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THE MANY DISAPPOINTMENTS OF  
FLEXIBLE EXCHANGE RATES

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ROBERT M. DUNN, JR.



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

## ESSAYS IN INTERNATIONAL FINANCE

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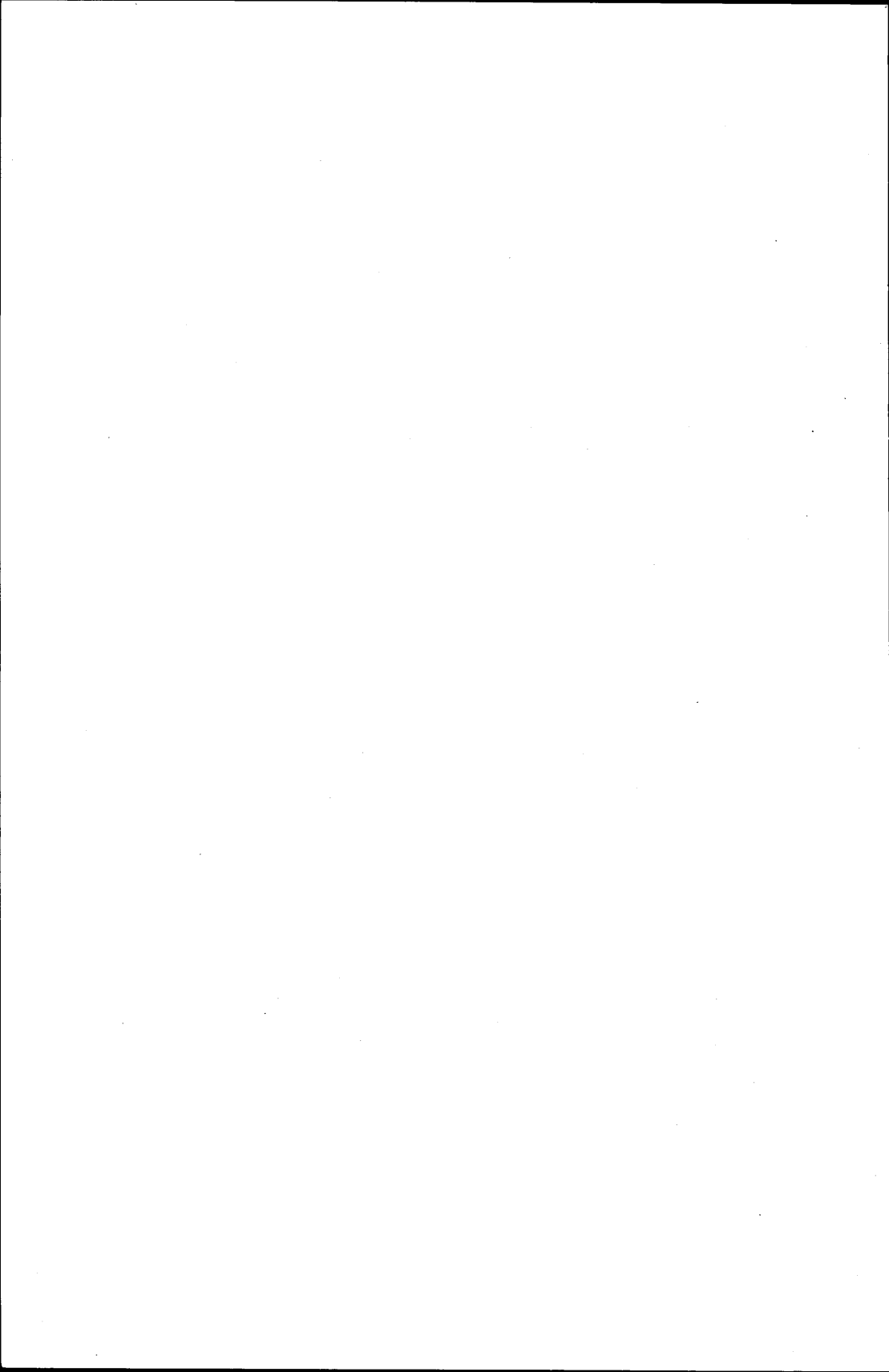
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## The Many Disappointments of Flexible Exchange Rates

The experience of the last ten years has made most academic supporters of flexible exchange rates sadder but wiser. During the early 1970s, the prevailing academic view was that flexible exchange rates would solve the increasingly obvious problems of the Bretton Woods system and thereby create a far less difficult environment for the management of domestic monetary and fiscal policies. A broadly accepted body of theory had been developed during the 1950s and 1960s that drew clear and strong contrasts between the workings of fixed- and flexible-exchange-rate regimes and produced a widespread preference among academic economists for the flexible-rate alternative.

When floating exchange rates were adopted by the major industrial countries in 1973, many academic economists expected that international finance was about to become a much less active area. Since the problems and conflicts of the fixed-exchange-rate regime were to be solved and since balance-of-payments problems were no longer possible, macroeconomic policy could return to a purely domestic focus. A few colleagues even suggested that those of us who worked in the area of international finance might find it advisable to develop new specialties in which to teach and do research.

Flexible exchange rates have not performed as expected. Nobody has been banished to labor economics, and international finance is at least as active as it was in the last days of Bretton Woods. Abundant theoretical and policy problems create continuing opportunities for teaching, research, and other remunerative activities. It is occasionally said that doctors bury their mistakes; economists often seem to prosper from theirs.

The current system of flexible exchange rates has not functioned in a manner that even approximates the predictions of previously accepted theory, and large and frequent exchange-rate changes have produced a range of unforeseen and generally disruptive side effects throughout the economies of the industrialized countries. The purpose of this essay is to review this disappointing experience. After a brief return to the body of theory that existed in the early 1970s to see what was expected of a system of flexible exchange rates and to note some of the assumptions behind those expectations, the predictions are compared with the events of the 1973-82 period. Recent theoretical and empirical work is then reviewed that suggests why the actual experience contrasts so strikingly with earlier expect-

tations. The final issue is whether there are more attractive alternatives to the current international monetary system.

### **The Earlier Promises of Flexible Exchange Rates**

Proponents of flexible exchange rates have almost always assumed that long-run trends in exchange markets would be dominated by relative rates of inflation, that is, that exchange rates would follow purchasing power parity. Friedman's (1968, pp. 419-420) classic defense of floating rates made this argument strongly, suggesting that it was far easier to allow exchange rates to adjust to differing rates of inflation than to compel price levels to adjust to a fixed parity. Other monetarists provided later support for this argument by suggesting that relative rates of growth of national money supplies would determine both relative rates of inflation and the exchange rate. Temporary factors such as shifting interest rates might cause temporary deviations from purchasing power parity, but both monetarists and other supporters of flexible rates expected constant real exchange rates beyond the short run. Friedman (1968, p. 417) argued that short-term factors should not significantly disturb exchange markets, because speculators would force the market toward its long-run equilibrium, thereby reducing deviations from purchasing power parity.

Supporters of flexible exchange rates like Friedman (1968, pp. 418-420) and Sohmen (1969, pp. 132-135) argued that such a system would isolate the domestic economy from foreign business cycles. The well-known foreign-trade multiplier linkage through which such cycles are transmitted from one economy to another assumes a fixed exchange rate, and it was argued that a flexible rate would absorb the effects of sudden changes in foreign demand for exports in a way that would leave domestic aggregate demand largely unaffected. Under fixed rates, for example, a U.S. recession would cause a reduction in the demand for Canadian exports and a recession in Canada, but if the Canadian dollar were floating, it would have quite different impacts. With the exchange rate adjusting to maintain balance-of-payments equilibrium, a recession-induced decline in the U.S. demand for Canadian goods would produce a depreciation of the Canadian dollar sufficient to fully adjust the balance of payments, and most of the adjustment would occur in the trade account. The Canadian balance of payments would be totally unaffected by a U.S. recession, and the Canadian trade account would be affected only slightly.<sup>1</sup> The Canadian economy would

<sup>1</sup> The conclusion that there is a net impact on the Canadian trade account is based on the assumption that part of the short-run payments adjustment to the exchange rate occurs in the capital account in the form of stabilizing short-term capital flows. This is particularly likely if



become independent of the United States and would consequently be protected from the effects of misguided U.S. macroeconomic politics and the business cycles they cause.

Independence from the Keynesian process of business-cycle transmission was extended to independence in determining monetary policy. Both Sohmén (1969, pp. 148-149) and Mundell (1960, pp. 227-230) argued that fixed exchange rates meant that national monetary policy could not be significantly different from policies prevailing abroad and that attempts to maintain an independent monetary position would be frustrated by the effects of the balance of payments on the domestic money supply. A fixed parity between the U.S. and Canadian dollars made Canada the Thirteenth Federal Reserve District, an unkind but accurate phrase that was occasionally heard during the 1962-70 period when Canada had such a fixed rate. Flexible exchange rates, however, promised to emancipate central banks. A totally independent monetary policy could be maintained without undesirable impacts of balance-of-payments shifts on the domestic money supply. The exchange-rate changes caused by shifts in domestic monetary policy would actually augment the desired impacts of the policy on aggregate demand. An expansionary monetary policy in Canada, for example, would cause an outflow of capital, a depreciation of the Canadian dollar, and a resulting improvement in the Canadian trade account that would expand domestic aggregate demand. There would be a parallel decline in aggregate demand in Canada's trading partners such as the United States, but this was typically seen as a minor problem. Skeptics such as Kindleberger (1970, pp. 200-201) suggested that flexible exchange rates would produce considerably less than complete macroeconomic independence, but supporters of floating exchange rates convinced most students of economics that the abandonment of fixed parities really would mean that central banks could pursue whatever domestically targeted policies they desired.

It is hardly surprising that young economists working for central banks tended to support floating exchange rates. What could be more enjoyable than working for an organization whose policies had suddenly become far freer and almost awesomely powerful in their effects on the economy? No longer would central banks have to tie their policies to those being determined abroad, only to see any attempts at independence washed out by the effects of the balance of payments on the domestic money supply. From being subservient to foreign monetary policy and the balance of payments, central bankers would become both free and powerful. It was occasionally noted by doubters that this wonderful prospect assumed that a central bank

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the U.S. recession and the resulting depreciation of the Canadian dollar are viewed as being temporary.

or government was prepared to accept whatever exchange-rate changes resulted from domestic or foreign shifts in monetary policy. Defenders of a floating-rate regime replied that the exchange rate was just another price; if it rose or fell occasionally, that would be no worse than similar changes in the price of copper or wheat. After all, how could an economist object to price flexibility, and why should the price of foreign exchange be different from any other price?

With the apparent elimination of the Keynesian business-cycle linkage and the increased independence and power of domestic monetary policy, flexible exchange rates promised a world of macroeconomic autarky. Inflate or deflate, manage your economy wisely or foolishly, the exchange rate would adjust to protect and even strengthen your policies. After decades of economic interdependence, in which economies were constantly affected or even dominated by foreign developments and were strictly limited in their policy options by balance-of-payments considerations, the prospect of national freedom for macroeconomic policy was inviting to those inclined toward a nationalistic view of economic policy.

In addition to gains for macroeconomic policy, flexible exchange rates also promised to eliminate mercantilism as an argument for tariffs and other protectionist devices, thus producing an era of free or at least more liberal trade. Johnson (1970, pp. 100-101) noted that a tariff merely causes an appreciation of the local currency that taxes export and unprotected import-competing industries without improving the trade account or increasing aggregate demand. The expectation that protectionism will improve the balance of payments and generate an increase in aggregate demand obviously makes no sense if the exchange rate adjusts to maintain payments equilibrium and most of the payments adjustment to the exchange rate occurs in the current account. If the appreciation of a currency improves a country's terms of trade, the net impact of a tariff on aggregate demand might actually be deflationary. This example of the Laursen-Metzler effect is likely to be of modest importance at best, but the point remains that a tariff cannot be expected to generate an improvement in the balance of payments or in the level of aggregate demand (Laursen and Metzler, 1950, pp. 281-290, and Johnson, 1956). It will instead impose a tax on unprotected traded-goods industries in a world of floating exchange rates. It was widely expected, or at least hoped, that the elimination of this ancient argument for tariffs would lead to a far more liberal trading environment.

### **Some Assumptions behind the Earlier Promises**

It is worth noting briefly the underlying assumptions behind the predicted macroeconomic effects of floating exchange rates.

### *Purchasing Power Parity*

As was suggested earlier, Friedman and other supporters of flexible rates expected exchange rates to follow purchasing power parity. Yet, the circumstances under which real exchange rates can be expected to remain constant are decidedly unlikely. Purchasing power parity would prevail, for example, if the only source of significant shocks to the balance of payments were differing rates of inflation, or if the elasticities of demand for exports and imports were so high that shocks from other sources could be adjusted through very small exchange-rate changes.

The first possibility can be seen through a simple example. In a trade-only world with flexible wages and prices that starts from balance-of-payments and exchange-rate equilibrium, a 10 per cent inflation in one small country will be just offset by a 10 per cent depreciation in that country's currency. The new exchange rate will return all relative prices to their previous pattern and restore the earlier equilibrium. If the only source of shocks to the exchange rate is an event such as a 10 per cent increase in prices caused by a 10 per cent increase in the nominal money supply, a flexible exchange rate can be expected to follow purchasing power parity. But if the balance of payments and the exchange rate are affected by factors other than changes in relative price levels, another unlikely circumstance is necessary to produce a constant real exchange rate.

This second possibility is that short-term elasticities of demand for traded goods are so high that very small changes in the exchange rate would be sufficient to adjust to payments shocks from a variety of sources and no significant change in real exchange rates would occur. A large shift in the capital account, for example, would be absorbed or adjusted with only a slight change in the exchange rate, leaving the pre-existing purchasing-power-parity situation largely undisturbed. In the far more likely event that the relevant elasticities are lower, the same shift in capital flow would require a sizable exchange-rate change and purchasing power parity could not be expected to hold during the adjustment process.

Purchasing power parity might be saved in the case of low short-run and high long-run demand elasticities if Friedman's rational speculators always conclude that the long-run exchange-rate path will follow relative price levels and that recent rates of inflation are a good predictor of the future (Friedman, 1968, p. 426). If these speculators move large sums of money on the basis of this expectation, relatively constant real exchange rates might be expected despite low short-run demand elasticities and a variety of shocks to the exchange market. The obvious problem is the requirement that speculators conclude that recent rates of inflation are a sound basis on which to predict future price changes and therefore the likely future exchange rates. This would be an extremely naive way to form expectations. Modern port-

folio models of exchange-rate determination (e.g., Dornbusch, 1976) sometimes produce sharp movements away from purchasing power parity despite the presence of speculators with rational expectations.

Finally, complete flexibility of domestic wages and prices would maintain purchasing power parity, because any shock to the exchange rate would first produce a change in the price of tradables and then rapid and parallel changes in wages and all other prices in the economy. A 10 per cent depreciation from whatever source will raise the price of tradables by 10 per cent, which will put upward pressure on wages and then on all other prices until the general price level has risen by 10 per cent, thereby maintaining the real exchange rate. This scenario assumes that the central bank is willing to support such a result with an appropriate increase in the nominal money supply. Otherwise, tighter monetary conditions resulting from a decline in the real money supply will move the exchange rate and prices back toward their original level. Complete wage and price flexibility should mean, however, that purchasing power parity holds throughout the process.

Complete flexibility of wages and the prices of nontradables does not seem to be characteristic of the economies of the United States and other industrialized countries, however, particularly when the pressure on wages and prices is downward. Explanations are numerous, including the traditional kinked oligopoly demand curve, purported customer preferences for stable prices, and the direct costs of making and publicizing frequent price changes. Wage rigidity can result from union contracts that have less than full indexing. Downward rigidity in wages may also occur in nonunion sectors of the economy, because employers fear that wage cuts will both encourage the best workers (who may have options) to leave, and sharply reduce morale among remaining workers in the firm. Each of these two effects could reduce labor productivity to such an extent that lower wages would not produce lower unit labor costs.

Wage indexing is far more common in Europe than in the United States and is often designed to offset price-level changes completely. On this side of the Atlantic, fewer contracts are indexed and they typically provide for wage increases that do not fully cover price-level increases (Sachs, 1979, pp. 271-273). As a result, wages and perhaps nontradables prices are likely to be somewhat more rigid here than in Europe.

In all these situations, the law of one price is implicitly assumed for tradable goods. In particular, it is always assumed to hold for a single traded good where product differentiation does not exist. In general, however, broad price indices for tradables need not follow purchasing power parity even if the law of one price is valid. Product differentiation may make similar products in different countries less than perfect substitutes (e.g.,

prices of Volkswagens in Germany and Fiats in Italy may not follow purchasing power parity), or the same products may carry different weights in the price indices for two countries. The law of one price can be expected to operate only for single homogeneous traded goods, and even then it requires that markets be sufficiently competitive to produce prompt and effective arbitrage whenever the exchange rate moves.

If markets for homogeneous tradables are not sufficiently competitive to bring about such prompt adjustment of relative prices after an exchange-rate movement, the payments-adjustment process becomes far more complicated (Dunn, 1970, pp. 140-151). The assumption that the law of one price obtains for single homogeneous tradables is crucial for any expectation that a flexible exchange rate will closely follow purchasing power parity for more broadly defined price levels. The law of one price for tradables is far from sufficient for the continuous maintenance of purchasing power parity, but it would appear to be necessary.

#### *Adjustment of Current and Capital Accounts*

Some large and simplifying assumptions also lie behind the suggestion that flexible exchange rates will greatly weaken the mechanism through which business cycles are transmitted between countries, strengthen an independent national monetary policy, and generally produce a world in which macroeconomic policies can be managed solely on the basis of domestic economic priorities.

In much of the work by proponents of flexible exchange rates, the current account was viewed as a simple function of relative price levels and of domestic and foreign levels of national income. The possibility was usually not considered that the current account and hence the exchange rate might be significantly affected by events such as OPEC pricing decisions or instabilities in other individual commodity markets. If such events were dealt with, it was assumed that they were inherently temporary and that rational speculators would keep the exchange rate at or close to its long-run equilibrium.

The view of capital flows implicit in the work of Sohmen (1969, pp. 142-143) and Mundell (1960, 1961) on macroeconomic independence and monetary policy under floating exchange rates was based on a flow-adjustment model. Capital was assumed to flow continuously in response to a constant interest-rate differential. This assumption made it possible to conclude that a tight monetary policy would attract continuing capital inflows that would maintain an appreciated currency and a weaker trade account as long as a high interest rate remained in effect. It was widely recognized that a stock-adjustment model was a far more realistic approach to the capital account,

but this approach was very difficult to incorporate in the policy-assignment models that were popular in the late 1960s and late 1970s. If domestic aggregate demand is a function of the interest-rate level and the capital account is a function of the change in interest rates, it is hard to reach firm conclusions on the use of monetary policy to deal with domestic business cycles through its effects on the capital account and the exchange rate.

Attempts were made to introduce a stock-adjustment aspect to this discussion, but they had little apparent impact on the typical view of how monetary policy would operate under a flexible exchange rate. McKinnon and Oates (1966) dealt with this problem under the rather demanding assumption that international differences in interest rates were completely arbitrated away, and both Branson (1976) and Willett and Forte (1969) dealt with a stock-adjustment approach to the policy-assignment problem under the assumption of a fixed exchange rate. Although published research attempted to introduce a stock-adjustment process to the policy-assignment literature, the conventional academic wisdom on the subject of how monetary policy would work under flexible exchange rates was still based on Mundell's flow-adjustment model.

The early 1970s view of the capital account also said little about changing inflation and interest-rate expectations or about their potential impact on a floating exchange rate. Expectations were typically ignored or assumed to be neutral. It was not widely foreseen that large changes in inflationary expectations, some of which were later reversed, could have disruptive impacts on exchange markets and rates.

From the perspective of 1983, it is clear that the preceding pages represent an excessively optimistic view of the prospects for a flexible-exchange-rate regime. Nevertheless, this discussion does approximate the conventional academic view of the late 1960s and early 1970s. At least, it roughly describes what my students were taught twelve years ago. What follows might be viewed as an attempt to atone for past sins.

## **Expectations vs. Events: 1973-82**

### *Constant Real Exchange Rates*

Purchasing power parity was a short-lived hope. Movements in real exchange rates have been large and have often been quickly reversed. The trade-weighted U.S. dollar depreciated in real terms by about 10 per cent in 1976-78 and then appreciated by over 20 per cent in 1981-82. Sterling depreciated in real terms by about 15 per cent in 1975-76 before appreciating by over 60 per cent in 1977-80. The Swiss franc rose in real terms by

over 30 per cent in 1977-78 and then fell by about 25 per cent in the next two years. The yen followed a similar pattern, rising in real terms by over 30 per cent in 1975-78 before falling by about 25 per cent in 1978-79 (*The Economist*, 1981, p. 31). Since real exchange rates are measured after allowance for domestic and foreign rates of inflation, none of them would have changed significantly if purchasing power parity had held.

Data developed by Korteweg (1980, p. 18) indicate that the average change in the real exchange rate for sixteen industrialized countries between March 1973 and the end of 1979 was 6.8 per cent. Sterling and the Swiss franc appreciated in real terms by 18.7 per cent and 16.2 per cent respectively over that period, while the Canadian dollar experienced a real depreciation of 7.2 per cent. Expectations that exchange rates would follow relative price levels, thereby keeping real exchange rates largely unchanged, have certainly not been supported by the 1973-82 experience (see Frenkel, 1981).

If these real-exchange-rate changes were a long-run or permanent response to changing patterns of technological competitiveness or other factors that required fundamental payments adjustment, they might reasonably be viewed as necessary or even desirable. This has often not been the case, however; large changes in real exchange rates have often been a response to temporary factors and have often been reversed subsequently. For example, sterling appreciated sharply in 1979-80 when the arrival of a new Conservative administration led many market participants to expect a prompt deceleration of U.K. inflation. Since nominal interest rates remained very high, expected real yields increased sharply, making British assets very attractive. Increasing North Sea oil production, combined with increases in oil prices, added to the upward pressure on sterling. When inflation failed to decline promptly and oil prices stopped rising, sterling depreciated sharply. The dollar declined sharply in 1977-78 because of a weaker current account and widespread doubts about the macroeconomic policies of the incoming administration. It then appreciated sharply in 1981-82, when extraordinarily high nominal yields combined with an expectation of decelerating inflation to create very high expected real yields on dollar assets. These and other changes in real exchange rates have not been based on a need for adjustment to permanent shifts in payments patterns but have instead resulted from temporary factors, some of which were partially speculative.

#### *Gains and Losses from Changing Real Exchange Rates*

Large changes in real exchange rates have produced a range of disruptive and undesirable side effects within the economies of countries maintaining flexible exchange rates. One such effect was that sizable capital gains and

losses were incurred on long-term debt that would not have been incurred if real exchange rates had been stable. If, for example, a Canadian firm or hydroelectric authority borrows U.S. dollars to finance a domestic investment, a constant real exchange rate means that any losses from exchange-rates changes are approximately offset by capital gains on real assets. A rise in Canadian prices of 10 per cent relative to U.S. prices should be reflected in a 10 per cent depreciation of the Canadian dollar and a 10 per cent increase in the domestic-currency value of the real assets owned by the borrower, assuming that the price of these particular assets follows the general price level. If this assumption holds, the additional Canadian dollar cost of paying off the loan is covered by the capital gain on real assets. Fairly constant real exchange rates make long-term foreign borrowing relatively safe, despite the lack of forward markets with relevant maturities, because capital gains on domestic real assets should roughly offset losses on the exchange rate. If interest rates are 2 percentage points lower in New York than in Toronto, inflation is probably expected to average 2 points less in the United States than in Canada, and the Canadian dollar is expected to depreciate by 2 per cent per year. As long as the real exchange rate is roughly constant, Canadian borrowers can compare implicit real costs of borrowing in the two countries with some confidence that they are facing correct relative prices.

When real exchange rates change sharply, however, this apparently safe system collapses and foreign borrowers can face huge losses. The Canadian dollar depreciated by about 15 per cent between 1976 and 1979, despite the fact that Canadian prices rose by only 1 per cent relative to U.S. prices over the period. This 14 per cent real depreciation of the Canadian dollar imposed massive capital losses on Canadian firms and government agencies that had borrowed long-term funds in the United States. A few, such as Quebec Hydro, had partial hedges in the form of long-term contracts to sell electricity in the United States at fixed U.S. dollar rates. Most borrowers, however, lacked such hedges and have absorbed heavy losses.

Large changes in real exchange rates were often very expensive also for those who made forward price commitments on the assumption that real exchange rates would be relatively stable. Rolls Royce, for example, apparently expected high rates of inflation in the United Kingdom to be offset by a depreciation of sterling. It concluded that contracts to sell jet engines in the United States at fixed dollar prices need not be hedged, because it would be protected from prospective British inflation by dollar contracts to sell engines in the future. This conclusion was wrong, and a real appreciation of sterling produced losses that reportedly almost closed the firm.

A more long-lived side effect of changes in real exchange rates can occur



in the form of shifts in the distribution of income within a country. If the Canadian dollar depreciates in real terms, prices of tradables rise in Canada relative to prices of nontradables. Firms producing tradables become more profitable than firms producing nontradables. To the extent that the tradables sector is regionally concentrated, localized booms or recessions can result. If, for reasons discussed earlier, wage rates are relatively fixed in the short run or if wages tend to follow the prices of nontradables, a real depreciation reduces real wage rates and shifts income from labor in general to capital invested in the tradables sector. But if exchange rates follow relative price levels, so that real exchange rates are roughly constant, none of these distributional effects will occur. That has obviously not been the case during the last few years.

The experience since 1973 has made it clear that a flexible exchange rate can be a source of constantly shifting implicit taxes and subsidies. A real depreciation subsidizes producers of tradables by taxing consumers of tradables who produce nontradables. If wages are sticky, such a depreciation also taxes labor. A real appreciation, such as that experienced in the United Kingdom in 1979-80, produces the opposite results. The real exchange rate is probably the most important price in an open economy, and any arrangement that allows frequent and large changes in that price will be disruptive. These disruptions may be seen as an unreasonable burden.

### *Monetary-Policy Independence and Changing Real Exchange Rates*

The widespread recognition that large changes in real exchange rates have some decidedly undesirable side effects has meant that monetary policy has become far less independent of international considerations than had been expected. The earlier belief that flexible exchange rates would free monetary policy from international constraints assumed that central banks and governments were prepared to accept whatever exchange rates resulted from domestic or foreign monetary-policy shifts. That assumption no longer holds. Domestic monetary policy again faces an international-payments constraint: it must approximate the monetary policy being pursued abroad in order to avoid large exchange-rate movements.

This problem can be seen in the dilemma faced by many European central banks during 1981 and 1982. The Europeans made it clear that they did not believe their economies required the degree of monetary tightness maintained in the United States. Yet they felt compelled by their exchange-rate goals to maintain interest-rate yields approaching those in New York. If the European central banks had instead pursued a monetary policy based purely on domestic considerations, the resulting interest-rate differentials

would have produced large capital outflows and sharp depreciations of the European currencies. Considerable downward movement of these currencies did occur in 1981-82, and undesirably high interest rates were necessary in Europe to avoid further depreciations, with all the disruptive effects described earlier. European governments and central banks were reduced to asking the United States to ease its monetary policy so that they could ease theirs. Canada found itself in a similar situation during this period as it maintained undesirably high interest rates to forestall an unacceptable depreciation of the Canadian dollar.

So much for the theory that flexible exchange rates make monetary policy independent and allow it to be targeted solely at desired levels of domestic aggregate demand. In the years of fixed exchange rates, the Europeans and Canadians had to follow U.S. monetary policy to avoid excessive swings in their payments balances; under flexible exchange rates, they have had to follow U.S. monetary policy to avoid excessive swings in their real exchange rates. There is not a great difference in the independence of national monetary policy under the two regimes.

The unwillingness of governments and central banks to allow excessive exchange-rate changes has also meant that the international transmission of business cycles remains in effect. When the United States entered a serious recession in 1981, Canada could have protected itself by allowing the decline in the U.S. demand for Canadian goods and for Canadian dollars to pay for those goods to produce a depreciation sufficient to maintain the Canadian current account. Relatively low short-run demand elasticities meant, however, that the depreciation required would have been large and disruptive. As a result, monetary policy was used to avoid such a sharp depreciation, and Canada appears to have imported the U.S. recession through a deterioration of its current account, almost as though the country were on a fixed exchange rate.

The macroeconomic independence that seemed to be promised by floating exchange rates has not amounted to much. Monetary policies are still determined in part by international payments considerations, and business cycles are still transmitted from large countries to smaller ones through the trade balance. Macroeconomic interdependence has survived and even prospered under floating exchange rates.

Another hoped-for result of flexible exchange rates, the end of mercantilism and a resulting movement toward free trade, has also failed to materialize. Despite a flexible-exchange-rate system that eliminates the mercantilist effects of tariffs, there has been a movement toward more protectionism in recent years. Protectionism is seldom advanced on the basis of its desired impact on aggregate demand and output in the historic

mercantilist fashion, but instead is supported as a way to aid individual industries or sectors of an economy. Under flexible exchange rates, protection of one industry must come at the expense of all other domestic producers of traded goods. This linkage has apparently escaped those carrying on the political debate over protectionist measures. At least, it does not appear to have been a factor in the decision to adopt protectionist policies for various industries in the United States and elsewhere.

Exchange-rate volatility is sometimes blamed for increased protectionist pressures when real appreciation imposes injuries on import-competing industries (see McCulloch, 1983, pp. 18-20). The injured firms seek protection from the impacts of the appreciation but are later unwilling to accept the elimination of that protection if the local currency depreciates. It is seldom realized that providing such protection for major import-competing sectors merely causes a further appreciation that increases the injury to export and unprotected import-competing firms. In any event, the hope that flexible exchange rates would encourage a more open environment for international trade has been disappointed.

### **Official Intervention and the Management of Exchange Rates**

Expectations about the performance of flexible exchange rates were typically based on the assumption of a "clean" float or, at worst, of only modest official intervention undertaken for stabilization purposes. The situation since 1973 has been at some variance with this assumption. "Dirty," or managed, floats have been the rule rather than the exception, and intervention activities appear to have been biased toward undervaluing currencies against the dollar up to 1981-82. Central banks claimed that their activity in exchange markets was designed solely to stabilize exchange rates, but somehow reserves almost always rose. Unbiased stabilization should produce no trend in reserves, but the accompanying table indicates large and fairly persistent accumulations of reserves from 1973 through 1980 for a number of countries maintaining floating rates. This trend suggests that currencies may have been held down to encourage exports and discourage imports. Annual data of the type presented in the table cannot prove that central banks bought dollars at the exact moment that their currencies were falling, but they do suggest that intervention leaned toward undervaluing the currencies of these countries during this period. During some of these years, such as 1978, the dollar was falling against these currencies and accumulations of dollars would be expected. During other years, such as 1975, the dollar strengthened considerably, but these countries continued to accumulate reserves. Exchange-market intervention that keeps a currency be-

low its market value might be viewed as a replacement for tariffs as a way to pursue the mercantilist goal of a trade surplus and increased domestic economic activity. A recent study of exchange-rate management concluded that the Japanese were particularly active in attempting to hold their currency below equilibrium levels from 1974 to 1977 (Argy, 1982, p. 73).

If excessive aggregate demand and inflation are the problem, exchange-market intervention might be used in an attempt to produce an appreciation of the local currency in order to repress the prices of tradables and the level of aggregate demand. This approach is suggested by the sizable losses of foreign-exchange reserves shown in the table for 1981 and 1982 for a number of major OECD countries. Their central banks apparently concluded that it would be too inflationary to allow their currencies to follow market dictates while the United States was maintaining very high interest rates, and so used exchange-market intervention in an attempt to support their currencies.

Instead of being the means through which the balance of payments is kept in equilibrium, the exchange rate is apparently sometimes viewed as a policy tool in a domestic stabilization program. When inadequate aggregate demand is dealt with through large purchases of foreign exchange and a depreciated currency and inflation is attacked with sales of foreign exchange and an appreciation, problems may be created in the economies of the country's trading partners. They absorb the reverse effects on aggregate demand and prices, but the domestic problems of the intervening country are eased. This is hardly the view of flexible exchange rates that was presented by supporters in the 1960s and early 1970s. The IMF's fairly recent system of exchange-market surveillance is designed to discourage or prohibit the use of "managed" floating exchange rates for such domestic macroeconomic purposes, and it is important that this surveillance succeed.

Although exchange-market intervention has not always played the stabilizing role that had been widely expected, there is little or no evidence to support the occasional claim that such intervention has been the major cause of recent exchange-rate volatility. For this claim to have any validity, foreign central banks would normally have had to be frequent and major sellers of dollars when their currencies were rising, and *vice versa*. The data in the table do not support this suggestion. In most years, intervention appears to have been stabilizing. In 1981-82, for example, the major foreign central banks as a group sold dollars while the dollar was rising and consequently were a stabilizing force.

In addition, there is reason to believe that even when attempts were made to manipulate an exchange rate through official intervention, they were often ineffective. A recent study by representatives of the major OECD

TOTAL FOREIGN-EXCHANGE RESERVES EXCLUDING GOLD, END OF YEAR

(in millions of SDRs)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Belgium	2,056	2,751	2,890	3,476	3,004	3,257	3,044	4,110	6,133	4,256	3,560
Canada	4,808	4,013	3,990	3,781	4,273	3,023	2,433	2,174	2,425	3,039	3,730
France	5,700	3,538	3,697	7,224	4,837	4,834	7,122	13,345	21,436	19,126	14,985
Germany	17,801	23,382	22,346	22,294	25,838	28,573	37,208	39,891	37,644	37,560	40,578
Italy	2,721	2,448	2,782	1,191	2,840	6,672	8,527	13,814	18,143	17,298	12,791
Japan	16,177	9,413	10,303	10,208	13,553	18,392	24,875	14,819	19,316	24,235	21,153
Netherlands	2,511	3,525	3,782	4,172	4,457	4,727	3,905	5,762	9,131	8,024	9,195
Switzerland	4,052	4,151	4,448	5,996	8,268	8,471	13,634	12,476	12,276	12,010	14,015
United Kingdom	14,474	4,632	4,932	3,927	2,905	16,557	12,301	14,988	16,192	13,091	11,238
Total	60,286	57,853	59,170	62,269	69,975	94,506	113,349	121,379	142,696	138,637	130,235

SOURCE: *International Financial Statistics*, IMF, October 1979, p. 33; October 1980, p. 33; June 1982, p. 37; and April 1983, p. 37.

governments (Working Group, 1983, pp. 69-73) concluded that intervention had a significant impact on exchange rates, beyond the very short run, only if it was not sterilized, which means only if monetary policy was changed to produce a different equilibrium exchange rate. Sterilized intervention had no apparent effect on exchange rates beyond the short run.

## **Two Unsupported Arguments against Flexible Exchange Rates**

Many opponents of flexible exchange rates argued that the additional risks and transactions costs that would result from such a system would strongly discourage international trade and other international business activities. Firms were expected to respond to these presumed risks and costs by avoiding international business and instead stressing domestic activities. Studies of this problem have produced no evidence to support this fear. Trade grew rapidly throughout the 1970s, and econometric models showed no impact on its volume from the 1973 change in the exchange-rate regime (McCulloch, 1983, p. 6).

It has occasionally been suggested that flexible exchange rates had the additional disadvantage of containing an inherent inflationary bias. Supporters of the "ratchet effect" have argued that depreciations increase the prices of traded goods and are obviously inflationary, but that appreciations do not produce parallel declines. If a currency depreciates and later recovers its original level, a net inflationary result remains. Thus a system of flexible exchange rates makes all the participating economies more prone to inflation. Studies of this process by Goldstein (1977) and Crockett and Goldstein (1976), although not totally supportive of floating exchange rates, make it very clear that there is no "ratchet effect": exchange-rate movements do not produce a one-direction movement of prices, and so flexible exchange rates do not create an inflationary bias.

## **Reasons for the Failure of Flexible Exchange Rates to Match Expectations**

Why has the performance of flexible exchange rates confounded the predictions of earlier economic theory? It appears that no single flaw in the previous arguments is responsible, but rather a number of important factors.

### *Sources of Exchange-Market Shocks and the Law of One Price*

First, purchasing power parity did not prevail, because shocks to the exchange markets came from a variety of sources besides differing rates of inflation, and elasticities of demand for traded goods were low enough to

require sizable exchange-rate movements to produce adjustment. Proponents of purchasing power parity obviously did not allow for factors such as OPEC pricing decisions or the massive shifts in capital flows that resulted from changes in OPEC investment patterns and in inflationary expectations in the 1970s and early 1980s (Dunn, 1979). Low short-run demand elasticities meant that adjustment had to come primarily from speculative capital flows and official intervention at first, and only later from the trade account. Even over longer periods, demand elasticities were low enough to require sizable changes in real exchange rates in order to produce trade-account adjustment. In addition, wages and the prices of nontradables have not been perfectly flexible, particularly in a downward direction, so that exchange-rate changes that caused the prices of tradables to adjust did not produce a parallel adjustment in wage rates and in the prices of nontradables.

As was noted earlier, models based on the expectation that exchange rates would continuously follow purchasing power parity, as well as almost all other models of the behavior of a flexible-exchange-rate regime, assumed the law of one price: prices of a single homogeneous traded good could differ only by transport costs and tariffs, and consequently the relative prices of such a good would respond fully and promptly to exchange-rate changes. But this law will hold only in competitive markets, where any international differences in prices beyond transport costs and tariffs will quickly be arbitrated away. Unfortunately, even markets for homogeneous traded goods are often not perfectly competitive, and there is considerable evidence that arbitrage pressures have not always been sufficient to maintain equivalent prices (Dunn, 1970, and Isard, 1977). If prices of tradables remain unchanged for some period after the exchange rate moves, the adjustment of the trade account becomes more complicated and many models of how a flexible-exchange-rate system ought to behave are open to doubt. Economists have always been fond of the assumption that markets are perfectly competitive because it simplifies the construction of models with firm conclusions. The unpopular reality is that markets for many traded goods are decidedly oligopolistic, creating a preference for short-run price stability and permitting pricing behavior that violates the law of one price. When markets are oligopolistic, it is possible for both the domestic and the foreign prices of a homogeneous tradable to remain unchanged after the exchange rate moves within some limited range (Dunn, 1970).

### *Monetarism and Overshooting*

Other factors besides fear of exchange-rate volatility kept monetary policy from achieving the independence and power that supporters of floating exchange rates had predicted. Monetarists argue that although a central bank

can control the nominal money supply under floating exchange rates, it cannot control the real money supply beyond the short run. The law of one price may not hold over short periods, but monetarists assume that it is basically valid. In addition, they typically argue that prices of nontradables will follow tradables prices. A change in tradables prices will put pressure on wage rates in that sector, and those rates in turn affect labor costs and prices in industries producing nontradables. And, where tradables and nontradables are approximate substitutes, increases in the prices of tradables will cause an increase in the demand for and the prices of nontradables.

Thus, with wage and price flexibility, an independent monetary policy cannot alter output or employment beyond the short run, because the resulting exchange-rate changes will cause adjustments in the general price level that will return the real money supply to its previous level. A 10 per cent increase in the nominal money supply will produce a 10 per cent depreciation of the currency, which will cause a 10 per cent increase in the prices of traded goods. The prices of nontradables will later adjust and the general price level will rise by 10 per cent, which will return the real money supply to its original level. The monetary-policy shift has increased the domestic price level, including the price of foreign exchange, by 10 per cent, but it has accomplished nothing else (Girton and Roper, 1977). Prices of nontradables may take considerable time to adjust, but the ultimate result is clear: national monetary policy cannot be truly independent in a world of floating exchange rates, because exchange rates and the price level will adjust to keep the real money supply from changing significantly.

The fact that some goods prices may respond more slowly than do financial-asset markets to shifts in monetary policy produces a primary argument for overshooting and one explanation for the recent volatility of exchange rates. Dornbusch (1976) produced his original explanation of overshooting in a model with a domestic product that is an imperfect substitute for imports. Expansionary monetary policy causes the local currency to depreciate and the prices of imports to rise, but the price of the domestic product responds more slowly. As a result, the general price level rises by less than the percentage of the depreciation, and the real money supply does not fall proportionately with the movement of the exchange rate. An excess supply of money remains, and a larger depreciation is therefore necessary to produce a temporary equilibrium.

If, for example, a 10 per cent increase in the nominal money supply causes a 10 per cent depreciation, the price level rises by less than 10 per cent, leaving the real money supply above its original level. The excess supply of money causes a further depreciation that constitutes overshooting. The increase in the real money supply also causes a decline in the



interest rate, creating a differential between foreign and domestic yields. If this differential equals the rate at which market participants expect the local currency to appreciate, as the price of the domestic product finally rises in response to the earlier increase in the nominal money supply and depreciation, then the exchange-rate-adjusted yields are equal. If local interest rates fall 4 percentage points below those prevailing abroad, an expected rate of appreciation of 4 per cent means that investors should be indifferent between foreign and domestic assets. When the price of the domestic product has finally responded fully to the earlier monetary expansion and depreciation, the real money supply will fall, allowing the local currency to appreciate to its final exchange rate. A 10 per cent increase in the nominal money supply eventually produces a 10 per cent depreciation, a 10 per cent increase in the price level, and an unchanged real money supply, but the route to the final result is far from smooth.

Dornbusch (1980, pp. 205-210) later added the distinction between tradables and nontradables as a reason for a sticky price level. Tradables prices may respond quickly to the exchange rate, owing to arbitrage pressures, but prices of nontradables will lag considerably. To the extent that nontradables are a major part of the price structure, the overall price level will lag the exchange rate, creating the same argument for overshooting and the same process for getting to the final equilibrium. Whether the argument is put in terms of a sticky price for an imperfect substitute for imports or of a distinction between tradables and nontradables, the basic point is the same: if the price level does not respond quickly to changes in monetary policy and to the resulting movement of the exchange rate, overshooting results. The slow adjustment of the price level means that the real money supply does not respond promptly to the exchange rate, and the ensuing disequilibrium in the market for money means that larger short-run changes in exchange rates will result from monetary-policy shifts. Eventually, the exchange rate will return to the level suggested by the standard monetarist analysis, but in the meantime the exchange market will be volatile and potentially disruptive.

Overshooting of the type attributed to the slow response of prices to changes in monetary policy can also result from a simple stock/flow adjustment model of capital flows when expected real yields change. If, for example, a change in expectations causes portfolio managers to desire a 10 per cent increase in the proportion of their funds that are invested in assets denominated in U.S. dollars, there will be a large flow of funds into U.S. dollars while the pre-existing stock of capital is redistributed. When this process is completed and actual portfolios match desired ones, the continuing flow of funds into assets denominated in U.S. dollars will depend on

new savings that increase the size of portfolios. An extra 10 per cent of new savings will flow into assets denominated in U.S. dollars, but this movement of capital will be far smaller than the shift during the original stock-adjustment phase.

The exchange rate must move by enough to cause some combination of current-account adjustment and speculative capital flows to accommodate a large but brief flow of capital followed by a much smaller but continuing flow. The exchange-rate change necessary to clear the exchange market during the stock-adjustment phase will be much larger than that needed during the continuing-flow phase. Thus a shift in portfolio preferences might be expected to produce exchange-rate overshooting. A large exchange-rate change is required to accommodate the temporary stock-adjustment process, but this exchange-rate movement is partially reversed during the period of the far smaller flow of capital that results from the altered distribution of new savings flowing into portfolios. The extent of the overshooting will be constrained by the market's expectation of a partial reversal of the original exchange rate and by speculative reactions to that expectation. As a result, this form of overshooting is self-limiting.

#### *Alternative Explanations for Exchange-Rate Volatility*

Recent writers have suggested a number of reasons other than overshooting for the unexpected volatility of exchange rates. One of these is the currency-substitution argument.<sup>2</sup> Large firms and financial institutions hold money in several currencies. If money does not pay interest, a sizable change in relative inflationary expectations will cause a similar shift in the relative demands for the currencies, and hence in exchange rates. Under some circumstances, there may not be an equilibrium exchange rate for a currency for which inflationary expectations have increased (Girton and Roper, 1981).

This argument rests on the assumption that money does not pay interest, so that changes in inflationary expectations cannot be offset by adjustments in nominal interest rates on money that will leave currency holdings and current exchange rates relatively undisturbed. Yet the importance of non-interest-bearing money has declined rapidly in recent years. Firms of the size that could be expected to be heavily involved in currency substitution are now very unlikely to hold any significant amount of money in non-interest-bearing forms. For such firms, the newer forms of money that are

<sup>2</sup> The literature on the subject of currency substitution has grown rapidly. See, for example, Girton and Roper (1981) and McKinnon (1982). For Canadian data that support the currency-substitution argument, see Miles (1978).

found in M-2 or in even more extended definitions of money have become dominant.

Money is now perceived as merely the liquid end of a range of interest-bearing assets held by firms, and shifts in holdings of money among currencies can be viewed as part of a traditional asset-diversification process. If nominal interest rates paid on money balances respond promptly to changes in inflationary expectations in order to maintain unchanged real yields, desired currency holdings and the exchange rate should not be greatly affected. If, for example, the British inflation rate is expected to increase by 2 percentage points and British interest rates increase by the same amount, there is no reason for firms to reduce sterling balances. The expected rate of depreciation for sterling will increase 2 per cent, but the additional interest earned on sterling balances will just offset this loss, leaving holders of sterling with no apparent reason to move to another currency. Thus the exchange-rate volatility of recent years should not have resulted from changes in inflationary expectations that were accompanied by offsetting changes in nominal interest rates paid on money balances.

Volatile exchange markets can be expected, however, if the inflationary expectations of exchange-market participants change significantly without an accompanying adjustment in nominal interest rates. To reverse the earlier example, if the expected rate of inflation in Britain declines by 2 percentage points but, for some reason, British nominal interest rates do not fall by an offsetting amount, sterling will become a much more attractive form in which to hold money and a sizable appreciation can be expected as currency holdings shift in that direction.

British nominal interest rates may have failed to respond to the change in the exchange market's view of future inflation for various reasons. The Bank of England may have been targeting interest rates, or domestic financial-market participants may not have shared the expectation that British inflation would decline. Alternatively, the Bank of England may have targeted the money supply without allowing for changes in foreign demand for sterling balances. If the decline in inflationary expectations for Britain leads Americans to increase their holdings of sterling within the U.K. banking system and the Bank of England does not allow for this change in setting its money-supply targets, money-market conditions will tighten in London, maintaining nominal interest rates despite lower inflationary expectations.

Note that it is not necessary for the actual inflation rate in Britain to change, but merely for some event to lead a significant number of exchange-market participants to expect such a change. In recent years, exchange markets seem to have become very sensitive to new information

(or misinformation) that implies future changes in relative rates of inflation. Let us suppose that "news" in the form of an election result, an announcement of changes in policy or senior personnel at the central bank, or an apparent change in the rate of growth of a currently fashionable definition of money suggests to exchange-market participants that a country's inflation rate is likely to accelerate. If this event is not accompanied by an offsetting increase in the interest rate on that country's currency, funds will flow out of the currency in large volume and sharp depreciation will result. The expectations of exchange-market participants may have been incorrect, and the actual rate of inflation may not increase. Perhaps the new information was wrong or was misinterpreted by the market. Even if expectations are soundly based, the exchange rate will move well before there is any change in domestic inflation rates, because goods prices are likely to be sticky and to lag changes in policies (Frenkel and Mussa, 1980).

The appreciation of sterling in 1979-80 and of the dollar in 1981-82 can be interpreted in this light. In both cases, the arrival of new conservative administrations and a monetarist approach to central banking apparently led market participants to expect inflation to decelerate. Nevertheless, nominal interest rates did not decline but instead remained very high. As a result, real interest rates appeared to have increased, making each of the currencies a more attractive way to hold money. Funds flowed in and appreciations occurred that were sufficient to produce large changes in real exchange rates. Current-account movements added to the exchange-rate pressures in both cases, but the perception that real interest rates had increased appears to have been a major element in the appreciations. When the expectation of a prompt deceleration of inflation in Britain was disappointed, sterling depreciated sharply. Inflation actually did decline rather rapidly in the United States, and the exchange rate was maintained through the summer of 1983.

Changes in desired currency holdings that cause large exchange-rate movements are not necessarily limited to private firms and financial institutions. If central banks holding foreign-exchange reserves in a number of currencies are sensitive to shifting expectations of relative rates of inflation, their behavior may be similar to that of private financial institutions. Although central banks are not typically thought of as trying to maximize returns on foreign-exchange reserves, some of them may reasonably be expected to move some of their reserves into currencies whose expected real yields are particularly high. Informed exchange-market participants have suggested informally that the 1978 decline of the dollar was encouraged in part by the aggressive movement by the central banks of a number of the

larger developing countries and a few small industrialized countries out of dollars and into currencies that were appreciating.

Other explanations for volatile exchange rates include the Harris and Purvis (1981) model based on information asymmetry. If each group of market participants knows a great deal about its own sector or economy but much less about other sectors or foreign economies, Harris and Purvis show, volatile exchange rates can result because new information reaches one group long before it reaches the other. Huang (1981) has argued that recent exchange-rate changes have been too large to be consistent with fully efficient markets in a monetarist world. His conclusions may provide support for Harris and Purvis; markets are not fully efficient because information does not reach all segments of the market simultaneously.

Magee (1978) has suggested that recent exchange-market volatility may be due in part to the frequent use of long-term contracts that fix well into the future both the price and the quantity of goods to be exported each month. If prices are set in the exporter's currency, such contracts mean that trade reacts to the exchange rate as though demand elasticities were zero in the simple Marshall-Lerner case of infinite supply elasticities; the response of trade is destabilizing until these contracts are completed and can be renegotiated.

Kareken and Wallace (1978) have suggested that relatively constant real exchange rates are possible in a world of highly integrated capital markets and constantly changing expectations only if capital flows are prohibited. They argue that private capital flows are virtually certain to produce large and disruptive change in real exchange rates when portfolio managers view different currencies as close substitutes and consequently change the mix of the national monies they hold in response to frequent and sometimes temporary changes in expectations. It seems a bit extreme to argue that the only way to avoid constant changes in real exchange rates is to prohibit capital flows. Nevertheless, the increased sensitivity of currency holders to changing expectations clearly means that national monetary and fiscal policies must be managed with great prudence in order to avoid disruptive exchange-rate volatility. Macroeconomic policies will have to produce far more stable expectations than have prevailed in the industrialized countries if asset diversification is no longer to be a major source of frequent changes in real exchange rates.

What is left of the argument that flexible exchange rates make fiscal and monetary policies far more independent and allow them to be devoted to purely domestic goals? The apparent answer is, not much. Under fixed exchange rates, macroeconomic policies had to be oriented toward avoiding

large and chronic balance-of-payments problems, with particularly severe constraints on monetary policy if capital markets were integrated. Flexible exchange rates now require that macro policies be oriented toward avoiding exchange-market volatility, with particularly severe constraints on monetary policy if capital markets are integrated. The independence for national macroeconomic policies promised by flexible exchange rates turned out to be greatly exaggerated. The conclusion that interdependence in the management of fiscal and monetary policies has continued and even increased under floating exchange rates can be ignored by policy-makers only at the cost of serious and disruptive movements of real exchange rates. The difference between alternative exchange-rate regimes turned out to be much smaller than had been expected. Like many other economic-policy panaceas, flexible exchange rates have failed to meet expectations.

### **Are There Better Alternatives?**

It is far easier to conclude that flexible exchange rates have not worked well than to suggest a replacement that is likely to be more successful.

#### *Capital Controls and Dual Exchange Rates*

Prohibitions or limitations on capital flows have been widely discussed as a possible route to a less volatile exchange market, but this approach has major disadvantages. To the extent that such controls prevent the movement of capital from where it has a low marginal product to where its productivity is higher, large losses of efficiency occur. If international capital flows are no longer possible, countries can invest only what is saved locally, producing an inefficient allocation of the world's capital stock.

An equally important objection is that capital controls are very difficult to enforce, and the difficulties increase the longer the controls are in effect. Ingenious investors can devise ways to move capital through almost any control system, false invoicing being the best known route. The primary impact of capital controls often seems to be loss of respect for the law, as many developing countries have discovered to their sorrow.

A recent study of the German experience with capital controls indicates that limitations imposed on one form of capital flows merely produced offsetting increases in other payments items (Argy, 1982, pp. 77-78). Although Japan's experience was somewhat more successful, even Tokyo finally abandoned controls out of frustrations encountered in trying to make them function properly (Argy, 1982, p. 79). The likelihood that controls will merely divert capital flows to other transactions is suggested in a GATT study (*IMF Survey*, Nov. 24, 1980, p. 372). It concludes that controls are likely to be

effective only if they restrict almost every item in the balance of payments, and that such all-encompassing controls are unlikely to be acceptable or to succeed in a market economy.

Dual exchange rates are sometimes suggested as an alternative to either fixed or fully flexible exchange rates, but this approach is subject to the same problems as capital controls. The most frequently discussed form of dual rates would fix a parity for the current account and allow the exchange rate to float for capital transactions. The goal is to protect the current account and domestic markets for traded goods from shocks resulting from shifting capital flows. To maintain a clean float for the capital account, the capital account must be in a balance. Once again, we are led to the conclusion that capital flows cannot finance current-account imbalances that move real capital from one country to another. Capital can move between countries only to the very limited extent that foreign-exchange reserves can vary. The efficiency lost from not allowing capital to flow from low- to high-productivity uses is obvious.

The problem of evasion or cheating would arise whenever the two exchange rates differed significantly. The combination of avarice and ingenuity, upon which economic theory rests, virtually guarantees that market participants will find ways to shift transactions toward the more favorable exchange rate. Transfer pricing is an obvious option; if a currency is worth more for current- than for capital-account transactions, importers will be encouraged to overstate foreign purchases in order to move capital out of the country at the more favorable rate. When Belgium had such a dual rate and its currency was worth more for current than for capital transactions, it was widely rumored that one year the trade data showed that Belgians had imported more eggs from the Netherlands than every Dutch hen had laid that year. The story may be apocryphal, but its basic point is valid: dual exchange rates encourage cheating, graft, and a general disrespect for the law. Dual exchange rates and capital controls might be viewed as the financial equivalent of prohibition. By outlawing a purely private activity to which many people are strongly attached, the government does not eliminate the activity, it merely encourages a large number of people to become lawbreakers.

### *An Exchange-Market Tax*

Tobin (1982) has suggested a tax on all exchange-market transactions as a means of discouraging destabilizing short-term capital flows without providing an incentive to shift capital transactions to the current account through false invoicing. The major disadvantage of this approach is that if the tax was high enough to cause a sharp reduction in speculative capital move-

ments, it would also be high enough to repress trade and other international transactions, and the resulting efficiency losses could be large. Economists have argued against tariffs for too long to approve a method of reducing exchange-market volatility that is merely a tariff on all international transactions. If the tax was not high enough to discourage trade and other transactions, it would probably not be high enough to reduce the volume of speculative capital flows by very much. Such a tax would be promising only in the unlikely event that there was reason to expect it to have a far greater impact on short-term capital flows than on other international transactions.

The problem of cheating or "tax avoidance" arises here also. If the tax was on purchases and sales of foreign exchange, as Tobin's article implies, barter would become attractive. The tax could be avoided by exchanging goods for other goods or for financial assets, and one could expect the rapid development of brokerage operations to facilitate such exchanges. Barter would fail to develop only if the tax was very low, and if it was very low it would not really discourage speculative capital flows. If the tax was on all international transactions rather than on purchases and sales of foreign exchange, the enforcement problems would become even larger. It would be very difficult even to identify all the transactions, and false invoicing would become an obvious way to reduce tax liabilities.

#### *The Crawling Exchange Rate*

The crawling peg has often been suggested as a route to exchange-rate flexibility without the volatility of freely floating rates. If a crawling peg was managed on the basis of purchasing power parity, changes in relative price levels would be reflected promptly in the exchange rate, but current-account shocks caused by factors other than differing rates of inflation and shifts in the capital account would not affect the exchange rate, and hence could not create undesirable disruptions elsewhere in the economy.

Unfortunately, this approach brings back most of the well-known disadvantages of fixed parities. Since sterilization of anything beyond modest payments disequilibria would probably be impossible for most countries, control over the nominal money supply would again be lost or at least greatly compromised. Balance-of-payments considerations would again become vital in determining macroeconomic policies, even when they conflicted with domestic goals. The only improvement over rigid exchange rates would be the prevention of disequilibria due to differing rates of inflation by a rapid adjustment of the exchange rate to offset such differences. But this leaves many other sources of trade-accounts shifts, including long-term changes in a country's terms of trade or in its competitiveness in world



markets as a result of changes in technology or perceived product quality. These would not be offset through parity adjustments.

Under a purchasing-power crawl, long-term shifts in the capital account could not be transferred into flows of real capital through the exchange rate. If, for example, a country became a more productive and consequently a more attractive location for investment, the resulting capital inflows would not produce an appreciation that would cause a current-account deficit and an excess of domestic investment over saving. Because the exchange rate was being adjusted to offset relative rates of inflation, even if the country allowed the balance-of-payments surplus that resulted from the capital inflows to produce an increase in the domestic money supply, the resulting inflation would not bring about a current-account deficit and a movement of real capital into the country. Instead, the currency would be devalued to offset the inflation and maintain the current account. A purchasing-power-parity crawl does not offer any apparent mechanism through which shifts in financial capital flows can be transferred into movements of real capital in the current account. Even if a country becomes a more productive location for capital and therefore attracts larger financial capital inflows, it will not be able to increase its level of domestic investment relative to saving. As a result, the world's stock of capital cannot be efficiently allocated, creating the potential for sizable losses of output.

#### *Presumptive Rules for Exchange-Rate Changes*

It would appear that the problems of a crawling rate could be solved by the adoption of an exchange rate that is allowed to crawl in the short run to offset differing rates of inflation but can also be adjusted by larger amounts in response to major payments shifts. Presumptive rules for major parity changes, based on trends in the current plus long-term capital accounts or some other indicator of fundamental payments shifts, could be used to avoid competitive devaluations or other manipulative exchange-rate changes. Such presumptive rules would allow parity adjustments in response to terms-of-trade changes or basic shifts in the capital account but would not produce an exchange rate that moved constantly in response to volatile short-term capital flows.

Although this approach has obvious attractions, it also has at least two disadvantages. First, the industrialized countries that now maintain flexible exchange rates might not be able to agree on a set of presumptive rules and then accept their enforcement. There is a strong possibility that conflicts would arise between domestic economic or political goals and the exchange-rate changes called for by the presumptive rules, and it might not

be possible to compel countries to change their parities in these situations. Such a system might not survive the first occasion on which a major industrialized country tried to encourage recovery from a deep recession when the presumptive rules called for a sizable appreciation of its currency.

The other difficulty involves speculators. If the relevant governments and officials of the IMF understand the presumptive rules, the private sector can also be expected to understand and use them to make fairly accurate predictions of future exchange-rate changes. If, for example, four quarters of large payments deficits are the presumptive basis for devaluation, every country that has had three (or perhaps only two) quarters of poor payments results can expect huge capital outflows. In such a situation, speculators will face a one-sided bet. There is a high probability that the currency will be devalued and virtually no probability that it will be revalued: speculators either make large profits or roughly break even. Because an exchange-rate regime that provided such possibilities would impose large financial losses on central banks that had to support currencies just before major parity changes, it could not be maintained. The ideal solution is unfortunately impossible—a set of presumptive rules that governments can follow but that speculators cannot understand and use to predict parity changes.

#### *A Return to Fixed Parities*

Recent suggestions for a return to rigidly fixed exchange rates, perhaps with an international gold standard, are even less attractive. The likelihood of success for such a system of fixed parities is suggested by the recent travails of the European Monetary System. If a group of decidedly similar countries committed to monetary integration and to a degree of policy coordination cannot make fixed exchange rates succeed and must instead change parities every few months, what are the chances for the successful maintenance of fixed parities among a much larger number of highly diverse countries that lack the European commitment to monetary integration? Any attempt to introduce a fixed-exchange-rate regime in the current economic and financial environment would almost certainly be doomed to rapid failure. Since there is no institutional mechanism to impose and maintain a "world monetary policy," fixed parities should be avoided.

Suggestions that the gold standard would provide such a mechanism introduce the interesting possibility that this monetary policy would be affected by the weather in the U.S.S.R. and the level of political stability in South Africa. If poor harvests force Moscow to sell large amounts of gold to pay for grain imports, world monetary policy will become more expansionary; if civil unrest in South Africa closes the mines for an extended period, tight money will follow. The numerous other arguments against a

return to the gold standard are too well known to bear repeating. Recent arguments for a return to gold often seem to be based primarily on romantic yearnings for the imagined virtues and certainties of the past.

### **The Likely Conclusion: Retaining the Current System**

The answer may not be the best approach but merely the least bad: muddle through with the current regime of managed floats. Such a "solution" would be greatly eased by the permanent elimination of oil and OPEC as sources of payments imbalances, but that problem would plague any exchange-rate regime. One can only hope that the recent decline in the price of oil is the beginning of a trend, and that in a few years a combination of increased production from non-OPEC sources and declining consumption will return the OPEC countries to permanent current-account balance. It now appears that the demand for oil is far more elastic than it was thought to be a few years ago, and that is reason for cautious optimism.

The future of the current system of floating exchange rates may also depend in part on the nature of official intervention. As was noted earlier, intervention appears at times to have been aimed at manipulating exchange rates, although it may not have had significant effects unless it was unsterilized. Sterilized intervention was capable of smoothing intra-day or day-to-day exchange-rate movements, but it could not affect the exchange rate beyond the short run (Working Group, 1983, pp. 69-73). Intervention appears to have been more effective when it was coordinated between or among countries. Coordination was useful because it helped to convince market participants that the countries involved were working in the same direction and that their efforts were therefore to be taken more seriously. But even coordinated intervention had only short-term impact unless it was accompanied by supporting changes in macroeconomic policies (Working Group, 1983, pp. 78-79). Even if attempts to manipulate exchange rates through sterilized intervention have not been very successful, surveillance by the IMF remains important. The IMF can reduce suspicions and arguments among the industrialized countries by keeping a close watch on intervention activities.

The annex to the Williamsburg Summit Communiqué (*New York Times*, May 31, 1983, pp. 22-23) indicated a general goal of "greater convergence in economic performance" among the seven major OECD countries. It further suggested that exchange-rate policy would be based on greater macroeconomic "policy convergence, . . . keeping in mind the conclusions of the Exchange Market Intervention Study." If economic-summit communiqués typically represented the policies that participating governments ac-

tually adopted, there would be reason for optimism about the prospects for less volatile exchange rates. Unfortunately, the recent history of such communiqués is not encouraging.

It is now clear that the earlier hope that floating exchange rates would make national macroeconomic policies largely independent of balance-of-payments constraints cannot be realized. Complete macroeconomic independence turns out to be a mirage under any exchange-rate regime. Only economic isolationism would produce such independence, and the economic performance of Albania suggests that few countries are likely to adopt that approach. For countries that do not find autarky attractive, macroeconomic policies must be designed with international payments constraints clearly in mind. The adoption of floating exchange rates may ease those constraints, but only modestly. Ten years of experience with floating exchange rates really have made us sadder but wiser.

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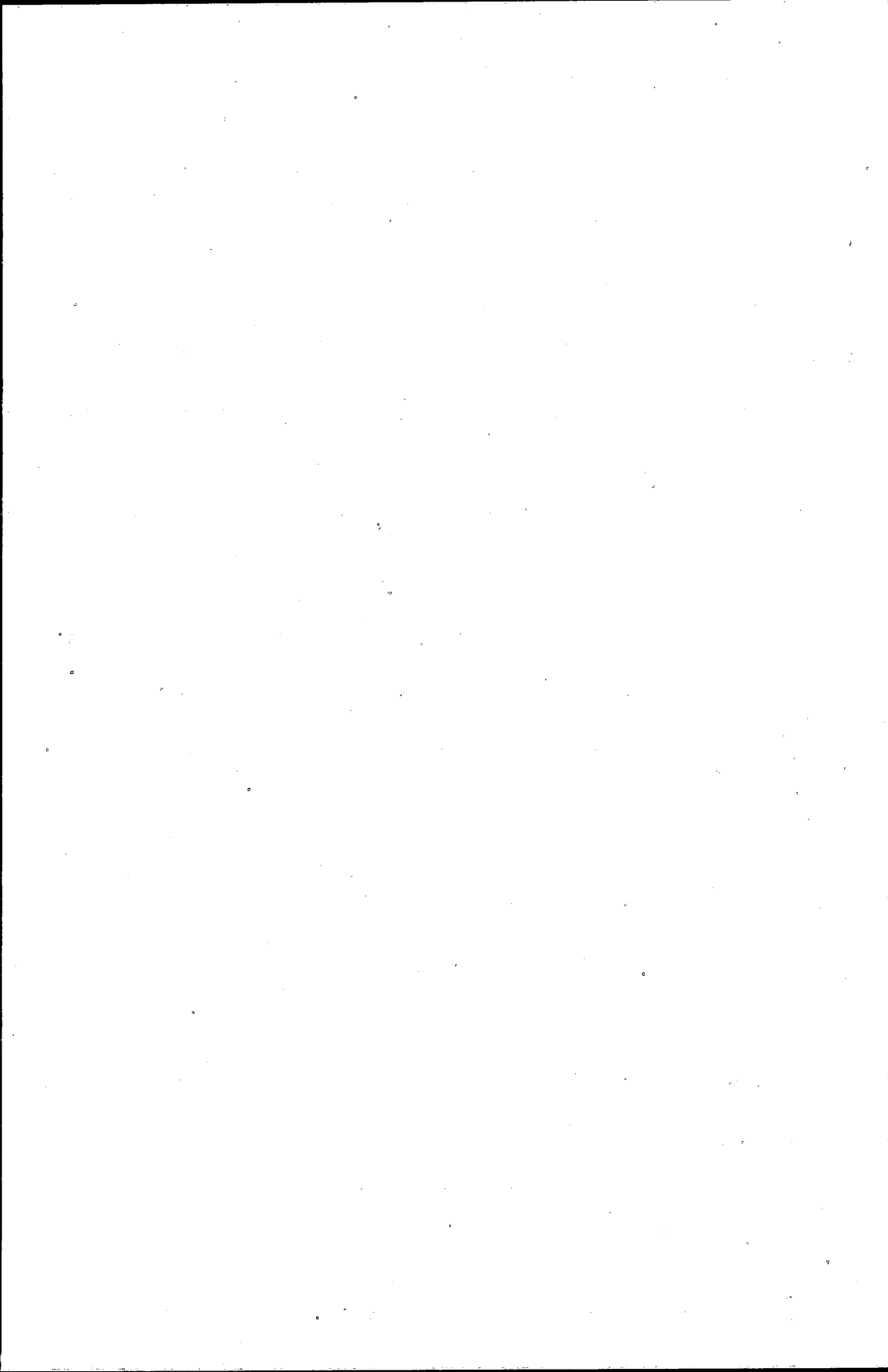
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