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2 Exchange Rate Coordination

1. Richard C. Marston

Exchange Rate Policy Reconsidered

> I would regard it as a catastrophe amounting to a world tragedy if [this conference should] . . . allow itself to be diverted by the proposal of a purely artificial and temporary experiment affecting the monetary exchange of a few nations only. . . . The sound internal economic system of a nation is a greater factor in its well-being than the price of its currency in changing terms of the currencies of other nations. (From President Franklin D. Roosevelt's message to the London Economic Conference of 1933)
>
> It has been our task to find a common measure, a common standard, a common rule applicable to each and not irksome to any. . . . [W]e have perhaps accomplished here in Bretton Woods something more than what is embodied in this Final Act. We have shown that a concourse of 44 nations are actually able to work together at a constructive task in amity and unbroken accord. (J. M. Keynes at the conclusion of the Bretton Woods Conference in 1944)[1]

The Bretton Woods Conference of 1944, which fixed exchange rates for over twenty-five years, is often cited as a model of economic cooperation among countries. Indeed, the Bretton Woods agreement on exchange rates was a remarkable accomplishment, particularly when measured against the failures of earlier conferences such as the London Economic Conference of 1933. Yet over fifteen years have elapsed since the breakdown of the Bretton Woods system without any serious efforts to restore fixed exchange rates among the currencies of the major industrial countries. The last attempt to reconstruct the exchange rate

system, the Smithsonian agreement of December 1971, broke down almost immediately. Recent Economic Summits have agreed on ad hoc policies to counter exchange rate movements and have considered modest proposals to modify the existing system, but these Summits have made no progress on more systemic changes in exchange rate arrangements. Governments may have refrained from "reforming" the system for good reasons. This paper will consider arguments for and against more far-reaching international agreements on exchange rate policy.

When considering possible reforms of the exchange rate system, it is natural to compare experience since 1973 with that of the Bretton Woods period. The difference in economic performance between the two periods would be startling if it were not so well known. Table 2.1 updates a table presented in Goldstein (1984, 10) that compares recent inflation rates, growth rates, and other economic variables with those of the Bretton Woods period. The period since 1973 is divided in two parts to highlight more recent developments in the 1980s.

Regardless of which indicator is chosen, the decade of the 1960s was a time of much superior economic performance. During the 1960s, inflation was markedly lower in all major industrial countries, with the

Table 2.1 **Comparison of Macroeconomic Performance in Three Recent Periods**

	U.S.	Canada	Japan	France	Germany	Italy	U.K.
Average Inflation Rates							
1961–71	2.8	2.7	5.6	4.1	2.8	3.9	4.4
1973–80	8.5	8.7	9.5	10.1	4.9	14.9	14.0
1981–85	5.3	7.2	2.7	9.1	3.8	12.9	6.9
Average GNP Growth Rates							
1961–71	3.6	5.2	10.4	5.4	4.2	5.2	2.8
1973–80	2.5	3.4	4.1	3.1	2.5	3.3	1.8
1981–85[a]	2.4	2.2	3.8	1.2	1.2	0.4	1.7
Average Productivity Growth							
1961–71	2.9	4.5	9.8	6.4	5.5	6.5	3.8
1973–80	1.6	2.1	6.1	4.6	4.0	4.6	1.8
1981–85	3.7	2.4	5.3	4.5	3.9	3.5	5.0
Average Unemployment Rates							
1961–71	4.8	4.9	1.2	1.6	0.8	5.1	2.6
1973–80	6.6	7.0	1.9	4.5	2.9	6.6	4.9
1981–85	8.3	10.4	2.5	8.7	7.1	9.6	11.9

Sources: CPI indexes and GNP: IMF, *International Financial Statistics;* productivity: U.S. Bureau of Labor Statistics; unemployment rates: OECD, *Labor Force Statistics.*

[a]Until 1984 for Italy.

notable exception of Japan where inflation in the 1980s is half what it was in the 1960s. A more recent trend toward lower inflation rates, however, is observed by comparing the 1981–85 and 1973–80 periods. Figure 2.1, illustrating the annual inflation rates for the three largest industrial economies, confirms this downward trend and also suggests that inflation rates for these countries may be converging. But these recent favorable trends in inflation are not matched by similar trends in output and other variables. Real growth in GNP was higher during the 1960s in all countries. Productivity growth was higher in all countries during the 1960s than during the 1973–85 period as a whole, although in the United States and in the United Kingdom productivity growth during the 1980s has exceeded that of the 1960s.[2] Finally, unemployment rates were in an entirely different range during the 1960s. In Germany, for example, unemployment averaged only 0.8 percent in the 1960s, but 2.9 percent in the 1970s, and a depressingly high 7.1 percent in the 1980s. In the United Kingdom, a 2.6 percent unemployment rate during the 1960s has turned into an 11.9 percent rate in the 1980s. Compared with the recent period of flexible exchange rates, therefore, the 1960s appear to have been a golden era of economic performance.

Yet we should hesitate before attributing recent economic performance to the switch from fixed to flexible exchange rates. Although flexible rates may help to explain high inflation rates in the 1970s, it is much more difficult to tie growth rates, unemployment rates, or productivity performance to a nominal variable like the exchange rate.

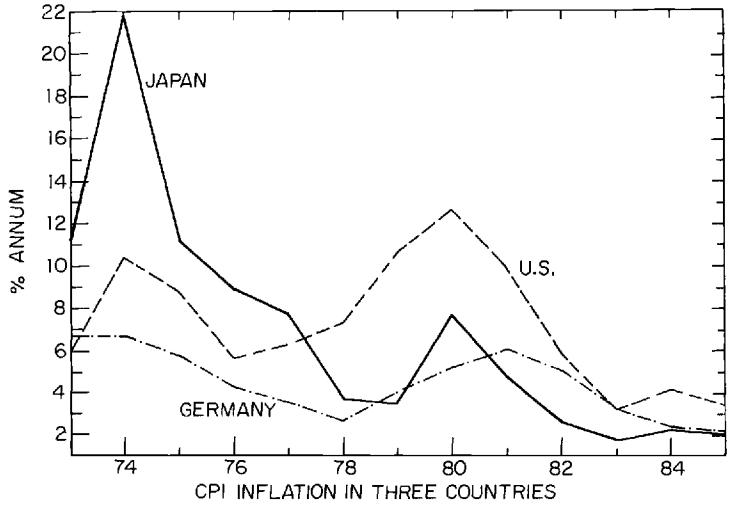

Fig. 2.1 Inflation rates since 1973. *Source:* IMF, *International Financial Statistics*.

Nor is it easy to say how the fixed rate system would have performed in response to the economic disturbances of the 1970s and 1980s, including the two oil shocks and the sharp changes in macroeconomic policies undertaken in Britain and the United States. Rather than try to account for this gap in economic performance, or to speculate about how a different exchange rate system might have performed, this paper will focus on the choices that are presented to policymakers today. One of these choices is to return to fixed exchange rates, but in today's economic environment this may prove as difficult as putting Humpty Dumpty together again.

This paper addresses a number of issues important to exchange rate policy:

Exchange rate variability: Section 2.1 examines the problem that exchange rate policy is designed to address, exchange rate variability. It distinguishes between two types of exchange rate variability, the short-run volatility of exchange rates characteristic of all asset prices and the misalignment of exchange rates which may persist for several years at a time. This distinction is crucial to an understanding of exchange rate policy, since actions designed to reduce volatility may not be well suited to countering misalignments.

Role of sterilized intervention: Casual observers may regard exchange market intervention as the primary tool of exchange rate policy, yet existing evidence raises doubts about the effectiveness of intervention unaccompanied by changes in money supplies. Section 2.2 reviews existing statistical evidence on so-called sterilized intervention, then studies two recent episodes of foreign exchange intervention in November 1978 and September 1985.

Fixed exchange rates: Those who look on the Bretton Woods system with nostalgia may not recall how that system actually performed in practice. Section 2.3 examines arguments for and against fixed exchange rates in general. It then reviews experience under the Bretton Woods system as well as the recently established European Monetary System (EMS).

Rules for managed floating: Section 2.4 considers various proposals for managing exchange rates, including the rules adopted by the International Monetary Fund in 1978. One ambitious scheme for exchange rate management involves establishing *target zones* for the major currencies. Target zones are examined in detail because of the attention given to them in recent government and academic discussions.

2.1 The Problem of Exchange Rate Variability

Variable exchange rates pose problems for an economy, but the problems vary widely depending on the nature of the variability. A useful

distinction can be drawn between two types of variability: *volatility* and *misalignment*. Volatility is the day-to-day, month-to-month variability of exchange rates, a variability that may have no trend to it. Misalignment, in contrast, is the persistent departure of an exchange rate from its long-run competitive level. Misalignment thus refers not to month-to-month variability but to longer-lasting movements of exchange rates, and only to those movements that depart from relative price trends, thus altering the relative competitiveness of a country's goods.[3] This distinction is important for intervention policy because a case might be made that only one form of variability is harmful and therefore might justify intervention. It must be admitted at the outset, however, that this distinction between the two forms of exchange rate variability is more easily made in theory than in practice, since exchange rates may exhibit their greatest volatility during periods of misalignment.

2.1.1 Volatility

One of the lessons learned from the voluminous literature on exchange rate behavior written in the 1970s is that exchange rates behave like asset prices, displaying much more volatility than most macroeconomic variables such as output or the prices of goods and services.[4] This is not surprising given the dominance of asset trades in the determination of exchange rates. Table 2.2 examines the volatility of

Table 2.2 **Standard Deviations of Monthly Percentage Changes in Exchange Rates and Other Prices, July 1973–December 1985**

	U.S.	Japan	France	Germany	U.K.
Exchange Rates					
Nominal bilateral[a]	—	0.0274	0.0279	0.0288	0.0255
Real bilateral[a,b]	—	0.0256	0.0272	0.0302	0.0271
Nominal effective[c]	0.0166	0.0229	0.0120	0.0113	0.0195
Real effective[b,c]	0.0176	0.0208	0.0116	0.0118	0.0197
Prices					
Ratios of CPIs[a]	—	0.0094	0.0037	0.0039	0.0081
Ratios of WPIs[a]	—	0.0106	0.0123	0.0078	0.0090
Stock indexes	0.0388	0.0294	0.0580	0.0315	0.0597
Commodity prices	Copper 0.0481	Cotton 0.0656	Rice 0.0700	Tin 0.0546	Wheat 0.0646

Sources: Monthly series: IMF, *International Financial Statistics* tape. Trade weights: Morgan Guaranty Trust, *World Financial Markets*.

[a]All bilateral comparisons are vis-à-vis the United States.

[b]Real exchange rates are measured using wholesale price indexes.

[c]Effective exchange rates are weighted averages of ten countries' exchange rates (G-5 plus Belgium, Canada, Italy, the Netherlands, and Switzerland); weights are based on total trade (imports plus exports) in manufactures.

exchange rates using one measure of volatility, the standard deviation of monthly percentage changes in exchange rates.[5] This measure of volatility, suggested by Lanyi and Suss (1982), counts as variable only those movements in exchange rates that depart from an average trend (measured as a percentage change).

Volatility Comparisons

Table 2.2 compares the volatility of exchange rates with the volatility of price ratios based on two aggregate price indexes, the Consumer Price Index (CPI) and the Wholesale Price Index (WPI), for the so-called Group of 5 (G-5) industrial countries: France, Germany, Japan, United Kingdom, and United States. According to this table, bilateral exchange rates are more than twice as volatile as these price ratios, in some cases more than five times as volatile.[6] This should not be surprising once it is recognized that, unlike many goods prices that are changed only infrequently, exchange rates are free to respond to any new information hitting the exchange markets.

Even though exchange rates are volatile when compared with price indexes, they are less volatile than some asset prices like stock exchange indexes. And exchange rate volatility is also generally lower than the volatility of commodity prices quoted on organized exchanges. Table 2.2 reports the volatility measures for both of these sets of variables. Notice that three agricultural commodities important to farming communities—cotton, rice, and wheat—have almost three times the volatility of exchange rates.

That exchange rates are so much more volatile than prices should suggest that the volatility of real exchange rates is also quite large. Table 2.2 also provides evidence that real rates are about as volatile as nominal rates. This table presents volatility measures of nominal and real bilateral exchange rates as well as nominal and real *effective* exchange rates. Throughout this paper, the real exchange rate (R_t) is defined as the ratio of the domestic price index (P_t) to the domestic currency value of the foreign price index ($X_t P_t^*$), where X_t is the domestic currency price of the foreign currency:[7]

$$R_t = P_t / (X_t P_t^*). \tag{1}$$

The domestic and foreign prices used are WPIs, which are available on a monthly basis for most industrial countries. Effective exchange rates are obtained by weighting the exchange rates of ten countries (G-5 plus five medium-size industrial countries) by the share of total trade in manufactures (imports plus exports) of one country with each of the other countries.[8] The lesson to be learned from table 2.2 is an important one: real exchange rates are volatile primarily because nominal exchange rates are volatile. That is, the relative stability of price levels

means that nominal exchange rate volatility translates into real exchange rate volatility.

Excessive Volatility?

Recent studies have addressed the question of whether asset prices are *excessively* volatile relative to the underlying factors determining their values. Shiller (1979), for example, studies whether long-term interest rates are excessively volatile relative to interest rates on short-term bonds. He finds that the volatility of long rates exceeds the limits imposed by term-structure models, which represent long-term rates as averages of expected short-term rates. The same type of methodology can be used to investigate the volatility of exchange rates.[9] But the tests are valid only if the researcher uses the correct underlying model of exchange rates, and there is little consensus about the appropriate model to use.[10] Huang (1981) shows that exchange rates are excessively volatile relative to a monetary model of exchange rates. But exchange rate volatility has yet to be investigated in terms of other models, so whether exchange rates exhibit excessive volatility remains an open question.

Changes in Volatility over Time

We have lived with flexible exchange rates for over a decade now, but there is no evidence that exchange rate volatility has declined as traders have become more accustomed to flexibility. Figure 2.2 illustrates the pattern of volatility over time for the real effective exchange

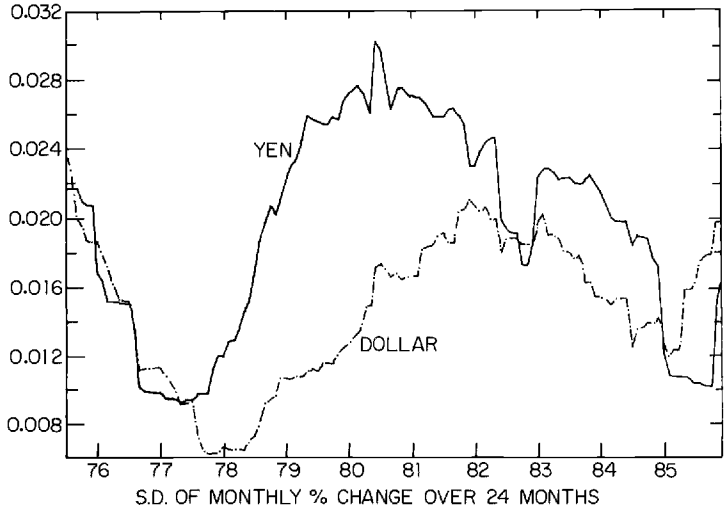

Fig. 2.2 Volatility of real effective rates. *Source:* Same as table 2.2.

rates for the yen and dollar. (The currencies in the EMS, including the Deutsche mark, are discussed in section 2.3.) Volatility is measured over the twenty-four months immediately prior to each time period. The yen and dollar experienced a decrease in volatility in 1976–77 before being hit by the second oil shock and by changes in U.S. policy (to be discussed below). There are no obvious trends in these series.

No doubt exchange rates are much more volatile than they were under the so-called fixed exchange rate regime of the 1960s. Table 2.3 uses quarterly data for real effective exchange rates to compare volatility during the 1960s with that of the more recent period from 1973 to 1985. Volatility is defined as the standard deviation of quarterly percentage changes. The results are quite clear: the Bretton Woods system's band around par values did constrain the volatility of real exchange rates. The two currencies experiencing only a marginal increase in volatility, the franc and mark, are those that have been tied together in European exchange rate arrangements, first the SNAKE and more recently the EMS.

Effects on Trade

To what extent should we be concerned with volatility per se? That question is difficult to answer. There is ample evidence that the movements in exchange rates reflected in the volatility measures are mostly *unanticipated.* (For example, forward premiums explain only a fraction of the variance of spot exchange rate changes.) So trading firms must cope with uncertainty about exchange rates. In drawing up contracts involving foreign exchange exposure, firms must take into account this uncertainty. They may elect to purchase forward exchange, but the forward market is limited to less than a dozen currencies, and for most of these currencies the market is thin for all but the shortest maturities. (Note, however, that limiting hedging alternatives to less than a dozen currencies is less restrictive than it seems, since most of the other currencies in the world are tied to the major currencies.) They may use the Eurocurrency markets to hedge their currency exposure,

Table 2.3 **Standard Deviations of Quarterly Percentage Changes in Real Effective Exchange Rates**

Country	Fixed Exchange Rate Period: 1960 I–1971 I	Flexible Exchange Rate Period: 1973 II–1985 IV
U.S.	0.0066	0.0281
Japan	0.0070	0.0377
France	0.0155	0.0185
Germany	0.0141	0.0193
U.K.	0.0162	0.0391

Sources: Same as table 2.2.

matching assets and liabilities in different currencies (the range of currencies available closely corresponding to the set available in the forward markets). They may take advantage of currency swaps which expand the range of foreign currency instruments available to the average company. Firms may also take advantage of the relatively new markets for options on foreign exchange, particularly when bidding on contracts. Finally, large multinational firms can diversify away much of the exchange risk. These hedging and diversification strategies are not without costs, including the additional managerial effort required to monitor exposure. These costs must be weighed against whatever benefits the present system affords.

Despite strong evidence that exchange rate volatility is much greater under flexible rates than under fixed rates, it has been difficult to establish statistically that this increase in volatility has seriously affected international trade. Hooper and Kohlhagen (1978) studied the effects of volatility on bilateral trade flows of the United States and Germany with other major industrial countries. They found "absolutely no significant effect of exchange risk on the volume of trade" (p. 505). Cushman (1983) found some evidence of reduced trade using the volatility of real rather than nominal exchange rates as his measure of risk. Kenen and Rodrik (1984), using multilateral trade data and effective exchange rates for eleven countries, also found some limited evidence of trade reduction. But for some countries in their sample, higher volatility seemed to increase rather than reduce trade. The strongest evidence of trade reduction effects was provided by Akhtar and Hilton (1984), who examined aggregate export and import behavior in the United States and Germany. Using a longer sample period than Hooper and Kohlhagen (1978), who studied the same two countries, Akhtar and Hilton found that German exports and imports were significantly reduced as a result of the increased volatility of nominal effective exchange rates, measured as the standard deviation of daily exchange rates. Even that study, however, found that U.S. imports were unaffected by volatility, and U.S. exports only marginally so. How is this evidence to be interpreted? It may be that opportunities for hedging and diversification are sufficient to limit the impact of volatility on trade. But it also may be that our econometric methods are not sufficiently powerful to determine the effects of volatility on trade.

Example of a Trading Firm

At this point it is useful to remind readers that volatility as defined is very different from the persistent *misalignment* of exchange rates that we have experienced recently. When the rise in the dollar leads to a loss of competitiveness for U.S. goods of more than 30 percent, as has happened over the last several years, trade is bound to be

affected regardless of how successful firms are in reducing the effects of exchange rate volatility.

The distinction between the two concepts can be illustrated by a simple example. Suppose an American firm regularly exports goods to Germany for sale in that country. Whether these goods are invoiced in dollars or marks determines which firm, the American exporting firm or the German importing firm, bears the "transaction risk," the exchange risk associated with a particular export contract. If the mark/dollar (DM/$) rate fluctuates widely around an equilibrium value of DM2/$ (i.e., if the DM/$ rate is highly volatile), that risk can be considerable. The firm bearing the transaction risk, however, may elect to purchase a forward contract to hedge this risk. Alternatively, the risk can be reduced by appropriate financing or diversification strategies. Contrast the same American firm faced with a misalignment of the DM/$ rate at a level of DM3/$ (as occurred in the early 1980s). If this *misalignment* is persistent, then the firm will find its "economic exposure" cannot be hedged so easily. The firm may be faced with a choice between shutting down or shifting its production facilities abroad.

2.1.2 Misalignment

Economists writing on flexible exchange rates in the 1960s contemplated neither the magnitude nor the persistence of the changes in real exchange rates that have occurred in the last fifteen years, so the term "misalignment" is a relatively new one. In his recent study of exchange rates, Williamson defines misalignment as the "persistent departure of the exchange rate from its long run equilibrium level" (Williamson 1985, 13). Defining such a long-run equilibrium is no simple task. Williamson identifies the long-run equilibrium exchange rate as

> that which is expected to generate a current account surplus or deficit equal to the underlying capital flow over the cycle, given that the country is pursuing "internal balance" as best it can and not restricting trade for balance of payments reasons (p. 14).[11]

It is evident that such a definition refers to the real rather than the nominal exchange rate, so the nominal exchange rate has to be adjusted by relative prices through time if inflation differentials are significant. This is analogous to calculating a purchasing power parity (PPP) exchange rate relative to some base period. But Williamson's concept of the long-run equilibrium rate is more sophisticated than a PPP concept since it also takes into account real shocks such as the OPEC price increases of 1973–74 and 1978–79.

This paper will discuss some of the problems involved in defining long-run equilibrium when we analyze target zones for exchange rates (section 2.4). In this section, there is no need to be specific about what

the equilibrium level of any exchange rate is in order to illustrate the extent of movement of real exchange rates over time for some of the major currencies. In figure 2.3, one commonly cited measure of real exchange rates, real effective exchange rates based on wholesale prices in manufacturing, is used to illustrate the movements of the dollar, yen, and pound sterling over the period since the start of floating rates in 1973. The figure illustrates clearly the wide swings in real exchange rates that have characterized these currencies.[12] In the period since 1973, the most serious cases of misalignment among the industrial countries occurred with respect to the pound sterling and the dollar. Between 1976 and 1980, the pound rose by over 40 percent in real effective terms. Between 1980 and 1985, the dollar rose more than 35 percent using yearly averages;[13] its peak in February 1985 was 42 percent above its 1980 average. Both cases of misalignment will be studied in detail in order to show the extent of the misalignment and its effects on the economies concerned. Before doing so, however, some of the costs associated with misalignment will be discussed to show why there is so much concern about it.

Costs of Misalignment

When real exchange rates are misaligned, there are incentives to shift resources both internally and externally. Internally, whenever the rate is overvalued, services and other so-called nontradable industries gain at the expense of export and import-competing or tradable

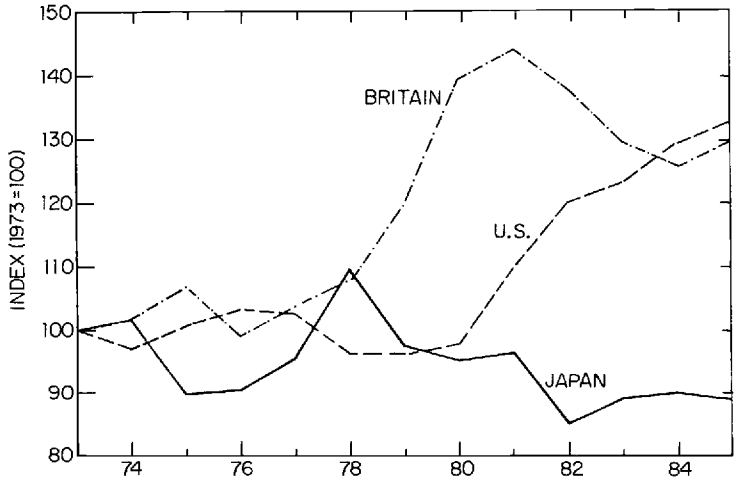

Fig. 2.3 Real effective exchange rates. *Source:* Morgan Guaranty Trust, *World Financial Markets.*

industries. Externally, foreign competitors gain at the expense of these same industries. These shifts in resources are costly.[14]

Misalignments of the size experienced recently, where competing countries gain a price advantage of 20 or 30 percent, can have very disruptive effects on firms producing traded goods. Since misalignments may persist for five years or more, production facilities in some tradable industries may be mothballed or scrapped altogether, even though these facilities might be internationally competitive at exchange rates closer to their long-run equilibrium levels. Short-run losses of competitiveness due to misalignment can easily become permanent in cases where foreign firms are able to establish themselves in an industry. Baldwin and Krugman (1986) have shown that such irreversible changes can occur in industries where costs of entry (e.g., investment in marketing and distribution) would deter foreign competition in the absence of the misalignment.

If a firm is a multinational, it might elect to shift the production facility threatened by the misalignment to lower-cost countries. That decision is not without peril, however, since today's undervalued exchange rate might swing to overvaluation as did sterling in the late 1970s. A firm electing to locate a production facility in Britain in the mid-1970s would have been unpleasantly surprised by the real appreciation that followed.

Even if domestic production facilities are merely mothballed, moreover, the resulting unemployment is costly. Given sufficient time, the labor force can be retrained and reassigned to nontradable industries. But even if such shifts of employment between industries can be effected, the costs involved are still significant. The decision to shift to a new industry is made more difficult by three factors. First, it is as unclear to the labor force as it is to firms how long the misalignment will last. The decision of employees to seek employment elsewhere or of firms to close facilities must be made despite the considerable uncertainty about the timing of any return to equilibrium. (Recall the uncertainty about the timing of the dollar's fall.) Second, it is hard to disentangle long-run shifts in comparative advantage from misalignment. The U.S. steel and automobile industries, for example, were no doubt hurt by the misalignment, but the growth of foreign production was important as well. Third, there is the uncertainty about future protectionist measures which might shield an industry from both misalignment and secular declines in competitiveness. These sources of uncertainty make it difficult for both the labor force and firms to make decisions. In the early 1980s auto workers, for example, had to decide whether to retrain and possibly relocate on the basis of their assessment of the duration of misalignment, the long-term prospects of the auto industry, and the political economy of protectionism. This was a formidable task indeed—one certainly beyond the skills of economists.

The costs of misalignment are not limited to the firms and labor force in the tradables sector. First, the economy as a whole must adjust its consumption of nontradables if the resources shifted to that sector are to be fully employed. Since the relative price of tradables has fallen, that shift in nontradables requires an increase in total consumption relative to its long-run sustainable level. A capital account surplus will finance this consumer surge, but at the cost of a buildup of debt. So one of the costs of the misalignment, as emphasized earlier by Hause (1966) and Johnson (1966), is a major shift in the time pattern of consumption.[15] The second cost is one alluded to earlier, the cost of tariffs and other protectionist measures which may be introduced in response to the misalignment. In his study of trade tensions between the United States and Japan, Bergsten (1982) points out that the three recent periods when protectionist pressures were at their height in the United States were times when the dollar was most overvalued relative to the yen. The costs of protectionist legislation, if enacted, which would be "justified" by the need to protect the tradable industries, are borne by consumers throughout the economy.

Some of the costs associated with misalignments are illustrated by the two most serious cases of misalignment among the major industrial countries, those of Britain and the United States.

The Misalignment of Sterling in 1979–82

The run-up of sterling began before the Conservative government led by Margaret Thatcher took office in June 1979, but during the first three years of that government the misalignment problem became severe. Sterling rose from $1.70/£ in 1976 to $2.40/£ in 1980. The rise in the nominal value of sterling, moreover, was matched by its rise in real terms. Figure 2.3 above shows a rise in the real effective exchange rate for sterling by 45 percent between 1976 and 1981. Recall that this series for the real exchange rate is based on manufacturing prices, so the rise in the index reflects a startling loss of price competitiveness in Britain's principal export sector. A real appreciation of this magnitude led to what was called at the time the "deindustrialization of Britain."

This appreciation is usually attributed to two main factors: the discovery and exploitation of North Sea oil and the commitment to tight monetary policy by the Thatcher government. Although North Sea discoveries began in the early 1970s, production rose sharply only in the late 1970s, from 16.6 million tons in (the financial year) 1976–77 to 79.6 million tons in 1979–80.[16] So the timing of sterling's rise coincides roughly with the rise in North Sea production (although not with the exchange market's anticipation of this rise). In a detailed study of economic policies under the first Thatcher government, however, Buiter and Miller (1983) find that at most 10 percent of the real

appreciation can be attributed to the effects of North Sea oil.[17] The second factor, tight monetary policy, also undoubtedly played a role in the appreciation. The appreciation, however, may have been due more to the *announced targets* for money growth rather than actual money growth performance, since actual money growth (at least for the broader aggregates) repeatedly outran the targets. After evaluating these and other explanations of the appreciation, Buiter and Miller conclude that much of the appreciation remains unexplained; indeed, they "find the decline in competitiveness puzzling" (p. 317).

How much of this real appreciation represents misalignment of the real exchange rate from its equilibrium level? The discovery of North Sea oil shifted the equilibrium real exchange rate, so some of the loss of competitiveness of British manufacturing might be better termed "realignment" rather than "misalignment." That is, some of the real appreciation of sterling reflected the necessary adjustment of relative prices called for by this real shock. But what about the real appreciation due to the monetary tightening (or prospective monetary tightening)? If misalignment is defined as the departure of the exchange rate from its equilibrium level, then the overshooting of the exchange rate associated with monetary tightening should be labeled misalignment. The monetary policy itself may have been desirable as part of a disinflation policy, but the accompanying temporary overshooting of the exchange rate imposes adjustment costs which are just as severe as when the exchange rate becomes misaligned as a result of exchange market inefficiencies or speculative bubbles.

The effects of the appreciation on the British manufacturing sector were unusually severe. Value added in manufacturing fell by over 8 percent in 1980 and by over 6 percent in 1981, compared with declines of 2 percent or less in GDP in these same two years. The effects on employment in manufacturing were slower to develop, but they appear to be longer lasting. According to figure 2.4, employment in manufacturing declined by over 4 percent in 1980, but by over 10 percent in 1981, and it continued to decline in 1982 and 1983. The effects of sterling's loss of competitiveness were devastating for British manufacturing. The term "Dutch Disease" is used to describe the loss of competitiveness of a manufacturing sector when oil or gas discoveries drive up the exchange rate. Britain seems to have suffered from a particularly virulent strain of this disease, although as argued above, the causes of the illness cannot be attributed to North Sea oil alone.

Misalignment of the Dollar, 1981–85

The dollar has more recently been misaligned as seriously as the pound sterling was in 1980–82, but the effects of the misalignment on employment have been mitigated by strong domestic demand for U.S.

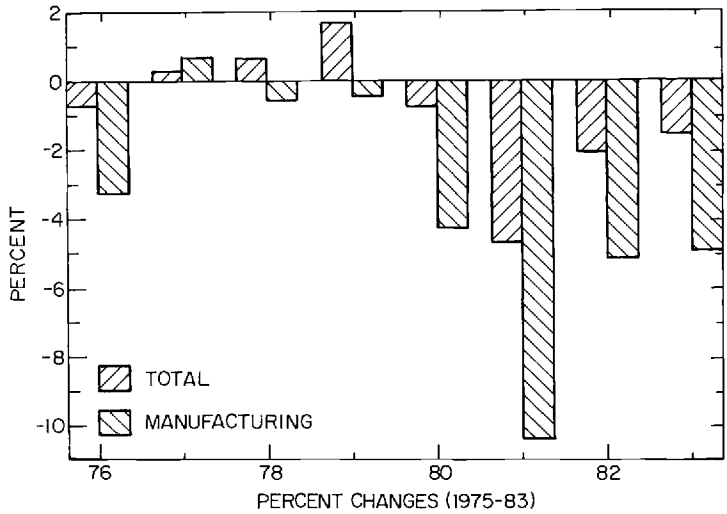

Fig. 2.4 Growth in British employment. *Source:* OECD National Accounts.

goods. Figure 2.5 traces three real effective exchange rates for the dollar, all based on prices in the manufacturing sectors of the United States and its trading partners. The three prices represented are wholesale prices, value-added deflators, and normalized unit labor costs. The real exchange rates measure U.S. relative to foreign prices or labor costs, so a rise in any of the real exchange rate series represents a real appreciation of the dollar and a loss of competitiveness for U.S. manufactures.[18] The sharp appreciation of the dollar from 1980 to 1985 is seen in all three series, appreciations of from 34 to 43 percent in five years.

The origins of the appreciation remain a controversial subject. Among the principal causes cited are the fiscal policies of the Reagan Administration, the tight monetary policies pursued by the Federal Reserve Board since Paul Volcker became Chairman in 1979, the rise in investment associated with the Tax Reduction Act of 1981, and the flight of capital to the "safe haven" of U.S. capital markets. Branson (1985) presents the argument in favor of attributing much of the rise to American fiscal policies. Although the defense buildup and tax cuts were spread out over several years, Branson argues that the Reagan Administration made credible "announcements" concerning this policy in 1981, a year when the dollar rose sharply. Obstfeld (1985) also attributes much of the rise to fiscal policy, but he emphasizes the separate contribution of foreign fiscal authorities. In a back-of-the-envelope calculation of fiscal effects, he attributes to fiscal policy a real appreciation of a little over 20 percent, but almost half of that appreciation is due

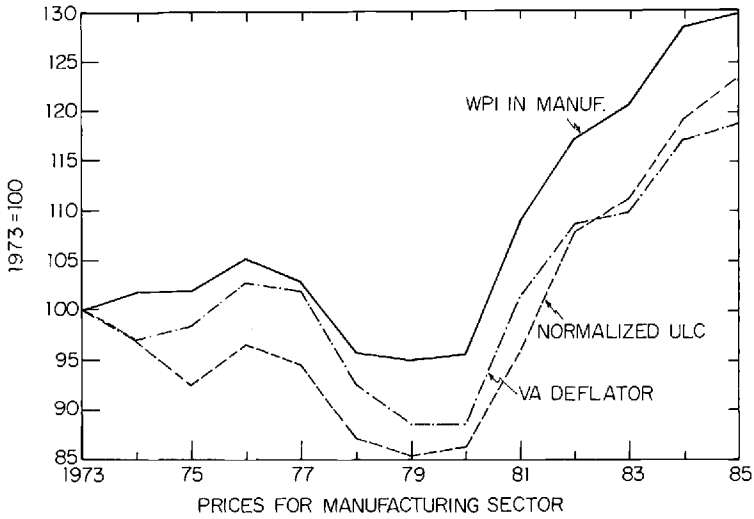

Fig. 2.5 Real exchange rates for dollar. *Source:* IMF, *International Financial Statistics*.

to *foreign* fiscal policy. Frenkel (1985) argues that the initial rise in the dollar (in 1980) was due more to *actual monetary* policy than to expected future fiscal policy. He cites the rise in short-term interest rates which could not have been due to fiscal actions several years in the future. Evidence for the role of investment and the "safe haven" flight of capital is harder to find. Branson (1985) points out that while the level of investment rose sharply in the 1983–85 recovery, the level of investment relative to GNP was not unusually high in that period. "Safe haven" effects may have been at work during the period, but it is hard to argue that the degree of political risk, in Europe at least, was higher in the 1980s than in earlier postwar periods.[19]

Unlike the origins of the misalignment, the effects on U.S. trade are unmistakable. The export- and import-competing sectors of the U.S. economy have been hard hit. Table 2.4 reports the trade balance by sector in two years, 1980 and 1985, as well as the percentage change in the trade balance over this period measured as a percentage of *exports* in 1980. According to this table, the sectors hardest hit by the misalignment were the auto and general consumer goods sectors; the trade balance in autos deteriorated by almost 180 percent of 1980 exports during this five-year period, while the trade balance in general consumer goods deteriorated by over 200 percent. Even the capital goods sector, normally the strongest of the U.S. manufacturing sectors, deteriorated sharply with the trade balance falling to $11.6 billion from a 1980 level of $43.4 billion. The trade balance as a whole went from a deficit of $27.7 billion in 1980 to an alarmingly large deficit of $122.1 billion in 1985.[20]

Table 2.4 **U.S. Trade Account (in billions of current $)**

	1980	1985	% Change 1980–85[a]
Merchandise Trade Balance	−27.7	−122.1	−43.3
Agriculture and raw materials	32.7	1.3	−30.5
Fuels	−79.1	−50.5	36.2
Manufactures	15.3	−81.2	−90.3
Capital goods	43.4	11.6	−43.3
Autos	−10.2	−40.6	−179.9
Consumer goods	−17.9	−52.2	−207.9
Other	3.4	8.2	57.8

Source: Survey of Current Business, National Income and Product Accounts.
[a]Measured as a percentage of exports in 1980 (imports in the case of fuels).

The misalignment, of course, was not the sole cause of this deterioration in U.S. trade performance. During the 1980–85 period, growth in Europe lagged behind that in the United States, causing faster growth of imports in the United States. In addition, the debt crisis forced Latin American countries to curtail their imports from the United States, a factor which may be particularly important in explaining the fall in U.S. exports of capital goods. But the trade sector had to have been seriously affected by a change in relative prices of the magnitude experienced.

The misalignment led to a fall in production and employment in many subsectors of manufacturing. Branson and Love (1986) have estimated disaggregated equations for production and employment in the United States to determine the effects of the dollar's appreciation. They attribute a loss of 1.3 million jobs in U.S. manufacturing to a 40 percent appreciation of the dollar. This job loss was concentrated in the durable goods sectors, with many of these jobs being lost in two of those sectors, primary metals and nonelectrical machinery. Nonetheless, the effects of the dollar's appreciation on industrial production and employment were not as severe as in the case of Britain for two reasons. First, the trade sector is much less important to the U.S. economy than it is to the British. Perhaps more importantly, the appreciation coincided with a defense buildup as well as a consumer boom which kept domestic demand for U.S. goods strong despite the inroads made by foreign goods.

These two case studies serve to illustrate the disruptive effects of sizable misalignments. One sector of the economy, the tradables sector, suffers inordinately during the period of the misalignment while the rest of the economy stumbles on. During the period of sterling's misalignment, the dichotomy between traded and nontraded sectors took a geographical form. The north of England, where traditional industries such as steel and automobiles were centered, suffered from severe

unemployment, while the area around London remained relatively prosperous. In the United States, the contrast in fortunes between the rust-belt and the sun-belt can be explained at least in part by the deterioration of U.S. competitiveness associated with the appreciation of the dollar.

The problems associated with misalignment thus differ markedly from those associated with volatility. No simple hedging strategy can protect a firm from a loss of relative competitiveness of 30 percent or more.

Having defined these problems of exchange rate variability, we now turn to the search for solutions. Some observers might contend that the solution is obvious: governments must adopt policies designed to minimize the variability of exchange rates. Yet the fact that there are costs associated with volatility and misalignment does not in itself justify policies designed to limit exchange rate variability. Before discussing the arguments for and against exchange rate policies, let us review evidence on the effectiveness of the most common instrument used to control exchange rates, foreign exchange intervention.

2.2 The Effectiveness of Foreign Exchange Intervention

The central question addressed in this section is the following: Does foreign exchange intervention constitute a separate instrument of exchange rate policy, or does it work solely through its effects on domestic and foreign money supplies? If the latter is the case, then intervention must be considered in the broader framework of monetary policy.

2.2.1 Definition of Foreign Exchange Intervention

Intervention is difficult to define because there are many ways in which the monetary authorities can influence exchange rates. The Working Group on Foreign Exchange Intervention, commissioned by the Versailles Summit of June 1982, adopted a narrow definition of intervention modified to include certain "passive" operations. According to the Working Group's Report (1983, hereafter referred to as the Jurgensen Report),[21] the narrow definition consists of "any sale or purchase of foreign exchange against domestic currency which monetary authorities undertake in the exchange market" (p. 4). It includes all central bank purchases and sales of foreign exchange against domestic currency, whatever form of financing is used (reserves, swaps, official borrowing, etc.). The Jurgensen Report adds to this narrow definition three forms of "passive" intervention: sales concluded by the central bank with public sector entities including the central government (which would otherwise have undertaken the transactions in

the exchange market), IMF drawings, and interest payments on international reserves. This definition makes intervention equivalent to the change in the monetary authorities' net foreign currency assets excluding any capital gains on existing assets. The definition specifically does not include exchange market transactions carried out by other private or public entities that might be considered to be "directed" by the government or central bank (such as Eurodollar loans to public authorities) because it is so difficult to establish the intent of the authorities in the case of such transactions.

More important than the precise definition of intervention is the distinction between sterilized and nonsterilized intervention. The Jurgensen Report defines *sterilized intervention* as a "change in the monetary authorities' net foreign currency assets which is offset by a corresponding change in their net domestic assets so that their monetary liabilities (or, specifically, the monetary base) remains unchanged" (p. 6). Nonsterilized intervention, in contrast, involves a one-for-one change in the authorities' net foreign currency assets and the monetary base. *Nonsterilized intervention* thus is a form of monetary policy, distinguishable from conventional open-market operations only in the type of asset being exchanged for money.[22] There is virtually unanimous agreement among economists that nonsterilized intervention can affect exchange rates, just as more conventionally defined monetary policy can undoubtedly affect exchange rates. The effectiveness of sterilized intervention, in contrast, is a much more controversial topic. Yet if foreign exchange intervention is to be regarded as a separate instrument of economic policy, distinct from monetary policy, then it must take the form of sterilized intervention.

2.2.2 Effectiveness of Sterilized Intervention

There are three distinct channels through which sterilized intervention can affect exchange rates.[23] The first is the most straightforward: sterilized intervention works by altering the supplies of assets in private portfolios, thus requiring a realignment of asset returns. This *portfolio balance* channel requires that foreign and domestic securities be imperfect substitutes. The more substitutable these securities are, the smaller the realignment of asset returns, and thus the smaller the change in the current exchange rate, required to rebalance portfolios. In the limiting case of perfect substitution between securities, where investors regard domestic and foreign bonds as interchangeable, sterilized intervention is completely ineffective, at least through this portfolio balance channel.

The other two channels operate through *announcement effects* requiring either market inefficiencies or superior information on the part of the authorities. If the market is inefficient, intervention operations may help focus the attention of the public on hitherto neglected factors

even though the operation itself provides no new information. It is difficult to provide a convincing rationale for why market operators would neglect publicly available information, or why intervention would refocus their attention on this information. But we cannot rule out this possibility a priori. Alternatively, the intervention operation could provide new information by signaling the private market about the future monetary policies of the authorities.[24] This last channel could operate even if the market were efficient, in the sense that market participants incorporate all available information in forming their expectations, since the authorities naturally have superior information about their future intentions.

There is extensive empirical research on the effectiveness of sterilized intervention. Although this evidence is far from conclusive, it is strong enough to have led the Jurgensen Report to conclude that "there was broad agreement among the members of the Working Group that sterilized intervention alone did not appear to have constituted an effective instrument in the face of persistent market pressures" (p. 20). Whether or not sterilized intervention might have a short-term impact through announcement effects was less clear to the Working Group.

The Jurgensen Report's conclusion is based on two different types of evidence. First, there are tests of "speculative efficiency," which are actually joint tests of uncovered interest parity and market efficiency. Second, there are estimates of portfolio models designed to determine the influence of bond supplies on risk premia. These two sets of evidence reach sharply different conclusions.

Speculative Efficiency Tests

Tests of speculative efficiency are based on uncovered interest parity, the equality of *expected* returns on securities denominated in different currencies. If uncovered interest parity holds, the expected interest return on a dollar security should equal the expected return on a foreign currency security measured in terms of dollars (the expected return consisting of the foreign interest rate plus the expected capital gain or loss on the foreign currency).[25] The expected returns will be equal whenever investors regard the two securities as perfect substitutes. If investors are risk averse, on the other hand, then they will regard two securities denominated in different currencies as imperfect substitutes, and a *risk premium* will separate the two expected returns. In that case, sterilized intervention might be effective if it can change the relative supply of dollar and nondollar securities enough to affect the risk premium.

To determine whether uncovered interest parity holds, investigators must examine actual, not expected, returns (since expected returns are not observable). Uncovered interest parity does not ensure that *actual*

returns are equal on securities denominated in different currencies. But the differential between these returns should be random as long as the forecast errors from predicting exchange rates are random, which will be the case if the exchange market is *efficient*. The speculative efficiency test, which tests jointly whether uncovered interest parity holds and the exchange market is efficient, thus examines whether actual returns on securities denominated in different currencies are equal except for a random factor.

During the 1970s, a score of investigators ran tests of speculative efficiency using different time periods and currencies. With few exceptions, they were unable to reject the speculative efficiency hypothesis. The evidence was strong enough for Mussa (1979) to conclude in his summary of empirical regularities in the foreign exchange market that "the interest differential in favor of domestic currency bonds is equal approximately to the expected rate of depreciation of domestic money in terms of foreign money" (p. 24).

Recent studies, however, have been able to reject the speculative efficiency hypothesis using longer data sets and more sophisticated statistical techniques.[26] In fact, they have provided such convincing evidence against speculative efficiency that researchers have turned their attention toward explaining deviations from uncovered interest parity in terms of risk premia (while maintaining the hypothesis that the exchange market is efficient).

Direct Evidence of Risk Premia

If investors are risk averse, the expected returns on securities denominated in different currencies will be separated by a risk premium which is a function of the relative supplies of foreign and domestic securities, domestic and foreign wealth, and other factors.[27] Investigators have searched for evidence of this risk premium without success. Rogoff (1984), for example, finds no evidence that the interest differential between U.S. and Canadian bonds is sensitive to the relative supply of these bonds. (So he finds no evidence that sterilized intervention in the Canadian dollar market, which would alter the relative supplies of U.S. and Canadian dollar bonds, could affect exchange rates.) Other investigators have used more elaborate models to investigate risk premia, and have reached conclusions similar to those of Rogoff.[28]

Interpreting the Conflicting Evidence

The two sets of evidence from speculative efficiency and portfolio balance studies seem to give conflicting results. The studies of speculative efficiency suggest the importance of a time-varying risk premium, but the portfolio balance studies are unable to explain that risk

premium in terms of relative asset supplies. There are at least three ways to reconcile this evidence. First, an appeal can be made to market inefficiencies which would account for the ex post interest differentials without appealing to a risk premium. But to date no one has provided a convincing rationale for why traders would fail to eliminate any perceived profit opportunities in the foreign exchange market. Second, it may be the case that, even though a time-varying risk premium is important in explaining interest differentials, sterilized intervention (or any other change in relative bond supplies) has a negligible effect on that risk premium. Third, existing empirical methods may not be sophisticated enough to establish the effectiveness of sterilized intervention. Unfortunately, there is no basis for choosing between these last two alternatives. It is evident that the menu of assets available to investors is much larger than the choice between domestic and foreign bonds modeled in many studies. Portfolio decisions, moreover, have an intertemporal dimension in which consumption and investment decisions are made simultaneously, in contrast to the static models that form the basis of existing empirical estimates.[29] It is unclear whether or not more sophisticated empirical models, based on a larger menu of assets and incorporating intertemporal decisions, would confirm or refute existing empirical evidence. To date, however, there is no evidence that sterilized intervention can affect exchange rates, at least through conventional portfolio balance channels. On the basis of existing evidence, therefore, it is difficult to justify using sterilized intervention to carry out exchange rate policy.

If sterilized intervention is ineffective, a second conclusion follows: to pursue active exchange rate management, there is no substitute for monetary policy. Monetary policy can be pursued either with traditional domestic instruments or with nonsterilized foreign exchange intervention. Whether the latter is called monetary policy or not is of little importance.

Yet even if monetary policy is necessary for exchange rate management, there is still a potential role for sterilized intervention if such intervention provides a signal to the market about future monetary policy. Because of the very nature of announcement effects, however, it is difficult to find evidence of them using conventional statistical methods. Two successive intervention operations of equal size may provide different signals to the market, so they may have different effects on the exchange rate.

2.2.3 Two Episodes of Foreign Exchange Intervention

Because statistical evidence leaves the question of announcement effects unresolved, one might believe that the study of specific episodes of active foreign exchange intervention might help to resolve this ques-

tion. Such episodes are difficult to interpret, but two particularly interesting episodes are singled out for study. These are the November 1, 1978, announcement of a dollar defense package by the Carter Administration and the G-5 intervention of September 1985.

1978 Dollar Defense Package

This episode bolsters the Jurgensen Report's view that intervention can have significant short-term effects. But the ultimate failure of the defense package, despite the fact that U.S. authorities assembled $30 billion for foreign exchange intervention, suggests that short-term intervention packages alone are not effective unless they are followed by longer term changes in monetary policy. The dollar defense package came at a time when the foreign exchange market was in disarray reflecting the growing loss of confidence in the policies of the Carter Administration. In her in-depth study of this crisis, Margaret Greene a senior official in the Federal Reserve Bank of New York, described the market as follows: "During the last week of October, the selling of dollars reached near-panic proportions, and dollar rates plummeted to record lows against several major currencies" (1984, 28). After the President announced an anti-inflation program on October 24, a program received with skepticism by the financial markets, the authorities sold almost $1 billion equivalent of marks. Yet the dollar dropped against the mark from DM1.81/$ to DM1.72/$ over the new four trading days. Similarly, the dollar dropped against the yen from ¥181/$ to ¥178/$.

The package announced on November 1, in contrast to the anti-inflation program, was an impressive one. First, monetary policy was tightened, with the discount rate raised by an "unprecedented" 1 percentage point to a (then) historic high of 9½ percent. (Thus the package had an important monetary policy component.) Second, a $30 billion package of foreign currency resources was assembled for future intervention consisting of $15 billion in swaps with foreign central banks, $5 billion in drawings on the IMF and sales of SDRs, and $10 billion in so-called Carter bonds, U.S. Treasury notes denominated in marks and Swiss francs to be sold abroad.

The market was obviously impressed with the scope of the package and the resolve about future policy which it seemed to represent. By 9:13 AM on November 1, the dollar had moved 7¼ percent above the previous day's low against the mark to DM1.83/$.[30] Within 23 minutes, the dollar had moved up another 1 percent against the mark while the Desk sold the equivalent of $69 million marks, to SF1.567/$ while the Desk sold $19 million of Swiss francs, and to ¥187.5/$ with the Desk selling $5 million. As figure 2.6 illustrates, by the time of the closing in London, the dollar had risen against the mark to DM1.85/$ and against

the yen to ¥186.5/$. By the end of the (New York) day, the dollar had risen to DM1.879/$ and to ¥187.9/$, up 7–10 percent from its lows of the day before. The foreign exchange intervention undertaken by the Desk that day amounted to a little more than $600 million, over two-thirds of it consisting of intervention in the market for marks.

The U.S authorities, in cooperation with the Bundesbank, Swiss National Bank, and Bank of Japan, had to intervene repeatedly in the following weeks as the market tried to test official resolve. Figure 2.6 shows that the dollar stabilized at around DM1.90/$ and ¥190/$ through the first two weeks of November, then rose somewhat more in the following two weeks. By the end of November, U.S. intervention had totaled more than $3.5 billion. On December 1, the spot rates for the dollar were DM1.94/$ and ¥203.5/$, both rates being significantly above the October lows.

This episode illustrates the effectiveness of monetary and exchange market operations in halting a currency's slide. But it also illustrates the limitations of such action if not followed up by more fundamental changes in monetary policy and macroeconomic policy in general. The rise of the dollar stalled in early December as market participants became skeptical again about the Carter Administration's policies toward inflation. Then the dollar was hit by the shock of an OPEC price increase of 14.5 percent following the political upheavals in Iran. During the month of December, foreign exchange intervention was almost as sizable as in November, totaling more than $3.1 billion. Yet no new monetary policy initiatives were taken. By the end of the month the

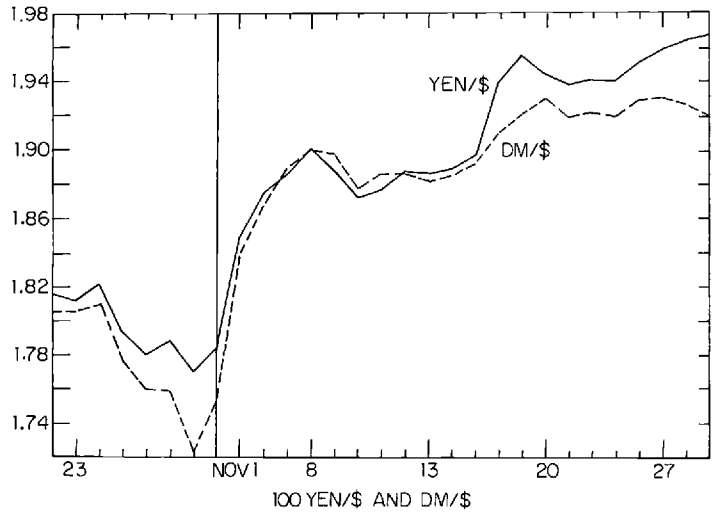

Fig. 2.6 November 1, 1978, Policy Shift. *Source: The Financial Times.*

dollar had fallen to DM1.828/$ and ¥194.60/$. The short-run impact of the November 1 package had faded, and the time afforded to make more fundamental adjustments in policy had been squandered. As Greene (1984) summarized the episode: "If this time is not put to productive use, then intervention alone, no matter how large or how well coordinated, will not be effective" (p. 40).

G-5 Intervention in September 1985

The dollar rose through most of the four years of the first Reagan Administration, peaking in February 1985. After falling from its February highs during the following spring and summer, the dollar began to rally in early September. That rally was cut short by the Group of 5 (G-5) meeting of finance ministers and central bank governors in New York on Sunday, September 22. According to the G-5 statement issued at the end of that day:

> The Ministers and Governors agreed that exchange rates should play a role in adjusting external imbalances. In order to do this, exchange rates should better reflect fundamental economic conditions than has been the case. They believe that agreed policy actions must be implemented and reinforced to improve the fundamentals further, and that in view of the present and prospective changes in fundamentals, *some further orderly appreciation of the main non-dollar currencies against the dollar is desirable.* They *stand ready to cooperate more closely to encourage this* when to do so would be helpful. (IMF *Survey,* October 7, 1985, p. 297; Emphasis added)

The statement had an immediate effect on exchange rates. As the Harris Bank *Foreign Exchange Weekly Review* later remarked: "Foreign exchange traders were taken by surprise, and the dollar dropped sharply following the announcement, even before any official intervention occurred" (February 7, 1986, p. 1). In figure 2.7, daily exchange rates for the yen are illustrated. The dollar fell against the yen from ¥240.1/$ to ¥231.7/$ by the close in London on Monday, September 23. It fell further to ¥219.5/$ by Friday of that week. The dollar also fell sharply against the mark from DM2.844/$ on Friday, September 20, to DM2.680/$ on the following Friday.

There is a puzzle in this dramatic movement. The exchange rates fell despite the fact that interest differentials were virtually constant. In the case of one-month Eurocurrency deposits, for example, the interest differential between dollar and yen deposits and between dollar and mark deposits remained roughly constant throughout the week. Indeed, both differentials remained constant until late October when the Japanese authorities tightened credit conditions in their market. The fall in spot rates in the absence of interest rate movements may be due to pure *announcement effects* of the G-5 communique. That is,

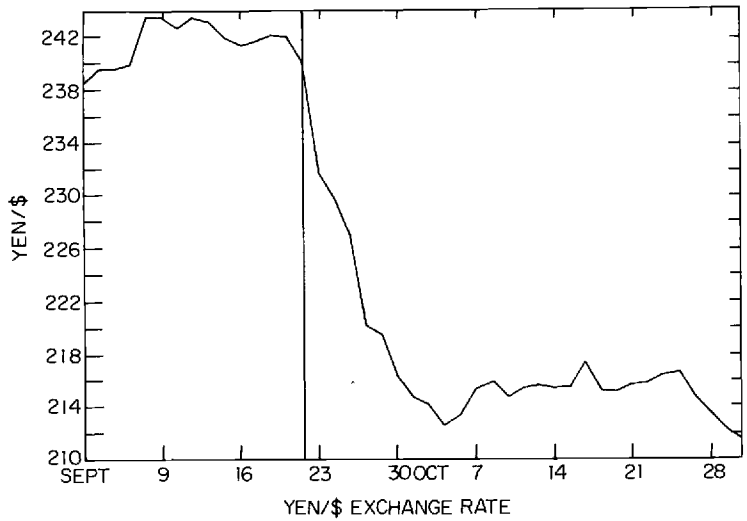

Fig. 2.7 G-5 intervention. *Source: The Financial Times.*

the exchange rates may have moved primarily because the G-5 announcement signaled future changes in policy rather than because of the foreign exchange intervention that followed the announcement. This interpretation is bolstered by the fact that, even though foreign exchange intervention following the G-5 announcement was not much greater than intervention in February and March of 1985, exchange rates moved much more after the G-5 announcement.[31]

What did the G-5 announcement signal? The Bank for International Settlements (BIS) *Annual Report* of 1986 cited two factors. First, the joint communique gave a "convincing demonstration of unanimity and common policy resolve, and . . . the subsequent intervention operations were fully coordinated and had the wholehearted support of nearly all the major industrial countries represented" (p. 149). The fact that the policy actions were coordinated was said to be of crucial importance both because of the potentially larger scale of any intervention operations and because there was more of an assurance that the authorities of different countries would not be working at cross-purposes. Second, the G-5 statement marked a major change in U.S. policy, which had shunned foreign exchange intervention since the beginning of the Reagan Administration. As the BIS *Annual Report* describes it:

> [f]rom the point of view of credibility, it was of crucial importance that, for the first time, the US authorities, whose capacity to sell dollars is in principle unlimited, were seen to recognize the need for a further downward adjustment of the dollar. (p. 149)

Yet, given the evidence against sterilized intervention, one must remain skeptical about whether either factor, international coordination or the

active participation of the United States, could have been decisive if the G-5 countries had simply announced a series of *sterilized* intervention operations. Instead, the G-5 announcement may have moved exchange rates because the market believed either that the intervention would be monetized or that the intervention, even though sterilized, signaled future changes in monetary policy.

In the case of the G-5 announcement, the evidence is unclear whether or not foreign exchange intervention was monetized. As indicated above, short-term interest differentials between the dollar and the mark or yen remained constant from September 22 through most of October. The first unambiguous sign of changes in monetary policy occurred in Japan in the last week of October. The dollar had begun to rally somewhat, so the Japanese authorities decided to tighten monetary conditions, sending short-term interest rates from 6.5 percent to 8 percent in only a few days. As a result, the yen resumed its upward rise.

Comparison of These Two Episodes

A comparison of these two episodes is quite instructive. The 1978 defense package bucked a downward trend of the dollar. If it had been the signal for a fundamental change in U.S. monetary policy toward a more restrictive stance, then the short-term gains in strengthening the dollar in November and December 1978 might have been consolidated and extended into 1979 and beyond. But since no such fundamental change was forthcoming, the dollar resumed its downward trend. The G-5 intervention, in contrast, was clearly reinforcing rather than bucking a trend. In fact, it is useful to ask whether the G-5 announcement and the actions that followed were on balance successful in driving the dollar down relative to its previous trend.

Figure 2.8 tries to answer that question by putting the period immediately following this announcement into a longer term perspective. This figure shows the weekly movement of the yen from January through December 1985, highlighting the G-5 announcement. The trend of the dollar against the yen is downward throughout, but in the period immediately following the announcement the dollar's fall accelerates. The same cannot be said of the dollar's fall relative to the mark. It is true that the G-5 announcement halts a temporary rise in the dollar, but it merely restores that mark to its previous trend. These figures lend support to Martin Feldstein's (1986) view that "for Germany and other G5 countries, the Plaza (New York) meeting was essentially a non-event" (p. 6). Yet, even if Feldstein is right about currencies other than the yen, the G-5 period may provide evidence for announcement effects in the case of the yen. Under one interpretation, the dollar fell relative to the yen because the market perceived a greater degree of cooperation between Japan and the United States than in the previous four years, as well as a willingness on the part of the Japanese government to

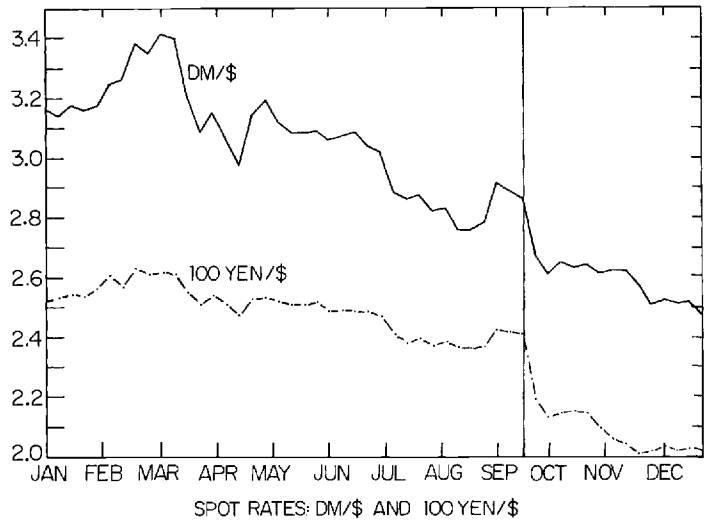

Fig. 2.8 Weekly spot rates in 1985. *Source:* Harris Bank, *Weekly Review.*

pursue a tighter monetary policy to drive the yen down, a policy not actually put into effect until late October.

This section has established the limits of foreign exchange intervention as a distinct exchange rate policy. If intervention is monetized, it can have powerful effects on exchange rates, but so also can conventional monetary policy. If intervention is sterilized, in contrast, then its effects on the exchange rate are thought to be minimal. The announcement of the intervention may be the occasion for a rally in the exchange market, but perhaps only if the market believes that the intervention signals broader changes in monetary policy.

Because the evidence implies that sterilized intervention is ineffective, the remainder of this paper assumes that monetary policy, broadly defined to encompass nonsterilized intervention, is the prime instrument of exchange rate policy.

Exchange rate policy could take a variety of forms. First, governments could reestablish a system of *fixed* exchange rates, perhaps with wider bands to accommodate greater variability of exchange rates. The fixed rates could be confined to regional groupings of countries, as in the European Monetary System, or they could encompass all industrial countries. Second, governments could retain the present system of flexible exchange rates, but institute stricter rules governing exchange rate management. Third, governments could establish a system of *target zones* for exchange rates with "soft margins" that leave governments with some discretion concerning intervention. All three alternatives, which involve *systemic* changes in the international monetary

system, contrast sharply with ad hoc agreements like the G-5 intervention, which are designed to cope with specific exchange rate problems. Sections 2.3 and 2.4 will explore these alternatives.

2.3 Putting Humpty Dumpty Back Together Again: Restoring Fixed Exchange Rates

This section analyzes the case for returning to fixed exchange rates. The first part considers the general rationale for fixing exchange rates. The next two parts ask what lessons can be learned from two fixed exchange rate systems, the Bretton Woods system, which lasted until 1971, and the European Monetary System established in 1979.

2.3.1 Rationale for Fixed Exchange Rates

Although many rationales have been offered in support of fixing exchange rates, two are particularly prominent in most discussions. First, fixed exchange rates help to neutralize financial disturbances that might otherwise have an impact on the real side of the economy. Second, fixed rates provide discipline to governments that might otherwise follow inflationary policies. Each argument is considered in turn.

Sources of Disturbances

Economists analyzing exchange rate regimes have often posed the following question: Would fixed or flexible exchange rates be preferable in the presence of a particular disturbance? Fixed exchange rates can be shown to be superior when financial disturbances are predominant in an economy. A fall in the demand for money, for example, can be neutralized by a reduction in its supply leaving the exchange rate unaffected. If investors shift from domestic money to foreign securities, this can be neutralized by intervention in the foreign exchange market. In either case, the policy designed to keep the exchange rate fixed also helps to keep the disturbances confined to the financial sector, so that output and employment are left undisturbed. If disturbances originate in the real sector of the economy, however, it is difficult to make a case for preventing exchange rate movements since these movements generally facilitate the adjustment of relative prices that real disturbances require.[32] A rise in demand for exports, for example, leads to an appreciation of the domestic currency under flexible rates since the increase in demand raises domestic interest rates and attracts capital from abroad. The appreciation of the domestic currency, by shifting demand to foreign goods, helps to dampen the rise in domestic demand.[33] Thus fixed exchange rates (or target zones for exchange rates to be discussed below) are better designed for periods when financial disturbances are predominant.

Most economists analyzing the desirability of foreign exchange intervention have implicitly assumed that exchange rate fluctuations can be traced directly to a particular disturbance or group of disturbances. The case for foreign exchange intervention is much stronger if exchange rate fluctuations instead reflect excessive volatility due to market inefficiencies. If exchange rates are excessively volatile (as discussed in section 2.1), then fixed rates, or at least policies designed to limit exchange rate fluctuations, may be called for even in economies where disturbances are predominantly real in origin. Similarly, if exchange rates are driven by speculative "bubbles," self-fulfilling expectations that depart from market fundamentals, then exchange market intervention may be called for.

In the present context of the misaligned dollar, this characterization of real and financial disturbances takes a more specific form. As mentioned above, many economists trace the appreciation of the dollar during the first four years of the Reagan Administration to the expansionary fiscal policy of that administration. This fiscal expansion represents a "real" disturbance because the defense buildup has shifted expenditure toward U.S. domestic goods (both traded and nontraded). Branson (1986) points out that the appreciation of the dollar has moderated the effects of the fiscal expansion on domestic output and prices by switching domestic and foreign private consumption toward foreign goods. If that appreciation had been prevented through the monetary expansion required to keep exchange rates fixed, then the real appreciation of the dollar required for adjustment in the real sector would have been brought about by a rise in the U.S. price level rather than by a nominal appreciation of the dollar. Branson suggests that higher U.S. prices would not have been preferable to the nominal appreciation and consequent fall in the inflation rate that did occur.

If, instead of being caused by the fiscal expansion, the dollar's recent rise had been due to a speculative bubble or to a more conventional type of financial disturbance, then the case for fixing the exchange rate would have been stronger.[34] In the presence of financial disturbances, intervention to limit or halt the appreciation of the dollar would have helped to insulate the real sector from the disturbance. Presumably this intervention would have had to have been nonsterilized, in which case the intervention would have involved a significant change in monetary conditions. The question that has to be asked is whether governments are willing to tie their monetary policy to an exchange rate target in such circumstances.

Discipline

Proponents of fixed exchange rates often base their case on a second rationale: fixed rates impose discipline on national governments since

inflationary policies soon run up against a balance of payments constraint. It is true that a government following inflationary policies under flexible exchange rates must contend with the depreciation of its currency, but that same government under fixed exchange rates is likely to have to contend with a highly visible balance of payments crisis. If the crisis results in a devaluation of the domestic currency, that change in currency value is likely to be much more politically damaging than a gradual change in currency value brought about "by the market." This discipline argument for fixed exchange rates might appear to be a persuasive one, especially after more than a decade of high inflation when governments were free to pursue "independent" monetary policies under flexible rates.

In practice, however, the discipline provided by fixed rates is less than complete for the following reasons:

1. Fixed exchange rates exert no discipline over expansionary fiscal policies, at least as long as capital flows are highly sensitive to interest differentials. Higher government spending financed by either taxes or bond issues induces an inflow of capital and a balance of payments surplus rather than deficit.[35]

2. The fixed rate system as a whole has no external constraint unless currencies are tied to an external standard. If N-1 currencies are tied to a reserve currency, as currencies were tied to the dollar under the Bretton Woods system, then there is discipline for the system as a whole only to the extent that the reserve currency country manages to discipline itself.[36] Under Bretton Woods, the United States maintained a relatively stable price level throughout the 1950s and early 1960s, but during the Vietnam War the Johnson and Nixon Administrations followed what were widely regarded as inflationary policies.

3. If, instead, all currencies are tied to a commodity like gold, then the increases of the world money supply are dependent on chance discoveries of gold and can be affected by political instability in the producing countries. If the gold supply does not increase rapidly enough to keep pace with real activity, then either the world price level must fall (accompanied, most likely, by a fall in real activity) or banking systems must develop alternative means of payment (as happened in the last half of the nineteenth century). In times of crisis, moreover, governments are unlikely to adhere to the external standard, since the stability of their banking systems is likely to be regarded as more important than the credibility of their external standard. During several banking panics of the nineteenth century, even the Bank of England, the stalwart defender of the gold standard system, suspended gold payments in an attempt to stabilize its banking system.

4. Whether or not the U.S. dollar (as the Nth currency) is tied to an external standard, par values for all N currencies can be changed.

Once a par value is changed, future commitments to a fixed rate system are less credible than before, so countries must weigh the benefits of a change in parity against the loss of credibility. A general lesson to be learned from past exchange rate systems is that governments will abandon fixed pegs, even if only temporarily, if exchange rate flexibility will help to ease the adjustment of their economies to a major shock. This was as true of Britain in the nineteenth century, despite its pivotal role under the gold standard, as it was of France and later Britain in the interwar period, and a host of countries in the Bretton Woods period. If governments are likely to abandon pegs in a crisis, then it is necessary to ask, what is the value of the discipline afforded by fixed rates? The answer must be that the value of the discipline is highly dependent on how participants in the financial markets assess the commitment of the government to the par value and the likelihood of shocks large enough to alter that commitment. So the discipline argument is less decisive than it appears to be.

2.3.2 Weaknesses of the Bretton Woods System

The Bretton Woods system was the fixed rate system that tied most currencies together during the postwar period until 1971. After fifteen years of flexible exchange rates, many observers look back longingly at this period. As already noted, the macroeconomic performance under Bretton Woods compares favorably with that of the more recent period. Against this must be weighed some of the inherent weaknesses of the Bretton Woods system which observers of the time considered major drawbacks of this fixed rate system.

Lack of Monetary Independence

The Bretton Woods system was often criticized for providing no discipline for the reserve currency country (for the reasons discussed above). The United States, in effect, was too free to pursue an independent monetary policy to the detriment of the system as a whole. But an equally serious weakness of Bretton Woods was the lack of monetary independence afforded to other countries of the system. Bretton Woods imposed such an extreme form of discipline on these countries that independent monetary policies to deal with disturbances were severely handicapped.

If one country tried to increase its money supply by increasing domestic credit in the banking system, this led to an incipient decline in interest rates and an outflow of capital which offset, at least partially, the initial increase in the money supply.[37] This *offsetting effect* of capital flows is characteristic of any fixed exchange rate system with internationally mobile capital.

Capital Controls

If capital flows offset domestic monetary expansions or contractions, one solution is to restrict such flows with controls of one form or another. That solution was adopted widely under Bretton Woods. The recent period of exchange rate flexibility, by no coincidence, has witnessed the progressive dismantling of controls, beginning with controls in Germany and the United States in 1974, Britain in 1978, and Japan in several stages beginning in 1980. Of the major industrial countries during this period, Italy has maintained and France has enhanced their controls, but that is because they have had to defend exchange rate parities within the European Monetary System.[38]

The overall effectiveness of capital controls in stemming reserve flows is in some doubt since banks and other institutions go to some lengths to find ways to evade controls. But there is no doubt that controls distort investment and borrowing incentives, as two episodes from the Bretton Woods period will illustrate.

1. The Kennedy and Johnson Administrations constructed progressively more complex barricades in an attempt to stem outflows of capital from the United States during the 1960s. In 1963, the Kennedy Administration began with an interest equalization tax on securities issued by foreigners in the U.S. market. The Johnson Administration followed with its voluntary credit-restraint program in 1965, which limited the liquid foreign assets that U.S. banks and nonbank financial institutions could hold, and a direct investment program in that same year, which compelled U.S. corporations to finance overseas operations with funds raised outside the United States. U.S. banks responded by expanding their operations in London and other foreign centers, in part to serve the U.S. corporations driven abroad for financing. With the arbitrage link between the United States and foreign financial centers severed, large interest differentials developed that reflected the distortionary effects of the controls. At one point in 1969, the three-month Eurodollar deposit rate rose to 11.5 percent at a time when U.S. Treasury bill rates were at 7.7 percent and U.S. certificate of deposit rates (because of the Federal Reserve's Regulation Q) remained fixed at 6 percent. Such remarkably large differentials distorted financing decisions by U.S. and foreign corporations. The controls also had the unintended effect of giving infant industry protection to the Eurodollar and Eurobond markets in London.

2. Similar interest differentials developed between Germany and the Eurocurrency markets in response to a network of controls that the German authorities built beginning in 1971. The controls were progressively tightened in an attempt to close loopholes, finally extending

to nearly all claims by nonresidents to residents, until they were removed in early 1974. Figure 2.9 compares the internal German interest rate (on interbank loans) with the Euromark deposit rate (which is always approximately equal to the covered Eurodollar rate). The figure illustrates very clearly the effects of the controls, designed to limit *inflows* rather than outflows of funds, which led to a higher interest rate in Germany than in the market for mark deposits in London. At one point in early 1973, the differential between the internal and external markets reached the remarkably high level of 11 percent. That is, an interbank loan in Germany carried an interest rate 11 percent higher than a *mark-denominated* loan, perhaps made by the same bank, in the Eurocurrency markets. With differentials that large, there is no doubt that considerable managerial effort was expended in finding ways to evade such controls.

The U.S. and German controls were not isolated examples. In fact, controls were the norm during the Bretton Woods period. As discussed in section 2.3.3, they are also a prevalent feature of the European Monetary System.

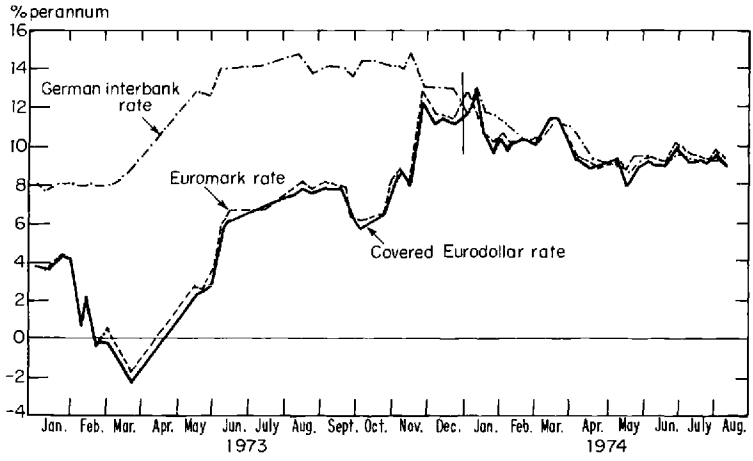

Fig. 2.9 The Euromark, covered Eurodollar, and German interbank rates, January 1973–August 1974. *Note:* Euromark rate—Wednesday quotations on three-month D-mark deposits in London; German rate—rate of interest in the Frankfurt interbank loan market for three-month funds; covered Eurodollar rate—the Wednesday quotations on the bid rate on three-month, U.S. dollar-denominated time deposits in London minus the Wednesday D-mark premium quoted in Frankfurt. *Source: Money Manager* for Euromark rate: Federal Reserve Board for all other interest and exchange rates; Herring and Marston (1976, 9).

Exchange Rate Crises

In the 1960s there was a tendency to blame private agents in the financial markets for the "speculation" that brought on balance of payments crises. Thus, for example, British Labor Government ministers characterized speculators who took positions against the pound as the "Gnomes of Zurich." More recently, however, international economists have formulated "balance of payments crisis" models whose central actors are these same Gnomes, now transformed into rational investors who speculate against governments. These governments, in turn, blindly follow domestic credit expansions that are unsustainable. The Gnomes help to accelerate the date of the crisis, a crisis that is in any event inevitable, but otherwise act like responsible citizens.

There is no doubt some truth in both views of balance of payments crises. As politicians of the 1960s knew only too well, increased capital mobility makes it more difficult for governments to sustain parities that are under attack by speculators. But, on the other hand, the decision to change parities is often dominated by political considerations because governments have committed themselves to defending parities. When parity adjustments justified by economic factors are postponed on political grounds, speculators attempt to force the government's hand. The government may respond by instituting restrictive macroeconomic policies simply to defend a parity value, policies it might be able to avoid under a flexible rate system. Or it may attempt to shield its reserves from attack by restricting capital movements. Whether the government successfully defends the parity or not, the country loses. If the parity holds, the economy is disrupted by the crisis and by the policies that have been adopted to defend the parity. If the parity collapses, speculators win capital gains at the expense of the central bank. We illustrate several of these features of exchange rate crises by describing the sterling crisis of the mid-1960s.

The Sterling Crisis

This crisis began building when Harold Wilson's Labor Government came to power in October 1964.[39] The Wilson Government chose not to devalue at that time despite a strong economic case that devaluation would help restore British competitiveness. One prominent reason given for the decision was the government's fear that it would be identified as the "devaluation party," the Labor Party having devalued the last time it was in power (in 1949). (This is a good example of the discipline provided by a fixed rate system, although in this case the discipline postponed needed adjustments.)

Having made the decision not to devalue, the Wilson Government had to face a series of balance of payments crises beginning soon after

attaining office when it had to arrange a $3 billion international credit from foreign central banks. (This was at a time when British bank reserves totaled only $2.6 billion and the monetary base was $9.1 billion.) The government managed to surmount each crisis, in part by arranging foreign central bank financing but also by instituting restrictive macroeconomic policies, until the fall of 1967 when the speculative pressure became overwhelming. On the final day before devaluation—Friday, November 17—British foreign exchange reserves fell by $1 billion, in a country where capital controls were as tight as anywhere in Western Europe (Solomon 1977, 95). The next day sterling was devalued by 14.3 percent. Not only did the government have to succumb to the pressures of foreign exchange speculation, but in doing so it lost over £350 million as a result of intervention in the forward markets.[40]

In his assessment of the sterling crisis, Robert Solomon, a former senior adviser at the Federal Reserve Board, points out two lessons:

> It exhibited the potential for, and the impact of, speculative flows in the accounts of a major trading country. . . . It pointed up the weakness of an exchange rate system in which a change of parity of a major currency became a political issue of the highest order that engaged heads of state; in such a system a change in the exchange rate could be excessively delayed, permitting the buildup of a large imbalance which, when action was finally taken to correct it, required massive shifts of resources. (Solomon 1977, 99)

These same two lessons were consistent themes in the exchange rate crises of the Bretton Woods system until its demise in 1971.

These weaknesses of Bretton Woods turned opinion sharply against fixed exchange rates, especially after the failure of the Smithsonian Accord of December 1971 (to be discussed below). It was only after a near decade of floating that sentiment turned against flexible rates, at least in Western Europe where the European Monetary System was established in 1979.

2.3.3 The European Monetary System

The European Monetary System (EMS) was established on March 13, 1979, to tie together the currencies of member countries in a joint float against the dollar and other foreign currencies. The initial membership of the EMS consisted of all European Community members except the United Kingdom, which elected to float freely.[41] All members except Italy agreed to limit fluctuations of their currencies to 2¼ percent around a grid of central rates; Italy adopted a 6 percent margin. As stated by the European Council in its Resolution of December 1978, the main objective of the EMS was to create a "zone of stability in

Europe." The following evaluation of the EMS's success in achieving this objective is based primarily on an excellent statistical analysis by Rogoff (1985).[42]

Reducing the Variability of Exchange Rates

There is evidence that the variability of *bilateral* exchange rates has been significantly reduced in the EMS. Rogoff (1985) measures exchange rate variability by the variances of unanticipated changes in exchange rates.[43] For both nominal and real bilateral rates, the variances have fallen for exchange rates between the mark and the other two major currencies, the French franc and lira. In the case of the nominal franc/DM rate, the variance of monthly prediction errors has fallen by two-thirds, while in the case of the nominal lira/DM rate, the reduction has been by almost four-fifths. The results for real exchange rates are less dramatic, but still statistically significant. This is for a period when bilateral rates between the mark and dollar or yen were becoming more, not less, volatile.

Countries in the EMS, however, should be concerned about the variability of *effective* exchange rates as well as EMS bilateral rates. There is some reason to believe that the stability of intra-EMS bilateral rates is purchased at the price of greater variability in exchange rates between EMS currencies and those of other countries, so the EMS may not have stabilized effective exchange rates.[44] Rogoff shows that among the three major EMS currencies, only the lira has experienced a reduction in volatility for its nominal effective exchange rate. A similar pattern emerges for the real effective exchange rate, with the lira being the only currency among the three to experience a significant reduction in volatility. It should be pointed out that countries outside the EMS, including the United States, United Kingdom, and Japan, experienced statistically significant increases in the volatility of real effective rates, so the EMS may have helped to prevent the volatility of EMS currencies from rising even further.

Role of Capital Controls

Another set of evidence, also due to Rogoff (1985), provides an interesting perspective on how the EMS works. Rogoff examined real interest differentials within the EMS. If most disturbances are financial in nature, then foreign exchange intervention that stabilizes exchange rates should also stabilize interest rates. Yet, as Rogoff shows, the variability of real interest rate differentials has *increased* in the EMS, at least between the three largest countries.[45] There are two possible interpretations of this result, neither of them favorable to the EMS. First, disturbances may have been primarily real in nature. But if this

is the case, then foreign exchange intervention within the EMS is undesirable (see the discussion of intervention policy in section 2.2). Or *capital controls* may have been a major factor contributing to the stability of EMS exchange rates. If the EMS is held together by extensive capital controls, it provides much less of a model for a world exchange rate system.

Giavazzi and Giovannini (1986) present an interesting analysis of the role of French and Italian capital controls within the EMS. Figure 2.10 reproduces their graphs of interest differentials between the (free) Eurocurrency markets and national markets in French franc and lira instruments. Large differentials between the free and regulated markets emerge at times of exchange rate crises. (In normal times, trade credits, which are largely exempt from the controls, are sufficiently large to

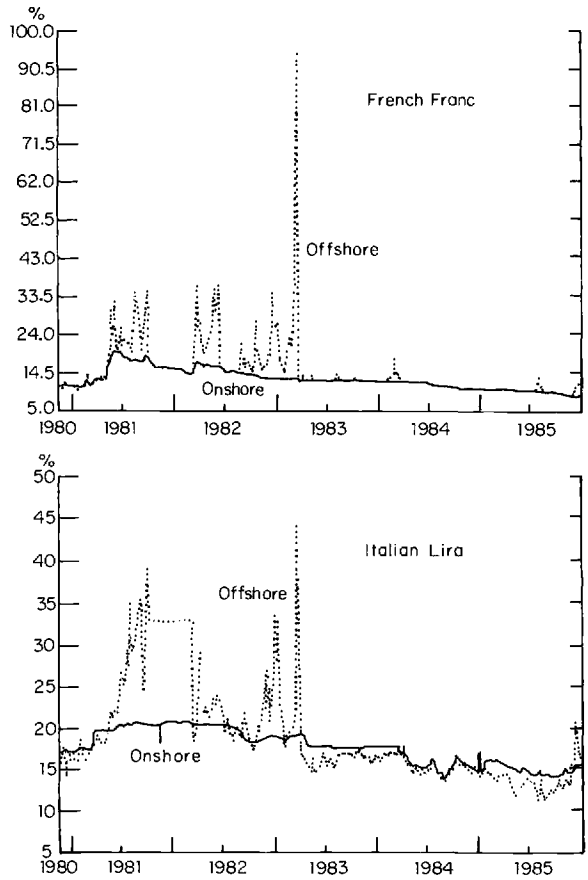

Fig. 2.10 Onshore and offshore interest rates on one-month deposits. *Source:* Giovannini and Giovazzi (1986 468).

eliminate any differentials.) These interest differentials that emerge in times of crises show how binding the controls are on investment flows.[46] Nonetheless, the controls appear to be essential if the authorities are to defend weak currencies of the EMS from speculative attack. As Giavazzi and Giovannini conclude:

> In the present system weak currency countries have to choose between the welfare losses associated with capital controls and the losses arising from the volatility of short-term interest rates, and, as the evidence shows, overwhelmingly opt for the former. Thus capital controls appear to be an important feature of the EMS, which allows weak currency countries to take part in the exchange rate arrangement, without suffering from excessive domestic interest rate fluctuations. (p. 473)

Thus we have in the EMS an exchange rate system that has managed to stabilize bilateral exchange rates within Europe, but only by severely limiting capital flows between the countries of the EMS. Perhaps that is the only way to maintain fixed exchange rates in today's environment.

Other Features of the EMS

One reason that capital controls are so essential to the EMS is that the system has failed to bring about the convergence of inflation rates among its members, a key objective of the EMS.[47] Rogoff (1985) compares five-year-average inflation rates before and after the establishment of the EMS. He reaches the surprising conclusion that any convergence of inflation rates that did take place was between the inflation rates of Germany and two outside countries, Japan and the United Kingdom.

Because inflation rates have been so divergent, frequent parity changes have been necessary among EMS currencies. There have been eleven realignments since the inception of the EMS. The franc/DM parity alone has been changed six times, the latest realignment being in January 1987, for a cumulative depreciation of the franc relative to the mark of over 27 percent. Similarly, the lira/DM parity has been changed seven times for a cumulative depreciation of the lira of over 38 percent.

Some of the realignments have been quite large. The latest realignment on January 12, 1987, involved a revaluation of the mark and guilder by only 3 percent and the Belgian franc by 2 percent. But the April 1986 realignment lowered the franc relative to the mark by 6 percent, while in July 1985 the lira was devalued 7.8 percent against all other EMS currencies and in April 1986 fell 3 percent more relative to the mark and guilder when those currencies revalued by 3 percent. The frequency and magnitude of these realignments suggest how difficult it is to maintain a fixed rate system today.

2.4 Managed Floating

The alternative to fixed exchange rates would seem to be flexible exchange rates, but there are many shades of gray in between these two extremes. Present exchange rate arrangements are usually referred to as a system of managed flexibility. There are very few rules to this system, if indeed the term "system" is appropriate to a laissez-faire world. In its 1978 amendments to its Articles of Agreement, the IMF did specify certain guidelines for exchange rate intervention. This section begins by examining these guidelines then turns to several more specific rules for managed floating that have been proposed. Very different from these rules are the taxes on exchange market transactions, which will be considered next. Finally, "target zones" for exchange rates are analyzed in some detail because they have received so much attention recently.

2.4.1 Alternative Approaches to Managing Exchange Rates

In the 1978 amendments to its Articles of Agreement, the IMF specified three principles that should govern exchange rate policies:

Principle A: A member shall avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members.

Principle B: A member should intervene in the exchange market if necessary to counter disruptive conditions which may be characterized inter alia by disruptive short-term movements in the exchange value of its currency.

Principle C: Members should take into account in their intervention policies the interests of other members, including those of the countries in whose currencies they intervene. (IMF *Survey*, May 2, 1977, 131–2)

It is not easy for a group of governments with different agendas to achieve agreement on a set of policy rules. So it may not be surprising that the principles adopted in this agreement are not specific enough to be binding on any government. Unless there are objective criteria for determining whether or not a country is "manipulating" its exchange rate to gain unfair competitive advantages, for example, Principle A may not prevent such behavior. Even the definition of "disruptive short-term movements" may prove elusive once it is recognized that exchange rates naturally exhibit high volatility. To ensure that these principles are carried out, some have proposed more specific rules of exchange rate management.

Minimal Reform: The "Reference Rate" Proposal

One of the most interesting proposals was that made by Wilfred Ethier and Arthur Bloomfield (1975) in the Princeton Essay series. These economists, writing soon after the breakdown of Bretton Woods, recognized that a return to fixed exchange rates, whether desirable or not, was simply not feasible. So instead of specifying rules that mandated central bank intervention, as had been done in the Bretton Woods system, they proposed rules that prohibited certain types of central bank actions. But unlike the IMF principles later adopted, they offered objective criteria for evaluating central bank adherence to rules. The "reference rate" proposal formulated by Ethier and Bloomfield (1975, 10) had two rules:

1. No central bank shall sell its own currency at a price below its reference rate by more than a fixed percentage (possibly zero) or buy its own currency at a price exceeding its reference rate by more than a fixed percentage. This is the sole restriction imposed upon central-bank intervention.

2. The structure of reference rates shall be revised at periodic prespecified intervals through some defined international procedure.

The aim of the first rule was to prohibit a central bank from driving its currency away from its reference level (thereby "manipulating" its exchange rate, in the language of the IMF's Principle A). For example, a central bank could not drive its currency down to gain competitive advantage for its export industry. At the same time, the proposal did not oblige the central bank to intervene at all. (It is in this sense a "minimal reform" proposal.) Nor did the proposal prevent the central bank from "leaning against the wind" to limit movements away from the reference rate.

The authors recognized that their proposal was limited in aim, but it did provide a means to limit the type of competitive depreciations that had plagued countries during the 1930s. In order for this proposal to be successfully implemented, however, countries would have to agree on the reference rates themselves "through some defined international procedure" (their second rule). The discussion of target zones below identifies some of the formidable problems involved in defining equilibrium exchange rates. It also points out how difficult it would be for different national governments to agree on equilibrium rates. Both of these problems carry over to any agreement on reference rates.

Rules for Leaning against the Wind

Because volatility itself is viewed as a major problem by some governments, policies of "leaning against the wind" have become common.

Such policies are designed to limit the "disruptive short-term movements" addressed by the IMF's Principle B. This form of intervention requires minimal knowledge of what factors may be moving the exchange rate and does not require that the authorities have superior knowledge about the long-run equilibrium exchange rate. It does presuppose that exchange rates are too volatile in general, and that intervention operations can be effective in reducing this volatility.

There is a danger, however, that central banks might lean against the wind more in one direction than the other, thus imparting a bias to exchange rate movements over time. To ensure against "manipulating" exchange rates in this way, central banks could be required to balance out their net purchases and sales of foreign exchange over a given period. Argy (1982, 27) cites one rule that "[n]et reserve changes in a given direction should not persist for more than a few consecutive months (except when reserve levels are excessive or deficient)." Argy, however, goes on to argue that such rules would be difficult to implement and might even provoke one-way speculation.

If governments wish to limit exchange rate volatility, there is a nonmarket alternative to foreign exchange intervention. This involves imposing a tax on exchange market transactions.

Tobin's Exchange Market Tax

This tax, proposed by James Tobin (1982), is imposed on each exchange market transaction at a uniform rate, perhaps 1 percent. The tax has the explicit aim of "throw[ing] some sand in the wheels of our excessively efficient international money market" (Tobin, 1982, 489). According to Tobin, a tax of this magnitude is unlikely to make much difference to merchandise trade transactions, since the tax represents such a small proportion of the value of the product and the profit on the transaction. But such a tax is likely to be a much more significant factor in a round-trip financial transaction, thus discouraging "hot money flows." It would make overnight or one-month round-trip investments in foreign currencies almost prohibitively expensive. Even in the case of a three-month investment, a 1 percent tax paid twice in the round-trip transaction could be overcome only by an 8 percent differential between interest rates in the two currencies involved.

For a tax of this nature to be successful, it must be uniformly imposed throughout the world, otherwise financial transactions will gravitate to tax-free zones. The experience of U.S. controls in the 1960s illustrates that point. If such a tax were somehow internationally coordinated, however, it is likely to have a significant impact on the volume of foreign exchange transactions, especially those associated with short-term investments. For that reason, the tax may reduce the volatility of exchange rates. But such a tax is unlikely to have a significant effect on the misalignment of exchange rates because longer term investments

and trade transactions would remain largely unaffected. William Poole has drawn an analogy between Tobin's tax and real estate transfer tax.[48] The latter may reduce the volatility of real estate prices but surely does not affect the longer run level of prices. Nor would it prevent a speculative bubble from developing.

Like the exchange market tax, the reform proposals governing intervention outlined above offer no solution to the misalignment problem. They provide "rules of the game" for managed floating, but they provide little positive guidance for exchange rate policy. The first rule of the reference rate proposal does prohibit central banks from deliberately creating a misalignment through exchange market intervention, but none of the major misalignments experienced recently have been caused by central bank intervention. None of the rules prohibit other macroeconomic policies that can lead to misalignment. Nor do they require that central banks take positive action to prevent misalignments from developing.

2.4.2 Targets Zones for Exchange Rates

In the Bretton Woods system of fixed exchange rates, the national authorities were committed to intervening in the foreign exchange market whenever the exchange rate reached a 1 percent "band" on either side of its par value vis-à-vis the dollar. A "target zone" system of exchange rates also has bands for the exchange rate, but these bands are typically much farther apart, thus allowing considerable fluctuation in the exchange rate. More importantly, in a target zone system the authorities make no firm commitment to defend those margins. One of the leading advocates of target zones, John Williamson, has described the zone as "a range beyond which the authorities are unhappy to see the rate move, despite not being prepared to precommit themselves to prevent such movements" (Williamson 1985, 64).

Williamson's Proposal for Target Zones

Given Williamson's central role in the debate over target zones, it is useful to spell out his proposal more fully.[49] His target zones would involve five elements:

1. Soft margins, rather than a commitment to prevent the rate from straying outside the target zone;
2. A zone perhaps 20 percent wide (i.e., with 10 percent margins), outside of which rates would be considered "clearly wrong";
3. A crawling zone, with the crawl reflecting both differential inflation and any need for balance of payments adjustment;
4. Publication of the target zone; and
5. The partial direction of monetary policy, including foreign exchange intervention, to discourage the exchange rate from straying outside its target zone. (Williamson 1985, 72)

The target zone system thus would be a form of managed float with the targets well defined but with national authorities only tentatively committed to intervention or other policy actions.

Anatomy of Target Zones

Target zones share some of the characteristics of fixed exchange rates, but there are important differences that may be the source of both strengths and weaknesses for this proposed system. Some of the system's crucial characteristics are:

1. *Wide bands.* With margins permitting fluctuations of 20 percent, this system is not designed to limit the volatility of exchange rates. Thus hedging by corporations will be as important as in a flexible regime. But if the targets are adhered to and the margins hold, then the system can be regarded as a way of avoiding misalignments.

The wide margins permit those abrupt shifts in speculative sentiment that appear to characterize flexible regimes. Nonetheless, exchange rate crises cannot be ruled out, at least when exchange rates approach the margins.

2. *Analogy with national monetary targets.* Zones are more akin to national monetary targets than exchange rate parities under the Bretton Woods system. Like monetary growth targets, target zones for exchange rates single out one economic variable for special attention without firmly precommitting the national authorities to achieving a specific target for that variable.

Yet there are important differences between monetary growth targets and target zones for exchange rates. First, unlike the money growth targets, the target zones provide no continuous guide for policy since the targets are binding only when the exchange rate reaches one of its margins. It is true that in some countries monetary growth targets are set in terms of bands, but these bands are usually much narrower than those proposed for exchange rate targets. Second, the variable targeted, the exchange rate, is an endogenous variable normally determined by many factors other than economic policy. It is true that the money supply is also an endogenous variable affected by both bank and nonbank behavior, but the authorities have more direct control over the money supply than the exchange rate.

3. *Anchor for system?* One of the advantages of a fixed rate system is the anchor such a system provides for inflationary expectations. Target zones provide no such anchor since the zones are explicitly adjusted for differences in inflation rates. The zones may help to anchor expectations regarding *real* exchange rates, but only if governments are perceived as being willing to defend the margins.

4. *Commitment to defend margins.* Despite the wide margins around the targets, governments will eventually be faced with the choice be-

tween defending the targets or changing them. Economists advising a government faced with a speculative attack are likely to advocate defending the targets only if they view exchange rate movements as part of the problem. (Recall the discussion of economic disturbances in section 2.3 where exchange rate movements sometimes facilitate, rather than hinder, the adjustment of the economy.) Given a permanent shift in the demand for a country's exports, for example, the government would be well advised to change the exchange rate target rather than defend it. But if the change is temporary, then defense of the target might be warranted.

5. *The political economy of target zones.* The rationale for target zones is very different if governments are viewed as the principal source of economic disturbances. Target zones then might have a political rather than an economic role to play in stabilization. Proponents of target zones argue that announced exchange rate targets might constrain governments in their macroeconomic policies, much like multilateral tariff agreements constrain national trade policies.

In the specific context of the dollar's misalignment, it is argued that target zones might have encouraged the Reagan Administration to follow a less expansionary fiscal policy. This may be a difficult argument to sustain, however, since in order to pursue its fiscal policy, the Administration overcame much stronger domestic constraints than any international agreement could have imposed.

A better case for the political role of target zones can be made in the European context. A frequent argument in favor of the EMS is that it constrains member countries to pursue policies closely in line with its largest member, West Germany. The Mitterrand Government in France, for example, stayed within the EMS despite being severely constrained at times by the requirements of membership. One major exception to this European pattern is the United Kingdom, which has rejected joining the EMS exchange rate arrangements in favor of the free floating of the pound sterling.

Perhaps the best that can be said for this political justification for target zones is that it may be relevant to governments predisposed to the constraints or strongly committed to regional or global cooperation. For governments aiming to pursue policies significantly different from those of other industrial countries, target zones may be swiftly discarded if they become a major impediment to such policies.

6. *Objective criteria for modifying targets.* The problem of constraining government behavior would be less serious if the target zone proposal did not provide for the modification of targets. Here there is a direct conflict between the politics and economics of international agreements. In order to constrain governments to keep commitments, there should be no exceptions permitted except those clearly specified

at the time of an agreement. But the economic arguments for modifying targets in the face of real disturbances may be very compelling.

To complicate the problem, there is seldom a consensus among experts about the need for changes in real exchange rates. Instead, they may disagree about the nature and scope of a disturbance as well as about its effects on the real exchange rate. Without objective indicators dictating when targets should be changed, the changes made will be based at least partly on political considerations.

Consider the recent misalignment of the dollar. Although the appreciation lasted over four years, there is no clear-cut consensus about its causes. The appropriate policies to follow if the misalignment is due to the fiscal policies of the Reagan Administration are very different from those to follow if the dollar's appreciation is due to bubbles or to capital flows seeking a "safe haven" or to an investment boom triggered by tax changes.[50] Similarly, although sterling's appreciation lasted over four years, economists still dispute whether North Sea oil, tight monetary policies, or other factors caused the appreciation. When there is so much dispute about the causes of a misalignment, there is unlikely to be a consensus about modification of targets.

Defining Exchange Rate Targets

If economic conditions are favorable, governments might be willing to precommit themselves to a system of target zones. But formidable problems await the negotiators of such an agreement. Chief among these problems is that of finding (and agreeing upon) appropriate targets. It is useful to follow Williamson's (1985) description of how targets might be defined.

1. The first step in defining a target rate or target zone for the real exchange rate is to decide the appropriate equilibrium current account balance of each country (or equivalently, the "underlying capital flow" in Williamson's terminology, since the capital account must be the mirror image of the current account). The equilibrium current account of a developing country like Brazil or Thailand is very different from that of an industrial country like Germany or France. In estimates of his "fundamental equilibrium exchange rate," Williamson makes explicit allowances for such differences among countries. This is not to say that judgments about equilibrium current accounts are easy to make, as the experience of the Smithsonian meeting discussed below makes clear. Not least of the problems is that the negotiating governments will understand the close connection between the current account "equilibrium" agreed upon and the prospects for their leading export industries.

2. Once figures for equilibrium current accounts are agreed upon, then real exchange rates consistent with them can be calculated using

a trade model with its associated trade elasticities. To do so, it is first necessary to adjust the current account for cyclical factors, then to calculate the discrepancy between the equilibrium current account and the cyclically adjusted current account for a particular year. The trade model is then used to calculate the change in real exchange rates necessary to equilibrate the current account.[51] Since estimates of price elasticities range widely, this step in the calculation is fraught with difficulties. Cutting the elasticities in half, for example, requires twice as large a change in real exchange rates to achieve equilibrium.

3. The calculations so far only determine the equilibrium real exchange rate in a single year. It is then necessary to adjust that rate for real disturbances that occur through time. Among such real disturbances are the oil price shocks experienced twice during the 1970s, natural resource discoveries (such as North Sea oil for Britain), secular movements in demand, and secular movements in supply, including differential productivity growth rates. One issue that arises is whether to take into account changes in government policy if such changes are not just temporary measures but last for a number of years. In his study of exchange rates, Williamson explicitly excludes the shift in U.S. fiscal policy under the Reagan Administration because it is not sustainable in the long run. He also excludes variations in demand or supply over the business cycle from whatever source.

Most of these adjustments require that arbitrary judgments be made. Recall how difficult it was for analysts to evaluate the effects of the first OPEC price increase in 1973. Even the effects of productivity growth are difficult to assess. To illustrate some of the difficulties involved in determining equilibrium rates, the next section examines the Smithsonian agreement on exchange rates, an agreement reached by the major industrial countries in December 1971.

Multilateral Agreement on Exchange Rates: the Smithsonian Accord

The Smithsonian agreement provides one of the few examples of a multilateral exchange rate agreement, but the lessons to be learned from this agreement are none too encouraging about exchange rate agreements in general.

First, the agreement was reached only after prolonged and sometimes acrimonious negotiations stretching through the fall of 1971. One of the reasons why the negotiations were so difficult was that the objectives of the participants were inconsistent with one another, which is not surprising given the pivotal role played by exchange rates in each economy. The Nixon Administration wanted to achieve a turnabout of $13 billion in its current account through the realignment of currencies. The other major countries of the OECD envisaged, when their individual estimates were summed, a reduction of their current balances

of only $3 billion (Solomon 1977, 199). That an agreement was at all possible in these circumstances is probably attributable to the heavy-handed actions of the Nixon Administration. In August 1971 that administration imposed an import surcharge of 10 percent in lieu of an agreement to realign the major currencies.

Second, the agreement set new exchange rates that were simply unsustainable in the long run, despite President Nixon's characterization of the accord as the "most significant monetary agreement in the history of the world" (*New York Times,* December 19, 1971, p. 1). It is interesting to compare the rates agreed upon at the Smithsonian meeting with those prevailing a little over a year later after the agreement had broken down and most rates were allowed to float. Table 2.5 presents the central rates agreed upon at the Smithsonian meeting as well as the market exchange rates prevailing in the second quarter of 1973. The market rates diverge from the Smithsonian central rates by more than 10 percent in three out of four instances, with the dollar weaker after the advent of floating than before (except in the case of the pound). The table also presents a comparison between the market rates in the second quarter of 1973 and the central rates adjusted for changes in prices in order to see if the divergence was caused by relative inflation rates during the interim period. (Wholesale prices in manufacturing are used to adjust the central rates.) In the case of the yen and pound, the market rates deviate more from the adjusted central rates than from the original central rates; for the other two currencies, the deviations are smaller, but are still about 10 percent off the mark. Thus an agreement reached only after prolonged negotiations resulted in an exchange rate realignment that did not go far enough in lowering the value of the dollar.

The obstacles to agreement and to successful implementation of target zones are formidable. As James Tobin, writing in 1978, expressed

Table 2.5 Comparison of Smithsonian and 1973 2nd Quarter Spot Rates

	Smithsonian Parities			% Deviations	
	Actual	Adjusted[a]	1973 II Actual	from Actual	from Adjusted
¥/$	308.00	309.72	264.98	−14.0	−14.4
$/£	2.6057	2.6886	2.5300	−2.9	−5.9
DM/$	3.2225	3.1119	2.736	−15.1	−12.1
FF/$	5.1157	4.8842	4.4288	−13.4	−9.3

Sources: Parities: Bank for International Settlements, *Annual Report,* 12 June 1972; Exchange rates: IMF, *International Financial Statistics;* WPI for manufacturing: unpublished IMF data.

[a]Smithsonian parities adjusted for changes in WPI for manufacturing from December 1971 to 1973 II.

it: "it is scarcely conceivable that the various OECD countries could individually project, much less agree on, much less convince skeptical markets of, a system of equilibrium or target exchange rates for 1980 or 1985" (Tobin 1982, 493).[52]

Some advocates of target zones acknowledge the economic arguments against such a system but nonetheless contend that targets have a role to play in fostering international economic cooperation. They argue that an agreement on target zones at least commits governments to regular consultations on exchange market developments. Even such regular consultations, however, may not induce governments to limit the divergences in macroeconomic policies that cause many misalignments. And if they do not, then this argument for targets loses much of its force.

2.5 Concluding Comments

This paper began by describing two distinct types of exchange rate variability—volatility and misalignment. Each type of variability imposes its own costs on an economy, and each presents a different challenge to exchange rate policy.

The volatility of exchange rates could be sharply curtailed if the industrial countries agreed to reinstitute a fixed rate system with narrow bands. The EEC has succeeded in fixing bilateral rates within Europe, although fixed rates within the EMS have been maintained only through frequent parity adjustments and through the imposition of extensive capital controls.

In contemplating such a move, however, countries should recall the lessons of Bretton Woods. Fixed rates cannot be maintained without extensive capital controls. This paper has analyzed the distortions to investment and borrowing incentives that are entailed by such measures. Balance of payments crises, moreover, will inevitably break out unless frequent parity changes are permitted. But if parity changes are permitted, one of the chief benefits of fixed rates, the credibility given to inflation targets, will be lost. Fixed rates, finally, will inhibit the adjustment to real shocks like the oil price increases experienced in the 1970s.

Short of fixing exchange rates, countries could pursue more active foreign exchange intervention policies. There might be a role for international agreements to ensure that intervention is confined to "leaning against the wind" operations or to prevent intervention from allowing countries to "manipulate" exchange rates to gain competitive advantages. The analysis of foreign exchange intervention policy above suggests that the intervention would have to be nonsterilized, so active intervention would require a compromise of monetary targets.

If misalignment is the most important problem, then the search for an ideal exchange rate policy may be too narrowly focused to be effective. A major source of misalignment in the last ten years has been the macroeconomic policies pursued by countries like the United States and Britain. It is not at all clear that the solution to major policy imbalances among the industrial countries lies in limiting exchange rate movements rather than changing the policies themselves.

The adoption of target zones for exchange rates, on the other hand, may play a useful role in inducing governments to modify their policies. At the very least, the breaching of target zones may call attention to the need for international consultations on macroeconomic policies. Whether target zones would be any more successful than the IMF agreements remains to be proven.

The Jurgensen Report concluded that exchange rate policy must consist of more than (sterilized) intervention to be successful. Countries must be willing to commit their macroeconomic policies to controlling exchange rates. In many circumstances, governments may find that limiting exchange rate variability is not worth this price.

Notes

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1. The passages are from Paris (1938, 166) and Harrod (1951, 582–84).

2. Productivity tends to rise in recovery periods, so the recent rise in productivity in these two countries may be partly a cyclical phenomenon.

3. Later sections discuss how measures of misalignment take into account real economic shocks (which usually require departures of exchange rates from relative price trends).

4. A useful survey of this literature is Frenkel and Mussa (1984).

5. Kenen and Rodrik (1984) show that other measures of volatility give roughly similar results.

6. Similar results are obtained for earlier periods by Frenkel and Mussa (1980) and Bergstrand (1983).

7. If R_t measures the real exchange rate of the dollar relative to the pound sterling, for example, then a rise in R_t reflects either a rise in U.S. relative to British prices (i.e., P_t/P_t^* rises) or a fall in the dollar price of the pound (X_t falls, reflecting a depreciation of the pound). In either case, a rise in R_t reflects a loss of competitiveness for U.S. exports.

8. Notice how much less variable the effective exchange rates, which represent a diversified basket of currencies, are compared with the bilateral rates (whether nominal or real).

9. Just because most movements in an exchange rate are unforecastable does not imply that the exchange rate is excessively volatile, although companies

engaged in international trade may regard the volatility as too high. Instead, the volatility of an exchange rate is "excessive" if it exceeds that of the factors which determine it.

10. Meese and Rogoff (1983) examine the out-of-sample performance of several well-known models of the exchange rate and conclude that a random walk model performs as well as any of these models.

11. Williamson's concept of the "underlying capital flow" is linked to current account targets (as discussed below in the subsection on "Defining Exchange Rate Targets" in section 2.4.2).

12. It is interesting to note that while the yen was more volatile than the dollar during the period 1973–85, the misalignments of the dollar were larger than those of the yen. This underscores the need to carefully distinguish between the two concepts.

13. Note that a rise in the real exchange rate represents a real appreciation of that currency.

14. For further discussion of adjustment costs associated with misalignments, see Branson (1981), Richardson (1984), and Williamson (1985).

15. As pointed out by Williamson (1985), it is interesting that Johnson (1966) saw misalignments arising from misguided intervention policy under fixed rates (maintaining unrealistic parities) rather than from market forces under flexible rates. Like most economists at that time, Johnson did not foresee the large misalignments that were to occur under flexible rates.

16. See Atkinson, Brooks, and Hall (1985). Note that the second round of OPEC price increases in 1978–79 raised the value of the North Sea discoveries.

17. If the real appreciation was equal to 45 percent, then 10 percent represents 2/9 of the entire loss of competitiveness. Forsyth and Kay (1980) attribute a larger proportion of the appreciation to North Sea oil.

18. These series are obtained from the IMF's *International Financial Statistics*. Because productivity growth is generally greater in the manufacturing sector than elsewhere in an advanced economy, real exchange rates based on general price indexes (which contain nontraded as well as traded goods) provide a less reliable index of relative competitiveness than real exchange rates based on manufacturing prices alone. For further discussion, see Marston (1986). For a discussion of the relative merits of value-added deflators and unit labor costs as measures of international competitiveness, see Artus (1978).

19. There is no evidence, for example, that interest rates charged on Eurodollar loans to Europeans rose relative to loans to American residents.

20. These figures, taken from the national income accounts, are smaller than the balance of payments figures widely quoted in the press, but they are more relevant for determining the effects of the misalignment on output and employment.

21. Philippe Jurgensen was Chairman of the Working Group. The countries represented in this group were the so-called Group of 7 (G-7) countries: Canada, France, Germany, Italy, Japan, United Kingdom, and United States.

22. Sterilized intervention effectively consists of swapping foreign bonds for domestic bonds, although the operation has several steps to it. Recall that central banks typically hold foreign exchange reserves in the form of interest-bearing, foreign-currency-denominated securities. When a central bank wants to intervene in the exchange market, it first sells the foreign securities, then uses the foreign currency so obtained to buy domestic currency from the private sector. If the intervention is to be sterilized, the sale of foreign currency is followed by an expansionary open-market operation (or an analogous monetary

operation in different institutional environments) involving the purchase of domestic bonds with the recently acquired domestic currency, thus restoring the monetary base to its initial level. For further discussion of such operations, see Girton and Henderson (1976) and Marston (1985).

23. This description of the three channels draws on Loopesko (1984).

24. Mussa (1981) emphasizes the importance of announcement effects in his study of foreign exchange intervention for the Group of 30. See also the recent analysis of announcement effects by Kenen (1986).

25. If i_t, i_t^* are the domestic and foreign interest rates, respectively, and s_t^e is the expected change in the spot exchange rate (the capital gain on the foreign currency), then uncovered interest parity implies that

$$i_t = i_t^* + s_t^e.$$

26. Hansen and Hodrick (1980), for example, adopt a generalized least-squares estimating procedure so that they can utilize overlapping observations, thus making it possible to use weekly data rather than the monthly or quarterly data typically employed in the past. Cumby and Obstfeld (1984) also use weekly data but adopt techniques to take into account the nonstationarity of the foreign exchange data. These studies and others that have followed are able to reject decisively the joint hypothesis of market efficiency and uncovered interest parity. Levich (1985) provides a comprehensive survey of recent studies.

27. Two recent surveys of the theoretical literature on risk premiums are Adler and Dumas (1983) and Branson and Henderson (1985).

28. See, for example, Obstfeld (1983), Frankel and Engel (1984), and Danker et al. (1985).

29. Studies of international asset pricing based on intertemporal utility functions include Stulz (1981) and Hansen and Hodrick (1983).

30. The following account relies heavily on Greene (1984).

31. For a similar view, see Ueda (1986). Intervention in the autumn of 1985 totaled $13 billion compared with $10 billion in February and March of 1985 (Bank for International Settlements, *Annual Report,* 1986, p. 149).

32. For a general analysis of foreign exchange intervention in the presence of different types of disturbances, see Henderson (1984).

33. A similar analysis applies to any aggregate demand disturbance. The effects of aggregate supply disturbances on the exchange rate, however, are ambiguous since an increase in aggregate supply lowers prices at the same time that output expands (so nominal output, and hence the demand for transaction balances, may rise or fall).

34. Among those investigating speculative bubbles as the source of the dollar's appreciation are Krugman (1985) and Frankel and Froot (1986).

35. If a government pursues an expansionary fiscal policy indefinitely, then eventually foreign investors will balk at further exposure to political risk. But until that point is reached, a country is free to expand through fiscal means.

36. If the reserve currency country follows an expansionary monetary policy, the resulting balance of payment deficits are automatically financed, since the country gaining reserves invests them in the securities of the reserve currency country. The monetary base of the reserve currency country, moreover, does not decline as a result of the deficit as long as other countries choose to hold their foreign exchange reserves in the form of securities rather than the monetary base of the reserve currency country. McKinnon (1974) has proposed that all foreign currency reserves be held in the form of central bank balances (bearing a market interest rate). If this were the case, foreign exchange intervention would affect the monetary bases of both reserve and nonreserve currency countries alike.

37. If domestic and foreign securities are perfect substitutes, the attempt by one country to increase its money supply through domestic credit expansion succeeds only to the extent that this one country manages to increase the money supply of the entire system. (The system would be like a set of reservoirs connected by open channels; an attempt to increase the water level in one would succeed only to the extent that the water levels of all were increased.) Formal models of the offset phenomenon are presented in Kouri and Porter (1974) and Herring and Marston (1977).

38. In 1986 both Italy and France relaxed some of their controls, but many transactions by residents remain restricted.

39. For an excellent account of this period, see chapter 5 of Solomon (1977).

40. Bank of England, *Quarterly Bulletin*, December 1969, table 18.

41. The members were Belgium, Denmark, France, Germany, Ireland, Italy, Luxembourg, and the Netherlands. The United Kingdom formally joined the EMS, but chose not to participate in the exchange rate mechanism. For a detailed discussion of the system, see Ungerer et al. (1983).

42. One of the successes of the EMS, which will not be discussed since it lies outside the scope of this paper, is the development of the European Currency Unit (or ECU) as a parallel currency. For an interesting discussion, see Padoa-Schioppa (1985).

43. He uses the forward rate as the predicted exchange rate in the case of nominal rates, and he uses forecasts of real exchange rates based on a random walk model or a vector autoregression (VAR) in the case of real exchange rates.

44. Canzoneri (1982) and Marston (1984) analyze this possibility in theoretical models of exchange rate unions.

45. The one exception is the real interest rate differential between Germany and Italy formed by using a VAR forecast.

46. The controls also lead to asymmetric responses of EMS currencies to outside disturbances, since among the three most important EMS currencies only the mark has open capital markets. When there is speculative pressure involving the dollar, for example, the mark takes the brunt of this pressure, thus causing strains within the EMS. See Marston (1984).

47. As Jacques van Ypersele, one of the architects of the EMS, has described it: "The objective was indeed that external stability be the result less of artificially imposed constraints than of a convergence of economic trends among member countries, in particular of prices and costs" (Ypersele 1985, 15).

48. See Brainard and Perry (1986, 234). Another tax that has been proposed by Liviatan (1980) is the "real interest rate equalization tax." This tax, by creating a wedge between domestic and foreign interest rates, tries to reduce the incentive for outflows (or inflows) of capital when a country abruptly changes its monetary policy. A country trying to stabilize its price level through monetary contraction, for example, would ordinarily have to contend with an appreciation caused by an inflow of capital. By creating a wedge between domestic and foreign returns, however, a country might be able to dampen the currency appreciation. Such a tax is probably best thought of as a supplement to national monetary policies, to be used when one country's policies depart sharply from those of other countries.

49. Earlier advocates of targets for exchange rates include the "Optica Group" of economists from EEC countries, see Commission of the European Communities (1975).

50. Branson (1986) underscores the confusion regarding the source of the dollar's rise by suggesting that misalignment is a "topic . . . for the National Science Foundation, not a new Bretton Woods" (p. 176).

51. For further discussion of this approach to estimating equilibrium exchange rates and the problems associated with it, see Artus (1978).

52. There is reason to believe that agreements on equilibrium rates would be even more difficult to achieve in the 1980s than in 1971. Experts differ widely in their estimates of equilibrium rates today, in large part because of the many structural changes which have occurred since the Smithsonian agreement. Consider the key bilateral rate between the yen and dollar. Before the dollar recently plunged from ¥250/$ to ¥160/$, estimates of the equilibrium value of this bilateral rate were as wide ranging as the market rates themselves. Williamson (1985), for example, cites six studies with estimates ranging from ¥131/$ to ¥209/$. Krause (1986) writes of a possible ¥100/$ rate. Changes in energy prices make all such calculations difficult. But another major reason why the yen/dollar rate is difficult to assess is the pattern of productivity growth in the United States and Japan which distorts simple purchasing power parity calculations. For further discussion, see Marston (1986).

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2. *Guido Carli*

International Financial Policies

International Cooperation in a Fixed Exchange Rate System

My experience in the area of foreign exchanges goes back more than forty years. In 1945 the Italian Exchange Office was restructured and I became a member of the Board of Directors and the Executive Committee. In 1947 Italy became a member of the International Monetary Fund and I was elected Executive Director.

The Italian Exchange Office was reshaped to establish close links between the Bank of Italy and the Italian Exchange Office. During the 1930s the links had been severed and the exchange office was given full autonomy in managing the external positions related to trade and payments. In the framework of a policy aiming at autarchy, international trade and payments were regulated through export/import quotas, bilateral payment agreements, and multiple exchange practices.

The arrangements adopted immediately after the end of the war reflected the conviction of the Governor of the Bank of Italy, who later became the President of the Republic, that balance of payment surpluses and deficits have to be reversed by equivalent expansions or contractions of the currency circulation.

Between 1958 and 1968 the international monetary system designed at the Bretton Woods conference in 1944 went into full operation; it

could be described as a gold exchange standard in the process of becoming a dollar standard; the international cooperation aimed at making the transition as gradual as possible. The establishment of external convertibility for the European currencies at the end of 1958 was expanded to other currencies, including the Japanese yen, and was followed by the elimination of exchange restrictions on current payments and to some extent on capital transfers; adjustments of parities were limited to "fundamental" disequilibrium in the balance of payments, in accordance with the objectives of the system created by the delegates to the conference.

The extent to which members of IMF cooperated to make the system work can be attributed to concomitant circumstances; I mention the hegemony of the United States and its acceptance by the rest of the countries of the Western world.

Japan, Germany, and Italy in particular were interested in integrating their respective economies in the international market; the economies of these countries were more or less to the same degree export-led and from the expansion of world trade received a major impulse to develop internally. In addition, political considerations played a role. The Germans considered the presence of American troops on German soil to defend the independence of their country a priority; the Italians saw the strengthening of the international cooperation as the most powerful barrier against the instauration of a collectivist economy advocated by the Communist Party.

The functioning of the Bretton Woods system depended on an adequate volume of international liquidity and on its composition being commensurate with the preferences of the major trading partners.

Because the United States resolutely opposed a change of the monetary price of gold, the balance of payments of the United States, on a liquidity basis, became the only source of additions to international liquidity. In order to reconcile the U.S. opposition to increasing the price of gold and the mounting resistance by some countries to accepting dollars as the main component of international liquidity, it was decided to begin studies within the IMF in order to develop an artificially created reserve asset to be adapted to the liquidity needs of expanding trade and to be made independent from the gyrations of the American balance of payments. It was a timid attempt to limit the American hegemony.

In February 1962 the Federal Reserve Bank of New York was authorized to buy or sell foreign currencies in spot and forward markets and to negotiate a network of swap facilities with the central banks of other countries. The swaps provided a specific amount of foreign currency in exchange for an equivalent dollar credit for foreign central banks, with each party protected against loss due to a change in the

par value of the other parties' currencies. The Bundesbank and the Bank of Italy had accumulated large amounts of foreign exchange reserve because of balance of payment surpluses, had refrained from converting them into gold, and had collaborated very extensively.

Other collaborative efforts to defend the international monetary system, in spite of its weakness, became more and more evident with the institution in 1961 of the so-called gold pool. The central banks of France, Germany, Italy, Belgium, the Netherlands, Switzerland, and the United States along with the Bank of England intervened in the London market to hold the market price of gold at or close to the official price. In March 1968, it was decided to suspend the arrangements of the gold pool; during the period of its operation, the participants sold a net total of $2.5 billion of gold on the London market of which $1.6 billion was provided by the United States.

The decision to suspend the arrangements of the gold pool was taken in a meeting held in March 1968 at the headquarters of the Federal Reserve Board in Washington. I took an active part in the debate; it was recognized that:

(a) Given the fixed price of gold, on one side, and the rising national price levels, on the other side, gold had become an undervalued asset in short supply. To sell gold to the markets could bring about the complete depletion of gold reserves and their substitution with dollar assets. The transition to the dollar standard could become the unavoidable consequence and could have the effect of further deteriorating confidence in the dollar.

b) Public opinion outside the United States could not understand the sacrifice of the gold reserves in order to finance the dollar overhang created by an uninterrupted period of balance of payment deficits on a liquidity basis by the United States. Not only France, but most European countries had become more reluctant to keep an ancillary position vis-à-vis the United States.

After 1968 it became evident that the system of fixed exchange rates based de facto on a reserve asset inundating the market at the rhythm of $7.7 billion a year could not survive. Efforts were made by the central banks of Japan, Germany, and Italy to defend the system by resisting temptations to get out of dollars. The United Kingdom was in need of dollars to face the strong pressures on the sterling. When in August 1971 the gold convertibility of the dollar was suspended, the world was not taken by surprise; it was the end of an era.

Market Interventions in a Floating Exchange Rate System

"The Bretton Woods system might have been able to survive an end of gold convertibility. It could not survive inflationary policies of the center country that characterized the decade from the mid-sixties on,"

the report to the Congress of the Commission on the Role of Gold in Domestic and International Monetary Systems concluded. I fully agree with this statement.

The emergence of the floating rate, which left exchange rates to market forces, did not end concern about exchange rate policies. At the annual meeting of the IMF in September 1973 in Nairobi, Mr. Witteveen spoke of the need for governments to accept responsibility for exchange rates within a context of internationally agreed rules. He clearly had in mind that some degree of management of floating rates was needed.

At the annual meeting of the IMF in September 1974 in Washington, D.C., Mr. Simon stated, "Market forces must not be treated as enemies to be resisted at all costs, but as the necessary and helpful reflections of changing conditions in a highly interrelated world economy with wide freedom for international trade and capital flows."

The conflict between these two schools of thought opened in the second half of 1971 when exchange rates of industrial countries floated. Karl Schiller characterized some floating rates as "cleaner" than others. The terms "clean" and "dirty" have been commonly used by economists and occasionally by public officials to distinguish a situation in which a floating rate is left wholly to market forces from that in which the rate is influenced by buying and selling operations by central banks, by imposition of restrictions, surcharges, or advanced requirement deposits as a way to restrain purchases of foreign exchanges.

After more than fourteen years of generalized floating, the problem of establishing some degree of international cooperation in managing the floating rates remains unresolved.

Market intervention as an instrument of economic policy was rehabilitated at the Versailles meeting of the G-7 in May 1982. Although the final communiqué reiterated the articles of the IMF, according to which interventions to counter disorderly market conditions have to be limited, the G-7 agreed to conduct a study on exchange market intervention. On the basis of an impressive amount of econometric texts, the report of that study did *not* confirm the position that intervention would be ineffective and counterproductive, as maintained by the U.S. Treasury representatives in the study group.

In January 1985 finance ministers and central bank governors of the G-5 reaffirmed their commitment to undertake coordinated interventions. Notwithstanding official sales of $10 billion, there was little evidence of a broad coordinated intervention effort and markets remained unconvinced of official determination to curb the extraordinary strength of the dollar.

In September 1985 finance ministers and central bank governors of the G-5 met again, on the initiative of the United States, in New York

to reassess their policies. The demonstrative show of official unanimity took the market by surprise. The day after this meeting the dollar registered its sharpest fall. Total concerted dollar sales were $13 billion; crucial to this success was the direct participation of the United States selling $3 billion.

The dollar exchange rate has since declined uninterruptedly; the balance of trade of the United States has shown little improvement, and the reactions in the United States have not been univocal.

The Chairman of the Board of the Federal Reserve System repeated that he did not consider it to be a sensible policy to declare "you drive the dollar down forever until you see an improvement in trade."

Uncertainties about the future of the dollar exchange rate could dampen the willingness of foreign investors to maintain funds in the United States. The Federal Reserve could be forced to raise interest rates.

The Chairman of the U.S. Council of Economic Advisers admitted that exchange rate stability is desirable, but he was not prepared to accept target zones; "The markets know best" appears to be his unshakeable faith.

President Reagan and the Secretary of the Treasury confirmed their determination of not allowing that dollar exchange rates to "cripple" American farmers and exporters again; they considered it harmful to speculate on what the appropriate level of the dollar should be; the fall of the dollar exchange rate was regarded as an alternative to protectionism; they strongly opposed protectionism.

The American Congress has increasingly received requests by the various pressure groups more adversely affected by the loss of competitiveness to take action to protect their interests. To argue about the length of time needed in order for the fall of the dollar's exchange rate to manifest its effects does not convince those who better understand the effectiveness of custom duties applied case by case.

The Adjustment Process in a Floating Exchange Rate System

The Chairman of the Board of the Federal Reserve System has described the present position of the United States and the possible corrections in the following terms:

> . . . We are drawing on the savings of others—in 1986, the net influx of foreign capital appears to have exceeded all the savings generated by individuals in the United States. That capital influx is the mirror image of the deficit in our current account—we cannot, at one and the same time, borrow abroad (net) to cover domestic investment-savings imbalances and run a balanced current account.
>
> . . . we are living beyond our means—individuals, businesses, and government have collectively been spending more than we produce.

That might be acceptable if we were matching the foreign borrowing with a surge in productive investment in the United States. That has been the case at all times in the distant past in the United States. . . . But we are not making that match now—it is consumption that has been leading the economic parade.

. . . to close our 150 billion dollar trade deficit by increasing the manufactures (and I do not see another practical avenue) implies a 15/20 percent increase in industrial output over the coming years above and beyond that required to support domestic growth. While a surge of that kind would be welcome in many respects, the challenge is to achieve it without renewing inflationary pressures in that sector.

[What is needed is] to increase our own savings or reduce others' demands on savings at home. The obvious candidate is a reduction in our federal budget deficit. Unless productivity in the economy as a whole is to dramatically increase above the recent trend of 1 percent or so—and unhappily there is no solid evidence for that—we will not be able to close the gap in trade without slowing the growth in domestic consumption well below the 4 percent pace it has averaged during the current expansion.

The strong appreciation of the U.S. dollar, followed by its equally strong depreciation, interacted with an economic recovery in the United States characterized by:

1) faster growth of GNP than in partner countries;
2) faster growth of domestic demand than GNP;
3) decline of exports to indebted LDCs;
4) excess demand of savings requiring capital inflows;
5) high interest rates which stimulated those inflows;
6) lower productivity growth and higher import propensity than the OECD average.

The above has resulted in an average growth of real imports that has been twice that of exports and has led to a level of nominal imports almost twice that of exports.

The position of the Japanese economy is the opposite:

1) slower growth of GNP than in the United States;
2) slower growth of domestic demand than GNP;
3) excess supply of savings requiring capital outflows;
4) lower import propensity than the OECD average.

The above has resulted in an average growth of real exports that has been twice that of imports and has led to a level of nominal imports two-thirds that of exports.

In Europe the reduction of fiscal deficits has been followed by deceleration of growth, domestic demand, inflation, and employment and has contributed to world trade imbalances.

To promote more balanced global growth, six countries (G-5 plus Canada) agreed that surplus countries should commit themselves to

follow policies designed to strengthen domestic economy while maintaining price stability, and deficit countries should encourage steady, low inflation growth while reducing their domestic imbalances. Newly industrialized economies "should assume greater responsibility for pursuing policies that allow their currencies to reflect more fully underlying economic fundamentals." More explicitly, Germany and Japan pledged to follow monetary and fiscal policies geared toward expanding domestic demand, thus helping to reduce the external surplus.

To reduce existing imbalances, the adjustment process requires the rest of the world economies to receive impulses broadly symmetrical to those in the United States. Under the present circumstances I believe it doubtful that stimulative policies in Japan and Germany could create an expansion of private demand of the dimension needed to compensate for the withdrawal of public demand in the United States. To reestablish balanced growth I see no alternative solution except redirecting flows of international capital to developing countries to relieve the constraints to which they are submitted if they have to service foreign debt. The rescheduling of foreign debt is a necessary condition; it is not a sufficient condition.

If the United States succeeds in establishing equilibrium between savings, investments, and budget deficits, if it moves from a position of a net capital importer to a position of a net capital exporter and therefore the trade deficit disappears and possibly a trade surplus appears, an excess in savings, in Keynesian terms, becomes manifest worldwide. World demand is condemned to shrink and the ultimate consequence is stagnation. Not without justification all forecasters have already revised their forecasts for 1987 and onward: the EEC Commission in its latest report has finally admitted that the contraction of world markets necessarily influences negatively the prospects of growth.

Coming back to the earth from the empyrean of absolute rationality, it appears unlikely that a cheaper dollar will produce a dramatic recovery in the U.S. balance of trade; a substantive upsurge of American exports depends preponderantly on strong sales of capital goods and industrial supplies to sluggish Europe and debt-burdened Latin America, and it is not likely to happen. As long as the United States avoids recession and consumer goods demand continues growing, the trade deficit will shrink little if at all. As a result, protectionism—product by product, country by country—will intensify.

I have expressed doubts about the possibility that the easing of monetary policies in Japan and Germany would boost the world economy to the extent needed to reduce the balance of trade deficit of the United States. Expansionary policies, to be effective, need the United States to accelerate its expansion too; but it seems that the Federal Reserve could not take the risks of monetary expansion as long as it is worried

by the combination of the falling dollar, large budget and trade deficits, higher oil prices, and government disarray. Nor does it appear likely that whenever the evil of recession looms near the Federal Reserve will refrain from reluctantly taking a more accommodating stance.

The financial market appears to be scarcely affected by balance of payment considerations; nor does it appear to be affected by fears of interest rate hikes. What the market feels is that the industrial world is awash in liquidity; in conditions in which productive factors and products are in large supply, liquidity does not start prices rocketing; it spills over into financial assets driving bonds higher, interest lower, stocks higher.

Foreigners seem to be more eager to buy American stocks than to buy American commodities, and this, to a certain extent, explains the contradictions of the coexistence of a sluggish economy, a balance of trade deficit, and a bull market fueled principally if not only by the decline in interest rates.

A tide of money is foreseen to flow into stocks: the main sources being pension funds, money market funds, companies that buy up their own shares to oppose takeovers. Acquisitions and buyouts in 1986 totaled $267 billion; statistics published by the *Federal Reserve Bulletin* show that funds raised by nonfinancial companies in the form of shares in the three years from 1984 to 1986 have been negative by an amount of $226.1 billion.

In 1986 in most industrial countries monetary growth overshot its targets. It occurred in the United States, in Britain, in Germany, in France; the only country where the targets were respected was Japan. In the OECD countries taken together broad money expanded in real terms by 7 percent; it was the fastest rise since the early 1970s.

In the same period, globalization of financial markets, deregulation, and innovation all accentuated the creation of financial instruments having a degree of liquidity similar to that of conventional money.

Reference Ranges in a Floating Exchange Rate System

In defining a correct pattern for the exchange rates of the U.S. dollar, the Japanese yen, and the German mark, the various objectives should be listed in order to establish the extent to which they are compatible with each other. To declare that the exchange rate of the dollar has to be fixed at a level that does not cripple American exporters implies that it should not be influenced by capital movements and that the United States does not need to import foreign capital to finance the excess of investment over disposable domestic savings after financing the general government deficit. If the capital account is in surplus, there must be an equivalent excess of imports of goods; somebody must be hurt.

Projections of the savings-investment balance for the United States and Japan in percentage of GNP show that in the United States in 1987 private savings are estimated at 16.4 percent of GNP, private investment at 16.5, general government deficit at 3.4 percent; the result is a deficit of savings of 3.5 percent of GNP that will be reverberated on an equivalent surplus of the capital account and on an equivalent deficit of the current account of the balance of payments; in money terms this is calculated to be $140 billion.

Compare this to the position of Japan: private savings 34.2 percent GNP; private investment 28.9 percent of GNP; excess of savings over investment 5.3 percent of GNP; general government deficit of 1.0 percent; surplus on current account 4.3 percent; in money terms: $79 billion.

Accepting the validity of such projections, decisions on the most appropriate exchange rate of the yen to the dollar should be made keeping in mind the limits of fluctuation that would offer Japanese investors the prospect of an appropriate income. To that aim, interest rate differentials play a major role; the greater the uncertainty about the exchange rates, the greater the interest rate differentials should be. The agreement between the United States and Japan to cooperate in keeping exchange rate variations within "reference ranges" could be interpreted as an offer to Japanese investors of greater protection against exchange losses.

If it is generally agreed that the U.S. current account deficit in 1987 will be between $140 billion and $130 billion, that in 1988 it will be reduced by $10–$20 billion, and that it will stabilize at around the $100 billion mark for the rest of the decade, the correct pattern of exchange rates to be aimed for should fit the conditions of a country in need of foreign capital.

Upper and lower limits chosen as "reference ranges" without adequate consideration of their credibility by private investors could produce the consequence that the function of providing funds to the country in deficit of savings, instead of being discharged by private investors, would be discharged by central banks forced to support the exchange rate within the limits of the "reference ranges" by selling their respective currencies in exchange for the currency of the nation in need of foreign capital. Alternatively, the full weight of the adjustment could be placed on interest rate differentials.

The practical objective in choosing "reference ranges" should be to restrict the risks of international investors generated by the exchange rate volatility. In recent years the markets have developed new instruments that transfer risks from one economic agent to another, but they do not eliminate the risks. By stabilizing the relationships between the major currencies, the monetary authorities take risks themselves that

the markets are unable to bear; at the same time they accept a limitation of their monetary sovereignty.

At the meetings held in Paris, February 1986, the finance ministers and the central bank governors of the G-5 and Canada reached a major agreement to stabilize exchange rates around current levels.

The ministers agreed that the substantial exchange rate changes since the September 1985 agreement to depress the dollar have "brought their currencies within ranges broadly consistent with underlying economic fundamentals." They concluded that the dollar's sharp decline "will increasingly contribute to reduce external imbalances" and that "further substantial exchange rate shifts among their currencies could damage growth and adjustment prospects in their countries."

"Our agreement is a temporary one. This is not a transition to a new monetary order," stated the German Finance Minister.

During the fifteen years (1958–1973) in which the international monetary system was based on fixed exchange rates, international cooperation worked satisfactorily. Contributing to its effectiveness were:

a) De facto acceptance of the hegemony of the United States; willingness of countries like Germany and Italy to accumulate dollars in their foreign exchange reserves and to support the dollar exchange rate by taking active part in the establishment of a network of swap agreements among central banks.
b) Constant improvement of the terms of trade of the industrial nations; limited size of external imbalances; recourse to demand management policies; control of capital movements in order to make monetary policies more autonomous.
c) Greater correlation between variations of monetary aggregates and price levels; limited size of financial instruments created outside the control of the monetary authorities and having a high degree of substitution of money.

The imbalances that have developed in the three major industrial nations since 1982 have no precedent and it is unlikely that they can be corrected by exchange rate variations only. The globalization of financial markets has helped to transfer savings from countries where there is excess to the country where there is a deficit; at the same time profound structural changes have taken place making the external position of the United States weaker. In particular:

1) excess production of foodstuffs in Europe and its position as a major competitor of the United States as exporter of grains;
2) indebtedness of LDCs and the need of LDCs to attain trade surpluses to service the external debt;
3) loss of competitiveness of American manufactures and increase of international trade of high-quality products.

These factors will make the depreciation of the dollar less effective in bringing about the adjustment process of the U.S. balance of payments on current account. If the projections of the possible evolution of the trade deficit between now and the end of the decade prove to be correct, the U.S. external debt will probably amount to 20 percent of GNP. That could imply a heavy burden of interest payments to foreign creditors on the external account and could result in severe intermittent pressures on the dollar exchange rates and instability in the international financial markets.

To avoid these detrimental consequences, the external deficit of the United States needs to be put on a declining path, not one that turns up again after 1989. But depreciation alone will not produce the effect of rectifying the external deficit; it could prove to be highly inflationary for the U.S. economy; a resurgent U.S. inflation would make it almost impossible to bring the trade account into balance.

To make the adjustment process of the existing payment imbalances as orderly as possible, one important ingredient of international cooperation is the supervision of the activities of financial concerns (banks and nonbanks). I do not imply that capital movements around the world should be restricted as they were when fixed exchange rates operated. What seems desirable is a higher degree of coordinated supervision on the behavior of financial markets to strengthen the links between finance and the real economy.

The authors of the Bretton Woods agreements sought to make finance the servant and not the master of human desires in the international as well as in the domestic sphere. U.S. Secretary of the Treasury Morgenthau declared that he wanted to erect new institutions that would be "instrumentalities of sovereign governments and not of private financial interests"—in short, "to drive . . . the usurious money lenders from the temple of international finance."

Of course, the tide of global financial markets, financial innovation, and deregulation cannot be reversed; however, a higher degree of international cooperation could reduce the risks associated with them without throwing sand into the wheels of the markets.

Two problems concerning fundamentals cannot be solved by the financial authorities; namely:

1) the distribution of the burden of defense between the United States and Europe and its impact on central governments' expenditures; the extent to which Japan could devote a higher proportion of its resources to its own defense;
2) the indebtedness of LDCs and its consequences on the rate of growth inside these countries; here again the Western world is confronted with a major political problem that profoundly affects social and political stability around the world.

Last but not least, more attention should be devoted to the different ratios of population increase in the various parts of the world and their impact on the distribution of real resources. The demographic balance is likely to generate excess savings outside the United States and deficient savings inside until the early years of the next century. This means that the United States will be a net capital-importing country during this period.

These are reflections of an elder person who started his career as a member of the Board of Directors of the IMF forty years ago and who had to deal with the dismantling of bilateral payment agreements, the establishment of the European Payments Union, convertibility, fixed exchange rates, floating exchange rates, dollar scarcity, and dollar glut. I feel dazzled by the globalization of international markets, deregulation, innovation; but I cannot help questioning the ability of these changes to promote development, employment, monetary stability, and a more equitable distribution of wealth inside nations and among nations.

Note

This paper reflects the author's personal views on international cooperation in exchange rate management, how things are evolving and which directions should be taken in the future, based on personal past experience.

3. *Jacques Attali*

The Costs of Changing the International Monetary System

It is very hard to speak after Mr. Carli, because I agree with almost everything he said. Let me begin by addressing the issue of changing international financial institutions, the topic on which Mr. Carli concluded (see above).

I believe that we are now at the end of the second chapter in international finance since the Second World War. The conclusion of the first chapter was marked by the collapse of the Bretton Woods agreement, which in my view was terminated back in 1961, when it first became clear that the dollar/gold parity could not be changed. I will come back to this point later on, but for now let me say only that the high political costs of making needed adjustments in the parity signaled

the real end of Bretton Woods. Today we stand at the end of the period of generalized floating exchange rates.

Mr. Carli has clearly explained the history of change from Williamsburg and Versailles. In the days following the Williamsburg agreement, we spent the nights writing memoranda and communiqués, formulating agreements on how we would keep the markets in check. Perhaps we were so satisfied by the prospect of a new era of coordination that we did not ask whether even coordinated intervention could be effective. Our governments could agree to the central banks expending several billion dollars, but in markets that saw a daily volume hundreds of times as large. Yet an extraordinarily long fight against the political and financial experts had to be fought before even these paltry sums could be agreed upon. A main part of my message today is that such political machinations—the meetings, the agreements, the press conferences—are really just a shadow in front of reality. They are nothing. They are really just to keep TV on the air and to let the public think that their leaders are actually dealing with the issue, when in fact they are not. Not at all.

Nevertheless, there is a little hope to be found in a consensus that seems to be emerging between the ideologues and the pragmatists. The theoreticians, such as John Williamson, have built the idea of reference zones, which would be something like a worldwide European Monetary System. These theoreticians now find real consensus with the pragmatists for three reasons that I can see.

The first reason for this unusual consensus comes from the fundamental idea of Bretton Woods, the real root of wisdom that was perhaps the only common ground shared by Harry Dexter White and John Maynard Keynes: that you cannot have both free trade and free exchange rates. Either you have fixed exchange rates and free trade, or you have protectionism with floating exchange rates. Today we see an emerging consensus on this proposition, that the lack of discipline in exchange rates is pushing the world toward increased protectionism. The second area of consensus is that floating exchange rates tend to channel finance toward speculation and away from long-term investments. I believe we will see more and more of this if the current system is to survive. Such unbridled speculation jeopardizes the whole worldwide economic system. The third area of consensus is that floating exchange rates do not move to correct trade imbalances. Although the theory held that exchange rates would fulfill such a function, they clearly have not.

Thus I think that now, among the supposed decision makers around the world, there is a consensus that something must change. Indeed, beginning with the agreements of the last year, we have evolved in the direction of a reference zone system. We now have the embryo of it.

That is, we have first an agreement between the G-7 countries to monitor the main barometers of the economies. One must, of course, ask what is on the list of barometers, and this is a very important question. Is it only GDP? Is it inflation rate, interest rates, budget deficit? I am sure that with time these will be better specified.

There also appears to be interest in choosing bands or target zones that would hold currencies within a reasonable range of values. While the analysis here is not as advanced as that on macroeconomic barometers, it is a start. Of course there are many issues that must be settled first. Which currencies shall we target? As far as Europe is concerned, will it be the Deutsche mark or the European Currency Unit? Will the targets be preannounced and public or implicit and secret? Will they be "hard" or "soft"? Another issue is how much money we should devote to intervention on the market.

But we do have this embryo. And I personally think that the next few months or the next year will decide whether or not this embryo develops. I believe this is the crucial time because we are facing the moment when we have to move the current parities among rates. When the parity must be changed, the question arises: Which is more costly politically, changing the parameters or breaking the system?

This to me was one of the main mistakes of Bretton Woods, that it was politically less costly to break the system than to change the parameters. The main asset of the European Monetary System, an asset that is integral to its construction, is the high cost politically for each government in Europe to break the system and the low cost of accepting a realignment or change in the parameters. No reference zone system can work if the political cost of breaking the system is not higher than the political cost of changing the parameters.

Meanwhile a substantial, coordinated realignment of the major currencies of the world would be very costly. It is clear now that for the German, Japanese, or American governments, the political costs of breaking the system is nothing—zero. And the political cost of changing the parameters is maybe higher because it has the appearance of a political defeat.

Why is this so? Popular political support for a multilateral system of target zones is simply very weak, especially in comparison with important domestic political issues. I believe that it is impossible to build a reference zone system without domestic political support. Such a system is viable only when political leaders have to pay with their own parochial popularity if they do not keep their word. An important issue for the future is whether we can build this kind of basic political support for target zones. As far as I am concerned, we have little chance in winning over the public if we are not bold enough first to make the agreements, which are now supposed to be secret, explicit. We must

be willing to announce not only modifications to domestic economic policy that are made in the interest of coordination, but also the precise bounds of the zone in which we agree exchange rates must lie. There can be no political costs to breaking a reference zone agreement if the zone itself is secret. And we must stress that leaders stick by their word on international economic affairs. As it is, politicians find it costly to change their word on matters of defense or arms control but not on matters of international economic cooperation.

We have achieved a certain political foundation in Europe for the European Monetary System. This, I believe, is really the most important achievement of Europe in the past two decades. To bring this success to the global level, we must develop it as an open, public issue, an item of international debate. As far as the future is concerned, I think that we must make the issue public, which means we make public the fact that we need to have an increase in taxes in the United States and growth in Japan and Germany. If we do not take these steps, then the whole system will be broken. Whether exchange rates are better left within a generous band so that some semblance of floating still exists, or whether rates should be fixed outright and the floating rate system discarded altogether remains an open question, but I think it is a subsidiary one. If we succeed in raising these issues domestically, I am sure that there will be a clear path for the future.

One obvious step along this path is to abandon the G-5 and G-7 frameworks and go to the IMF. Let the IMF reinstate the surveillance process it followed in the 1960s and resume its duties in managing and coordinating parities. I have always been very skeptical of the idea that exchange rate coordination and targeting could be accomplished in such small forums as the G-5 and G-7. We have to institutionalize a move back to the larger multinational institutions, which were originally designed precisely for these purposes.

Second, we have to include both the Third World and Eastern Europe in our negotiations. Clearly, we need in each country a leadership that is penalized if it does not respect that kind of international agreement. It is obvious that any such international agreement today would have to address the fundamental imbalances directly and would therefore have to stress an increase in taxes in the United States. This policy is certainly risky, since it might trigger a recession in the United States and perhaps around the world. But I view this as an outcome preferable to the scenario under which the United States does nothing to correct its chronic fiscal deficits. This, I believe, would lead to crisis. The United States simply cannot continue accumulating a large external debt. We have already had one experience with this, and, as I have said, it marked the end of the first chapter in postwar international finance.

In sum, I believe that if the leadership in the United States fails to be bold enough, the costs of international economic linkages will be very high in the future. I hope we can avoid paying that price.

4. *John R. Petty*

National Interests and Global Obligations: A Call for Meaningful Dialogue

What we are talking about today is where economics and politics meet. The adjustment process, especially when anything more is involved than normal macro policies on a national basis, always probes and sometimes penetrates deep into the structure of local economic interests—and therefore deep into local political alignments.

The mechanisms of international financial cooperation can sometimes blur this fundamental reality. Its smooth functioning minimizes the pain. However, as balance of payments adjustment is delayed, new economic patterns develop. With this delay, economic expectations and political alignments quickly reflect these new circumstances. In surplus countries especially, long or protracted deviations from the norm in national accounts tend to compound resistance to adjustment. The beneficiaries of new gains come to expect its continuance as their economic birthright. Yet in a global sense, significant deviations from the norm can only be enjoyed temporarily.

How might this traditional, and very human, reaction to achieving economic advantage be countered? I will argue that for a starter what is needed is a broader appreciation of what world economic equilibrium requires. The intent is to encourage the development of expectations that focus on the norms inherent in such a theoretical equilibrium. In turn, this would help create a climate of understanding to support the political decisions necessary to move deviant national accounts back toward the norm.

Too often, however, discussion of international financial cooperation moves quickly beyond the presumption of support from political leadership to dwell upon the niceties of the technical financial aspects of one approach or another. The result is that the degree of political backing necessary for a well-functioning international financial system receives less attention than it deserves.

This is a serious shortcoming. Not only because it removes from the public debate discussion of the essential political ingredient to meaningful

adjustment, but because it permits wishful thinking to prevail—the impression that adjustment can be low cost, even free, and financial coordination alone can do the trick.

Not surprisingly, politicians find it tempting to move quickly beyond the questions of necessary political endorsement and active support. Doing so allows them to sidestep issues. It tends to take them off the hook.

This inadequate level of top political involvement exists because such involvement has not been demanded except in crises, and leaders don't go looking for points of friction. Moreover, a broad conceptual base or framework is largely missing from the public debate on critical issues. And the discussion we do have lacks the degree of specificity necessary to get beyond generalities and into constructive dialogue.

For example, we seek a stable equilibrium with a constant variance. But how much effort is spent going into what that means in terms of national economies? We lack a consensus about where it is we want to go. We lack a common understanding of what it is we are trying to achieve and the compromises necessary to get there. Instead, too much of the dialogue is directed toward the coordination of official foreign exchange actions and exchange rate regimes.

The world lacks a commonly understood view of what constitutes, approximately, an equilibrium environment of the global economy. This means that not only does an underlying political consensus not exist to support sufficiently the work of economic and financial leaders, but it is unlikely to be developed.

This lack of a shared view of what is desirable globally—and necessary nationally—robs us of more progress toward a happier global economic environment. Advisers to presidents, prime ministers, and legislators speak mostly of national interest; too little is said of global obligations. And, of course, national interests prevail. True, more often than not *flagrant* excesses of national policy measured against the obligations of a multilateral system are avoided. But more than that is required. After all, we admit to being an interdependent world.

To begin the long process of shifting more emphasis of national governments toward explicitly recognizing and responding to global obligations, we should commence a deliberate program. Our first step should be to define, roughly, what constitutes a sustainable balance of payments equilibrium on a global basis. As the second step, a debate should be encouraged on the outcome. Our trading partners too must have their own internal debate. Clear recognition should be given to what would be involved for each nation to operate within the relevant constant variances.

I do not deceive myself that this will be easy. The illusion that it is possible to pursue independent monetary policy and decidedly national economic goals in an interdependent world does not disappear quickly.

Yet this conceptual framework, this global vision with reasonably compatible national economic expression, would provide credibility, encouragement, and assistance to advocates in national governments who seek to pursue national programs consistent with a sustainable global model.

It is a long road. And that is why we should start now.

The remainder of this paper will describe (1) how we might create this framework within our multilateral system; (2) how we might approach obtaining the political as well as the financial endorsements necessary to make the framework the lynchpin of our global adjustment mechanism; and (3) certain reinforcing rules designed to encourage good behavior.

Our first objective should be to define a reasonably sustainable equilibrium model in the world trade and payments. This would entail a technically executed, but increasingly politically led, multilateral effort to explore, and then attempt to define, what national accounts would look like in a global equilibrium movement. Never mind that such a condition among nations is more theoretical than real and that the quantification of trade balance and current accounts objectives by nations would be more illustrative than a national intention, certainly at first.

Such a recommended objective, for example, would tend to stir debate on what level of Japanese trade surplus is sustainable—sustainable, that is, in terms of multilateral equilibrium and compatible goals among nations. We can all agree that the Japanese trade surplus should be nowhere near 4–5 percent of GDP. But what number is most appropriate as a target? Current account composition and size would certainly also be part of the debate.

Think of the value of a comparable discussion about the United States which related the size and duration of the federal deficit and foreign capital flow to what is necessary in the trade balance of the future.

To illustrate: If the United States shifted to a trade surplus at the rate of 2 percent of GNP per year, starting in 1988, we would be in surplus in 1989; the external debt would peak at $440 billion.

If the shift took place at the rate of 1 percent of GNP per year, starting in 1988, we would be in surplus in 1991, and the external debt would peak at $580 billion.

If the shift was at the rate of ½ percent of GNP (a $22 billion annual improvement), starting in 1988, we would be in surplus in 1995, and the external debt would peak at almost $1,000 billion.

The interest cost of servicing the debt at 7 percent would be 0.6 percent, 0.7 percent, and 0.9 percent of GNP, or roughly 0.5–1.0 percent of GNP in the form of a trade surplus would be required to service the external debt (assuming a constant relative level of debt).

The implication of these numbers is profound and worthy of much discussion and understanding.

Creating a hypothetical global model would bring to the surface many such issues. A few such models do exist, and they no doubt generate subjects of discussion too.

To some extent, there is an interesting historical precedent to this approach, though the precedent was far more limited in the breadth of its exposure. At Working Party 3 of the OECD in the 1968–69 period, efforts were made to define national balance of trade and current account goals in the context of a global environment. Initially the United States was offered as the residual in the equation and LDCs were for the most part ignored. As the exercise was repeated every six weeks, and participants began to think of their goals in terms more compatible with a sustainable global framework, objectives were moderated somewhat. When the United States was presented on other than a residual basis (i.e., a nation that had objectives too) and the LDCs were given trade goals compatible with their debt service and growth needs, the exercise reached its practical limits at that time. But it was far from useless.

The disparity between what nations wanted and what the system ideally should have was so great that technical level discussions begged for political determinations. In a way, they got it. The real impact of the exercise may never have been noted: The death knell of the "adjustable peg" exchange rate system was tolled. The Working Party 3 work demonstrated to some in the U.S. Treasury that a discrete devaluation of the dollar against our trading partners was not going to happen normally. Analysis alone would not occasion other nations to accept the loss of their trade advantage to the dollar. This began the search for the time and the mechanism by which the United States could achieve a discrete devaluation, not simply a devaluation against gold with no trade advantage. In fact, this was the background to August 15, 1971.

Our task today of finding a mechanism is simpler. We have much increased flexibility in our exchange rate system. We have increased habits of financial cooperation, even coordination. And we have the Economic Summits which provide a critical cog in the multilateral machinery. These Summits are the avenue to obtaining over time the more explicit political endorsement necessary if national actions are to conform to international behavioral requirements. It may be several years before this point is reached, but the benefits of this type of intense consultation begin to accrue much sooner. The Tokyo Round declaration and the presumed work underway is a beginning. How much political will lies behind that effort remains to be seen.

Today the exploration, and then the description, of national trade and current account goals might initially be pursued through any of a number of forums. This would involve suggesting globally compatible

constant variances on a national basis. Clearly, fundamental local and national economic interests are involved and I do not minimize the task.

This work should be brought together and given integrity and credibility under the auspices of the IMF. This would provide institutional support and, ideally, formal political endorsement in due course through becoming part of the five-year IMF Quota Review process. By tying the process in with the quota review negotiations, we get the necessary balance between continuity and adjustability in goals in a changing world.

The framework, which is an amalgam of reasonably compatible national goals, must be reinforced through the multilateral institutions with encouragement for good performance and a remedy for neglect.

It is necessary to stimulate again a most active discussion about enforcement mechanisms, pointed to the surplus countries equally as to the deficit countries. Good behavior will need to be encouraged, and negligent behavior—behavior that ignores responsible participation in the multilateral system—will have to be vulnerable to denials that will tend to induce cooperation.

Is adjustment too slow? Do all the dynamic new elements of modern-day trade and investment overwhelm the adjustment mechanism when achieved only, or primarily, through macroeconomic stimulants to wage and price levels? Do we allow political forces of protection too much time to gather? Are early warning systems enough?

Earlier involvement of political leadership has to be our objective. Righting imbalances sooner is the best way to expand support for the multilateral system. Too little study has been given to the impact of slow versus fast adjustment. There is not enough recognition of the threat of too slow a response. Has the academic community demonstrated to the politicians the cost of delayed action? Should they not be shown it is *not* cost free?

The scarce currency clause must be revisited and active consideration must be given to what is necessary to make it an effective tool of compliance. Respectable people should no longer avoid meaningful discussions about the "scarce economy" clause or its equivalent.

Besides the IMF, the GATT too has a little-used mechanism designed to pressure the surplus country: the quota privilege of the deficit country. While accepting the idea of negative inducements, an alternative to quotas must be found. Withholding tariff concessions previously granted might be the approach. This could be done selectively. The full discipline of multilateral machinery must assure both the reasonableness and the temporary nature of any such action. Discipline also requires multilateral bodies to assure that deficit countries do not shirk from their adjustment responsibilities. By making these denial

mechanisms (scarce currency and withholding tariff concessions) meaningful possibilities, more symmetry would be brought to the system. They could deter or limit unsportsmanlike conduct just as deficit countries get credits if they play by the rules. As in all deterrents, their mere existence and credibility provide more value to the multilateral system than their usage.

Moreover, having these surplus country inducements only makes sense where national expectations are both understood and accepted. That is, where the framework—the constant variance vision of a stable world environment—identifies when responsible actions must be taken in conjunction with other off-variant nations. The IMF, the press, and the international financial community would help to communicate these instances, and the discussion I am looking for should help create a public understanding of what needs to be done.

Gaining clear political endorsements nationally of the implications of accepting a global economic framework will not be easy. It may not be fully possible. It certainly will not happen quickly. But the exercise has intrinsic merit:

It will educate the participants and many others.

It will stimulate discussions and tend to focus debate on the implications of adjustment.

It will influence policymakers in the right direction, even if they won't admit it.

All of these things will create an environment more hospitable to tough political decisions.

Of itself, the process will build further the framework of cooperation between nations and with the multilateral institutions. The coordination of monetary policy, intervention, and economic programs would be greatly facilitated by the process of building this framework *and* developing the consensus. As the relative size of the world economic pie forces more choices, the benefits of this cooperation will encourage the political determinations which ultimately are inescapable.

5. *Robert Solomon*

Exchange Rates, Macroeconomic Policies, and the Debt Problem

We have heard three very interesting talks. It's clear that the topic of international financial policy is not really distinguishable from macroeconomic policy, which was the subject of the first panel. All three

speakers have talked about macro policies, understandably. The narrower definition of this panel might have seemed to refer to exchange rates in particular. The excellent background paper written by Dick Marston (see above) does focus on exchange rate policies. I'll start with that subject and then broaden out a bit to the more general.

On exchange rate policies in particular, I shall say a few words about the Paris agreement (or perhaps we should call it the Louvre agreement to maintain a certain parallelism with the Plaza). It was not long ago that the G-6 met in Paris and agreed to stabilize the exchange rates against the dollar, on the grounds that rates had somehow reached levels that reflect underlying fundamentals. Most economists would disagree with that judgment. Most economists, not all, believe that the exchange rate adjustment that's been going on since March 1985 needs to go further. One of the reasons it needs to go further is that if you look at the extent of the dollar depreciation in real terms against the other industrial countries and the developing countries (I'm using the Morgan Guarantee Index, which includes about eighteen developing countries and twenty-two industrial countries), the dollar has moved back only about three-fourths of the way to where it was in 1980. In other words only three-fourths of the appreciation of 1980–85 has been reversed. While there is nothing sacred about the year 1980 or any other base, the U.S. current account was more or less balanced in 1980. As a couple of speakers have already pointed out here, the string of current account deficits that the United States has incurred so far in this decade, and will continue to incur before the current account deficit disappears, will change the net investment position by $700–$800 billion. Using an interest rate of 7 percent, one comes out with a net increase in interest payments of something like $50 billion. If we want to get our current account back to where it was in 1980, we need an extra $50 billion of trade surplus. Now one could argue that the United States should have a surplus on current account, not just a balance, given the need for resource flows to the developing countries.

For these reasons, to put it all very briefly, there is a case for additional depreciation of the dollar beyond where it has gone so far. Yet we had this agreement in Paris to stabilize the exchange rates. The question: Why did those six sets of finance ministers and central bank governors make that agreement? Why in particular did the Americans agree to it?

The only explanation that I can come up with is that Secretary Baker and Chairman Volcker were worried about the shock to the economies of the other industrial countries of the exchange rate adjustment that has occurred so far. They're worried about too slow growth, if not recession, in Germany and Japan, and they came to the judgment that we need at least a breather, a pause, in this exchange rate adjustment

to provide some time for the other countries to adopt domestic demand policies so that they can compensate for the contraction in aggregate demand resulting from the fall-off in their external surpluses. I therefore regard the Paris agreement as a temporary one providing only for a pause.

I'll now say a word or two about target zones if I may. Some people have interpreted the Paris agreement as being a first step toward a target zone system. Whether one agrees with that or not doesn't matter for present purposes. We could spend an entire session on target zones. I would just very briefly state what I regard as the nub of the objection to the target zone system in present-day circumstances.

The point is that fiscal policy is immobilized in the United States, and it's almost immobilized in the other major industrial countries. If we went to a target zone system, how would countries respect those target zones? We know, and Dick Marston's paper makes the point very well, that sterilized intervention is a rather weak instrument for regulating exchange rates. So it would have to be monetary policy. Unsterilized intervention, which is equivalent to monetary policy, would have to be used to hold exchange rates within the target zones.

Since we cannot at present flex fiscal policy very much in any of the industrial countries, we would be linking monetary policy to the exchange rate. Such a monetary policy would not always be the appropriate policy for domestic stabilization, therefore, we would be giving up domestic stability in order to try to achieve stability of exchange rates. And that does not seem to me to be a very sensible trade-off.

In my view the reform that we need before we try to reform the exchange rate system is a reform of fiscal policy in all the major industrial countries, which is desirable for its own sake.

Let me now talk a little bit about the macroeconomic interactions between developing countries and industrial countries. It seems to me this hasn't received quite enough attention, even in Jeff Sachs's paper (see above), if I read that paper properly. It is not well enough recognized that the weakness in the industrial countries in the past year, 1986, is partly the result of very weak import demand in the developing countries.

The developing countries suffered a severe terms of trade deterioration in 1985–86. Not only the oil-exporting countries, which we all know about, but the non-oil developing countries also suffered a very severe deterioration in their terms of trade and they all had to cut back on their imports. And that cutback in the imports of the developing countries reduced the GNP of the industrial countries. The OECD *Outlook* for December 1986 estimates that effect at 1 percent of the GNP of the OECD group of countries. That's a big impact! The econ-

omies of the industrial countries have weakened. Governor Carli (see above) has pointed out the latest assessment of the European Commission, which shows a fairly slow growth in Europe; they cut the estimate for 1986 back to 2.5 percent, and they estimate 1987 at 2.3 percent.

We have a situation where the developing countries cut their imports, weakening growth in the industrial countries. The weaker growth in the industrial countries makes conditions worse in developing countries. We have a vicious circle going on between the developing and the industrial countries. I don't think that point has received enough attention at this meeting so far.

There is a corollary to what I've said. We know that exports have slowed in Germany and Japan and maybe other industrial countries. This is usually attributed to the exchange rate change that has occurred in the last two years. It is just possible that some of that slowdown in export growth in industrial countries is not yet the reflection of the exchange rate, but it may be a reflection of the weak performance of the developing countries, and we may still have ahead of us the affects of the exchange rate adjustment. Consider that as a possibility. Some mixture of exchange rates and weakness in the developing countries is what's going on here.

The challenge is to convert this vicious circle into a virtuous circle. That leads me to two sorts of recommendations. Being the last speaker of this program, I will take advantage of that position to set out broad policy recommendations.

Number one: It's conventional wisdom that to correct the imbalance of international payments and current account positions in the world, the United States should be cutting back on its domestic demand and the countries in surplus should be speeding up the growth of their domestic demand. The United States should do it, of course, by cutting its budget deficit. How the other countries should speed up their domestic demand is usually not specified as clearly. The general principle is widely respected, though it hasn't been activated very much in practice. The U.S. budget deficit is going down this fiscal year by something like 1 percent of GNP. It's rather uncertain so far what will happen in the next fiscal year. Ideally, it would go down by 1 percent of GNP each year and it would be gone by 1990 or so.

What I would like to suggest is that while we all accept what has to be done on both sides, maybe the emphasis has to be shifted a little bit, given the weakness of total demand in the industrial world, and given this vicious circle that I was referring to. I would say we need to put more emphasis on increasing domestic demand in the surplus countries and a little bit less emphasis, not zero, but a little bit less emphasis on the need to cut demand in the United States. Just shift

that emphasis a little bit and not put them on a par, simply because the world economy, and the outlook for the world economy, is so sluggish. If that were done and we did get a net increase in domestic demand in the industrial world as a whole—including the United States and Europe and Japan—that would be one step toward trying to convert this vicious circle into a virtuous circle.

There is one other measure that would be needed. We would have to find a way to increase the flow of capital from the industrial to the developing countries, because the developing countries need more than better terms of trade and a faster growth in their exports so that those that are potentially creditworthy will appear that way. The developing countries also need a net increase in capital inflow, or they need to reduce the net capital transfers that they are making to the rest of the world, so that they can increase their investment, which, as we all know, is too low.

If we could somehow find a financial technique for increasing the flow of capital to the developing countries so that the developing countries could increase their imports, that stimulus to demand in industrial countries would be much more welcome, somehow, than an increase in domestic demand that comes from cutting taxes. Fiscal policy is just not a very popular instrument of policy in those countries that are in surplus, and it's not usable in the United States in an expansionary way. But I have no doubt that an increase in exports would be quite welcome in Europe and Japan. One way to bring that about is to try to find a way to get a bigger flow of capital to the developing countries. I'm not going to suggest precisely how that can be done, because I don't know. But I would say that the routes that are worth exploring go beyond the commercial banks. I have great doubts that we can expect very much increase in lending—concerted lending, as it's called—to the developing countries in the present circumstances.

The thought that goes through my mind is that the way to try to encourage a flow of capital to those developing countries that are potentially creditworthy (I'm leaving out Africa here, talking about basically the Baker-15 countries) is through some form of partial guarantee that would encourage a flow of portfolio capital to the developing countries. That seems to me to be the one source that has some potential, since one has to rule out the banks, and direct investment itself can't do the trick. Part of the rationale for looking to portfolio capital as a way to get funds into the developing countries is that the United States has been absorbing portfolio capital from other countries with its current account deficit.

The U.S. current account deficit will go down in the next three or four years. It already started down in real terms in the fourth quarter. As the U.S. current account deficit goes down and the U.S. need for

capital diminishes, perhaps the countries that have been exporting capital to the United States can be induced to shift portfolio capital to the developing countries, where it's obviously badly needed.

Summary of Discussion

Anthony Solomon began by expressing his pessimism about the long-term effectiveness of coordinated intervention. He agreed with Guido Carli that if both surplus and deficit countries acted in concert, the benefits would be large. But such coordination is unlikely, and, by default, the dollar will continue to fall. He argued that as financial markets become more integrated, shocks to the system will increasingly require capital controls. Failures in the ability to coordinate may imply the need for capital controls in the future. Solomon expressed a gloomy view of the outlook for the future. He felt that even with a further decline of the dollar, adjustments in the underlying balances would be slow. The falling U.S. terms of trade and the more restrictive monetary policy that would be required would also imply future constraints on U.S. growth.

Feldstein gave additional evidence on intervention by the Central Bank of Japan. Official accumulation of U.S. assets by the Bank of Japan was $15 billion and $16 billion in the second and third quarters of 1986, respectively. The total for 1986 was $36 billion, approximately half of Japan's current account surplus.

Marston asked if this intervention was monetized. If not, then he was skeptical that, even with figures this large, the intervention had much effect on the yen/dollar exchange rate. *Feldstein* agreed that sterilized intervention does not generally matter. He had offered these figures to demonstrate both the magnitude and duration of recent intervention by Japan. But if one believed that foreign governments were prepared to finance the U.S. current account deficit for a sustained period of time, it would seem likely that the dollar would fall more slowly. He pointed out that private investors would be able to swap out of dollar assets if the Bank of Japan were able to finance U.S. deficits indefinitely, however unlikely that possibility may be.

Marston noted that if we were to move to fixed rates, capital controls would be required. First, to reach agreed-upon targets, monetary policy would have to be used. Second, each country would be forced to subordinate its own domestic growth targets. It is unlikely either that the United States would persevere or that other countries would follow U.S. monetary policies in order to preserve the targets. Third, the choice would then be: scrap the reference rates altogether or adapt

extensive capital controls. Indeed, even though the Europeans have broadly coordinated their monetary policies, the real secret of the EMS lies in the capital controls on France and Italy. To make target zones work, less financial integration is required.

Attali objected, saying that capital controls need not be so stringent if there is a credible agreement to adjust fundamental policies. Capital controls may not always be unappealing, especially when the alternative is a large increase in protectionism. One should not disregard the gains that accrue merely from putting a credible system of target zones in place. The EMS was built with capital controls and now is strong enough for their removal. An important feature of the EMS is that the cost of getting out of the system is currently higher than the cost of adjusting parities.

Marston noted that each time there is a crisis within the EMS, the Eurofranc interest differential reacts. Thus capital controls buy time to make the necessary adjustments of EMS parities, and in this sense they are essential to the functioning of the system. The reason the EMS cannot be generalized to the rest of the world without far more restrictive capital controls is that other central banks are unlikely to follow the Fed as closely as the Europeans follow the Bundesbank.

De Menil strongly disagreed with this point of view. The interest rate gaps to which Marston referred are temporary. The delay in adjustments is becoming even shorter as capital controls are relaxed. He emphasized that it was incorrect to point toward the EMS as a reason why exchange rate targets cannot work for the world. The EMS works because of the dominance and credibility of German monetary policy in Europe. The capital controls issue is a red herring. If target zones are not successful, it will be for political and not economic reasons.

Carli pointed out that we cannot expect foreign exchange markets to be more orderly unless a more serious attempt is made to regulate financial activities all over the world. If monetary coordination is going to be the centerpiece of a reference zone system, we must guarantee that the monetary authorities have controls over various financial institutions, banks and nonbanks.

Marston added that the EMS is far from a fixed rate system: the French franc has been cumulatively devalued by 38 percent against the Deutsche mark since the inception of the EMS. In his view the main issue is world policy coordination. Without such coordination, capital controls would be needed.

Sachs presented another view. Now, as in earlier episodes, we will get coordination, but this coordination will not be desirable. Most prior attempts at global policy coordination have failed. At the Genoa conference of 1922, there was general agreement about the return to the gold standard. But shortages of gold and poorly chosen parities led to

a worldwide shortage of liquidity by the end of the 1920s and was a prelude to the Great Depression. Bretton Woods fared much better partly by historical accident and partly because of the dominance of the U.S. economy at the time. The Smithsonian agreement, however, lasted only fifteen months. During this period the greatest excess of world liquidity since the Potosi silver mine in the sixteenth century led to the collapse of fixed rates. The 1980–81 worldwide monetary tightening was initially hailed as the reversal of this tendency toward excess liquidity. In each of these cases, countries bought into a single set of undiversified monetary policies, and often the policies turned out to be either excessive or wrong. Floating rates provide diversification and can help stagger business cycles across countries. The relatively uneven growth record of the United States over the last decade can be compared with Japan's more even growth. For most of this period, the Japanese did not look to the United States to set their monetary policy. Thus, while there may be some gains to coordination in terms of reducing the volatility of exchange rates, the cost is that all countries must buy into a single set of beliefs, which are sure to be wrong some of the time.

Gains to coordination also depend crucially on the importance of transmission effects across countries. Sachs's research indicates that, under floating rates, monetary policy generates negligible transmission effects, whereas the effects of fiscal policy coordination are large. A monetary expansion depreciates the home currency while increasing income enough to fully offset any positive effects on the trade balance from the depreciation. Divergent monetary policies, therefore, do not require coordination. Given the current situation, Sachs also felt that we do not need coordinated fiscal policies; better fiscal policies would suffice.

Robert Solomon expressed the view that if West Germany joined a reference zone system with the United States in the 1980s, the Bundesbank would have to adapt its policy to the Fed. The German monetary authorities currently exercise great power within the EMS and, consequently, are not very enthusiastic about subordinating their present autonomy to a world target zone system.

With this, *Branson* disagreed. First, he argued that target zones would not have worked in the 1980s because of the U.S. fiscal position, not the reticence of German monetary authorities. If the United States had honored an exchange rate target, a large expansionary monetary policy would have been required in the early 1980s. Such a policy would have been politically unacceptable at that time. Second, target zones would also require coordination of fiscal policies. Branson thought that the literature on optimal currency areas could shed some light on the relative costs of abandoning a system of fixed rates versus changing

the parities. There is an old and unresolved debate in economics over whether the whole world ought to be a single currency area. Charles Kindleberger, for example, has argued that the world should be a single area, while Max Corden wonders if Brittany is already too big for a single currency. In practice, however, the distinction is not so clear. A fixed rate system in which the parities are adjusted frequently and costlessly is not really a fixed rate system at all. Finally, Branson responded to a remark made earlier by Anthony Solomon, that many economists such as Paul Krugman and Charles Schultze have predicted that in five years the United States will have balanced merchandise trade, and that this seems to imply that the change will be both rapid and relatively painless. Branson stated that, while many economists are supportive of continued dollar depreciation, they do not believe that it will lead either to an abrupt or painless improvement in the trade balance.

Pratt was asked how multinationals would respond to capital controls. Would each subsidiary be forced to conduct its own financing separately? Pratt responded that this has long been Pfizer's policy. Even in the absence of capital controls, currency risks can most easily be hedged by issuing liabilities denominated in the host-country's currency. *Petty* agreed, adding that since most corporations now treat their financing arms as profit centers, capital controls would have little effect on direct investment. Capital controls are not new, and most multinationals long ago learned how to mitigate the costs such controls impose.

McNamar felt that the day that U.S. trade reaches balance is more than five years off. The capital inflows will persist, partly because institutional investors find little that is attractive in the EC or Japan. There are few new start-ups with prospects for high growth. Indeed, with the dollar depreciation and improving U.S. competitiveness, the U.S. market still looks most attractive. *Greenspan* added that portfolios are already skewed toward dollar-denominated assets, and that foreign residents will stop funding the U.S. current account deficit at some point. Only then will the current account reach balance.

Kunihiro admitted it is often said that the shortage of investment opportunities is responsible for the capital outflow from Japan to New York. There are attempts being made in Japan to resolve this, however, in addition to increasing fiscal spending on social investments. One of these attempts is in so-called third sector participation projects, such as the Konsai Airport, the Tokyo Bay Bridge, and building projects. The government is trying to siphon private money to these public projects, and this strategy is likely to become even more popular. Kunihiro also held that the ranges for exchange rates discussed at the G-7 agreement were in line with fundamentals. In Japan there is concern

that further dollar depreciation will lead to inflation and higher interest rates in the United States.

Ruggiero suggested several ways to reduce the present imbalances while maintaining sufficient world growth. First, increases in aggregate demand in West Germany and Japan are needed, but they cannot alone be the solution. An adjustment by the newly industrialized countries would be helpful, but still not sufficient. Without an improvement in the U.S. saving/investment imbalance, we cannot solve our problems. Second, Ruggiero argued that more resources must be made available to LDCs. Third, exchange rates need to be made more stable. To do this, perhaps compatible rather than highly coordinated policies are necessary.

Richardson noted the underlying belief in the discussion so far that exchange rates matter in real economic decisions. He agreed, but recorded several facts that cast doubt on this view. Over several-year periods, exchange rates are not readily correlated with commodity prices, with trade volumes, with overall price levels, or with cross-border capital formation and investment. Perhaps these facts are consequences of the behavior of multinationals as described by Pratt and Blumenthal. Could it be that prudent financial management has made real economic decisions less sensitive to exchange rate fluctuations?

The discussion then turned to the lagging response of the trade balance to the depreciation of the dollar. *Greenspan* noted the very rapid changes in foreign exporter's profit margins. He speculated that more volatile profit margins could be responsible for the recent stubbornness of the trade deficit. *Branson* added that the J-curve is just now starting; during the six quarters following the dollar's peak, import quantities actually increased. *Schultze* commented that in its early stages a depreciation may affect profit margins on inelastic goods disproportionately, so that a small quantity response is observed.

Schultze also reflected on whether an exchange rate commitment could be expected to change policy behavior. He felt that this is a political proposition. To be successful, he argued, it is necessary to coordinate both monetary and fiscal policies. Schultze reiterated his view that the instruments of policy often become goals in themselves. The current U.S. fiscal stance is an excellent illustration. If instruments themselves become goals, a political willingness for and commitment to coordination is essential if coordination is ever to be successful.

Robert Solomon pointed out that our thinking about the J-curve is somewhat simplistic. When parities are fixed, it may be appropriate to ask how a single, discrete devaluation affects the trade balance over time. But the dollar has experienced a continuous two-year depreciation, so that the corresponding J-curve effect is an envelope of simple J-curves. Solomon admitted astonishment that so little had been said

during the conference about European unemployment, which is one of the most costly problems confronting the industrialized countries today.

Attali projected into the future. He felt that if the world retains a floating rate system political disaster will result. If, on the other hand, exchange rate target zones are adapted, we will have a recession as the United States makes the necessary adjustment to its trade imbalance.

Carli reflected that global financial markets are outside the control of the authorities. In response, central banks must devise longer term cooperative strategies if sensible exchange rates are to be maintained. In the present circumstances, this will require leading central banks to finance the U.S. current account deficit and to accumulate U.S. assets. Otherwise, Carli felt, the system will collapse.

Feldstein was asked to summarize his views for the Sherpas in the upcoming Economic Summit. He stressed that the key challenge for this Summit meeting is to formulate a strategy that avoids the adverse effects of unwinding the U.S. trade balance deficit. Import quantities have begun to fall, so we have turned the corner. But he stressed that even with public sector support, sufficient funding for the current account deficit at the current level of the dollar will not be forthcoming. Instead, the dollar must depreciate enough to eliminate the trade deficit, and this will require a further 20 percent fall in its value. Feldstein noted that surplus countries, such as Japan, which has a current account surplus of over 3 percent of GNP, will sustain substantial damage unless domestic demand fills the void. With this situation as a background, he made three recommendations. First, the U.S. budget must be cut, and here not enough progress has been made. But regardless of the fiscal situation, the trade deficit will fall. In the not-so-distant future, the United States will have to run a trade balance surplus to service its external debt. Second, immediate steps must be taken to expand monetary and fiscal policy in West Germany and Japan. Governments need to anticipate the ultimate effects of the current exchange rate change. Third, expansion in West Germany and Japan is not an alternative to a decline of the dollar. Expansion is to maintain or increase employment in Europe and Japan, while the dollar must fall to achieve external balance. It would be a mistake if the Summit repeats the message from the Louvre agreement that the dollar has already reached an appropriate level. Such a message will encourage the wrong kinds of macro policies in the surplus countries. A falling dollar will help remind these countries that there will be further pain from current account adjustments in the absence of more stimulative macroeconomic policies.