CHAPTER

23 FLOATING EXCHANGE RATES AND INTERNAL BALANCE

One way to reconcile the goals of external balance and internal balance is to let the exchange rate take care of external balance and to direct macroeconomic policy toward the problem of internal balance. If the exchange rate is allowed to float cleanly, without government intervention, then the exchange rate changes to achieve external balance. If there are no transactions in official reserves, then the official settlements balance must be zero, and the exchange rate must change to whatever value is needed to achieve this external balance. Changes in the exchange rate are the "automatic" mechanism for adjusting to achieve external balance.

Even if a floating exchange rate is used to achieve external balance, this still leaves the problem of achieving internal balance. How does use of floating exchange rates affect the behavior of the economy and the effectiveness of monetary and fiscal policies that might be directed to achieving internal balance? The purpose of this chapter is to examine the macroeconomics of floating exchange rates. It first examines how monetary policy and fiscal policy work in an economy that has a floating exchange rate. Then it explores the impacts of various shocks on such an economy. The shocks are the same types that we examined in Chapter 22, so we can see how the choice of fixed or flexible exchange rates alters how the economy responds to different shocks.

In our analysis of floating exchange rates, we use the same basic model of the open macroeconomy that we developed in Chapter 21 and applied to fixed rates in Chapter 22. The key difference from the previous chapter is that the exchange rate r is now a variable determined endogenously by the macroeconomic system rather than a rate set (and defended) by the government. With a floating rate, the exchange rate brings the foreign exchange market (or the overall balance of payments) into equilibrium, as was the case in most of Part III, by affecting peoples' choices about whether to buy goods and services abroad or at home and whether to invest in this country's financial assets or another country's financial assets. The impact on demand for goods and services then has a feedback effect on the country's national product.

The analysis of how a country with a floating exchange rate responds to a policy change or another type of economic shock can usefully proceed through three steps:

1. At the initial value of the exchange rate, what are the effects of the shock on the country's economy? In particular, does the shock push the official settlements balance away from a zero value?
2. If there is a tendency away from zero for the official settlements balance, what change in the exchange rate value of the country's currency (appreciation or depreciation) is needed to move back to a zero balance?
3. What are the additional effects on the country's macroeconomy of this change in the exchange rate?

The additional effects indicate the "special" ways in which floating rates alter the behavior of the economy (just as the additional effects resulting from intervention to defend the fixed rate indicated the "special" ways in which fixed rates alter the behavior of the economy). The additional effects show how floating rates alter the effectiveness of government policies. They also suggest how floating rates alter the country's ability to keep internal balance in a changing world.

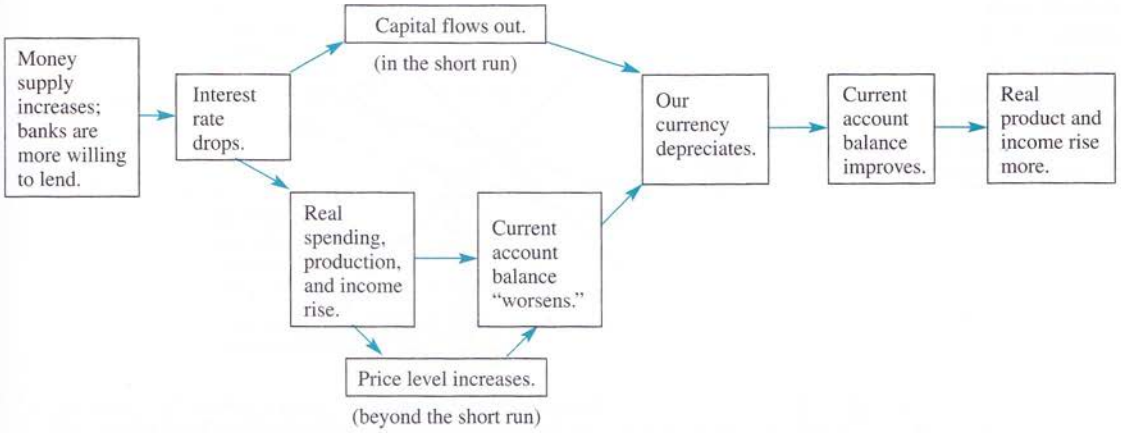
Monetary Policy with Floating Exchange Rates

With floating or flexible exchange rates, monetary policy exerts a strong influence over national income. To see how, let us consider the case of a deliberate expansion of the domestic money supply. Such a change is implemented by using a domestic tool of monetary policy. For instance, the country's monetary authority might use open market operations to buy domestic securities. As the monetary authority pays for its securities purchase, it issues new liabilities that expand money in the rest of the economy.

An expansion of the money supply increases banks' willingness to lend, and interest rates decrease. Borrowing and spending rise. As we saw in Chapter 22, the drop in interest rates tends to worsen the overall balance of payments in the short run. The capital account tends to worsen as capital flows out of the country, and the current account worsens as imports rise. The demand for foreign currency is now greater than the supply. In the fixed-rate analysis of Chapter 22, the government had to intervene to defend the fixed rate against the pressure resulting from this payments deficit. With floating exchange rates, the pressure results in a depreciation of the exchange rate value of the country's currency (foreign currencies rise in value), as summarized in Figure 23.1.

Depreciation of our currency increases the international price competitiveness of the products produced by our country's firms (assuming that the nominal depreciation is larger than any increase in domestic prices and costs in the short run—a form of overshooting like that discussed in Chapter 19). The improvement in our firms' ability to compete with foreign firms is likely to improve our

FIGURE 23.1 *Effects of Expanding the Money Supply with Floating Exchange Rates*



For a decrease in the money supply, reverse the direction of all changes.

current account balance, as export volumes increase and import volumes decline. (Improvement in the current account balance occurs only after the initial stage of the J-curve has played itself out. This assumes that the stability conditions of Chapter 22 and Appendix G eventually hold. In this chapter we focus on situations in which the response is stable.)

The improvement in the current account balance lowers the overall payments deficit, reducing and eventually eliminating pressure for further depreciation of the exchange rate value of our currency. External balance is restored through the exchange rate change.

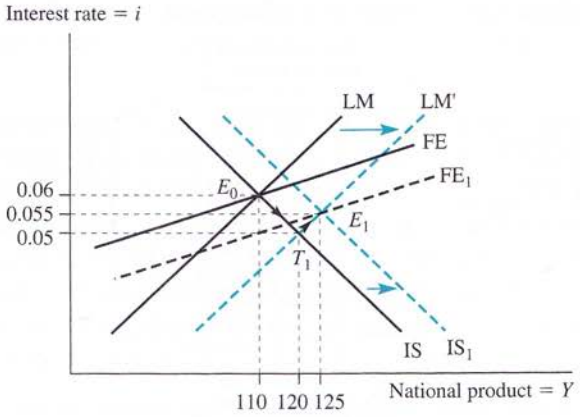
The new competitive edge for the country's firms raises aggregate demand for what the country produces. Such extra demand due to the depreciation augments the direct domestic effects of the increase in the money supply. Due to the extra demand, real national product and income may rise even more. However, the depreciation may also enhance the effects of monetary policy on the price level and inflation rate as well. The depreciation results in higher domestic prices for imported products, and the extra demand can create general upward pressure on prices.

Thus, under floating exchange rates, monetary policy is powerful in its effects on internal balance. The induced change in the exchange rate reinforces the standard domestic effects of monetary policy. Monetary policy gains power under floating exchange rates, whereas, as we saw in the previous chapter, it loses power under fixed exchange rates.

This general conclusion holds whatever the degree of capital mobility. Whatever the degree, expanding the money supply causes a depreciation, and this further expands aggregate demand. Consider, for instance, perfect capital mobility. Capital flows respond to both interest rates and the expected change in the

FIGURE 23.2

Expansionary Monetary Policy with Floating Exchange Rates



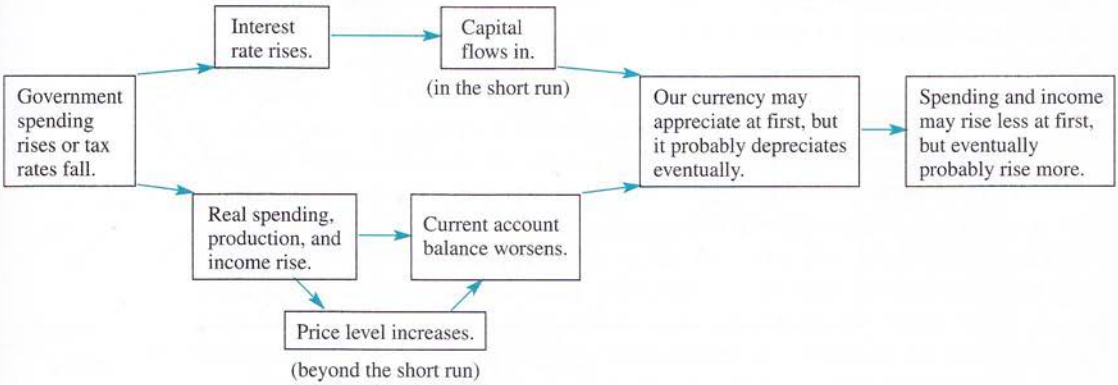
Starting from point E_0 with an overall payments balance of zero, the country implements an expansionary policy. The LM curve shifts down or to the left, but at point T_1 the payments balance tends toward deficit. The country's currency depreciates, and the FE and IS curves shift to the right, reestablishing external balance at E_1.

exchange rate into the future. Perfect capital mobility implies that uncovered interest parity always holds, because nearly unlimited flows of international financial capital occur if there is any deviation from this parity.[1] The overshooting discussed in Chapter 19 is a form of perfect capital mobility. There we saw that if a monetary expansion reduced the domestic interest rate, the exchange rate value of the country's currency would depreciate immediately by a large amount. The overshooting results in a large improvement in the country's international price competitiveness in the short and medium runs.

We can see the effects of monetary policy in the IS–LM–FE picture used in the previous two chapters. Consider a country that begins with external balance—a triple intersection shown as point E_0 in Figure 23.2. The country's central bank now uses a domestic change (such as an open market purchase of domestic securities) to expand the domestic money supply, and the LM curve shifts down to LM'. Even if the exchange rate value of the domestic currency were unchanged, the direct domestic effects of this policy change reduce the domestic interest rate from 6 percent to 5 percent and increase real domestic product from 110 to 120. In addition, the country's balance of payments tends to go into deficit. (The intersection of LM' and the original IS curve at point T_1 is to the right of the initial FE curve.) The country's currency depreciates in the foreign exchange market. As the country's price competitiveness improves, exports increase and imports decrease. The current account balance improves, so the FE curve shifts to the

[1]For the fixed-rate analysis of Chapter 22, perfect capital mobility also implied uncovered interest parity, but the expected change in the exchange rate was assumed to be approximately zero if investors expected the fixed rate to hold into the future. With no change expected in the fixed rate, uncovered interest parity means that the domestic interest rate is equal to the foreign interest rate.

FIGURE 23.3 *Effects of Expansionary Fiscal Policy with Floating Exchange Rates*



For contractionary fiscal policy, reverse the direction of all changes.

right and the IS curve shifts to the right. If the floating exchange rate adjusts to maintain external balance (a zero balance in the country's official settlements balance), then the economy will be at a triple intersection of all three curves after the exchange rate has adjusted. The new triple intersection is point E_1. Because of the depreciation, real GDP increases even more, to 125. Monetary policy is powerful in affecting real GDP in the short run under floating exchange rates.[2]

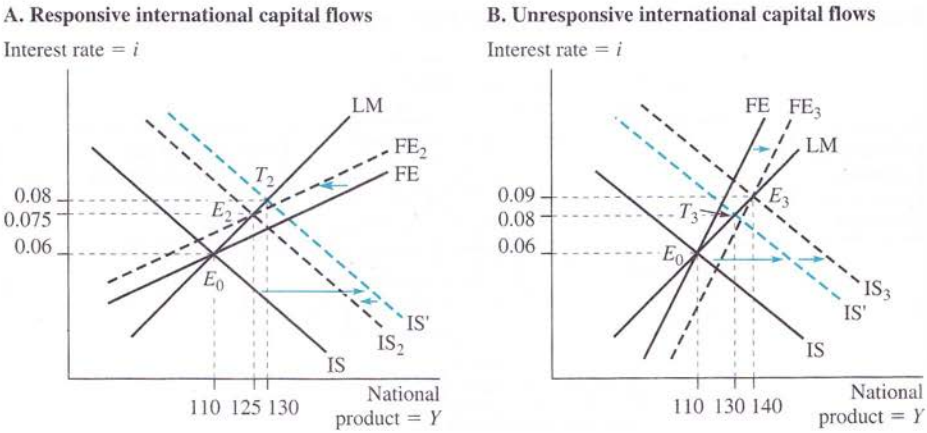
Fiscal Policy with Floating Exchange Rates

How fiscal policy works with floating exchange rates is a little more complicated. Fiscal policy can affect exchange rates in either direction, as shown in Figure 23.3. The left side of the figure shows the same effects of expansionary policy as we saw in Chapter 22. The fiscal expansion bids up domestic interest rates as the government borrows more. Higher domestic interest rates tend to attract capital from abroad, at least temporarily. Meanwhile, aggregate spending, product, and income are raised by higher government spending and/or lower tax rates. This raises imports and worsens the current account balance. So there are two opposing tendencies for the country's overall balance of payments and thus for the exchange rate value of the country's currency. The interest rate rise tends

[2]The monetary expansion and the induced depreciation are also likely to increase the domestic price level through inflation, especially beyond the short run. If the domestic price level increases, then the LM curve shifts back up (or does not shift down by as much in the first place). The higher domestic price level reverses some of the gain in international price competitiveness, so the FE and IS curves also shift back (or do not shift by as much in the first place). The increase in real GDP is not as large. Indeed, in the long run, the currency depreciation will be exactly offset by the higher price level if money is neutral in the long run and purchasing power parity holds.

FIGURE 23.4

Expansionary Fiscal Policy with Floating Exchange Rates



Expansionary fiscal policy shifts the IS curve to the right, and the IS–LM intersection shifts from E_0 to T_2 or T_3 initially. The effects of fiscal policy depend on how strongly international capital flows respond to the interest rate increase. In panel A, the overall payments balance tends toward surplus. (T_2 is to the left of FE.) In panel B, the overall payments balance tends toward deficit. (T_3 is to the right of FE.) In either case the payments imbalance leads to a change in the exchange rate. In panel A, the country's currency appreciates, and the FE and IS curves shift to the left, reestablishing external balance at E_2. In panel B, the country's currency depreciates, and the FE and IS curves shift to the right, reestablishing external balance at E_3. Here we assume that the LM curve does not move, because the central bank can fix the money supply if it doesn't need to defend a fixed exchange rate.

to draw a capital inflow that strengthens the country's currency, but the rise in aggregate demand and imports weakens it. Which tendency will prevail? There is no firm answer. If capital is mobile internationally, then the capital inflow effect at first is probably large enough to appreciate the country's currency. Eventually the aggregate-demand effect is probably stronger and longer lasting so eventually the currency depreciates.[3]

The "feedback" effects on the domestic economy depend on which way the exchange rate changes. If the exchange rate at first appreciates, then the country loses price competitiveness. The country's exports decline and its imports increase. The decline in the country's current account reduces the expansionary effects of the fiscal change on the country's national product. That is, the expansionary effect is reduced by "international crowding out"—the appreciation of the country's currency and the resulting decline in the current account. If the exchange rate instead (or eventually) depreciates, the increased price competitiveness and resulting increase in the current account give a further trade-based stimulus to domestic production.

The effects of fiscal expansion can be pictured using an IS–LM–FE graph. Figure 23.4 shows the two cases possible. In both cases the economy begins at

[3]The extreme case of perfect capital mobility is also consistent with this pattern. The initial interest rate increase leads to an immediate appreciation of the domestic currency. The exchange rate overshoots so that the currency is expected subsequently to depreciate slowly. Uncovered interest rate parity is reestablished because the interest differential in favor of the country is offset by the expected depreciation.

the triple intersection E_0. The fiscal expansion directly shifts the IS curve to IS', increasing the domestic interest rate from 6 percent to 8 percent and boosting national product from 110 to 130.

The two cases differ by whether the country's overall payments balance tends to go into surplus or deficit. The left graph in Figure 23.4 shows the case of a tendency to surplus because the capital inflow effect is larger. In this graph the incipient payments surplus is shown by the IS'–LM intersection to the left of the initial FE curve. The country's currency appreciates, the current account balance worsens, and the FE and IS curves shift to the left. The new triple intersection is at point E_2. Because of the currency appreciation, national product declines somewhat from 130 to 125 (or does not rise as much from its initial value of 110). International crowding out reduces the expansionary thrust of the fiscal change.[4]

The right graph in Figure 23.4 shows the case of a tendency to deficit, because the aggregate-demand effect is larger—the IS'–LM intersection is to the right of the initial FE curve. The country's currency depreciates, the current account balance improves, and the FE and IS curves shift to the right. The new triple intersection is at point E_3. Because of the currency depreciation, national product rises to 140 rather than 130.

The large U.S. fiscal expansion implemented in the early 1980s illustrates the nature and timing of the effects of a change in fiscal policy under floating exchange rates. The box "U.S. Deficits: Twins or Cousins?" discusses the U.S. experience.

Shocks to the Economy

Major shocks occasionally strike a country's economy. What are the effects of these exogenous changes on a country that has a floating exchange rate? We will look at the same shocks that we examined in Chapter 22 for a country with a fixed exchange rate so that we can contrast the results.

Internal Shocks

Domestic monetary shocks affect the equilibrium relationship between money supply and money demand, causing a shift in the LM curve. A change in the country's monetary policy is an example of such a shock. As we saw in the analysis of expansionary monetary policy, domestic monetary shocks have powerful effects on an economy with a floating exchange rate. If the monetary shock tends to expand the economy, then the exchange rate value of the country's currency tends to depreciate, further increasing national product (or putting additional

[4]If the fiscal expansion causes the price level to increase, then the LM curve also shifts up, and both the FE and IS curves shift to the left somewhat (or do not shift as much to the right) as a result of some loss of international price competitiveness due to the higher domestic prices. For either of the two cases discussed here in the text, these additional shifts reduce the amount by which real national product increases from its initial value of 110.

U.S. Deficits: Twins or Cousins?

The performance of the U.S. economy since 1980 dramatically shows the effects of government policies for a country that has a floating exchange rate. In the early 1980s, a major shift in U.S. fiscal policy resulted in a large increase in the government budget deficit. This seemed to be closely related to a large appreciation of the U.S. dollar and a large deterioration in the U.S. trade balance. The experience is usually summarized as the "twin deficits." But are they really twins?

The accompanying figure shows the U.S. government budget deficit (as a percentage of U.S. GDP, to make the sizes more comparable over time), the U.S. deficit in goods and services trade (also as a percentage of U.S. GDP), and the real effective exchange rate value of the dollar (to indicate the exchange rate value of the dollar in a way that shows changes over time in the international price competitiveness of U.S. products).

Let's begin our story in the late 1970s. The United States had relatively small government budget deficits (actually small surpluses in 1978 and 1979) and small deficits in goods and services trade. Major changes began about 1981. The first change was a tightening of U.S. monetary policy, and the dollar began to appreciate. This tightening was relaxed in 1982 as the U.S. inflation rate declined to about 4 percent.

The second change was the important one for our story. In 1981, the Reagan administration sought and obtained a major change in U.S. fiscal policy, reducing U.S. taxes, while government expenditures continued to grow. The government budget deficit increased to over 4 percent of GDP, remaining high through 1986. The trade deficit also rose, reaching over 3 percent of GDP and remaining high through 1987. In the second half of the 1980s, both deficits fell. Thus, during the 1980s, the deficits appeared to be twins—or least very closely related.

Our model provides insight into these relationships. The expansionary fiscal policy shifts the IS curve to the right, increasing both U.S. interest rates and U.S. national income. The rise in income alone tends to increase the trade deficit, but not by nearly as much as we actually saw (given that the U.S. marginal propensity to import is not that high). The additional effect comes from the relatively high U.S. interest rates, which draw capital inflows. The real value of the dollar continues to increase. This large increase in the real value of the dollar greatly reduces U.S. price competitiveness. With a lag of about a year and a half (recall the J-curve), the trade balance begins to deteriorate.

In 1985, the U.S. trade deficit became so large, and the real value of the dollar climbed so high, that international investors became worried. Capital inflows slowed down, so the trade deficit became an important driver of the exchange rate value of the dollar. The dollar began to depreciate in early 1985. (In September, the governments of the major countries announced an agreement to reinforce this depreciation by intervening if necessary to ensure the decline.) The real value of the dollar fell from 1985 through 1988, returning to about its value in 1980. With a somewhat longer lag of about two years, the trade balance responded to this improvement in U.S. price competitiveness.

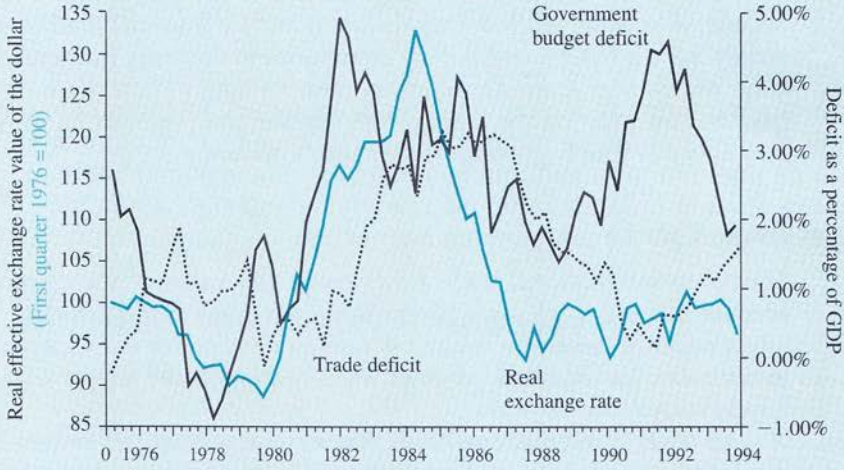
Were the government budget deficit and the trade deficit really twins? Even in the early 1980s, they were not exactly twins—they did not correlate precisely. The government budget deficit increased

upward pressure on the country's price level or inflation rate). If the monetary shock tends to contract the economy, then the country's currency tends to appreciate, decreasing national product.

Domestic spending shocks alter domestic expenditure, causing a shift in the IS curve. A change in fiscal policy is an example. As we saw for fiscal policy, the effect of this kind of shock on the exchange rate depends on which changes more: international capital flows or the country's current account.

before the trade deficit increased. U.S. experience since 1988 suggests that the deficits were cousins, not twins. Between 1988 and 1992, the government budget deficit increased while the trade deficit decreased. The divergence was especially strong during 1990–92. During these years the U.S. went through a recession. The government budget deficit increased as tax revenues declined and some transfer payments (like unemployment compensation) increased. Declining income reduced U.S. demand for imports, while U.S. exports continued to be strong, so the trade deficit did not increase.

Why are the deficits only cousins? We benefit by returning to the accounting for balance of payments and national income from Chapter 15. Recall that national saving can be used for either domestic real investment or foreign investment. National saving itself is comprised of private saving and government saving. (A deficit is government dissaving.) If the relationship between private domestic saving and domestic real investment is steady, then the federal government budget deficit will closely track the trade deficit (which roughly equals borrowing from foreigners, negative foreign investment). For much of the 1980s, the relationship between domestic private saving and domestic real investment was rather steady so the deficits appeared to be twins. But during the 1991–92 recession, domestic real investment declined by a large amount. The close relationship between the two deficits was severed. Interestingly, as the U.S. economy recovered from the recession, a closer relationship between the government budget deficit and the trade deficit reemerged. By 1994, these two deficits were about equal. The deficits may be almost twins when the economy is close to full employment, but only cousins during recessions.



SOURCE: Morgan Guaranty Trust Company; IMF *International Financial Statistics; Economic Report of the President 1995; Survey of Current Business,* July 1990 and July 1991; and *National Income and Product Accounts, 1959–88.*

International Capital-Flow Shocks

Shocks to international capital flows occur because of changes in investors' perceptions of economic and political conditions in various countries. For instance, an adverse international capital-flow shock, leading to a capital outflow from our country, can occur because foreign interest rates increase, because investors shift to expecting more depreciation of our currency in the future, or because investors fear negative changes in our country's politics or policies.

The shift leads to a capital outflow. The outflow puts downward pressure on the exchange rate value of the country's currency, and the currency depreciates. The depreciation improves the international price competitiveness of the country's products. Our exports increase, and our imports decrease, improving the country's current account. The extra demand tends to increase our national product.

The effects of this shock are pictured in Figure 23.5. The economy begins at point E_0, a triple intersection. The adverse international capital-flow shock causes the FE curve to shift to the left to FE'. The country's overall payments balance tends to go into deficit, as the intersection of the (initially unchanged) IS–LM curves at E_0 is below FE'. The country's currency depreciates, shifting the FE and IS curves to the right. A new triple intersection occurs at point E_4, with national product and the interest rate higher.

Thus, under floating exchange rates external capital-flow shocks can have effects on internal balance, by altering the exchange rate and the country's international price competitiveness. Interestingly, an adverse shock tends to expand the domestic economy by depreciating the country's currency. We probably should add several cautions about this result. First, the reason for the capital-flow shift is important. If capital is flowing out because of political or economic problems in the country, then these problems may cause the economy to contract even though the exchange rate depreciation is pushing in the other direction. Second, the capital outflow may disrupt domestic financial markets in ways that go beyond our basic analysis. Any disruptions in domestic financial markets may harm the broader domestic economy, also tending to contract it. It is probably risky to conclude, on the basis of the simpler analysis, that an adverse capital-flow shock is simply good for the country's economy.

International Trade Shocks

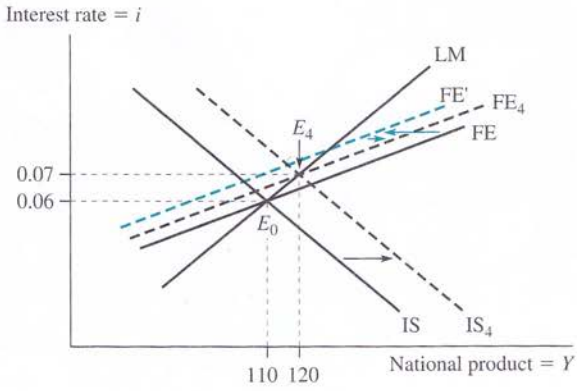
Shocks to international trade flows cause the value of the country's current account balance to change. For instance, an adverse international trade shock might occur because of a decline in foreign demand for our exports, an increase in our taste for imported products, or a decline in the supply of an important import such as oil.

An adverse international trade shock reduces both the current account and the country's national product and income.[5] As the current account worsens, the overall payments balance tends to go into deficit, and the country's currency depreciates. The improvement in price competitiveness leads to an increase in the country's exports and a decline in imports. The current account improves and national product and income rise. If all of this happens with no change in international capital flows, then the currency must depreciate enough to completely reverse the deterioration in the current account, putting the overall payments balance back to zero.

Figure 23.6 shows the effects of this adverse international trade shock. The shock causes the FE and IS curves to shift to the left. The intersection of IS' with LM at T_5 is below the new FE'. The country's currency depreciates, resulting in

FIGURE 23.5

An Adverse International Capital-Flow Shock



A shift of international capital flows away from the country causes the FE curve to shift up or to the left, and the overall payments balance tends toward deficit. The country's currency depreciates, and the FE and IS curves shift to the right, reestablishing external balance at E_4. Here again we assume that the LM curve does not shift, because the central bank can fix the money supply.

shifts back to the right in the FE and IS curves. If nothing else changes (such as international capital flows or the domestic price level), then the curves shift back to their original positions, and the new triple intersection is back to E_0.[6]

With floating exchange rates, the effects of international trade shocks on internal balance are mitigated by the effects of the resulting change in the exchange rate. An adverse trade shock tends to depreciate the country's currency, and this reverses some of the effects of the shock. By reversing all of the directions of change, we would also conclude that a positive trade shock appreciates the country's currency, reversing both the improvement in the country's current account balance and the increase in demand for the country's national product.

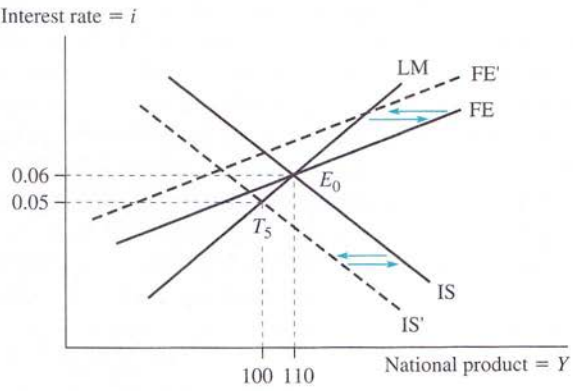
Internal Imbalance and Policy Responses

Shocks to the economy alter both the international performance of the country's economy and its domestic performance. With floating exchange rates a change in the exchange rate takes care of achieving external balance following a shock. If the country's overall payments tend to go into deficit, then the country's currency depreciates, reversing the tendency toward deficit. If the country's overall payments tend to surplus, then appreciation reverses the tendency to surplus.

[5]We presume that the current account does actually decline. The shock itself worsens the current account. The decline in national income lowers demand for imports, but we assume that this is not enough to reverse the deterioration of the current account. In Figure 23.6, this assumption ensures that the new IS'–LM intersection at T_5 is to the left of the new FE', even if the FE curve is steeper than the LM curve.

[6]The depreciation of the currency may put some upward pressure on the country's price level by increasing the domestic-currency price of imported products. If the overall domestic price level increases, then the LM curve shifts up somewhat, and the new triple intersection will still result in some decline in domestic product. Nonetheless, the decline is less than what would occur without the currency depreciation.

FIGURE 23.6
An Adverse International Trade Shock



A shift of international trade away from the country's products causes the FE and IS curves to shift to the left, and the overall payments balance tends toward deficit. The country's currency depreciates, and the FE and IS curves shift back to the right. Here, to simplify the diagram, we imagine the case in which external balance is reestablished at E_0.

A floating exchange rate does not ensure that the country achieves internal balance, but changes in the floating rate do affect the country's internal balance. A depreciation tends to expand the country's economy. If the country begins with excessive unemployment before the exchange rate change, then the expansionary thrust of the depreciation is welcome, as it reduces the internal imbalance. If the country instead begins with internal balance or with an inflation rate that is rising or too high, then the expansionary thrust of the depreciation will create or add to the internal inflationary imbalance.

An appreciation tends to contract the country's economy. If the economy begins with inflationary pressure, then this may be welcome. But if the economy is already in or tending toward a recession with excessive unemployment, then the exchange rate change adds to the internal imbalance.

Government monetary or fiscal policy can be used to address any internal imbalances that do arise. If excessive unemployment is the internal imbalance, then expansionary monetary or fiscal policy can be used. The size of the change in policy needed to address the imbalance depends on the change in the exchange rate that will occur. Monetary policy is powerful with floating exchange rates so a relatively small change may be enough to reestablish internal balance. The power of fiscal policy is more variable and may be difficult to predict if it is difficult to predict the appreciation or depreciation of the exchange rate following the fiscal change.

International Macroeconomic Policy Coordination

The policies adopted by one country have effects on other countries. With floating exchange rates these spillover effects happen in several ways, including foreign income repercussions as changes in incomes alter demands for imports, and changes in international price competitiveness as floating exchange rates change.

A danger is that a policy change that benefits the country making it can harm other countries. For instance, a shift to expansionary monetary policy causes the currencies of other countries to appreciate. This can appear to be a beggar-thy-neighbor policy in that the first country benefits from increased growth but the exchange rate appreciation can harm the price competitiveness and trade of other countries.

Given these spillover effects and interdependencies, it seems that it should be possible to improve global macroeconomic performance through international cooperation and international coordination. International policy cooperation refers to such activities as sharing of information about each country's performance, problems, and policies. Sharing of information occurs in many places, including high-level meetings of national finance ministers and heads of state as well as international organizations such as the International Monetary Fund and the Bank for International Settlements. International cooperation of this sort is not controversial.

International macroeconomic policy coordination is more than this. It is the joint determination of several countries' macroeconomic policies to improve joint performance. It implies the ability of one country to influence the policies of other countries and the willingness of a country to alter its policies to benefit other countries. In some situations coordination could be easy. For instance, in a deep global recession with no inflation, the advantages of mutual expansionary policies are clear. All countries can benefit if each country finds an alternative to beggar-thy-neighbor policies that harm other countries. In other situations coordination is more controversial.

We have several examples of major coordination efforts in the past two decades. At the Bonn Summit of 1978, the United States agreed to implement policies to reduce U.S. inflation while also agreeing to reduce oil imports by decontrolling domestic oil prices. Germany agreed to increase its government

Can Governments Manage the Float?

Floating exchange rates allow a country to achieve external balance while maintaining control over its money supply and monetary policy. But floating exchange rates are also highly variable, more variable than we expected when the world shifted generally to floating rates in 1973.

Governments that have chosen floating exchange rates worry about the large amount of variability, and nearly all manage the float to some extent. Some governments manage their floating rates closely. If the floating exchange rate is heavily managed, then it behaves more like a fixed exchange rate, and the analysis of the previous chapter is relevant. Other governments, including the governments of most major countries that have chosen floating rates, use management selectively. Occasionally the government intervenes in the foreign exchange market.

Is selective or occasional intervention effective in influencing exchange rates? A decade ago the conventional wisdom was clear. If the intervention is not sterilized, then it can be effective. However, it is effective not because it is intervention but rather because it changes the money supply. Unsterilized intervention is simply another way to implement a change in the domestic money supply and monetary policy. By changing the money supply, it can have a substantial effect on the exchange rate. If the intervention is sterilized, the conventional wisdom was that it would not be effective in changing the exchange rate, at least not much or for long. Yet, interventions by the U.S. monetary authorities are fully sterilized. The Japanese and German authorities claim that they routinely sterilize their interventions—and they do to a large extent but probably not fully.

The conventional wisdom was based on a number of studies that showed little effect of sterilized intervention. Perhaps most dramatically, a study of the profitability of foreign exchange intervention in the 1970s concluded that central banks generally incurred losses, as the accompanying table shows.

These losses suggest that intervention was ineffective. The central banks were buying currencies in an effort to enhance the exchange rate values of these currencies, but the losses indicate that the values subsequently fell. Other studies completed in the early 1980s also concluded that the effects of sterilized interventions were at most small and transitory.

The conventional wisdom was also based on the relatively small sizes of interventions. In the late 1980s the average daily size of U.S. interventions was about $200 million, and the average daily size of German interventions was about $100 million. Occasionally central banks would engage in more than $1 billion of intervention in a day, but such instances were unusual. In a market where total daily trading is hundreds of billions of dollars, the size of such interventions seems too small to have much impact.

More recent studies have challenged this conventional wisdom. How might sterilized intervention be effective, even though it does not change the domestic money supply and is relatively small? The most likely way is by changing the exchange rate expectations of international financial investors and speculators. Intervention can act as a signal from the monetary authorities that they are not happy with the current level or trend of the exchange rate. They show that they are willing to do something (intervention) now and they signal that they may be willing to do something more in the future. For instance, the authorities may be willing to change monetary policy and interest rates in the future if the path for the exchange rate remains unacceptable. Sterilized interventions then can be a type of news that influences expectations. If international investors take the signal

spending to stimulate its economy. Japan also agreed to continue its expansionary policies, while taking steps to slow its growth of exports. In the Plaza Agreement of 1985, the major countries agreed to intervene in the foreign exchange markets to lower the exchange rate value of the U.S. dollar (but there was no other coordination of policies). In the Louvre Accord of 1987, the United States committed to reduce its fiscal deficit, while Germany and Japan committed to expansionary

seriously, they adjust their exchange rate expectations. Changed expectations alter international capital flows, changing the exchange rate in the direction desired by the authorities. For instance, in 1985 the major governments announced in the Plaza Agreement that they were committed to reducing the exchange rate value of the dollar. They intervened to sell dollars. International investors shifted to expecting the dollar to depreciate by more than they had previously thought, and the exchange rate value of the dollar declined rapidly.

Recent studies indicate that sterilized intervention can be effective. One study concluded that the U.S. monetary authority made a profit of over $4 billion on its dollar–DM intervention activities from March 1973 through January 1988, with large profits earned during 1980 and 1985–88. It made a profit of over $1 billion on its dollar–yen interventions during this period, with especially large profits earned during 1985–87. A study of 17 specific episodes of coordinated intervention by the United States, Japan, and Germany during 1985–91 concluded that all were at least moderately successful in influencing the trend of the dollar's exchange rate value in the intended direction. Another study concluded that interventions during the mid- and late 1980s significantly affected exchange rate expectations in the direction intended.

Our belief about the effectiveness of sterilized intervention is changing. By the early 1980s, we had concluded that betting against the central banks was a good way for international investors and speculators to turn a profit in the foreign exchange market. By the early 1990s, this was not so clear—intervention by the central banks seemed to be more successful. However, more recently the effectiveness of official intervention seems again to be in a down phase. During 1994–95, central banks repeatedly intervened to buy U.S. dollars, but still the exchange rate value of the dollar sank against the yen and the German mark. Anyone for going back to the old conventional wisdom?

Country	*Period Beginning*	*Period Ending*	*Profit (+) or Loss (−) ($ millions)*	*Probability of an Equal or Greater Loss from Purely Random Trading*
Canada	June 1970	Dec. 1979	−82	0.42
France	April 1973	Dec. 1979	1,035*	n.a.
			−2,003†	n.a.
Germany	April 1973	Dec. 1979	−3,423	0.24
Italy	March 1973	Dec. 1979	−3,724	0.0001
Japan	March 1973	Dec. 1979	−331	0.44
Spain	Feb. 1974	Dec. 1979	−1,367	0.0003
Switzerland	Feb. 1973	Dec. 1979	−1,209	0.39
United Kingdom	July 1972	Dec. 1979	−2,147	0.039
United States	April 1973	Jan. 1980	−2,351	n.a.

n.a. = not available.

*In this case, the French official gains are calculated in dollars.

†In this case, the French official losses are calculated in marks.

SOURCE: Taylor (1982, Table 1). For the very different results since 1980, see Dominguez and Frankel (1993).

policies. All committed to stabilize the exchange rate value of the dollar, if necessary through higher U.S. interest rates and lower interest rates in Germany and Japan, as well as through official intervention.[7]

[7]The box "Can Governments Manage the Float?" discusses the use of intervention to influence floating exchange rates.

We can see possible benefits of coordination by examining the Louvre Accord. Tightening of U.S. policies (both fiscal and monetary) would tend to slow down the U.S. economy, and slow down the economies of other countries by reducing U.S. demand for imports. Expansionary policies in Germany and Japan could offset the contractionary effects of the U.S. policy shift, not only in these two countries, but also in other countries (including the United States) by expanding German and Japanese demands for imports. If this is done on a coordinated basis, the result can be a reduction of the U.S. current account deficit, reductions in the German and Japanese current account surpluses, and a stabilization of the exchange rate value of the dollar, without a global recession caused by the tightening of U.S. policies.

If the benefits of international policy coordination seem clear, why do we actually see rather little of it? There seem to be several reasons. First, the goals of different countries may not be mutually consistent. If countries cannot agree on goals, it is difficult for them to agree on policies. For instance, the United States may want to maintain growth while stabilizing the exchange rate value of the dollar. Germany may be more worried about any hint of domestic inflation, so German policymakers may be unwilling to expand the money supply, lower interest rates, and expand their economy. It is simply difficult for the government of a country to adopt policies that do not suit the economic and political conditions of the country, even if these policies would benefit other countries. Indeed, governments may disagree about how the domestic and global macroeconomy works. For instance, they may disagree about how much domestic expansion is possible before domestic inflation begins to increase noticeably.

Second, the benefits of international policy coordination may actually be small in many situations. Often the appropriate "coordinated" policies actually appear to be close to the appropriate policies that would be chosen by the countries individually (as long as blatant beggar-thy-neighbor policies such as new trade barriers are avoided). For instance, in 1987 the United States on its own probably should have shifted to somewhat contractionary policies and reduced its government budget deficit. In turn, both Germany and Japan, for their own benefit, probably should have shifted to more expansionary policies. Even in this situation, a coordination agreement could have some benefit, not because governments do something different from what each wants to do, but rather because each government can use the commitment to international coordination to firm up domestic support for the policy changes that are in the best interests of the individual countries.

Major instances of international macroeconomic policy coordination occur infrequently. Coordination is more likely when countries clearly see and agree to goals and the means to achieve these goals. In practice this means that the countries commit to doing what they largely should have done on their own. Even in these cases, governments often have difficulty delivering on their commitments. For instance, international commitments by the U.S. government to reduce its government budget deficit seem to have had little impact.

Summary

With a cleanly floating exchange rate, the exchange rate changes to maintain external balance. If a country is tending toward a surplus in its overall international payments, the exchange rate value of the country's currency will appreciate enough to reverse the tendency. If the country is tending toward a deficit, the currency will depreciate. The contrast with fixed exchange rates is clear. With a clean float external balance is not an issue, but the exchange rate can be quite variable or volatile.

Monetary policy is more powerful with floating exchange rates. After a shift in monetary policy, the exchange rate is likely to change in the direction that reinforces or magnifies the effect of the policy shift on aggregate demand, national product, national income, and the price level. In contrast, as we saw in Chapter 22, with fixed exchange rates monetary policy loses power because the need to defend the fixed rate tends to reverse the policy thrust (assuming that the intervention is not or cannot be sterilized).

The effects of floating exchange rates on fiscal policy are not clear. Consider a fiscal expansion. If the resulting inflow of international financial capital is the dominant effect on external balance, then the country's currency appreciates. The loss of international price competitiveness leads to international crowding out, as the current account balance deteriorates. This reduces the effectiveness of fiscal policy in altering national product and income. If, instead, the initial deterioration in the current account balance is the dominant effect on external balance, then the country's currency depreciates. The gain in international price competitiveness improves the current account, and this enhances the effectiveness of fiscal policy. We also saw an ambiguity in how fixed exchange rates affect fiscal policy. But the conclusions are the opposite. With fixed exchange rates, fiscal policy is more effective in altering national product and income if capital is highly mobile internationally; it is less effective if capital is less mobile.

The ways in which different kinds of shocks affect the country's economy also differ according to whether the country has a fixed or floating exchange rate. Figure 23.7 summarizes the conclusions of the analysis of this chapter and Chapter 22. This figure indicates whether a particular shock would change national product and income more (be more disruptive or less stable) with fixed or with floating exchange rates. We can reach several general conclusions. First, internal shocks, especially domestic monetary shocks, are more disruptive to an economy with a floating exchange rate, and are less disruptive with a fixed exchange rate. Second, external shocks, especially international trade shocks, are more disruptive to an economy with a fixed exchange rate, and are less disruptive with a floating exchange rate. Floating exchange rates provide some insulation from foreign trade shocks.

While cleanly floating exchange rates can ensure that the country achieves external balance, they do not ensure internal balance. In several situations the exchange rate change that reestablishes external balance can make an internal imbalance worse. If a country has rising inflation and a tendency toward external deficit, the depreciation of the currency can exacerbate the inflation pressures in the country. If the country has excessive unemployment and a tendency toward surplus, the appreciation of the currency can make the unemployment problem worse. To achieve internal balance, the country's government may need to implement domestic policy changes (contractionary to fight inflation, expansionary to fight unemployment).

FIGURE 23.7 *Ranking of Exchange Rate Systems by Unit Impacts of Various Exogenous Shocks on National Product and Income*

	More Disruptive—Less Stable	*Less Disruptive—More Stable*
Internal Shocks		
Domestic monetary shock	Floating	Fixed
Domestic spending shock	Floating*	Fixed*
External Shocks		
International trade shock	Fixed	Floating
International capital-flow shock	Fixed†	Floating†

Comparison is between (1) a fixed exchange rate defended by intervention with no sterilization, so adjustment is through money supply changes, and (2) a floating exchange rate with adjustment through exchange rate changes. If sterilized intervention is used to defend the fixed exchange rate, this raises the disruptiveness of internal shocks, and it lowers the disruptiveness of external shocks, each relative to fixed rates with unsterilized intervention.

*This is the result if international capital flows are unresponsive to interest rate differences, or if the current account change eventually is the dominant pressure on the exchange rate. The opposite result applies if the capital account change is the dominant pressure.

†The effect of the shock on national income is in the opposite direction for the two cases. The sense in which the shock is less disruptive under a floating exchange rate is that the induced exchange rate change with floating exchange rates shifts the FE curve back toward its original position.

In theory **international macroeconomic policy coordination** can improve global macroeconomic performance. International policy coordination means that countries set their policies jointly. The benefits of coordination include the opportunity to consider spillover effects on other countries that arise from interdependence and the opportunity to avoid beggar-thy-neighbor policies that benefit one country at the expense of others. In practice, major instances of international policy coordination are infrequent.

Suggested Reading

See Bergsten (1991) for a discussion of the experience with external adjustment under floating exchange rates during the late 1980s and early 1990s. Genberg and Swoboda (1989) present a technical analysis of the effects of government policies on current account balances under floating exchange rates. International macroeconomic policy coordination is discussed in Feldstein (1988, Parts One and Two), Humpage (1990), and Espinosa and Yip (1993).

Edison (1993) and Dominguez and Frankel (1993) survey what we know about the effectiveness of official intervention used to manage the float. Taylor (1995) discusses official intervention as well as other recent research on the determinants of floating exchange rates. Humpage (1994) explains how the United States undertakes official intervention.

Questions and Problems

✦1. "Overshooting is the basis for the enhanced effectiveness of monetary policy under floating exchange rates." Do you agree or disagree? Why?

2. A country has a floating exchange rate. Government spending now increases in an effort to reduce unemployment. What is the effect of this policy change on the exchange rate value of the country's currency? Under what circumstances does the exchange rate change reduce the expansionary effect of the fiscal change?

✦3. "A drop in the foreign demand for our exports has a larger effect on our national product and income under floating exchange rates than it would under fixed exchange rates." Do you agree or disagree? Why?

4. Describe the effects of a sudden decrease in the domestic demand for holding money (a shift from wanting to hold domestic money to wanting to hold domestic bonds) on our national product and income under floating exchange rates. Is the change in national product and income greater or less than it would be under fixed exchange rates? (*Hint:* A decrease in the demand for money is like an increase in the supply of money.)

✦5. A country has a rising inflation rate and a tendency for its overall payments to go into deficit. Will the resulting exchange rate change move the country closer to or further from internal balance?

6. Britain has instituted a contractionary monetary policy to fight inflation. The pound is floating.
   a. If the exchange rate value of the pound remained steady, what are the effects of tighter money on British national product and income? What is the effect on the British inflation rate? Explain.
   b. Following the shift to tighter money, what is the pressure on the exchange rate value of the pound? Explain.
   c. What are the implications of the change in the exchange rate value of the pound for national product and inflation in Britain? Does the exchange rate change tend to reinforce or counteract the contractionary thrust of British monetary policy? Explain.

✦7. The United States has a large government budget deficit and a large current account deficit. The dollar is floating. One approach suggested to reduce both of these deficits is a large increase in taxes.
   a. If the exchange rate value of the dollar remained steady, how would this change affect U.S. national product and income? How would it affect the U.S. current account balance and the U.S. capital account balance? Explain.
   b. What are the possible pressures on the exchange rate value of the dollar as a result of this change in fiscal policy? Explain.
   c. If the dollar actually depreciates, what are the implications for further changes in U.S. national product and the U.S. current account balance? Explain.

8. What are the effects of a sudden surge in foreign money supplies on our national product and income under floating exchange rates? (*Hint:* The increase in the foreign money supplies will have an impact both on demand for our exports and on international capital flows as well as on exchange rates.)

✦9. A country initially has achieved both external balance and internal balance. International financial capital is reasonably mobile, so the country's FE curve is upward sloping (and flatter than the LM curve). The country has a floating exchange rate. As a result of the election of a new government, foreign investors become bullish on the country. International financial capital inflows increase dramatically and remain higher for a number of years.

a. What shift occurs in the FE curve because of the increased capital inflows?
b. What change in the exchange rate occurs to reestablish external balance?
c. As a result of the exchange rate change, how does the country adjust back to external balance? Illustrate this using an IS–LM–FE graph. What is the effect of all of this on the country's internal balance?

10. A country initially has achieved both external balance and internal balance. The country prohibits international financial capital inflows and outflows, so its capital account (excluding official reserves transactions) is always zero because of these capital controls. The country has a floating exchange rate. An exogenous shock now occurs—foreign demand for the country's exports increases.
a. What shifts would occur in the IS, LM, and FE curves because of the increase in foreign demand for the country's exports if the exchange rate value of the country's currency were to remain unchanged?
b. What change in the exchange rate value of the country's currency actually occurs? Why?
c. As a result of the exchange rate change, how does the country adjust back to external balance? Illustrate this using an IS–LM–FE graph. How does all of this affect the country's internal balance?