of the world’s gold supply. The dollar was fixed to gold at \$35 per ounce, and other governments were willing to hold dollars because dollars were “as good as gold.” As a consequence, however, the stability of the Bretton Woods system came to depend upon the ability of the U.S. government to exchange dollars for gold at \$35 an ounce.

The American ability to fulfill this commitment began to diminish as the postwar dollar shortage was transformed into a dollar glut during the 1960s. The dollar glut was the natural consequence of continued American balance-of-payments deficits. Between 1958 and 1970, the United States ran average annual payments deficits of \$3.3 billion. These deficits remained fairly stable during the first half of the 1960s, but then began to grow after 1965. Deficits were caused by U.S. military expenditures in connection with the Vietnam War and expanded welfare programs at home, as well as by the unwillingness of the Johnson and Nixon administrations to finance these expenditures with higher taxes. The result

was an expansionary macroeconomic policy in the United States that sucked in imports and encouraged American investors to send capital abroad. The dollars accumulated by governments in the rest of the world as the result represented foreign claims on the American government's gold holdings.

The rising volume of foreign claims on American gold led to dollar overhang: foreign claims on American gold grew larger than the amount of gold that the U.S. government held. The progression of dollar overhang can be seen in the evolution of foreign dollar holdings and the U.S. gold stock during the 1950s and 1960s. In 1948, foreigners held a total of \$7.3 billion against U.S. gold holdings of \$24.8 billion. In this period, therefore, there was no uncertainty regarding the American ability to redeem all outstanding foreign claims on U.S. gold. By 1959, foreign dollar holdings had increased to \$19.4 billion, but U.S. gold holdings had fallen to \$19.5 billion. By 1970, American gold holdings had fallen to \$11 billion, while foreign claims against this gold had risen to \$47 billion. Thus, persistent balance-of-payments deficits reduced the ability of the United States to meet foreign claims on American gold reserves at the official price of \$35 an ounce.

Dollar overhang threatened the stability of the Bretton Woods system (see Triffin 1960). As long as the dollar remained the system's primary reserve asset, the growth of dollars circulating in the global economy would have to keep pace with the expansion of world trade. This meant that dollar overhang would worsen. Yet, as that happened, people would lose confidence in the ability of the American government to exchange dollars for gold at \$35 an ounce. Once this confidence evaporated, anyone who held dollars would rush to sell them before the dollar was devalued or American gold reserves were exhausted. Declining confidence in the dollar, in other words, would encourage foreign dollar holders to bet against the dollar's fixed exchange rate with gold. Eventually, this dynamic would generate crises that would undermine the system.

Preventing these crises was complicated by the dollar's central role in the system. The United States would have to reverse its balance-of-payments position to eliminate dollar overhang. Rather than run deficits that pumped dollars into the international economy, the United States would have to run surpluses that pulled dollars back in. Yet, because the dollar served as the system's primary reserve asset, reducing the number of dollars circulating in the global economy would reduce the liquidity that financed world trade. As governments defended their fixed exchange rates in the face of this contraction of liquidity, the world economy could be

pushed into a deflationary spiral (Eichengreen 1996, 116). The Bretton Woods system therefore faced a dilemma: dollar overhang would eventually trigger crises that undermined the system of fixed exchange rates, but measures to strengthen the dollar could trigger global deflation that might also destroy the system.

This liquidity problem, as it came to be called, was not simply an obscure technical matter. It was also a source of political conflict, particularly between France and the United States. The French argued that the United States gained considerable advantages from the dollar's role as the system's primary reserve asset. No other country could run persistent balance-of-payments deficits, because it would eventually run out of foreign exchange reserves and be forced to eliminate the deficit. But the United States did not face this reserve constraint: it could run deficits as long as other governments were willing to accumulate dollars. The French claimed that this asymmetry enabled the United States to pursue an "imperialistic" policy. In the economic arena, the United States could buy French companies, and in the geostrategic arena, the United States could expand its activities with few constraints, as it was doing in Vietnam (Dam 1982, 144). The French government decried this "exorbitant privilege" and advocated the creation of an alternative reserve asset to provide international liquidity. The French even advocated a return to the gold standard to eliminate the benefits the United States realized from the dollar's role in the system. Efforts to solve the liquidity problem, therefore, became inextricably linked to American power in the international monetary system and in the wider global arena.

Governments did respond to the liquidity problem, creating a new reserve asset to supplement the dollar. Working in conjunction with the IMF, governments created the Special Drawing Right (SDR), a reserve asset managed by the IMF and allocated to member governments in proportion to the size of their quotas. The SDR is not backed by gold or any other standard, cannot be used by private individuals, and is not traded in private financial markets. Its sole purpose is to provide a source of liquidity that governments can use to settle debts with each other arising from balance-of-payments deficits. The intention was that SDRs would supplement dollars as a source of liquidity in the international monetary system. The first allocation of SDRs occurred in 1970. By this time, however, the Bretton Woods system was moving toward its ultimate demise, and the SDR never played an important role.

The End of Bretton Woods: Crises and Collapse

The continued viability of the Bretton Woods system depended upon restoring confidence in the dollar, and this in turn required eliminating the underlying payments imbalances. Adjustment could be achieved through one of three paths: devalue the dollar against gold, restrain economic activity in the United States in order to reduce American imports, or expand economic activity in the rest of the world in order to increase American exports. Governments proved unwilling to adopt any of these measures. Instead, they were paralyzed by political conflict over who should bear the costs of the adjustments necessary to eliminate the imbalances that were weakening the system.

The simplest solution would have been to devalue the dollar against gold. Devaluation was not easily achieved, however. American policymakers believed that they could not change the dollar's exchange rate unilaterally. If they devalued against gold, Europe and Japan would simply devalue in response. As a consequence, the only way to devalue the dollar was to convince European and Japanese governments to revalue their currencies. Europe and Japan were unwilling to revalue their currencies against the dollar, however, because doing so would remove any pressure on the United States to undertake adjustment measures of its own (Solomon 1977, 170). Revaluation, in other words, would let the United States off the hook.

With currency realignment off the table, only two other solutions were left: adjustment through economic contraction in the United States or adjustment through economic expansion in other countries. In the United States, neither the Johnson nor the Nixon administration was willing to adopt the policies required to eliminate the U.S. balance-of-payments deficit. U.S. Secretary of the Treasury Henry Fowler spelled out the two American options in a memo to President Johnson in mid-1966. The United States could either "reduce the deficit by cutting back U.S. commitments overseas," a choice that would entail "major changes in [U.S.] foreign policy," or "reduce the deficit by introducing new economic and balance-of-payments measures at home" (United States Department of State). Neither option was attractive. The Johnson administration was not willing to allow the balance of payments to constrain its foreign-policy goals, and restricting domestic economic activity to correct the deficit was politically inconvenient.

Richard M. Nixon, who assumed the presidency in 1969, was no more willing to adopt policies to eliminate the American deficit. Instead, the Nixon administration blamed other governments for international monetary problems (Dam 1982, 186). The dollar's weakness was not a

result of the American balance-of-payments deficit, the administration claimed, but was instead caused by surpluses in Germany and Japan. Because other governments were at fault, the administration began to push these other governments to change policies, acting “like a bull in a china shop,” threatening to wreck the international trade and financial system unless other governments supported the dollar in the foreign exchange market and took measures to stimulate imports from the United States (Eichengreen 1996, 130).

Governments in Western Europe and Japan initially supported the dollar, in large part “because [the dollar] was the linchpin of the Bretton Woods system and because there was no consensus on how that system might be reformed or replaced” (Eichengreen 1996, 130). But there were clear limits to their willingness to continue to do so. The case of Germany illustrates both sides. Germany had done more to support the dollar than any other European government. The German government had agreed not to exchange the dollars it was accumulating for American gold, in stark contrast to the French, who regularly demanded gold from the United States for the dollars they acquired. In addition, Germany had negotiated a series of “offset payments” through which a portion of American military expenditures in Germany were offset by German expenditures on American military equipment. Such payments reduced the extent to which American military expenditures in Europe contributed to the U.S. balance-of-payments deficit.

Germany’s willingness to support the dollar, however, was limited by that country’s aversion to inflation. Germany had experienced hyperinflation during the 1920s, with prices rising at the rate of 1,000 percent per month in 1923. This experience had caused German officials and the German public to place great value on price stability (see Emminger 1977; Henning 1994). Supporting the dollar threatened to increase German inflation. As confidence in the dollar began to erode, dollar holders began to sell dollars and buy German marks. Intervention in the foreign exchange market to prevent the mark from appreciating expanded the German money supply and created inflation in the country, which then made Germany reluctant to support the dollar indefinitely. Continued German support would be based on clear evidence that the United States was adopting domestic policies that were reducing its payments deficit.

Governments, therefore, were unwilling to accept the domestic economic costs arising from the adjustments needed to correct the fundamental source of weakness in the system. As a consequence, the

United States continued to export dollars into the system, dollar overhang worsened further, and confidence in the dollar's fixed exchange rate eroded. As confidence eroded, **speculative attacks**—large currency sales sparked by the anticipation of an impending devaluation—began to occur with increasing frequency and mounting ferocity. In the first 6 months of 1971, private holdings of dollars fell by \$3 billion, a sign that people expected devaluation (Dam 1982, 187). European governments purchased more than \$5 billion defending the dollar's fixed exchange rate. The speculative attacks reached a new high in May as Germany purchased \$2 billion in only 2 days, a record amount at that time (Kenen 1994, 500). Such massive intervention breached the limits of German willingness to support the dollar, and the German government floated the mark.

Speculative attacks resumed in the summer of 1971, and in August the Nixon administration suspended the convertibility of the dollar into gold and imposed a 10 percent surcharge on imports (see Gowa 1983). The United States had abandoned the central component of the Bretton Woods system; it would no longer redeem foreign governments' dollar reserves for gold.

Governments made one final attempt to rescue the Bretton Woods system. During the fall of 1971, they negotiated a currency realignment that they hoped would reduce the U.S. payments deficit and stabilize the system. The realignment was finalized in a December meeting held at the Smithsonian Institution in Washington, DC. The dollar was devalued by 8 percent against gold, its value falling from \$35 per ounce to \$38 per ounce. European currencies were revalued by about 2 percent, thus producing a total devaluation of the dollar of 10 percent. In addition, the margins of fluctuation in the exchange-rate system were widened from 1 percent to 2.25 percent, to give the system a bit more exchange-rate flexibility.

Although Nixon hailed the Smithsonian realignment as “the greatest monetary agreement in the history of the world,” it solved neither the economic imbalances nor the political conflicts that were the cause of the system's weakening. The United States refused to adopt measures to reduce its payments deficit. Rather than tighten monetary policy to support the new exchange rate, the Nixon administration loosened monetary policy, “triggering the greatest monetary expansion in the postwar era” (Emminger 1977, 33). German officials remained unwilling to accept the inflation that was the necessary consequence of intervention to support the mark against the dollar. With neither government willing to adjust to support the new exchange rates, speculative attacks quickly re-emerged. A massive crisis in the first months of 1973 brought the system down, as

most advanced industrialized countries abandoned their fixed exchange rates and floated their currencies.

Policy Analysis and Debate

Who Should Adjust?

Question

Who should adjust in order to eliminate payments imbalances?

Overview

The payments imbalances at the center of the Bretton Woods system generated a distributive conflict about who should bear the cost of adjustment. The United States ran a large deficit, whereas Europe and Japan ran large surpluses. The elimination of either of these imbalances would necessarily eliminate the other. The situation gave rise to the dispute concerning who should alter its policies in order to adjust. Should the United States restrict its monetary and fiscal policies to shrink its deficit, or should Europe and Japan expand their monetary and fiscal policies to reduce their surpluses? The inability of governments to agree on how to distribute these adjustment costs eventually brought the Bretton Woods system down.

Distributive conflict over the costs of adjusting the balance of payments is of more than historical interest. The contemporary global economy has large current-account imbalances quite similar to those at the center of the Bretton Woods system. The United States runs large current-account deficits. Asian countries, most of which peg their currencies to the dollar, run large current-account surpluses. Asian surpluses finance American deficits. Rather than accumulating claims to American gold, however, as European governments did under Bretton Woods, Asia accumulates U.S. Treasury bills, which represent a claim on future American income.

Distributive conflict over the costs of adjustment has arisen during the last few years as current-account imbalances have expanded. Since 2000 or so, the United States has been pressuring China (one of the largest countries with a surplus) to devalue its currency. China has resisted such pressure thus far. Given the current size of the American deficit, one can imagine that the United States will pressure other Asian countries to adjust as well. Thus, the conflict over who adjusts

shapes contemporary international monetary relations, just as it shaped monetary politics in the Bretton Woods system. Who should alter policies to eliminate large payments imbalances?

Policy Options

- The United States should implement the domestic policy changes required to reduce the size of its current-account deficit.
- The United States should pressure Asia to implement the domestic policies required to reduce the size of their current-account surpluses.

Policy Analysis

- What policies would the United States need to implement to eliminate its deficit? What would Asia have to do to eliminate its surplus?
- Is one of the two policy options less painful for the world economy than the other? If so, which one and why?

Take A Position

- Which option do you prefer? Justify your choice.
- What criticisms of your position should you anticipate? How would you defend your recommendation against these criticisms?

Resources

Online: Search for “Are We Back to a Bretton Woods Regime?” and “The Dollar and the New Bretton Woods System.”

In Print: To examine past instances of distributive conflict, see Barry J. Eichengreen, *Golden Fetters: The Gold Standard and the Great Depression* (New York: Oxford University Press, 1992), and Barry J. Eichengreen and Marc Flandreau, eds., *The Gold Standard in Theory and History*, 2nd ed. (New York: Routledge, 1997).

Thus, the postwar attempt to create an international monetary system that provided exchange-rate stability and domestic economic autonomy was ultimately unsuccessful. The reasons for its failure are not hard to find. Some argue that the system was undermined by dollar overhang.

Others suggest that it was destroyed by the speculative attacks that ultimately forced governments to abandon fixed exchange rates. Even though these factors were important, the fundamental cause of the system's collapse lay in the adjustment problem. To sustain fixed exchange rates, governments had to accept the domestic costs of balance-of-payments adjustment. No government was willing to do so. The United States was unwilling to accept the unemployment that would have arisen from eliminating its deficit, and Germany was unwilling to accept the higher inflation required to eliminate its surplus. This unwillingness to adjust aggravated the dollar overhang, which then created an incentive to launch speculative attacks against the dollar.

CONCLUSION

The creation and collapse of the Bretton Woods system highlights two central conclusions about the workings of the international monetary system. First, even though governments would like to maintain stable exchange rates and simultaneously preserve their domestic economic autonomy, no one has yet found a way to do so. Governments confront this trade-off because each country's balance-of-payments position has a direct impact on its exchange rate. When a country has a payments deficit, the resulting imbalance in the foreign exchange market causes the currency to depreciate. When a country has a payments surplus, the foreign exchange market imbalance causes the currency to appreciate. If the government is pledged to maintain a fixed exchange rate, it must intervene in the foreign exchange market to prevent such currency changes. As governments do so, they alter the money supply, thereby sparking the changes in the domestic economy needed to correct the payments imbalance. If a government is unwilling to accept these domestic adjustments, it will be unable to maintain a fixed exchange rate. The Bretton Woods system collapsed because neither Germany nor the United States was willing to accept the domestic adjustments needed to sustain it.

Second, when forced to choose between a fixed exchange rate and domestic economic autonomy, governments have opted for domestic economic autonomy. They have done so because domestic adjustment is costly. In the short run, the country with the deficit must accept falling output, rising unemployment, and recession in order to maintain its fixed exchange rate. As American behavior in the Bretton Woods system illustrates, governments are rarely willing to do so. The country with the surplus must accept higher inflation, and as Germany's behavior in the

Bretton Woods system indicates, surplus governments are not willing to accept these costs. Governments in the advanced industrialized countries have been unwilling to pay the domestic economic costs in order to maintain fixed exchange rates against each other. Consequently, the world's largest countries have allowed their currencies to float against each other since the early 1970s.

The shift to floating exchange rates did not reflect agreement among governments that the international monetary system would perform better under floating rates than under fixed rates (although many economists did argue that it would). Instead, the shift to floating exchange rates reflected the political conclusion that fixed exchange rates were too costly. Thus, the answer to the question posed in this chapter's introduction is that we live in a world of floating exchange rates because politics makes governments unwilling to accept the domestic costs imposed by fixed exchange rates.

KEY TERMS

Balance of Payments
Balance-of-Payments Adjustment
Bretton Woods System
Capital Account
Conditionality
Current Account
Exchange-Rate System
Exchange Restrictions
Financial Account
Fixed Exchange-Rate System
Fixed-but-Adjustable Exchange-Rate System
Floating Exchange-Rate System
Foreign Exchange Market
Foreign Exchange Reserves
Fundamental Disequilibrium
Managed Float
Speculative Attacks
Stabilization Fund

SUGGESTIONS FOR FURTHER READING

Perhaps the most readable account of the evolution of the international monetary system during the last 100 years is Barry J. Eichengreen, *Globalizing Capital: A History of the International Monetary System*, 2nd edition (Princeton, NJ:

Princeton University Press, 2008).

For an accessible account of the interwar period, see Liaquat Ahamed, *Lords of Finance: The Bankers Who Broke the World* (New York: Penguin Press, 2009).

For further exploration of the origins of the Bretton Woods system, see Francis J. Gavin, *Gold, Dollars, and Power: The Politics of International Monetary Relations, 1958–1971* (Chapel Hill: University of North Carolina Press, 2004), and Ben Steil, *The Battle of Bretton Woods: John Maynard Keynes, Harry Dexter White and the Makings of a New World Order* (Princeton: Princeton University Press, 2014).