

## Chapter 9

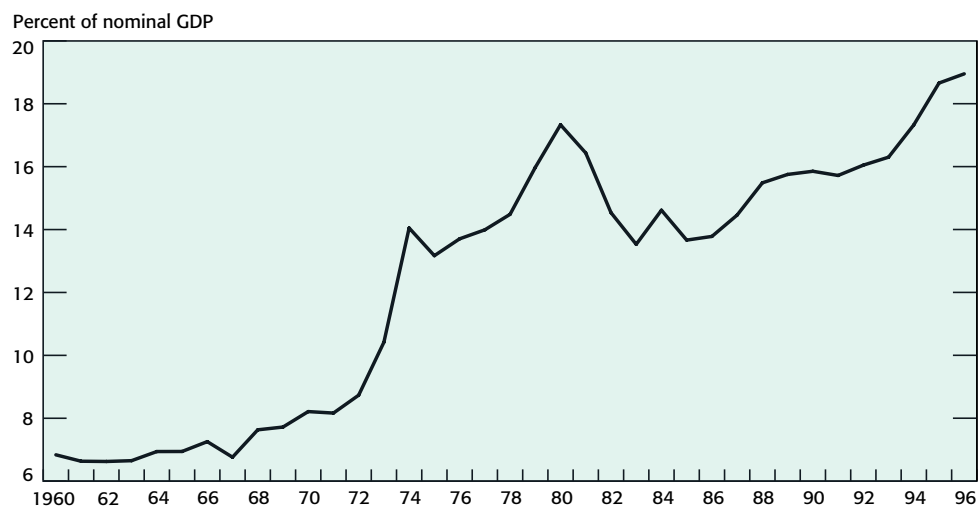
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# International Aspects of Monetary Policy

**Monetary policy** in the United States has long had an important influence on the rest of the world, primarily because of the U.S. economy's size and the dollar's role as a major reserve currency and medium of exchange for international transactions. Although monetary policy is mainly determined by domestic economic and financial events, the greater openness of trade and finance over the past two decades has meant that events in other parts of the world also influence U.S. monetary policy and the effects of policy actions on the domestic economy.

Barriers to both trade and capital flows have fallen substantially and world trade volumes have grown more than twice as fast as real gross domestic product (GDP) in the United States over the past thirty-five years. In 1960, total trade (exports plus imports) was equivalent to just 7 percent of U.S. GDP; that figure is now 19 percent (Chart 1). Cross-border capital flows have become a complex web of banking, securities, and direct investment transactions. The United States received net foreign capital inflows averaging almost \$50 billion a year from 1990 to 1996, which helped to finance its large current account deficit.

The next section briefly describes the factors leading to increased interdependence in international capital markets. It is followed by a section highlighting the special role of the U.S. dollar. The subsequent section analyzes the international transmission mechanism of U.S. monetary policy. The chapter ends with a discussion of international influences on U.S. monetary policy.

Chart 1. **U.S. Merchandise Trade Flows**

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

## The Shift to Floating Exchange Rates and International Capital Mobility

Two related sets of developments influenced the current international financial system: the widespread adoption of floating exchange rates in the 1970s and the progressive dismantling of restrictions on international capital flows in the 1980s. The first was the abandonment in the early 1970s of the Bretton Woods system of pegged exchange rates, which set the stage for the move to floating exchange rates. The change occurred in an environment in which there was both a growing belief in allowing markets to adjust and a series of strains on the old system arising from persistent U.S. balance of payments deficits, worsened by the emergence of inflation in the United States. The floating-rate system that replaced the Bretton Woods regime relies on a highly visible price adjustment mechanism—the U.S. dollar's<sup>1</sup> exchange rate against other major currencies—to remove U.S. international payments imbalances. At the same time, central banks have gained greater independence in conducting domestic policy, because they are not obliged to intervene to support fixed exchange rates.

The second set of changes was the gradual removal of restrictions on international capital flows. Foreign exchange and capital flow controls had restrained—with declining effectiveness—the potential flows of capital that

had been encouraged, in part, by economic imbalances under the old system. The United States eliminated most capital controls with the advent of floating exchange rates. Other countries gradually reduced capital controls because of such contributing factors as free-market philosophies and pressures from shifting payments imbalances that proved wider than those under the Bretton Woods system.

The two sets of changes have had varying implications for the effectiveness of monetary policy. Under flexible exchange rates, domestic policy actions are more independent than under relatively fixed exchange rates because policy is less constrained by official balance of payments settlements. In addition, exchange rate changes can be used to reinforce the effects of monetary policy on the domestic economy. For example, a tightening of monetary policy, *ceteris paribus*,<sup>2</sup> tends to restrain U.S. inflation and, over time, economic growth, driving up the dollar's exchange rate. A higher exchange rate, in turn, shifts trade from the United States to other countries and contributes to slowing U.S. economic growth.

At the same time that flexible exchange rates have made monetary policy potentially more effective, freer capital movements have made the policy transmission mechanisms more complex than they were in the 1960s. Freer capital movements promote rapid and widespread financial adjustments to U.S. monetary policy actions in advance of the slower and more complicated real-sector and price adjustments.

## The Special Role of the Dollar in International Financial Markets

The U.S. dollar, the world's most actively traded currency, has a qualitatively distinct role from other currencies. The dollar serves many monetary functions outside the United States—it is an intervention and reserve currency, a medium of exchange, a unit of account, and a store of value.

Foreign central banks use the dollar as an intervention and reserve currency. For example, the Bank of Canada manages the float of the Canadian dollar by exchanging U.S. and Canadian dollars in the foreign exchange market to influence the exchange rate. Foreign central banks hold a large portion of official international reserves in the form of U.S. dollars and dollar-denominated assets, partly because of the dollar's role as an intervention currency. From 1990 to 1996, foreign central banks held an average of 55 percent of their official reserves in dollar-denominated assets.<sup>3</sup> In contrast, foreign central banks held on average only 15 percent of their reserves in German marks or mark-denominated assets and 8 percent of their reserves in Japanese yen or yen-denominated assets.

The dollar is also a medium of exchange in the foreign exchange market. Exchanges between third currencies often take place through dollars rather than directly. For example, if a Mexican bank needs Spanish pesetas, instead of buying the pesetas directly with Mexican pesos, the bank would likely buy dollars for pesos and then use the dollars to buy pesetas. Because of this special role, the U.S. dollar market is the largest part of the foreign exchange market in foreign centers, and New York is one of the largest foreign exchange centers in the world. Of the \$1.2 trillion average daily trading volume in the world's foreign exchange markets, 83 percent of transactions involved the dollar, and 32 percent occurred in the United States. In contrast, 37 percent of transactions involved the German mark and 24 percent the Japanese yen.<sup>4</sup>

The dollar acts as a unit of account.<sup>5</sup> International commercial contracts are most commonly denominated in dollars, even when neither party to the contract is based in the United States. This practice is most common in raw material and commodity markets, which are unified globally and deal in standardized contracts. In many cases, payment is also made in dollars. For example, European countries use dollars to pay for oil from the Middle East. Furthermore, Japan's imports of raw materials from Southeast Asia are largely denominated in dollars. Thus, the dollar acts as an international money, providing a portion of the international economy with the advantages of having a single medium of exchange.

Finally, just as foreign central banks accumulate dollar reserves, both businesses and individuals abroad use the dollar as a store of value, either in the form of currency or bank deposits. It has been estimated that between 50 and 70 percent of the stock of U.S. currency is now held outside the United States.<sup>6</sup> In addition, the Bank for International Settlements (BIS) estimates that U.S. dollar deposits in banks outside the United States averaged \$530 billion per year from 1991 to 1996.<sup>7</sup>

Foreigners choose to hold the U.S. dollar because of its wide international acceptance and because it is a relatively stable source of purchasing power. The use of the dollar as a store of value is particularly pronounced in countries with a great deal of economic or political uncertainty. Currency is often preferred to bank deposits because of its anonymity and, in some countries, because of low confidence in the banking system. In a few countries, such as Liberia and Panama, the dollar is actually used as the domestic currency. In other countries, such as Argentina and Russia, dollars are widely used in the wake of episodes of rapid inflation.

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## International Transmission Channels of U.S. Monetary Policy

How, and through what channels, does a change in U.S. monetary policy affect the economies of other countries? This section describes how an easing of domestic monetary policy influences financial and economic conditions in other countries, conditions that, in turn, affect the U.S. economy.

### 1. The Influence of Financial Markets

The international money market, the capital market, and the foreign exchange market represent the most immediate channel for transmitting U.S. monetary policy to other countries. The financial market response to a U.S. monetary policy action depends on an interplay of domestic and foreign influences.

A U.S. monetary easing, *ceteris paribus*, reduces nominal and real interest rates on short-term dollar investments relative to those abroad.<sup>8</sup> The lower rates encourage investors to shift from dollar to foreign currency assets, placing downward pressure on the exchange value of the dollar and on foreign interest rates. Investment decisions reflect both the exchange rate risk involved in international transactions and the ease of making such transactions.

This consideration comes into play as investors and borrowers compare expected rates of return across currencies expressed in the home currency. For example, a U.S. investor compares the expected nominal return on an investment denominated in dollars to the return on a foreign currency investment expressed back in dollars. The nominal dollar return on the foreign currency investment consists of its nominal interest rate plus the expected change in the exchange value of foreign currency, with an adjustment for the risk of uncertainty in the exchange rate.<sup>9</sup>

A U.S. borrower, however, compares the nominal interest rate, which is the cost of borrowing in U.S. dollars, to the cost of borrowing in a foreign currency expressed in dollars. A foreign investor compares the nominal return in the currency of the home country with the return on U.S. dollar investments expressed in the home currency. The foreign investor adds the expected change in the exchange value of the dollar to the nominal dollar interest rate and subtracts an adjustment for risk. A foreign borrower makes a similar comparison of borrowing costs in the home currency and in U.S. dollars expressed in the home currency.

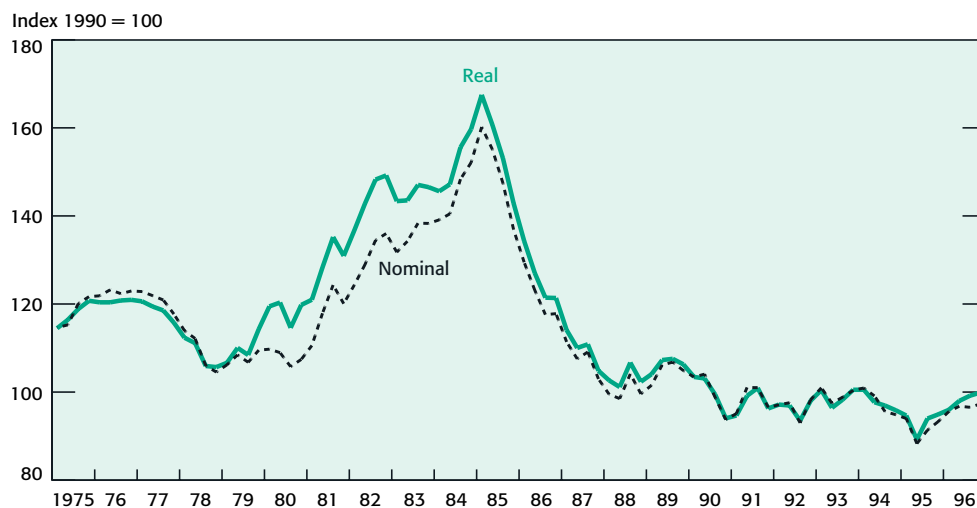
These comparisons by investors and borrowers contribute to a fundamental economic process. Because investors and borrowers

ultimately decide to save and borrow based on the *expected* real interest rate in their home country, their comparisons of international returns adjusted for exchange rates lead to a mechanism that compares *real* interest rates across countries adjusted for the expected change in the real exchange rate over the holding period.

A change in the U.S. real exchange rate is the change in the nominal dollar exchange rate adjusted for changes in the dollar's purchasing power relative to foreign currency (that is, the difference between U.S. and foreign inflation). The real exchange rate therefore expresses the relative value of U.S. goods in terms of foreign goods. Changes in the ex ante real exchange rate cannot be measured directly and are commonly measured by changes in the ex post real rate.<sup>10</sup> Chart 2, which illustrates the nominal and real U.S. effective exchange rates weighted against sixteen industrial countries, shows that exchange rates in recent years have been fairly stable.<sup>11</sup>

A decrease in U.S. ex ante real interest rates relative to those abroad reduces the foreign exchange value of the U.S. dollar and creates incentives for domestic and foreign investors to purchase foreign currency financial assets. Borrowers turn to the U.S. dollar markets from markets with higher real interest rates. The incipient flows eventually bid down the U.S. dollar exchange rate, altering supply and demand across national capital markets to bring real

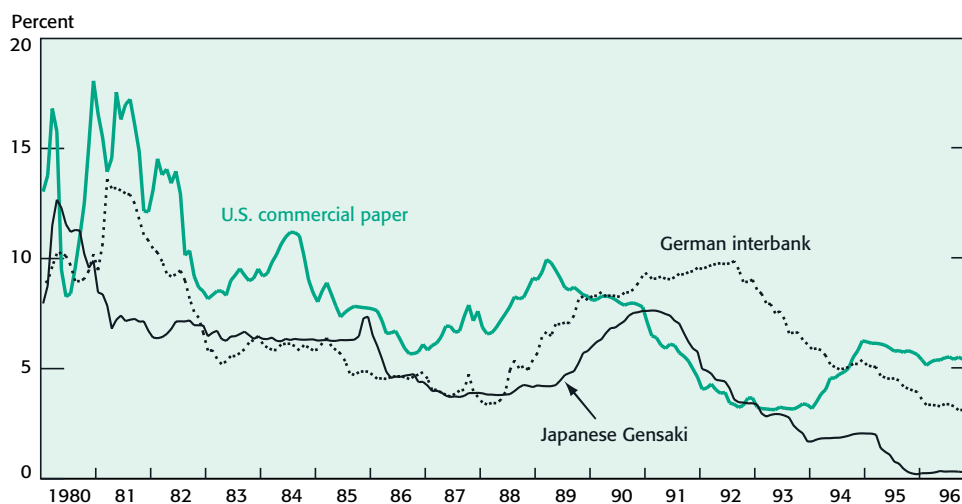
Chart 2. **U.S. Effective Exchange Rates**  
Weighted against Sixteen Industrial Countries



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

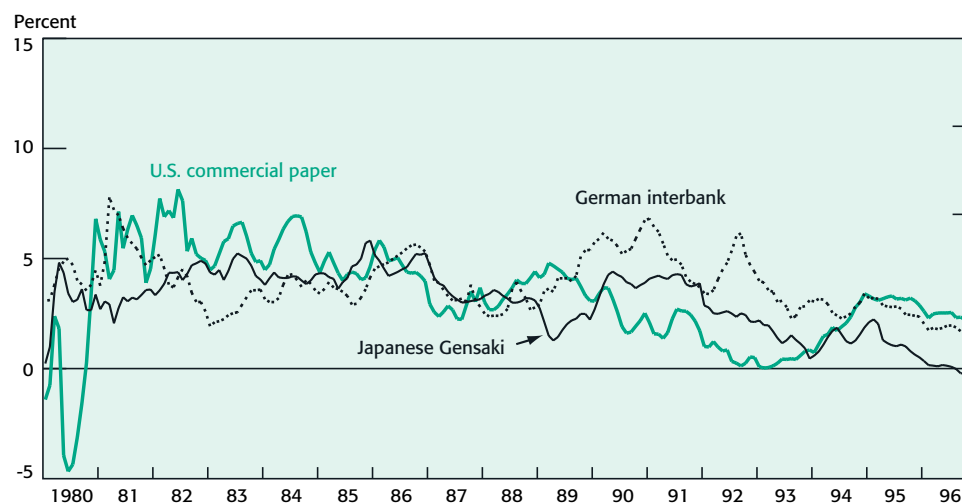
interest rates into closer alignment. Charts 3 and 4 illustrate, respectively, nominal and real short-term interest rates in the United States, Germany, and Japan.

Chart 3. **Nominal Three-Month Interest Rates**



Sources: Organization for Economic Cooperation and Development; *Financial Times*.

Chart 4. **Ex Post Real Three-Month Interest Rates**



Sources: Organization for Economic Cooperation and Development; *Financial Times*; International Monetary Fund.

Note: Real interest rates are nominal rates less the three-month moving average in consumer price index inflation.

The effect of a decline in nominal interest rates can be offset by an equivalent reduction in inflationary expectations. When lower expected inflation produces higher real rates, it leads to an increase in the expected future dollar exchange rate, reflecting the dollar's anticipated gain in relative purchasing power. The reduced nominal return on dollar assets largely compensates investors for higher expected dollar appreciation (or lower expected depreciation). In this case, falling nominal interest rates do not induce investors to switch their assets from U.S. dollars to other currencies.

While a U.S. easing tends to lower the exchange value of the dollar, the extent of this decline depends in part on foreign central banks' monetary policies. If economic and inflationary pressures abroad are weak, or if the foreign central bank is stabilizing the foreign exchange value of its currency, the central bank may also ease its short-term interest rates. In this case, the dollar's exchange rate may undergo little or no change. However, if a foreign central bank maintains its interest rate levels for domestic policy reasons while the United States lowers its rates, the dollar may fall.<sup>12</sup>

The effects depend further on market perceptions of U.S. and foreign monetary policy stances. Central banks can have considerable influence over short-term interest rates. Hence, market perceptions may be reflected primarily in changes in the spot exchange rate and in relative long-term interest rates, changes which themselves reflect reactions to the policy moves and expected longer term relative price performance. If the U.S. monetary easing is viewed as inflationary but the foreign central bank's stance is not, U.S. long-term interest rates may rise, while foreign rates remain unchanged. The relatively higher U.S. long-term rate compensates investors for lower expected future exchange losses.

In practice, because interest rates and exchange rates are simultaneously determined, it is difficult to predict accurately the net response to a monetary policy action. However, reduced U.S. nominal and real interest rates, *ceteris paribus*, tend to lower the exchange value of the dollar unless there are offsetting shifts in inflationary expectations or simultaneous reductions in interest rates by foreign central banks.

## **2. International Effects of Changes in U.S. Real Activity and Prices**

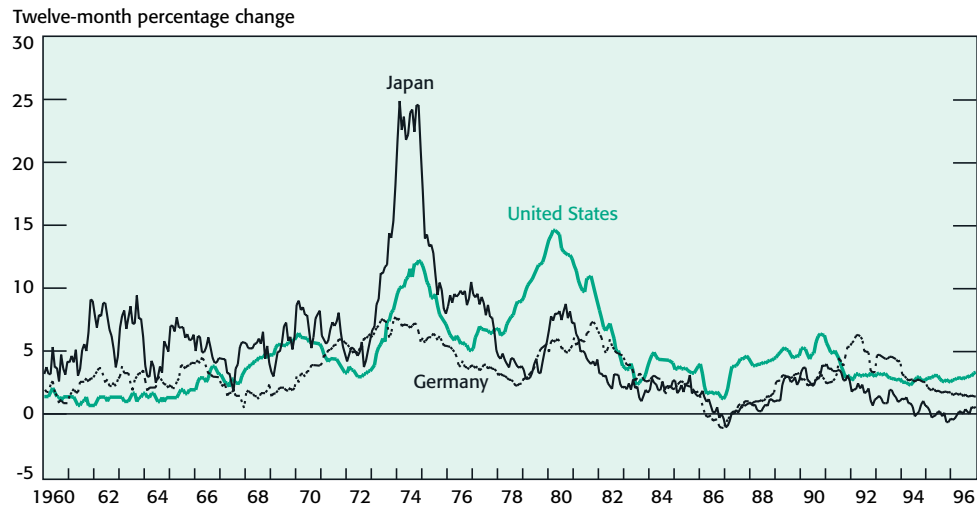
When a monetary easing reduces U.S. interest rates, the real economy expands and prices of goods and services rise, affecting the exchange rate and the trade account. For example, a lowering of the Federal funds rate stimulates domestic demand and increases

U.S. demand for imported goods and services over the next few quarters. If the easing also raises domestic prices of goods and services, both foreign and domestic customers have an incentive to shift from U.S.-produced goods to foreign goods. Together, these factors tend to increase U.S. import demand and reduce foreign demand for U.S. exports. Thus, the trade surplus will decline or the deficit will widen.

If the monetary easing also produces a decline in the real foreign exchange rate, the stimulative effects of the easing on the U.S. economy are reinforced. A lower dollar exchange rate makes foreign goods more expensive relative to domestic goods and U.S. goods more attractive in overseas markets. Both U.S. and foreign customers have an incentive to shift to relatively less expensive U.S.-produced goods and services from those produced abroad, offsetting part of the effect of higher U.S. growth on trade.

While higher U.S. demand and a lower dollar are both stimulative to the U.S. economy, they have offsetting, long-run effects on foreign economies. The expansionary effects initially predominate. From the foreign country's perspective, the increased U.S. demand for imported goods resulting from higher U.S. growth and prices provides a stimulus to production, while the lower dollar channels demand back to the United States by making U.S. goods and services relatively less expensive. Changes in U.S. real income quickly affect U.S. trade flows, but several quarters can pass before the major effects of changes in prices and exchange rates become apparent. Hence, a U.S. monetary policy easing is usually initially stimulative to foreign countries. This stimulus eventually feeds back—albeit weakly—to the United States through higher demand for U.S. exports and through changes in the price competitiveness of U.S. goods and services.

This type of cross-border interaction between policy moves and economic performance strengthens the role of medium-term interdependence between the United States and the rest of the world, while it still leaves a substantial role for purely domestic factors. During the 1970s and 1980s, the mix of interdependent and independent factors can be seen in the inflation process in three representative industrial countries—the United States, Germany, and Japan. Although floating exchange rates give some scope for independent monetary policy, when the economies themselves are interdependent (through trade and a dependence on common raw materials), complete independence is often infeasible. Germany and Japan tried to shelter their economies from inflationary U.S. monetary policy and a spike in oil prices in the late 1970s, but they were only partly successful, as can be seen in Chart 5. The

Chart 5. **Consumer Price Inflation**

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

simultaneous efforts of the industrial countries to combat inflation brought about an extended period of disinflation in the first half of the 1980s. Inflation has remained moderate since the mid-1980s.

## International Influences on U.S. Monetary Policy

The Federal Reserve generally does not directly adjust its policy in response to international developments,<sup>13</sup> but it may do so indirectly when the developments affect domestic economic indicators. International developments often have an impact on U.S. economic growth and prices. For example, a political development that reduces the value of the dollar or a supply restriction that raises internationally traded commodity prices tends to raise import prices and can create domestic inflationary pressures. In formulating domestic policy, the Federal Open Market Committee (FOMC) monitors changes in the dollar and commodity prices; it may respond to them if the movements appear to signal significant changes in U.S. inflationary pressures or U.S. real economic activity.

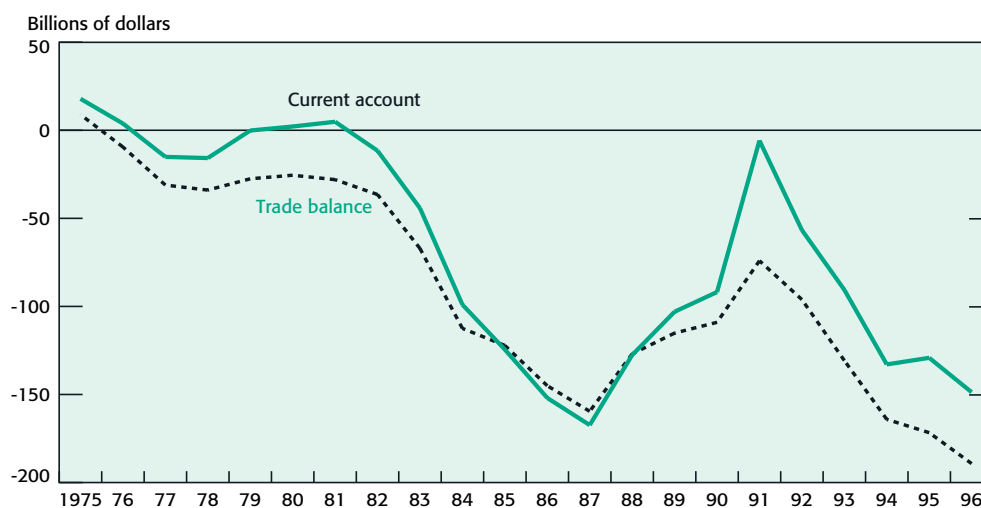
International developments can move countries away from both domestic goals and external goals. The oil shocks of the 1970s illustrate this point well: policy stimulus to offset the contractionary effects of the oil price increases worsened the already large current account deficits arising from the

higher cost of oil imports. Indeed, past experience has shown that countries with large current account deficits cannot long escape assigning considerable weight to the external goal—even though it conflicts with domestic objectives.

Because of the size of the U.S. economy and the important role of the dollar, the United States has perhaps more latitude than most countries in placing domestic policy goals above external considerations. In the United States, instances in which domestic objectives had to be sacrificed in the interest of external concerns have been rare. Such conflicts are possible, however. For example, economists have worried that such high dollar interest rates would be required to attract private financing for the large U.S. current account deficit that domestic growth would slow sharply.

As a reflection of growing interdependence among countries, international monetary and fiscal policy coordination has often had an important role in the formulation of U.S. monetary policy. The extent of policy coordination has been greater at some times than others, as disagreements sometimes arise about the distribution of the costs and the risks involved in any coordination effort. The emergence of large U.S. current account deficits since 1982, evident in Chart 6, has prompted intense debate among the major industrial countries. The issue still being resolved is the relative magnitude of adjustment to be undertaken by each as they shape a collaborative approach toward reducing the international monetary imbalances.

Chart 6. **U.S. Current Account and Merchandise Trade Balance**



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

## Foreign Exchange Market Intervention

Intervention in the foreign exchange markets by the U.S. Treasury and the Federal Reserve is undertaken to restore orderly conditions in the exchange markets and at times to influence exchange rates. As explained in Chapter 5, the U.S. Treasury is primarily responsible for foreign exchange policy, but developments in the foreign exchange markets have important ramifications for U.S. financial and economic conditions and therefore for monetary policy and the Federal Reserve. Decisions to intervene in the foreign exchange market are made jointly by the U.S. Treasury and the Federal Reserve; the Trading Desk at the Federal Reserve Bank of New York conducts the operation.<sup>14</sup> At times since the mid-1980s, interventions have been coordinated actions by governments and central banks of the other Group of Seven countries.<sup>15</sup>

Foreign exchange intervention by a central bank primarily affects exchange rates by influencing sentiment of foreign exchange market participants. It may lead them to reassess their assumptions about the relative risks of short or long positions in foreign currency. In smaller markets, it may also have a direct effect on supplies and demands in the short run, although even in those markets, the volume of the intervention would generally have to be relatively large. The enormous expansion of transaction volume in the foreign exchange market (approximately \$1.23 trillion a day in 1995, compared with \$500 billion in 1989) has complicated the tasks of central banks in achieving a desired impact. Intervention may on occasion indicate a willingness to alter monetary policy to achieve an exchange market objective, and in some countries it can serve as a policy tool for altering short-term interest rates.

In the United States, the Federal Reserve and the Treasury use intervention for three general purposes. First, intervention can try to counter temporary but severe disruptions to liquidity and market stability. Second, and more broadly, intervention can signal official concern that exchange rates have deviated sharply from most measures of underlying value. Third, intervention can signal a change in official exchange rate policy or, more often, emphasize or clarify an existing policy.

Purchases and sales of foreign currencies by central banks generally involve an exchange of domestic currency reserves with the banking system and thus add or drain reserves. If a central bank (or finance ministry) offsets the full change in the monetary base produced by foreign exchange market intervention, then the intervention is sterilized. Sterilized intervention is a tactic used to influence market psychology and to signal central bank concerns. Its success depends on the readiness of market participants to interpret it as an indication of central bank policy resolve.

If a central bank (or finance ministry) offsets only part of the change in the monetary base, then the remainder is unsterilized intervention. Unsterilized intervention is a joint policy action involving both foreign exchange intervention and a monetary policy change. Since unsterilized intervention induces changes in the money supply and short-term interest rates of the intervening country, private residents and nonresidents have additional incentives to alter their investment and borrowing decisions.

The monetary effects of foreign exchange intervention by the United States are routinely offset under Federal Reserve operating procedures (see Box B in Chapter 6). The FOMC can and occasionally does change its monetary policy

**Foreign Exchange Market Intervention** *(Continued)*

stance in response to the same factors that inspired the exchange market intervention, but two separate decisions are involved. The intervention is never passively permitted to change reserves. Nor is intervention undertaken as a way of changing reserves, since domestic open market operations can be arranged when needed for that purpose.

In many other countries, however, the central bank does not automatically offset intervention in the exchange markets. On a technical level, open market operations in domestic securities are often limited by thin domestic financial markets. Hence, the operations cannot be as large or as frequent as they are in the United States. Some central banks may not have the domestic tools to achieve domestic goals and must operate in the exchange markets. Indeed, some foreign central banks use foreign exchange operations as an alternative to domestic operations for monetary policy purposes. They may choose to operate in the exchange markets rather than in domestic money markets under some circumstances because larger, more flexible operations may be feasible or because the sectoral and inflation consequences of intervention may be preferred to a domestic money market operation.<sup>16</sup>

Because foreign exchange intervention can be an important signal of central bank intentions, market participants try to detect and interpret intervention when it occurs. While the United States reports periodically on its foreign exchange intervention, few other countries release much information. As a result, market participants estimate dollar-related intervention from the growth of foreign exchange reserves abroad or the size of investments by foreign monetary authorities in the United States. These indicators can be misleading.

Increases in official reserves include nondollar reserves. For example, central banks participating in the exchange rate mechanism of the European Monetary System (EMS) have at times intervened substantially in EMS currencies to maintain agreed-upon exchange rate relationships. Most countries do not disclose the currency breakdown of their reserves, although the International Monetary Fund publishes periodic estimates in its annual reports.

The proportion of official financing of the U.S. current account deficit changes not only as foreign central banks accumulate dollar reserves, but also as foreign central banks shift the composition of investments of existing reserves among instruments. Official financing is the increase in the dollar reserves invested in the United States plus reductions in the reserves of the United States. Central bank investment of dollars tends to be confined to a relatively narrow but expanding spectrum of high-quality, highly liquid instruments. Traditionally, these instruments consisted of Treasury securities, deposits at commercial banks in the United States, private financial instruments such as bankers' acceptances, a minimum working balance at the Federal Reserve, and repurchase agreements arranged through the Fed. Now they also include Eurodollar deposits and other eligible Eurodollar instruments such as Eurocommercial paper or Eurobonds issued by governments or supranational agencies. Even in periods of little intervention, foreign central banks may shift their reserves between investments in the United States and those in the Eurodollar markets for portfolio considerations.