Exchange Rate Choices

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By late 1998, 101 countries had declared that their currencies were allowed to float against other currencies, meaning that the currency was not formally pegged to some other currency or basket of currencies. This was up from 38 ten years earlier, suggesting a significant move toward greater flexibility of exchange rates. Yet during the 1990s, half a dozen countries installed currency boards, a particularly strong form of exchange rate fixity; ten European currencies were eliminated in favor of a common currency, the euro; other countries were actively considering installing currency boards, or even adopting the U.S. dollar for domestic use.

After a quarter century of floating among the major currencies, exchange rate policy is still a source of vexation, and the appropriate choice is by no means clear. Should a country allow its currency to float, subject perhaps to exchange market intervention from time to time? Or should it fix its currency to some other currency or currencies and, if so, to which one(s)? Economists do not offer clearly persuasive answers to these questions. Yet for most countries, all but the largest, with the most developed domestic capital markets, the choice of exchange rate policy is probably their single most important macroeconomic policy decision, strongly influencing their freedom of action and the effectiveness of other macroeconomic policies, the evolution of their financial systems, and even the evolution of their economies.

This paper will not answer these questions, but it will suggest that the responses given by many economists over the past few decades are inadequate and possibly quite poor advice to decisionmakers.

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A Brief History of Exchange Rate Policy

The choice of exchange rate regime was not always so vexing; during much of the modern era it was in practice dictated by convention, by internationally agreed rules, or by uncontrollable external circumstances. If we date the modern era from 1867, when a transatlantic cable first linked Europe and North America electronically—connections were established within Europe from 1851, and across the Pacific in the 1870s—international monetary experience among the major countries can be divided into four distinct periods, each with some fuzzy edges. The first covers the period roughly 1870 to 1914, during which most countries adopted a gold standard for their domestic money, implying fixed exchange rates among currencies beyond the modest flexibility allowed by the mint gold points and transport costs.

This relatively uniform regime—although some countries remained on (generally depreciating) silver, and others had gold-inconvertible currencies from time to time—was interrupted by the First World War. The period 1914 to 1946 saw great variation, both among countries and over time, with the widespread and episodic use of exchange controls, periods of floating exchange rates, an aborted attempt in the late 1920s to restore a variant of the gold standard, and an effort in the late 1930s to stabilize exchange rates among some major currencies by coordinating monetary policy and market intervention.

From 1946 to 1973, exchange rate policy was dominated by the Bretton Woods Agreement of 1944, with its commitment to currencies convertible for current account transactions and fixed exchange rates (beyond a narrow band of permissible flexibility) but adjustable if necessary. It was initially embraced by 44 countries, a list that grew over time. The collective decision to eschew exchange controls and fix exchange rates was strongly influenced by the mainly negative "lessons" from the experience of the interwar period.

The Bretton Woods arrangement came under increasing strain in the late 1960s, and in March 1973 (earlier for Britain and Canada) the practice of fixing exchanges was generally abandoned by the major countries of Europe and Japan, and we entered the fourth period, 1973 to the present, of floating exchange rates. Many countries, however, elected to fix their currencies to some major currency—the U.S. dollar, the French franc, the British pound. And most members of the European Community found intra-European exchange rate flexibility intolerable (among other things, it interfered with the Common Agricultural Policy), so in 1979 they re-created a mini-Bretton Woods system in the exchange rate mechanism of the European Monetary System (EMS), which in 1999 evolved into Europe's Economic and Monetary Union (EMU) with its common currency.

Scope for Choice of Exchange Rate Arrangements

The International Monetary Fund (IMF) Articles of Agreement were amended in 1978 to drop the requirement that members declare exchange rate parities and take the necessary steps to keep market exchange rates near parity. Under the new (and still current) formulation, member countries can in effect choose any exchange arrangement that suits them, provided that it is declared to the IMF, provided that it is consistent with the general objective of the IMF, which is to foster "orderly economic growth with reasonable price stability," and provided that countries "avoid manipulating exchange rates . . . to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members" (Art.IV.1 (iii)).

Curiously, the IMF Articles (Art.IV.4) envision the possibility that international monetary conditions might someday permit the reintroduction of par values for currencies, in effect a return to (quasi) fixed exchange rates, the arrival of such conditions to be determined by an 85 percent voting majority of the IMF members. Member countries, which by now include all economies in the world except Cuba, North Korea, Hong Kong, Taiwan, and a number of mini-states, have among them elected a wide variety of exchange arrangements, ranging from freely floating to rigidly fixed to a major currency, with many combinations in between (see the Appendix Table).

A Brief History of Thought about Exchange Rate Policy

The adoption of flexible exchange rates by many countries in the aftermath of the First World War did not reflect the preferences of policymakers, but rather their inability, in the immediate postwar circumstances, to reestablish convertibility of the national currency into gold. Restoration of gold convertibility, implying fixed exchange rates among such currencies, was the desired aim, preferably at pre-1914 conversion rates, if necessary with some depreciation to allow for the inflation that had occurred during and immediately after the war.

Already in the 1920s, however, some economists, most notably John Maynard Keynes (1923, 1930), saw the advantage for national well-being of "managed money," and managed money at the national level was understood to be inconsistent with rigorous adherence to gold standard conventions. Keynes's proposed solution to this dilemma was to widen the gap between the official gold purchase price and the gold selling price. Any country that did this would introduce a band of floating exchange rates, which would give some scope for independent national monetary policy.

Keynes's proposal was not formally adopted, but the breakdown of

the gold (exchange) standard from 1931 created more scope for independent national action than Keynes had urged or desired. The experience with floating exchange rates, under admittedly extremely difficult circumstances, did not leave contemporaries with a good feeling about them. Ragnar Nurkse, in an influential study for the League of Nations, summarized the interwar experience with floating exchange rates in these terms (1944, p. 210):

> A system of completely free and flexible exchange rates is conceivable and may have certain attractions in theory; and it might seem that in practice nothing could be easier than to leave international payments and receipts to adjust themselves through uncontrolled exchange variations in response to the play of demand and supply. Yet nothing would be more at variance with the lessons of the past.

He went on to elaborate three serious disadvantages of floating rates: risk for trade transactions that cannot be hedged at moderate cost; costly and disturbing shifts in labor and capital among sectors in response to exchange rate changes that might prove to be temporary; and "self-aggravating" movements in exchange rates that intensify disequilibria rather than promote adjustment.

Nurkse's antipathy to flexible exchange rates was widely shared, both among men of affairs and within the academy. John H. Williams of Harvard and the Federal Reserve Bank of New York wrote in 1937, following the Tripartite Agreement to stabilize exchange rates among the U.S. dollar, the British pound, and the French franc, that "there is no evidence of any desire for a really flexible currency" (quoted in Nurkse, p. 211n).

The major exception to this general sentiment was Milton Friedman (1953). In a memorandum written in 1950 for the U.S. Economic Cooperation Administration, which administered the Marshall aid to Europe, Friedman argued that, among the alternatives available, a strong case could be made for allowing the European currencies, at the time heavily burdened by direct controls on international transactions, to float against one another. The ECA was desirous of reducing the heavy restrictions on intra-European trade as well as on trade with the rest of the world; but most countries resisted trade liberalization in part out of fear of unsustainable imbalances in payments, largely vis-à-vis the dollar but partly vis-à-vis one another. (Within Europe, Belgium had the strongest currency.) And against the background of the Great Depression and the Keynesian revolution in thinking about macroeconomic management, all were committed to maintaining some version of full employment, that is, to having nationally managed money. Friedman saw exchange rate flexibility as a way to reconcile otherwise conflicting objectives. Friedman argued (p. 199) that a system of flexible exchange rates would eliminate

the necessity for far-reaching international coordination of internal monetary and fiscal policy in order for any country separately to follow a stable internal monetary policy. "Inflation and deflation in any one country will then affect other countries primarily in so far as it affects the real income position of the initial country; there will be little or no effect through purely monetary channels."

Initially Friedman was nearly alone in his views. Most contemporary economists favored fixed exchange rates and feared the instabilities that flexible exchange rates might bring, or reveal (see, for example, Triffin 1957, 1966; Kindleberger 1966; Bernstein 1945).[1]

But just as experience during the 1920s and 1930s cultivated a distaste for exchange rate flexibility, experience during the 1950s and 1960s cultivated increasing antipathy, especially in academic circles, to the Bretton Woods version of fixed exchange rates—that is, rates fixed beyond narrow bands of permissible variation, but adjustable if necessary to correct a "fundamental disequilibrium" in international payments. It became clear that national authorities held on to their fixed rates for too long, and that by the time a fundamental disequilibrium was evident to them, it was also evident to everyone else. This arrangement created a mechanism for periodic transfers of public wealth, held in the form of gold or foreign exchange reserves, to private parties who speculated successfully on a discrete change in exchange rates, selling before an expected devaluation and repurchasing afterward. Even with pervasive controls on capital movements, determined firms and individuals could move much capital legally by manipulating the "leads and lags" of commercial payments and other loopholes in the control system; and of course funds also moved illegally, with bribes, misrepresentations of trade invoices, and the like.

This prospect in turn inhibited authorities from changing exchange rates, hoping that the payments difficulties were temporary, or led them to impose and increasingly tighten controls on all international transactions in order to reduce payments deficits—thus thwarting the very purposes for which a well-functioning payments system is desired.

Observing this excessive rigidity, as well as the growth in both the possibilities for and the magnitude of international capital movements, economists increasingly came to favor greater flexibility in exchange rates. Numerous proposals for introducing greater flexibility, short of full floating, were put forward. Some concentrated, like Keynes in the 1920s,

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[1] Triffin (1966, pp. 180–94, in internal memos written in 1949) argues, however, that in the interests of trade liberalization the IMF should encourage member countries to adopt flexible exchange rates, under IMF surveillance, as a strictly transitory measure.

Canada in fact floated its currency during most of the 1950s, following the Korean boom in commodity prices; and British officials seriously considered floating the pound in the early 1950s, but in the end rejected that course.

on giving greater freedom for differences in national monetary policies, by widening the band of permissible variation around central parities; others concentrated on providing for gradual secular changes in exchange rates without provoking massive speculation around prospective discrete changes (for example, Williamson 1965). And of course numerous combinations of the two approaches were possible. Federal Reserve Bank of Boston (1969) and Halm (1970) provide useful compendia on academic thinking in the late 1960s.

The "Bellagio Group," under the collective leadership of Fritz Machlup, William Fellner, and Robert Triffin, held a series of meetings from 1963 between academics and central bankers to review the functioning of the international monetary system in its diverse aspects, including exchange rate arrangements as well as provision for international liquidity. This group exposed key central bankers to the evolution in academic thinking and may have played some role in persuading policymakers that flexible exchange rates were workable, and at least no more troublesome than the fixed exchange rate system with which they were then having to cope.

The debate was summarized tendentiously by Harry G. Johnson (1973) in his widely read "The Case for Flexible Exchange Rates, 1969," first published in the United States by the Federal Reserve Bank of St. Louis but widely reproduced thereafter. In contrast to Friedman, from whom he drew his title, Johnson was writing after extensive liberalization of payments on current account and some liberalization on capital account; and he was writing after 20 years' experience under the Bretton Woods system. He both reflected and helped shape the prevalent view among academic economists, if not bankers and government officials, who on the whole remained hostile to exchange rate flexibility.

The essay is well-balanced in its overall structure: He states the case for fixed rates, the case for flexible rates, and the case against flexible rates. But only one paragraph is devoted to stating the case for fixed rates, the remainder of the section to why it is "seriously deficient." And the section on the case against flexible rates is basically devoted to knocking it down, consisting as it does in Johnson's view "of a series of unfounded assertions and allegations." It is not a balanced account; Johnson had made up his mind and hoped to impose his conclusions on others by a devastating critique of the (unnamed) opposition.

Johnson's affirmative analysis is itself based on a series of unfounded assertions and allegations, an idealization of the world of financial markets without serious reference to their actual behavior. The key tenets were as follows:

1) That the foreign exchange market was rather like the strawberry market or any other market small relative to the size of the economy, such that the impact of developments in this market on the overall economy

could be neglected (a curious stance, since in his other writings Johnson was insistently general equilibrium in his approach);

2) That the foreign exchange market is a stable market: "a freely flexible exchange rate would tend to remain constant so long as underlying economic conditions (including government policies) remained constant; random deviations from the equilibrium level would be limited by the activities of private speculators . . . " (p. 208);

3) That exchange rate movements would be dominated by inflation differentials between the respective countries; and

4) That under flexible exchange rates the market would quickly develop the wide range of appropriate hedging instruments that were manifestly not present in the late 1960s, permitting reductions in such uncertainties as flexible rates might occasion.

Running through the essay is the view that the major if not the sole sources of disturbance to exchange rates are government policies. And, as in Friedman, "Flexible rates would allow each country to pursue the mixture of unemployment and price trend objectives it prefers . . . " (p. 210), that is, it can choose its preferred point on the Phillips curve.

After a quarter century of experience with floating exchange rates this essay now seems somewhat naive—a label that would offend Johnson, even though he sometimes applied it to others. He demonstrates a charming faith in the ability of private markets to get the exchange rate right, and to keep it there. He wrote before the advent of the "asset price" approach to exchange rates had been developed, with its sudden jumps in response to news, even to news that turns out to be incorrect.

It is worth noting that Johnson was making a case for floating exchange rates among the currencies of major countries with well-diversified economies, such as Britain, Germany, or his native Canada. He explicitly excuses developing countries, indicating with approval that they would probably link their currencies to some major currency. But the choice of which currency would not be consequential provided currency movements largely tracked inflation differentials, that is, provided real exchange rates among the major currencies remained relatively stable, as he expected they would.

I conjecture that Johnson would not have been surprised by the large appreciation of the U.S. dollar between 1980 and 1985 and its subsequent rapid depreciation. That was largely explicable, except perhaps for the final appreciation in late 1984, by the tight money and stimulative fiscal stance of the United States, combined with tight fiscal policies in other major countries, especially Japan and Germany, all of which were fighting inflation at the time. But even he would have been surprised, I believe, by the sharp appreciation of the Japanese yen in early 1995, followed by a steep fall over the following three years, from ¥85 to ¥145 to the dollar, and then back quickly to below ¥110 in early 1999. Japan and the United States both had low and stable inflation rates, and the peculiar

gyrations in Japan's fiscal policy go only part way toward explaining the movement in the yen-dollar exchange rate, particularly when the small impact on long-term Japanese bond rates is taken into account. These were large—and disturbing—movements in (real) exchange rates between the world's two largest national economies. Such movements cannot characterize a well-functioning exchange rate regime.

In any case the general movement to flexible exchange rates among major currencies that occurred in 1973 was short-lived. Many (continental) Europeans felt that flexible rates among their currencies would be highly disruptive of the recently completed Common Market (which Britain, Denmark, and Ireland joined in 1973, beginning a decade-long process of transition to full participation), especially its common agricultural policy. Under the CAP, target prices were set annually for farm products before each crop season in a synthetic unit of account, the ecu. Flexible exchange rates among participating currencies implied—horrors!—that farm prices might actually decline within the crop year in those currencies that appreciated. To prevent this, so-called green exchange rates, different from market rates, were applied to intra-European agricultural trade, thus necessitating internal border adjustments, that is, disrupting free intra-European trade in agricultural products and thereby threatening the Common Market. Faced with this complication, and concerned about the implications of an unstable dollar for intra-European exchange rates (something that should not be a problem in Johnson's view of exchange market behavior), German Chancellor Schmidt and French President Giscard d'Estaing, both former finance ministers who prided themselves on their economic knowledge and experience, persuaded their colleagues to re-create within Europe the main features of the Bretton Woods system, albeit with a substantially wider—9 percent versus 3 percent—band of permissible exchange rate flexibility around central parities.

The debate over the best exchange rate regime continues unabated, still unresolved. An extensive discussion in the 1990s focused on the desirability of introducing a common currency—fixed exchange rates at their extremity—within Europe, with many economists expressing doubt about its wisdom or concern about the outcome (see, for example, Obstfeld 1997 and the references there cited). Moreover, the fact that all of the countries experiencing financial crises in 1997 and 1998 had de facto (but not declared) fixed exchange rates has encouraged a re-look at the most appropriate exchange rate policy for developing countries, with many economists concluding that flexible exchange rates are preferable to fixed.

One factor that has inhibited serious resolution of exchange rate choices is the continuing use by the economics profession of an extraordinarily primitive theory of money in its theorizing, and its insistence on separating monetary and real factors in analyzing economies. This

pedagogically useful practice prevents economists from finding any welfare costs associated with disturbing the allocative role of money prices (as opposed to relative prices), such as might occur with exchange rate fluctuations that are not associated with serious signals to reallocate resources. A recent paper by Obstfeld and Rogoff (1998) breaks with parts of this tradition and finds, in a highly stylized but promising model, that the welfare cost of exchange-rate variability can be as much as 1 percent of GDP, a nontrivial amount.

Evaluation of Performance under Alternative Exchange Arrangements

Can we draw on a quarter century of experience with floating exchange rates to determine the correct choice for exchange rate policy? Unfortunately not. A number of studies have tried to ferret out the influence of exchange rate arrangements on economic performance. They involve before/after case studies of countries that have changed their arrangements, comparative case studies, and econometric analysis of pooled cross-country experience. All suffer from the usual problems plaguing empirical work in economics: There is no entirely satisfactory way to "control" for all relevant cross-country differences or for the relevant changes in the domestic and international economic environment over time. Not surprisingly, therefore, the results are not conclusive and are sometimes contradictory; they vary with country coverage, time period, and detailed specification of the "model" that tries to control for other relevant variables, many of which would be endogenous to a more comprehensive model specification. A sample of recent results:

Ghosh et al. (1997) study 140 countries over 30 years under nine types of exchange rate arrangement. They find that both levels and variability of inflation are markedly lower under fixed exchange rates than under floating exchange rates. Growth in per capita income, in contrast, does not seem to be much influenced by exchange rate arrangements, perhaps because investment ratios are higher but trade growth somewhat lower under fixed than under floating exchange rates. Variability of real output, however, is discernibly higher under fixed than under floating exchange rates.

The first of these interesting results seems to contradict the conclusion Quirk (1994) reached on reviewing previous empirical literature, that there is not much linkage between exchange rate arrangements and inflation. Advocates of fixed exchange rates within the European Union pointed with pride to the decline in inflation amidst adequate economic growth in EMS members during the 1980s; skeptics or opponents pointed out that central rates were changed annually during the EMS's first eight years, a financial crisis occurred in 1992 after the rates had been fixed for

five years, and in any case floating-rate Britain had an economic performance that was even better than that of EMS countries during the 1980s.

Hausmann et al. (1999) found that during the 1990s Latin American countries with fixed exchange rates had greater financial depth (as measured by M2/GDP), lower real interest rates, and less effective wage indexation than did those with floating exchange rates. Monetary policy under floating rates, far from demonstrating greater autonomy, has been more pro-cyclical than that under fixed rates.

Bacchetta and van Wincoop (1998) have constructed a formal model to discover the influence of exchange variability on international trade and investment. In their PPP-based model, foreign trade is not influenced by the exchange rate regime when shocks are monetary in origin, but trade is lower under floating rates if shocks are real and macroeconomic policy is used to cushion their impact on the home market. Net foreign investment is lower under floating than under fixed exchange rates, if there is a preference for domestic bonds and risk aversion is plausibly high. But the model does not allow for foreign investment as a means of hedging foreign exchange risk.

These results seem inconsistent with the finding of Ghosh et al. that fixed exchange rates seem, if anything, to depress the *growth* of foreign trade, compared with floating rates. But they get some support from a study of U.S. and German trade by Akhtar and Hilton (1984), who find that exports of manufactured goods by both countries were discernibly lower than they otherwise would have been, following the introduction of floating exchange rates in 1973. They also get indirect support from Helliwell's (1998) comparison of interprovincial trade within Canada with cross-border trade with the United States. He finds interprovincial trade is over 10 times higher than trade between Canadian provinces and American states, controlling for income levels and distance. These close neighbors are moving toward a free trade area and have generically similar systems of commercial law. No doubt many factors can be invoked to explain the striking difference in trade levels, but different currencies must be among them, and particularly different currencies that float against one another.

What about the disciplinary effect of exchange rate arrangements? Ghosh et al. find, not surprisingly, that fixed exchange rates moderate the growth of money supply compared with flexible rates. It has long been argued that fixed exchange rates would also discipline fiscal policy. Tornell and Velasco (1995) challenge this view on theoretical grounds, pointing out that a depreciating currency is a more immediate and observable signal of fiscal undiscipline than a decline in reserves that appears with delay and can be concealed in various ways. They find empirical support for their position by examining the behavior of 28 sub-Saharan African countries. However, Kim (1999) explores the impact of capital account liberalization, a variable not included in the Tornell-

Velasco test. An examination of 54 rich and poor countries between 1950 and 1989 finds that capital account liberalization has a marked and statistically robust disciplinary effect on fiscal policy (as measured by budget deficit relative to GDP) and that, as might be expected, the effect is greater under fixed exchange rates than it is under flexible rates.

What about predictability? Meltzer (1986) examined the forecast errors on quarterly real and nominal variables for the United States, classified under six different monetary regimes from 1890 to 1980, including the Bretton Woods system of fixed exchange rates, 1951 to 1971, and floating rates after 1971. In seeming contrast to the Ghosh et al. results, Meltzer finds greater forecast error (that is, unpredicted variability on his simple forecasting model, rather than variability per se) for real GDP under floating rates than under fixed rates and, less surprisingly, also for money supply growth; forecast errors for price level were about the same during the two regimes. The really striking result, however, is how dramatically lower forecast errors were under both these post-1950 regimes than they were in previous periods—90 percent lower for the price level, 95 percent lower for real GDP, than in the "stable" gold standard period 1890 to 1914.[2] By Meltzer's criterion, huge improvements in macroeconomic management have been made, but the results do not provide a strong basis for a U.S. choice between fixed and floating in recent years. Meltzer's analysis of fluctuating rates ends in 1980, and it would be interesting to extend his analysis to the present.

One empirical generalization, however, can be safely made on the basis of over two decades' experience under floating exchange rates: Real exchange rate movements are highly correlated in the short and medium run with nominal exchange rate movements, except when very high inflation rates are involved. That is, Harry Johnson's conviction that exchange rate movements between two currencies would largely reflect inflation differentials between the countries turns out to be empirically incorrect.

Exchange Rate Choices for Developing Countries

The "incompatible triangle" of fixed exchange rates, independent monetary policy, and freedom of capital movements has been understood by economists for a long time. Countries have to choose which of these objectives they will drop, although most governments resist the choice and attempt to fudge in various ways, often producing financial crises in the process.

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[2] Not only did predictability rise; performance also improved. World real per capita income grew by 2.2 percent annually in the period 1950 to 1990, compared with 1.3 percent between 1870 and 1914. Calculated from Maddison (1995).

What is less obvious is that floating rates, independent monetary policy, and freedom of capital movements may also be incompatible, at least for countries with small and poorly developed domestic capital markets, that is, for most countries. That would leave a more limited menu of choice for such countries: between floating rates with capital account restrictions and some monetary autonomy, or fixed rates free of capital restrictions but with loss of monetary autonomy. Put bluntly, two prescriptions regularly extended to developing countries by the international community, including the IMF and the U.S. Treasury, namely to move toward greater exchange rate flexibility and to liberalize international capital movements, may be in deep tension, even deep contradiction.

Within a country, the national price level is beyond reach of anyone except its central bank; it is taken as autonomously determined by all players in financial markets. The same is not true for the price levels of small, open economies: Their national price levels are strongly influenced by their exchange rates, at least in the short to medium run. Yet the exchange rate is technically not anchored by anything in the long run, being the barter price between two nominal variables (as Kareken and Wallace (1977) pointed out two decades ago), and not even in the short run if the central bank is not pegging it or does not have sufficient reserves to resist movement reflecting large market-driven shocks. Thus a large financial player can influence the exchange rate, hence the price level, of relatively small countries by selling their currencies short. Furthermore, given the dynamics of thin financial markets, a single player does not need enough resources to move the exchange rate radically; he only has to start a run on the currency, through a combination of sales and rumors. If the word goes out persuasively that a currency will depreciate, many will join the bandwagon and the currency will depreciate.[3] If the price level adjusts and the central bank later accommodates the adjustment for macroeconomic reasons, the depreciation will have been justified, ex post. This is a fundamentally unstable dynamic, with multiple equilibria, as Obstfeld (1986) has pointed out. As one example, according to Aliber (1962), the Belgian franc was dragged down by the French franc in the early 1920s, despite very much better "fundamentals," and the currency depreciation led to inflation that subsequently justified the depreciation.

On August 13, 1998, four days before the Russian government

[3] Recent research involving detailed micro data on equity trading suggests strong persistence and positive feedback trading in emerging markets; that is, investors buy on a rising market and sell on a falling market. There is also substantial evidence of herd behavior. In other words, the assumption of independence of agents' behavior is not warranted, and the possibility of destabilizing movements is high. See Kim and Wei (1999), Froot et al. (1998), and Stulz (1998).

abandoned its publicly stated (but not formal) exchange rate commitment, George Soros wrote a letter to the *Financial Times* predicting the imminent demise of the ruble. It was suggested soon thereafter that the letter was a deliberate attempt to destabilize the ruble, on which Soros could be expected to make a lot of money.

In this case, on his own testimony (Soros 1998, chapter 7) Soros actually lost money, and there is no evidence to suggest that his letter was an attempt to destabilize. But the example, and the subsequent suspicions, illustrate the point that when market expectations are already fragile, a single respected player could in fact move market prices by discrete amounts, in a manner that could become self-justifying—something that cannot happen in an idealized competitive market.[4] In early 1999 Itamar Franco, governor of a Brazilian state, declared its unwillingness to continue to service its debts to Brazil's federal government, allegedly deliberately attempting to embarrass his political rival President Cardoso by precipitating a budget and foreign exchange crisis.

These examples, it is true, concerned bringing into question an exchange rate commitment; but there is no reason to believe that the target could not be any other commitment, such as a prospective budget deficit or even a market-determined exchange rate. Domestically, at least in the United States, there are rules against market manipulation, in both commodity and securities markets, by one or a few parties. Convicted market manipulators can be sent to jail. There are no such international sanctions, and small economies are vulnerable.

The core problem is that for economies with imperfectly developed financial markets the exchange rate is the most important asset price, and it will be jerked around by changes in portfolio sentiments. But for an open economy the exchange rate is also the most important price in the market for goods and services. Jumping asset prices can badly disrupt the markets on which the economic well-being of the majority of residents depends. Hedging possibilities will be limited in a poorly developed financial market, and in any case long-run investments cannot be hedged financially.

Furthermore, it is an open question whether a broad, diversified financial market based on the domestic currency can develop under floating exchange rates. With floating exchange rates and freedom of capital movement, residents face constant fluctuation in the real value of domestic assets as the exchange rate moves, and they have the option of

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[4] While the Russian fiscal situation was anything but satisfactory, there is no evidence that the Russian ruble was overvalued in terms of foreign trade, unless the fall in oil prices was judged to be a permanent one. The fragility was created by foreign and domestic holdings of short-term ruble-denominated government securities amidst doubts whether the government could continue to make payments on them at the relatively high interest rates required to sell them.

investing abroad in more stable, more liquid financial instruments (albeit also with fluctuating real values in terms of home currency). Under direct competition, domestic markets are unlikely to develop to the point at which they can offer assets competitive with assets held abroad. It is noteworthy, for instance, that among Latin American countries long-term mortgages with fixed interest rates exist only in Panama, a country that uses the U.S. dollar domestically.

The unwelcome conclusion that flows from this discussion is that free movements of capital and floating exchange rates are basically incompatible, except for large and diversified economies with well-developed and sophisticated financial markets. Of course, free movements of capital are also incompatible with fixed but adjustable exchange rates. Thus, unless countries are prepared to fix permanently the values of their currencies to some leading currency, or to adopt some leading currency as their national currency, they may reasonably choose to preserve the right to control at least certain kinds of capital movements into and out of their jurisdictions, in the interests of reducing both nominal and real exchange rate variability (see Cooper 1999b).

In Johnson's view, capital movements play a highly stabilizing role. But many developing countries are only marginally creditworthy and financially fragile, so international capital movements may aggravate rather than mitigate both real and financial economic shocks. Any general retreat from risk by asset-holders will affect them adversely.

What should developing countries do? It depends very much on the details of their economic structure and their circumstances: on what kinds of real shocks they experience; on how flexible are their wages and rents; on how supple and effective is their management of fiscal and monetary policy; on their administrative capacity to enforce restrictions on capital movements, particularly surges in or out; and on a host of other factors. In any case, the choice is not easy, and countries are not obviously foolish for being reluctant to embrace floating exchange rates enthusiastically.

Exchange Rate Choices for Rich, Diversified Countries

Flexible exchange rates have obtained since 1973 among the major currencies of the world: the U.S. dollar, the Japanese yen, the British pound, the Canadian dollar, and the continental European currencies centered around the German mark. In contrast to what Nurkse might have expected, the experience has not been a disastrous one. Arguably, indeed, floating exchange rates helped their economies navigate more smoothly among some major world disturbances, such as the oil price shocks of 1974, 1979–80, and 1986 and the German unification of 1990. On the other hand, some have argued that because world oil prices are denominated in dollars, the three oil shocks themselves were caused by

sharp movements in dollar exchange rates. While I find this implausible, the fact that the case can be put forward suggests the complexities of cause and effect when it comes to currency arrangements and their impacts on real economies.

Nominal and real exchange rates also responded strongly to the "fiscal twist" of the early 1980s, when the United States pursued an expansionist fiscal policy while Britain, Germany, and Japan, later joined by France, pursued contractionary fiscal policies. Whether one assesses the consequential sharp appreciation of the dollar in the early 1980s as benign or malign, it certainly had real and durable effects not only on foreign trade but also on the structure of output, not least because of high fixed costs sometimes associated with product entry into a national market (as emphasized by Krugman 1989). Arguably the depth and duration of Japan's recession in the 1990s can be explained in part by excessive exchange-rate-induced industrial expansion in Japan in the mid 1980s, when the cheap yen made Japanese goods highly competitive in the American market.

More recently, the dollar-yen exchange rate reached ¥85 per dollar briefly in 1995 and then moved to ¥145 briefly in 1998, a swing of 70 percent over three years (and back to ¥108 by January 1999). The United States and Japan were both successfully pursuing low-inflation monetary policies. What then justifies a swing of this magnitude? What disturbance does it create for trade (for example, in stimulating antidumping suits by U.S. firms) and for investment planning—not only for exports, but for a domestic market subject to import competition? What disturbance does it create for balance sheets, especially of financial institutions? How many economically sound firms were thrown into bankruptcy? Might the prolonged recession in Japan—including extensive overseas investment by Japanese firms—be related in part to fear of wide swings in exchange rates? Are these firms hedging against future exchange rate uncertainty by diversifying their production across currency zones, especially into Europe and into North America? As noted above, exchange rate movements of this type certainly violate the expectations and contentions of advocates of floating rates 30 years ago, and they cannot signify well-functioning international monetary arrangements. But are there practical alternatives?

Before turning to various proposals, we should note another potential source of disturbance: the creation of the euro out of 10 preexisting national currencies in early 1999. A number of economists (for example, Bergsten 1997, 1999; Masson and Turtelboom 1997; Portes and Rey 1998) have suggested that exchange rate volatility between the dollar and the euro may well be higher than it was between the dollar and the German mark before 1999. The reasons are partly structural—euroland is much more self-contained than the individual countries were, so exchange rate variation will cause fewer internal disturbances, hence fewer calls for

action to stabilize exchange rates—and partly institutional, since the newly created European Central Bank is charged with pursuing price stability, not stabilizing currency values.[5] Thus the ECB need pay attention to exchange rates only insofar as their movements threaten price stability, and early pronouncements by the ECB indeed indicate relative indifference to the dollar-euro exchange rate.

This greater volatility could be greatly aggravated if, during the next decade, foreign exchange holders around the world decide to switch their claims substantially from U.S. dollar-denominated ones to euro-denominated ones, as some have suggested will occur (see Bergsten 1997; Portes and Rey 1998). I have argued elsewhere (Cooper 1999a) that a rapid switch from dollars to euros is not likely to occur because of the absence of sufficient suitable euro-denominated securities, and that growing internationalization of the euro will occur more gradually and smoothly in a context of world economic growth. But if a rapid switch does occur, it is likely to take place in several episodes rather than all at once, leading to episodic depreciation of the dollar, but at a rate and to an extent that is impossible to predict, since the *potential* for such switching will be seen to be very large.

Exchange rates are increasingly determined by financial transactions, which overwhelm trade and other current transactions in their magnitude. Financial transactions are subject to bandwagon effects, as each player seeks to be ahead of others in the market, and institutional investors seek performance that does not deviate negatively from performance of their peers. Yet the erratic exchange rates determined by such behavior also govern international trade. Particular trade transactions can be financially hedged in the short run, at a cost; but investment for the purpose of engaging in trade cannot be similarly hedged. The result is likely to be both too little total investment, and too much investment in the wrong places, driven by the need of firms to hedge by locating within each major currency area, even if economic efficiency would be better served by locating elsewhere and importing. Furthermore, sustained misalignment of exchange rates is likely to increase protectionist pressures, as it did in the United States during the mid 1980s and in Europe during the early 1990s.

In short, movements in exchange rates, while providing a useful shock absorber for real disturbances to the world economy, are also a

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[5] It is noteworthy that the statute creating the German Bundesbank charged it with pursuing among other objectives "stability of the currency," a marvelously ambiguous formulation, while the Maastricht Treaty creating the ECB charges it with pursuing "price stability" as its primary objective.

Gros (1999) is more skeptical that dollar-euro exchange-rate volatility will be higher than pre-1999 dollar-DM volatility, since it will depend on the as yet unknown approach of the ECB to monetary policy.

substantial *source* of uncertainty for trade and capital formation, the wellsprings of economic progress. What can be done about it?

Broadly speaking, four types of exchange rate arrangements have been suggested for Britain, EMU, Japan, and the United States, the core of the international monetary system. The first is floating exchange rates, the arrangements that have generally prevailed during most of the past quarter century. As just noted, such arrangements have not been disastrous, but they have not lived up to earlier claims for floating rates either. In some respects they have been problematic, and they may become more troublesome in the future. What are the alternatives?

One is to establish target zones—central rates with a rather wide band of permissible variation—among the core currencies, as has been advocated by Williamson (1985) and Bergsten and Henning (1996), and recently espoused by Paul Volcker (1995). A second is to allow exchange rates to float, but to have monetary policy in the core areas targeted on the same price index, as advocated by McKinnon (and, in 1930, by Keynes). A third, more radical idea is to create common currency among the core countries, as suggested by Cooper (1984).

Target zones can have narrow or wide bands of permissible exchange rate variation, and they can have "soft" or "hard" edges to the bands, depending on the degree of commitment that governments publicly undertake to keep the exchange rate firmly within the band. The original Bretton Woods arrangement was in effect a target zone with a narrow band and hard edges. More recent variants emphasize wide (for example, 20 percent) bands and soft edges, such that governments would not be absolutely committed to hold the exchange rate within the band, thus giving private investors a one-way bet on the ability of the authorities to hold, but would instead signal the market that the government would be increasingly concerned as market rates approach the edges and might intervene directly in foreign exchange markets or adjust monetary policy to keep market rates from straying too far outside the bands. The purpose of such an arrangement would be to prevent major misalignments in exchange rates, while allowing market forces to determine exchange rates most of the time. Its intermediate objective would be to create expectations in financial markets that exchange rates will rarely if ever move outside the permissible band.

As formulated by Williamson on various occasions, target zones would be centered on "fundamental equilibrium exchange rates" calculated on the basis of internationally agreed current account targets. But of course this feature is not necessary; target zones could be established around any prevailing market exchange rates that the monetary authorities deem to be about right for the long run. This possibility is important to keep in mind, since the normative grounds for establishing current account targets are not at all clear in a world of high mobility of private capital and wide international differences in the effective use of capital.

Rich countries may properly be net importers of capital, as Canada and Australia have been for decades, and as the United States has been for the past decade.

Of course, as exchange rates approach the edges of the bands, monetary policy in both affected entities may have to be devoted to the exchange rate target, and thus perhaps diverted from domestic objectives. This prospect places a premium both on some flexibility in the use of fiscal policy for macroeconomic stabilization, as Robert Solomon (1999) has emphasized, and on a mechanism for coordinating monetary policies between the relevant entities, since coordinated monetary action can affect both the exchange rate and aggregate demand.

McKinnon (1984, 1996) has proposed an alternative, but not entirely dissimilar, arrangement between Germany, Japan, and the United States (EMU could easily be substituted for Germany). Concretely, as applied to Japan and the United States (see McKinnon and Ohno 1997), the proposal involves determining a target exchange rate based on purchasing power parity of *wholesale* (not retail) prices and establishing a permissible band of 10 percent around this rate, with soft edges. The width of the band would be narrowed over time, as confidence in the system grew. Monetary policy in both countries would be keyed in the long run to stabilizing the respective domestic wholesale (in the United States, producer) price indices. Concerted market intervention would attempt to keep exchange rates within the permissible band, but such intervention would not be completely sterilized, to allow exchange rate intervention to influence domestic monetary conditions.

Wholesale prices are dominated by tradable goods, and lack domestic sales taxes and retail markups. They also exclude services. Thus, there should be a high correlation in the movements of British, European, Japanese, and American wholesale prices, such that monetary policy in each entity would be targeted on roughly the same price index.[6] If policymakers were successful, inflation rates measured by consumer prices in these regions would differ for a variety of reasons (for example, changes in sales tax rates, greater competition in retail trade, changes in mix of services consumed and in prices of services), but such differences would presumably have little impact on international trade. Since price stability in wholesale prices would allow for some inflation measured in consumer prices, that would introduce some flexibility for adjustments in real wages in the face of nominal wage rigidity, thus facilitating adjust-

[6] In discussing international coordination of policies Keynes (1930) suggested that all major countries target the *same* index of prices of a basket of internationally traded commodities, ranging from aluminum to zinc. Concretely, writing under a gold standard, he suggested adjusting the official conversion price of gold periodically to maintain its value in terms of an index of 62 commodities—the equivalent of targeting price stability of the index.

ment to shocks both within and between economies. Stability in consumer prices, in contrast, introduces relative price rigidity in the presence of downward price/wage inflexibility, which is widely observed, and thus impedes adjustment.

Cooper (1984) took the process of exchange rate coordination a strong step further, by suggesting an eventual currency union among the major industrial democracies: Europe, Japan, and the United States. A common currency would credibly eliminate exchange rate uncertainty. One currency would, of course, entail one monetary policy for the currency area and a political mechanism to assure accountability. The details of such an arrangement will not be repeated here. The suggestion was not politically realistic in the mid 1980s and is not politically realistic today, but it is set as a vision for a decade or two into the twenty-first century. The Europeans, in creating EMU, have taken a major step in the direction indicated. The idea could be taken further.

The suggestion draws its inspiration from two empirical prognostications and one empirical proposition. The first prognostication is that international financial transactions will grow relative to international trade in goods and services, and that financial factors will come to dominate exchange rate determination even more than they do today. At the same time, the exchange rate will become more important in determining the profitability of trade and investment than it is today.

The second prognostication is that real shocks among these entities will not be radically asymmetrical. Because all are large, highly diverse economies, disturbances within these economies are likely to be more important than disturbances between them, and adjustment to such shocks as occur will be no more difficult, and perhaps easier, than adjustments to shocks within those economies.

The empirical proposition is that financial markets will be just as fickle and as fragile (or as robust) in the future as they have been in the past. That is to say, they will continue to fail to satisfy Harry Johnson's contention that they are far-seeing and universally stabilizing in their behavior.

These propositions and prognostications together suggest that, as time goes on, flexible exchange rates will gradually evolve from being mainly a useful shock absorber for real shocks into being mainly a disturbing transmitter of financial shocks, increasingly troublesome for productive economic activity. Thus, a cost-benefit calculation for flexible versus fixed exchange rates will gradually alter the balance against flexibility, even for large countries.

Appendix Table
Exchange Rate Arrangements[1] as of January 1, 1999

Exchange Rate Regime (Number of countries)					
Exchange arrangements with no separate legal tender (37)	Another currency as legal tender	ECCM**[2]	WAEMU**	CAEMC**	EMU**
	Kiribati Marshall Islands Micronesia Palau Panama* San Marino	Antigua & Barbuda Dominica Grenada St. Kitts & Nevis St. Lucia St. Vincent & the Grenadines	Benin* Burkina Faso* Côte d'Ivoire* Guinea-Bissau Mali* Niger* Senegal* Togo	Cameroon* C. African Rep. Chad* Congo. Rep. of* Equatorial Guinea Gabon*	Austria Belgium Finland France Germany Ireland Italy Luxembourg Netherlands Portugal Spain
Currency board arrangements (8)	Argentina* Bosnia and Herzegovina* Brunei Darussalam Bulgaria* China, P.R.: Hong Kong Djibouti* Estonia* Lithuania				

Appendix Table continued
Exchange Rate Arrangements[1] as of January 1, 1999

Other conventional fixed peg arrangements (including de facto peg arrangements under managed floating) (39)	Against a single currency (25)		Against a composite (14)	
	Aruba	Jordan*[4]	Bangladesh	
	Bahamas, The	Lebanon[4]	Botswana	
	Barbados	Lesotho	Burundi	
	Belize	Macedonia, FYR*[4]	Fiji	
	Bhutan	Malaysia	Kuwait	
	Cape Verde*	Maldives*[4]	Latvia*	
	China, P.R.: Mainland*[4]	Namibia	Malta	
		Nepal	Morocco	
	Comoros[5]	Netherlands Antilles	Myanmar	
	Egypt[4]	Oman	Samoa	
	El Salvador*[4]	Syrian Arab Republic	Seychelles	
	Iran[4]	Swaziland	Solomon Islands	
	Iraq	Turkmenistan[4]	Tonga	
			Vanuatu	
Pegged exchange rates within horizontal bands (12)[6]	Within a cooperative arrangement ERM II (2)		Other band arrangements (10)	
	Denmark		Bahrain[7]	Qatar[7]
	Greece		Croatia*[4]	Saudi Arabia[7]
			Cyprus	Ukraine*[4]
			Iceland	United Arab Emirates[7]
			Libya	Vietnam[4]
Crawling pegs (6)[4]	Angola	Nicaragua*		
	Bolivia	Tunisia		
	Costa Rica	Turkey		

Appendix Table continued
Exchange Rate Arrangements[1] as of January 1, 1999

Exchange rates within crawling bands (10)[4,8]	Chile Colombia Ecuador Honduras Hungary	Israel* Poland* Sri Lanka* Uruguay* Venezuela			
Managed floating with no preannounced path for exchange rate (26)	Algeria[3] Azerbaijan Belarus[3] Cambodia[3] Czech Republic Dominican Rep.[3] Ethiopia	Jamaica[4] Kazakhstan Kenya Kyrgyz Republic Lao PDR Malawi Mauritania	Nigeria[3] Norway[3] Pakistan Paraguay[3] Romania[3] Russian Federation[3]	Singapore[4] Slovak Republic[3] Slovenia Suriname[3] Tajikistan Uzbekistan[3]	
Independently floating (47)	Afghanistan[9] Albania Armenia Australia Brazil Canada Congo. Dem. Rep. of[3] Eritrea[3] Gambia, The* Georgia	Ghana* Guatemala[3] Guinea* Guyana* Haiti India Indonesia Japan[3] Korea* Liberia[3] Madagascar	Mauritius[4] Mexico Moldova Mongolia* Mozambique New Zealand Papua New Guinea[3] Peru* Philippines* Rwanda	São Tomé and Principe* Sierra Leone Somalia[9] South Africa Sudan Sweden Switzerland Tanzania Thailand Trinidad & Tobago	Uganda United Kingdom United States[3] Yemen, Rep. of Zambia Zimbabwe*

** **ECCM**: East Caribbean Common Market; **WAEMU**: West African Economic and Monetary Union; **CAEMC**: Central African Economic and Monetary Community; **EMU**: (European) Economic and Monetary Union.

Exchange Arrangements with No Separate Legal Tender: The currency of another country circulates as the sole legal tender or the member belongs to a monetary or currency union in which the same legal tender is shared by the members of the union.

Currency Board Arrangements: A monetary regime based on an implicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate, combined with restrictions on the issuing authority to ensure the fulfillment of its legal obligation.

Other Conventional Fixed Peg Arrangements: The country pegs its currency (formally or de facto) at a fixed rate to a major currency or a basket of currencies where the exchange rate fluctuates within a narrow margin of at most ±1 percent around a central rate.

Pegged Exchange Rates Within Horizontal Bands: The value of the currency is maintained within margins of fluctuation around a formal or de facto fixed peg that are wider than ±1 percent around a central rate.

Crawling Pegs: The currency is adjusted periodically in small amounts at a fixed, preannounced rate or in response to changes in selective quantitative indicators.

Exchange Rates Within Crawling Bands: The currency is maintained within certain fluctuation margins around a central rate that is adjusted periodically at a fixed preannounced rate or in response to changes in selective quantitative indicators.

Managed Floating with No Preannounced Path for the Exchange Rate: The monetary authority influences the movements of the exchange rate through active intervention in the foreign exchange market without specifying, or precommitting to, a preannounced path for the exchange rate.

Independent Floating: The exchange rate is market determined, with any foreign exchange intervention aimed at moderating the rate of change and preventing undue fluctuations in the exchange rate, rather than at establishing a level for it.

[1] A country with * indicates that the country adopts more than one nominal anchor in conducting monetary policy.

[2] These countries also have a currency board arrangement within the common market.

[3] The country has no explicitly stated nominal anchor but rather monitors various indicators in conducting monetary policy.

[4] The indicated country has a de facto arrangement under a formally announced policy of managed or independent floating. In the case of Jordan, it indicates that the country has a de jure peg to the SDR but a de facto peg to the U.S. dollar. In the case of Mauritius, the authorities have a de facto policy of independent floating, with only infrequent intervention by the central bank.

[5] Comoros has the same arrangement with the French Treasury as do the CFA Franc Zone countries.

[6] The band width for these countries is Bahrain (±7.25%), Croatia (unspecified), Cyprus (±2.25%), Denmark (±2.25%), Greece (±15%), Iceland (±6%), Libya (±77.5%), Qatar (±7.25%), Saudi Arabia (±7.25%), Ukraine (Hrv 3.4–4.6 per U.S. dollar), United Arab Emirate (±7.25%), and Vietnam (7% one-sided).

[7] Exchange rates are determined on the basis of a fixed relationship to the SDR, within margins of up to +/−7.25%. However, because of the maintenance of a relatively stable relationship with the U.S. dollar, these margins are not always observed.

[8] The band for these countries is Colombia (±9%), Chile (±16%), Ecuador (±7.5%), Honduras (±7%), Hungary (±2.25%), Israel (symmetric band of 30%), Poland (±12.5%), Sri Lanka (±2%), Uruguay (±3%), and Venezuela (±7.5%).

[9] There is no relevant information available for the country.

Source: International Monetary Fund, *International Financial Statistics*, June 1999.

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