Journal of Economic Perspectives—Volume 2, Number 1—Winter 1988—Pages 83–103

Monetary and Exchange Rate Policies for International Financial Stability: A Proposal

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Without a common monetary standard, the remarkable integration of Western European, North American, and the industrialized Asian economies in both commodity trade and financial flows is less efficient, and becoming untenable. Dissatisfaction with wildly fluctuating relative currency values, euphemistically called "floating" or "flexible" exchange rates, is a prime cause of the resurgence in protectionism.

In 1986–87, the overvalued yen forced Japanese industrialists to close factories, retire workers, and write off once valuable investments in plant and equipment. This parallels what their American counterparts were forced to do between 1981 and 1985, when the dollar suddenly became overvalued. Similarly, the paring down of the British manufacturing base was precipitated when the pound unexpectedly became a strong petrocurrency in 1979–81. In agriculture, Japan and European countries are determined to insulate their domestic prices of farm products from unsettling international influences, including volatile fluctuations in the yen/dollar or mark/dollar exchange rates. Thus, unless exchange stability is first achieved, the American government's attempt to broaden the General Agreement on Tariffs and Trade to encompass agriculture and services is likely to fail.

But what keeps the three major industrial blocs from developing a common monetary standard to prevent exchange-rate fluctuations? Although many people

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would point to political differences, doctrinal disputes among economists are more important. Well-intentioned politicians and government officials are stymied because of the differing theoretical perspectives of their economic advisers.

The first issue is whether or not a floating foreign exchange market—where governments do not systematically target exchange rates—is "efficient." Because many economists believe that exchange risk can be effectively hedged in forward markets, they argue that international monetary reform is unnecessary.

Second, after a decade and a half of unremitting turbulence in the foreign exchange markets, economists cannot agree on "equilibrium" or desirable official targets for exchange rates if they were to be stabilized. Two separate and contending principles—that of *purchasing power parity* and of *balanced trade*—yield very different estimates for the "correct" yen/dollar and mark/dollar exchange rates.

Third, if the three major blocs can agree to fix nominal exchange rates within narrow bands, by what working rule should the new monetary standard be anchored to prevent worldwide inflation or deflation?

After a brief consideration of some empirical evidence on the magnitude of exchange-rate fluctuations since floating began in the early 1970s, I analyze each of these conceptual issues in the course of demonstrating how the central banks of Japan, the United States, and Germany (representing the continental European bloc) can establish fixed exchange rates and international monetary stability.[1]

The Evidence

In Figure 1, monthly data on the yen/dollar and mark/dollar exchange rates extend from the major breakdown in Bretton Woods parities in 1971 to March 1987. On the vertical scale, percentage changes may be read directly from one month to any other with the zero point representing the mean yen/dollar or mark/dollar exchange rates, 252 and 2.48 respectively, over this sixteen-year period. For example, at its trough of 1.72 marks in late 1979, the dollar was 37 percent below its period mean; at its recent peak of 3.31 marks in February 1985, the dollar was 28 percent above its mean. By late 1987, the dollar had fallen sharply below its 1979 lows.

Casual inspection of Figure 1 indicates that movements in the yen/dollar and mark/dollar exchange rates were not only very large but were also positively correlated. Indeed, the simple coefficient of correlation is .67. In this respect, the unstable dollar is the main problem—suggesting that American monetary policy, in particular, has been insufficiently internationally oriented.

Yet divergent movements between the yen/dollar and mark/dollar exchange rates do occur, as a glance at Figure 1 indicates. In March 1987, for example, the rate of 143 yen/dollar was 57 percent below its period mean, while the rate of 1.81 marks/dollar was "only" 32 percent below its mean. In this sense, in 1985–87 the yen had appreciated substantially against the mark as well as the dollar.

[1]A proposal first broached over a dozen years ago (McKinnon, 1974) in response to the collapse of the Bretton Woods system of fixed exchange-rate parities.

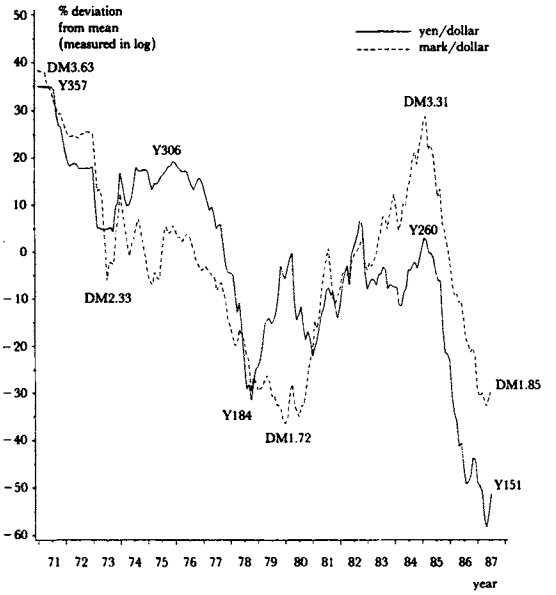

Fig. 1. Mark/dollar and yen/dollar exchange rates: 1971–87 (monthly averages from daily data)
Note: Vertical scale shows percentage changes directly from one month to another. The zero point in the middle of the scale represents the period mean yen/dollar and mark/dollar exchange rates, 252 and 2.48, respectively from 1971 to March 1987.

More generally, also including experiences of smaller "independent" floaters such as the United Kingdom or Australia, what are the stylized facts about currency fluctuations in world markets?

First, relative to profit margins on investment measured in any one national currency, exchange rate changes have been very large: 1 percent in a day, 5 percent in a month, and 20 percent in a year are commonplace (IMF, 1984).

Second, exchange fluctuations have been mainly unanticipated by the market, reflected neither in interest differentials across countries nor in forward premia or discounts in the exchange markets (Frenkel and Mussa, 1980).

Third, these changes have been real in the sense that most domestic prices, including internationally tradable manufacturers, have remained relatively sticky. Because large cyclical fluctuations in exchange rates have not been offset by the much smaller, largely secular, differences in domestic price inflation (Levich, 1986), they induce abrupt changes in international competitiveness.

Fourth, despite the free flow of financial capital, large but variable real interest differentials of 3 to 4 percentage points between similar assets denominated in different currencies are commonplace (Frankel, 1986).

Asset Pricing and Market Efficiency

What causes this great variance in floating exchange rates among industrial economies with open capital markets? The most convincing empirical description is that the exchange rate behaves like a forward-looking asset price: investors continu-

ally shift their preferences among yen, mark, dollar, and sterling assets according to how they imagine each exchange rate might move in the future (Frenkel and Mussa, 1980). These expectations are then telescoped back into the spot market to produce the sharp changes shown in Figure 1.

The floating foreign exchange rate seems to be dominated by volatile asset preferences rather than adjusting passively to balance current flows of imports and exports. In the face of uncertainty about the future purchasing power of domestic money, liquid foreign exchange assets are more easily substituted for domestic financial assets (money or bonds) than are physical assets such as real estate or stocks of commodities. Foreign bonds or bank accounts are also convenient hedges against possible future shifts in domestic, political, or commercial risk. These potential capital flows through the foreign exchanges on a daily basis are huge. Since they are so much greater than the value of commodity trade, they dominate observed movements in exchange rates.

When future exchange rates are uncertain, as under a free float, these portfolio preferences become highly sensitive to ongoing "news" about the exchange rate consequences of how, say, future monetary or tax policy in one country might be conducted relative to another. Hence, virtually all the exchange rate variance shown in Figure 1 comes from news that changes expectations—such as the American government's surprise leak to *The New York Times* in mid-January 1987 that it wanted the dollar to depreciate further despite attempts by the Bundesbank and Bank of Japan to support the American currency.

Correspondingly, little or none of the observed variance in the spot exchange rate is predictable from previous knowledge of forward rates (Levich, 1986) or from generally available past information on national money supplies, interest rates, trade balances and so on (Meese and Rogoff, 1983). In fact, the current spot rate seems to embody all relevant news up to that point, and subsequently moves like a random walk driven by new information coming in.[2] Because "excess" profits from speculating on the basis of common knowledge from the past are close to zero, the private foreign exchange market seems to be highly efficient in processing the information available to it.

Nevertheless, I hypothesize that a floating foreign exchange market is *socially inefficient* because private foreign exchange traders face a huge gap in relevant information: the relative future purchasing powers of national fiat monies, none of which has any intrinsic value, are highly uncertain. Thus the assessments of international investors of whether dollar, or yen, or mark assets provide the best combination of yield and safety are unnecessarily volatile.

[2]This leaves open the question of whether new information, which shifts current expectations, is accurately borne out in the future. Because exchange rate expectations are so difficult to measure, econometric testing of their accuracy is virtually impossible. Much new "information" about future monetary expansion—as, say, when the president of the central bank suddenly becomes ill—turns out to be ephemeral. Other news, such as changes in the tax laws affecting the relative profitability of holding foreign versus domestic securities, may prove well-founded. Either accurate or inaccurate news, however, can move exchange rates, sometimes dramatically.

The appropriate solution to this portfolio instability would be for the U.S. Federal Reserve System, the Bank of Japan, and the Bundesbank to announce jointly that, henceforth, the three will adhere to a common monetary standard, thereby foregoing the option to inflate at different rates. In effect, they would seek to approximate the conditions prevailing within a single currency area where one monetary unit, say one dollar, would have roughly the same purchasing power over a broad basket of tradable goods in any participating region or country.

To help implement this new policy, fixed nominal targets for the yen/dollar and mark/dollar exchange rates (within narrow bands) would be officially announced, and set to approximate sustainable purchasing power parities. Once achieved, the three central banks would symmetrically adjust their domestic money supplies to maintain these nominal exchange parities and, concomitantly, maintain roughly the same rates of domestic price inflation in internationally tradable goods. Thus speculation on which nation's monetary policy will be the most inflationary becomes pointless; and a major source of instability in international currency preferences is eliminated once speculators know that future nominal exchange rates will be the same as today's.

Although there are many historical precedents, having countries give up some national autonomy over the supply of money in order to secure fixed exchange rates remains controversial. Hence, I shall first show how common arguments favoring exchange rate flexibility become invalid once nations are highly integrated in finance and trade. Then more precise details on what having a "common" monetary policy means, and how it could be facilitated, are spelled out.

"Accidental" Monetary Disruptions from Real Disturbances

Are fixed nominal exchange rates appropriate if "real" shocks affect nations differentially? Most economists still believe that flexibility in nominal exchange rates is necessary to overcome domestic price-level rigidities to balance international payments properly—a belief analyzed in some detail later on. Here, however, consider the reverse problem: how do real shocks impinge on domestic monetary (price-level) stability when economies are highly open on both capital and trade accounts? Is a system of fixed or floating exchange rates the better shock absorber?

Under floating exchange rates, news about future exchange rate movements also encompasses nonmonetary events. For example, a country might reduce its taxation of foreign corporations or the price of its principal export could increase. If the economy of this country is highly open, these events will not warrant a (nominal) appreciation of the country's exchange rate. Instead, if the country's exchange rate is left free to appreciate, such real disturbances would provoke an unexpected (and unwarranted) general price-level deflation in the country. Consider a historical example.

With the worldwide increase in the price of oil in 1979, and Britain's emergence as a major oil exporter, investors projected that U.K. foreign exchange earnings would be greater in the future. Moreover, they also knew that the Bank of England was

committed to letting the exchange rate float while following a monetarist rule of limiting the rate of domestic money growth. Because of home currency preference by Britons to convert this future stream of earnings into pounds, sterling's future foreign exchange value was seen to be higher by forward-looking international investors. This was immediately registered in the foreign exchange market by a large increase in the demand for *spot* sterling in 1979. Thus, the nominal (and real) foreign exchange value of sterling rose sharply, precipitately deflating the British economy and reducing international competitiveness so as to wipe out a large chunk of British manufacturing in 1980–81.

In contrast, under a rule of fixed exchange rates, the Bank of England would have stood ready to expand the sterling monetary base and reduce interest rates to satisfy any increased international demand for sterling assets at the agreed-on exchange rate. Moreover, because speculators would know that the Bank was committed to a fixed exchange rate, they would not have anticipated future sterling appreciation in response to the oil price increase. Thus, they would not have so sharply increased their demand for sterling assets in 1979!

The Dutch experience with the discovery and development of large natural gas fields in the early 1960s is an instructive comparison. Because everyone knew that under the old Bretton Woods system the guilder's foreign exchange value was fixed in dollar (and mark) terms throughout the 1960s, no immediate international rush into guilder assets took place—and there was no precipitate exchange appreciation and deflation of the Dutch economy. To be sure, as the natural gas sector expanded and the tax revenues were spent for domestic goods and services thus bidding up wages, other Dutch tradable goods industries inevitably declined—the well-known phenomenon called the "Dutch Disease." But this decline was gradual. The fixed exchange rate avoided sharp appreciation and deflation—accompanied by heavy unemployment—of the kind that Britain was to suffer a decade later.

In summary, agreeing on a common monetary policy resulting in stable nominal exchange rates has two aspects. First, each central bank must give up *discretionary* power to persistently inflate its price level at a rate differing from the common standard on which the group had agreed. Secondly, and less obviously, the cooperating central banks must stand ready to offset the portfolio consequences of internationally differentiated real disturbances to prevent them from *accidentally* disrupting any one country's nominal exchange rate and its price level—as in the British example above and in the American and Japanese cases to be described below.

Only when international investors have such forward assurance will the foreign exchange market be informationally efficient in the social sense. Then private speculation will support the exchange rate targets that the authorities announce.

Incomplete Forward Markets for Goods and Services: The Arrow-Debreu Dilemma

In response to the great turbulence over the past decade and a half, financial markets in Chicago, New York, London, Frankfurt, Tokyo and so on have developed

an amazing range of instruments for hedging both exchange and interest rate risk. Now in the late 1980s, capital mobility among the three major blocs is virtually unrestricted, and industrial enterprises may freely borrow or lend foreign currencies directly at virtually any term to maturity. In the words of the Bank for International Settlements (1986, p. 1), "Innovation has improved the efficiency of international financial markets, mainly by offering a broader and more flexible range of instruments both for borrowing and for hedging interest rate and exchange rate exposures. These changes have clearly aided banks and their customers to cope with stresses associated with the greater volatility of exchange and interest rates in recent years."

After glancing at the dazzling array of financial instruments for taking forward exchange positions, most economists might rest assured that most international currency risk associated with trade and investment could be effectively hedged. Nevertheless, firms investing in physical plant or human capital find they have substantial exchange risk which *cannot* be hedged as long as exchange rates are free to fluctuate (Kindleberger, 1972, 1985). Why the paradox?

The problem lies not so much with any inadequacies in the forward markets for foreign exchange, but rather is rooted in the incompleteness of forward contracting in markets for goods and services. We know that a manufacturer contemplating a new investment cannot make all his future production and sales decisions before the plant is built—then lay off the economic risks with a complete set of forward commodity contracts contingent on various uncertain states of nature. Arrow and Debreu (1953; 1959) have taught us the critical importance of forward commodity markets to hedge against price risk, coupled with insurance markets to offset production risk.

However, a dilemma arises because the transactions costs and moral hazard associated with contract enforcement of such contingent futures are generally prohibitive. Usually, producers cannot feasibly protect themselves with outside insurance policies against their inability to deliver, nor against unexpected changes in cost (Arrow, 1973; Greenwald and Stiglitz, 1986). A farmer would not necessarily want to sell his crop forward years—or even months—in advance if he cannot predict his own output nor obtain crop insurance against a multiplicity of possible natural disasters (McKinnon, 1967).

Thus producers typically sell forward only some of their output—and that but a few weeks or months in advance on a noncontingent basis. Many goods are simply held in inventory until customers come in to buy spot.[3] Because of these incomplete forward markets for commodities, therefore, fixed investments for producing internationally tradable goods and services cannot be hedged effectively against most foreign exchange risk.

Let us illustrate this important point with the example of an industrialist contemplating where to build a new plant to produce laser disks. As in a common currency area, he must identify that geographic locale where (domestic currency) factor costs are relatively low compared to projected output prices—what I shall call

[3]On the buyer's or consumer's side, a symmetrical inability to protect against future uncertain events—say the appearance of new and better products—limits their willingness to buy forward. Incomplete contingent forward markets pushes them toward buying spot.

the "economic fundamentals." But with floating exchange rates, he must also give positive weight to that country whose currency is relatively undervalued by the purchasing power parity criterion: the "real exchange rate" effect. Regardless of how our laser disk manufacturer balances the "economic fundamentals" with the "real exchange rate" to select a country for production, the choice can easily be made obsolete by currency fluctuation.

Only if the planned production of laser disks could be insured *and* sold forward over the lifetime of his plant could our industrialist absolve himself of exchange risk. Suppose these hypothetical forward prices for laser disks over a continuum of future dates were specified in all other relevant currencies. Then, the existing forward markets in foreign exchanges could be fully utilized. The industrialist could sell (go short) other currencies for the currency in the country of production at the various terms to maturity and amounts negotiated in any forward commodity contracts. Because of the Arrow-Debreu dilemma, however, such forward commodity contracts, fully insured against unexpected dislocations and delays in production, do not exist.

To be sure, a merchant exporter with inventories of already-produced goods can hedge against short-term exchange risk when he sells consignments abroad to be delivered in, say, 30 days or 6 months. After forward selling his goods for foreign money, he can effectively "double hedge" by selling foreign exchange forward to get safely back into the domestic currency (McKinnon, 1979; Kawai and Zilcha, 1986). And this type of forward currency transacting is very important in ameliorating short-term exchange risk.

But short-term hedging on a noncontingent basis covers only a small proportion of the potential longer term exchange risk arising from investment decisions that are made today. In effect, incomplete forward commodity markets exposes industrialists, with long-term fixed investments to foreign exchange risk which they cannot avoid. Thus, random variance in exchange rates introduces new net risk into the world economy. In addition to the British overvaluation of 1979–81, consider more recent examples of this fundamental unhedgability of long-term investment commitments against foreign exchange risk. When the dollar was generally weak in the 1970s, and became substantially undervalued from 1977 to 1980, American tradable good industries looked profitable and "excessive" investments occurred in certain kinds of U.S. mining and manufacturing, with agriculture also becoming overcapitalized. As the dollar (unexpectedly) rose in 1981 and became overvalued until late 1985, these industries then suffered a big shakeout with bankruptcies and plant closures. Obviously, these companies did not (could not) hedge their foreign exchange positions.[4]

The resulting avalanche of protectionist sentiment in the U.S. Congress is still with us. Although by 1986 and into 1987 the dollar is no longer overvalued against the yen and continental European bloc of currencies, industrialists see considerable future exchange-rate uncertainty in assessing whether or not to rebuild America's productive capacity in tradable goods industries. Investment is inhibited.

[4] Note that even companies which do not themselves engage in foreign trade can be highly vulnerable to such exchange rate fluctuations (Hodder, 1983).

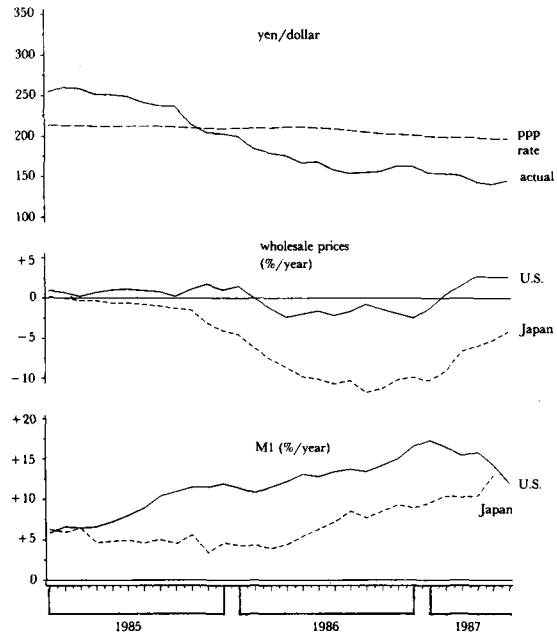

Fig. 2. Exchange rates, prices and money: Japan and the U.S. 1985–87
Note: Rates of change in money supplies and wholesale prices are year over year estimates taken from *The Economist*; estimates of Purchasing Power Parity Exchange Rates (PPP) from Ohno, 1987 (projected into 1987 from Japanese and American wholesale price indexes).

Similarly, as the yen rose incredibly from 260 yen/dollar in March 1985 to around 140 yen/dollar in the early part of 1987, Japanese industrial output turned down and much of her previously installed manufacturing capacity suddenly became unprofitable. In 1986, there occurred an unprecedented deflation of over 10 percent in the yen prices of Japanese industrial goods as measured by Japan's official wholesale price index (Figure 2). The resulting industrial depression in Japan has prompted Japan's preeminent industrialist, Mr. Akio Morita (1986), President and Chairman of the Sony Corporation, to call for reforms such that national money becomes "a common scale of value internationally rather than just another speculative commodity." Otherwise, he cannot properly decide in which goods to invest, in which country to produce them, or how to arrange for future sales and supplies.

To be sure, neither American industrialists in 1977–80, nor Japanese industrialists prior to 1986–87, necessarily made wrong investment choices ex ante. Rather, they faced incomplete information regarding the future course of their own country's exchange rate—an information gap that turned out to be devastating.

A Fleeting Vision of How Monetary Cooperation Could Work

When the dollar soared to 260 yen and 3.3 marks in late February 1985, the unsustainable loss in America's international competitiveness since 1981 had become so great as to be obvious to everybody. The Reagan administration finally abandoned

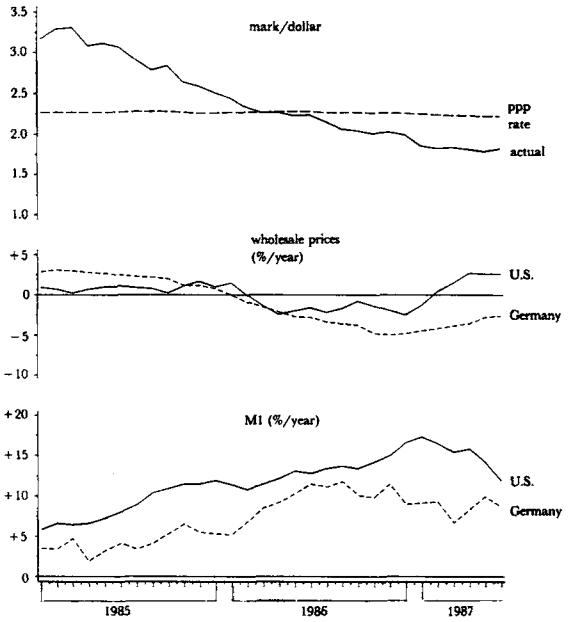

Fig. 3. Exchange rates, prices and money: Germany and the U.S. 1985–87
Note: Rates of change in money supplies and wholesale prices are year over year estimates taken from *The Economist*; estimates of Purchasing Power Parity Exchange Rates (PPP) from Ohno, 1987 (projected into 1987 from German and American wholesale price indexes).

its longstanding refusal to treat the dollar exchange rate as a legitimate target for public policy.

For the rest of 1985, central banks cooperated to nudge the dollar down directly in the foreign-exchange markets—a policy that was announced and ratified by the Plaza Hotel Accord in September 1985. More important, their domestic money growth rates supported this objective. Figures 2 and 3 show that growth in M_1, the basic money supply, rose sharply in the U.S. to more than 10 percent per year, while Germany and Japan followed relatively tight money policies with M_1 growth less than 5 percent.

At 200 yen and 2.3 marks by the end of 1985, the dollar was correctly aligned with the currencies of America's Japanese and European trading partners in two closely related respects. First, there was approximate purchasing-power parity. One dollar could buy at the wholesale level a broad basket of manufactured goods in Japan and Europe similar to what it could buy at home (Ohno, 1987).

Second, price inflation in tradable goods (as measured by changes in wholesale-price indexes) were virtually the same in the three areas at the end of 1985, and close to zero. Being properly aligned, the yen/dollar and mark/dollar exchange rates were not themselves imposing any significant upward or downward presure on the average price level of tradable goods in any of the three major blocs (Figures 2 and 3).

Hence, late 1985 into early 1986 presented a wonderful opportunity for the finance ministers of the Group of Seven industrialized democracies to reinstitute a

common monetary standard. At that time, a formally announced policy whereby the dollar would, henceforth, be kept within fixed narrow bands of, say, 190 to 210 yen and 2.2 to 2.4 marks, would have been easy to implement. If the dollar fell toward the lower intervention points, The U.S. Federal Reserve System would be obligated to tighten American monetary policy just as the Bank of Japan and Bundesbank (representing the European bloc) would be obligated to ease, and vice versa should the dollar become unduly strong.

To keep potentially volatile exchange rates within their prescribed bands, the three central banks must control *relative* short-term interest rates on a weekly basis, or even a daily one. Through open market operations (or discounting), the weak currency country would raise short-term interest rates to attract capital from abroad, and vice versa for the strong currency countries. With confidence in the official parities, very small changes in interest rates would attract (or repel) sufficient short-term capital to equilibrate the foreign exchanges.

Only as a last resort, or because of unusual financial turbulence, would substantial direct intervention in the foreign exchanges be necessary. Then, to be decisive, *symmetrically unsterilized intervention* is appropriate (McKinnon, 1984). For example, if the Bank of Japan intervened at the lower bound for the dollar to purchase dollars and sell yen, the American monetary base would contract as the Japanese base expanded—leading to further equilibrating changes in relative interest rates in both countries.

Once speculators understood these new rules of the game, containing unambiguous information regarding the mutual intentions of the major central banks, then private short-term capital flows would help to stabilize exchange rates within their official bands. Very little actual monetary adjustment on a daily or even weekly basis would be necessary as long as everyone knew that decisive official action would be forthcoming if the need arose.

In the longer run, the three central banks would aim to keep constant their common (wholesale) price level in internationally tradable goods—whether measured in yen, dollars, or marks—as the nominal anchor for the system as a whole. For this purpose, aggregate money growth, the sum of domestic credit expansions, could be targeted as an intermediate variable (McKinnon, 1982; 1984). For example, if international deflation threatened, then joint money growth would be slowly accelerated.[5]

Unfortunately, this naive vision was not realized. Instead of being stabilized at its purchasing-power-parity level at the end of 1985, the dollar continued to fall throughout 1986 and then plunged below 140 yen and 1.8 marks in early 1987. Instead of feeding the foreign-exchange markets clear information regarding their

[5]Note that interest rates are much less useful as monetary indicators for the longer run problem of securing price level stability for the group. Because of unstable inflationary expectations, sometimes called Fisher effects, absolute levels of nominal interest rates are ambiguous for measuring whether money is too "tight" or too "easy." Hence the need to pay attention to the aggregate money growth of the triumvirate to help anchor the common price level in the longer run, even while control over relative short-term interest rates is assigned to stabilizing exchange rates.

mutual monetary intentions, governments criticized each other's alleged policy failure and then appeared to act at cross purposes. Despite the weak dollar, growth in the American money supply throughout 1986 remained far in excess of that in Germany and Japan, as shown in Figures 2 and 3.

The Exchange Rate and the Trade Balance

What provoked the American government to push and to keep pushing the dollar down so far—thus imposing undue deflationary pressure on Japan and continental Europe while risking the resurgence of inflation in the United States? The pursuit of what is now a false academic doctrine: that a once-and-for-all devaluation of a currency can systematically reduce that country's trade deficit as per the old Robinson (1937) and Meade (1951) elasticities approach to the balance of trade. When industrial economies were still fairly insulated from one another in the late 1930s into the 1950s, one could reasonably presume that a devaluation would improve the trade balance. But among highly open economies of the 1970s and 1980s, exchange-rate changes have no predictable effect on the money value of net trade balances because of their more pervasive macroeconomic repercussions (Miles, 1979; McKinnon, 1981; McKinnon and Ohno, 1986).

After the sharp appreciations of the mark and yen over the past two years, most economists expected that the German and Japanese loss of "international competitiveness"—that is, relatively higher prices of their goods on world markets—would reduce their trade surpluses as measured in dollars. These direct price effects did not have a strong enough effect on the flow of imports and exports for several reasons.

First, their improved terms of trade meant that the Japanese and Europeans earned more dollars per unit of exports without paying any less per unit of imports.

Second, there were internal deflations in Japan and Germany (Figures 2 and 3) that were a necessary consequence of their exchange appreciations. These deflations so depressed Japanese and German demand for imports and released more goods for export that the physical volume of exports relative to imports did not fall sufficiently (although substantial real adjustment did occur) to offset their more favorable terms of trade. Consequently, both the Japanese and German net trade surpluses measured in dollars actually increased in 1986 and 1987 in comparison to 1985.

Granted, the current huge excess of imports over exports in the American economy is unsustainable and must eventually be corrected one way or another. But this trade deficit of $150 billion to $200 billion a year merely reflects the saving-investment gap in the American economy created by the not coincidentally equally large U.S fiscal deficit. Given the still-commanding reserve-currency status of the U.S. dollar in world finance, the American deficit acts as a huge vacuum cleaner that sucks up other countries' savings through the preemptive issue of the U.S. Treasury bonds in world financial markets. Consequential macroeconomic adjustments then force them to generate dollar surpluses in their commodity trade, whether or not they have

appreciated their exchange rates. Getting rid of this chaos in the American public finances is the only satisfactory way to reduce the trade deficit. Because the great 1985–87 depreciation of the dollar has had, and will have, no substantial impact on this structural fiscal imbalance and consequent saving shortage in the American economy, it is incapable of correcting the U.S. trade deficit short of precipitating a major collapse of domestic investment within the United States.[6]

To be sure, the trade deficit is an important subject worthy of intense negotiation —but only in the context of assigning fiscal policies to resolve it. And in a world where real interest rates are still too high, there is little doubt that the United States should sharply cut its fiscal deficit to reduce its borrowing, rather than trying to persuade other governments to expand their expenditures and cut tax revenues.

For the international system to hold together, the U.S. government must give up its false, although widely held, view that dollar devaluation will itself substantially improve the dollar value of the net trade balance. For industrial countries, economists should jettison the whole elasticity approach relating the exchange rate to the balance of trade. Not only is this obsolete doctrine currently distorting relative currency values, but it suggests a "need" for continual exchange rate flexibility—in order to balance ever-changing flows of imports and exports—thus making a common monetary standard impossible.

Purchasing Power Parity and the Nominal Anchor

But financial markets can be thrown into turmoil if participants believe that policy makers have half a mind to follow an incorrect theory and drive the dollar down. The foreign exchange crisis from January through May 1987 is a case in point. Because the markets came to believe that American officials wanted the dollar to depreciate indefinitely, the normal inflow of private capital to cover the U.S. trade deficit dried up, thus necessitating massive official interventions by central banks to support the dollar. At the same time, long-term interest rates in American bond and mortgage markets rose sharply.

To get out of this unfortunate syndrome, we need an alternative theory of how exchange rates should be established. Purchasing power parity (PPP) can be an unambiguous theoretical guide for central banks and one with which the private financial markets can also feel comfortable.

The central idea behind PPP is to calculate nominal exchange rates that would align national price level of internationally tradable goods as approximately measured

[6]This ambiguous impact of an exchange rate change on the trade balance is not just a short-run consequence of sticky invoice prices for imports and exports—the familiar J-curve effect. In principle, adverse expenditure effects could offset direct price effects for several years (McKinnon 1981). In the very long run, of course, a devaluation simply washes out as internal price levels adjust and purchasing power parity is restored.

Table 1
Exchange rates, PPP rates, and target ranges

	Actual exchange rates (quarterly averages)		*Purchasing power parity rates*	
	yen / $	*mark / $*	*yen / $*	*mark / $*
1986 IV	160	2.01	205	2.24
1987 I	153	1.84	202	2.22
I	143	1.81	199	2.18
III	147	1.84	201	2.18
IV	136[P]	1.68[P]	200[P]	2.17[P]
	Suggested target ranges			
1988 I	160 to 180	1.9 to 2.1	199[P]	2.16[P]

Note: P indicates projected.
Source: OECD producer prices, IMF exchange rates PPP calculations from McKinnon and Ohno, 1987.

by their respective producer or wholesale price indexes. Table 1 shows that concurrent purchasing power exchange rates in late 1987 are about 200 yen/dollar and 2.18 marks/dollar.[7] If the internal paths for price inflation were roughly the same (as they had been at the beginning of 1986) in Germany, Japan, and the United States, then these exchange rates (within narrow bands) should be the officially announced targets.

In 1986 and 1987, however, the prolonged undervaluation of the dollar—i.e., overvaluation of the yen and, to a lesser extent, the mark—has put the U.S. on a higher inflation path (Figures 2 and 3). In Japan, deflationary pressure from the overvalued yen has caused a decline in a broad index of Japanese producer (and wholesale) prices and depressed the normal (high) rate of growth in Japanese money wages. Indeed, American money wages are now increasing one to two percentage points faster, despite Japan's higher trend in labor productivity.

However, the momentum in these wage and price movements can only be altered with a lag. Thus, to facilitate smoother convergence to a common price level, exchange-rate targets should be set somewhat below current PPP levels, say in the neighborhood of 170 yen/dollar and 2.0 marks/dollar in late 1987. After the dollar had been nudged upward by relative monetary adjustments, unchanging official bands of, say, 160 to 180 yen/dollar and 1.9 to 2.1 marks/dollar could be established

[7]Without directly comparable national price indexes, calculating PPP exchange rates for internationally tradable goods can only be indirect and approximate. Nevertheless, new methods have been evolving (Ohno, 1987; McKinnon and Ohno, 1987) based on either WPIs or PPIs that, for the 1980s, seem to be significantly more efficient than the traditional technique based on the presumption that purchasing power parity held in some arbitrarily chosen base year.

for early 1988 (see Table 1). In 1988, if the exchange rate misalignment with its differential inflation rates were to persist, then these target bands should be lowered somewhat.

Then, with exchange rates known to be fixed into the indefinite future, international commodity arbitrage and mutual monetary adjustment would ensure convergence to the same rate of commodity price inflation (preferably zero) in all three countries. Tradable goods prices (PPIs) would then be aligned close to purchasing power parity and relative growth in national money wage claims would eventually reflect differentials in productivity growth, as had been the case in the 1960s under the old Bretton Woods System of pegged exchange rates when Japanese money wages grew much faster than those in the United States or Germany.

However, this proposal differs from the Bretton Woods agreement, and also from subsequent American behavior, because the Fed would actively respond to the strength or weakness of the dollar against marks and yen, rather than simply waiting for the Bundesbank and the Bank of Japan to adjust. Although this will on occasion upset political sensibilities over short-term rates, it will pay political dividends in more stable long-term bond and mortgage yields once investors know that the dollar exchange rate will be roughly the same next year, or 10 years from now.

For example, for late 1987 into 1988, raising the yen/dollar and mark/dollar exchange rates toward their PPPs requires the U.S. Federal Reserve System to follow a relatively tight money policy while the Bank of Japan and the Bundesbank are more expansionary. As the mark and yen fall toward their PPP levels, inflationary pressure on prices and wages in the United States should slacken while it picks up in Japan and Europe. But the nominal anchor, the common price level measured at PPP exchange rates, would not be upset if this monetary adjustment were indeed symmetrical.

Announcement effects are important in order for private expectations to coalesce around the new exchange rate targets. If the Fed simply tightens without revealing its foreign exchange objectives, more severe monetary contraction and higher short-term interest rates might be necessary to boost the dollar toward PPP. Because expectations effects would be much less favorable, American long-term interest rates are less likely to come down as quickly.

Once exchange rates are properly aligned (according to PPP), representatives of the Fed, the Bank of Japan, and the EMS bloc should meet continually to monitor the behavior of their common price level in internationally tradable goods (as measured by PPIs or WPIs). Fortunately, information on commodity prices, even producer prices, becomes available much faster than the GNP statistics so widely watched today. Collective monetary expansion would be tailored downward or upward according to inflationary or deflationary trends in the common price level.

For example, the international integration of financial markets implies that stock market crashes, as occurred in October 1987, are felt in concert by all the industrial countries. In the face of such a deflationary threat, collective monetary expansion is warranted—without allowing any one country to get its currency undervalued and secure a mercantilistic advantage over its neighbors.

Even better as a nominal anchor for the system as a whole, a broadly based international price index, similar in scope to a PPI, could be priced out in each currency using a common set of representative weights for the industrial economies. A subcomponent consisting of homogeneous primary products, which are priced to market each day, could serve as an early warning indicator (Heller, 1987) for movements in the broader index.

Participating central banks could use this nominal anchor as their own internal price-level target. For example, the Bundesbank could use the mark value of an international PPI as its target for "zero" domestic price inflation. If the Fed and Bank of Japan adopted similar internal targets based on the dollar and yen values of an international PPI, consistency between domestic price-level objectives and the obligation to maintain fixed exchange rates would be assured. (In the meantime when no such international index is available, existing national PPIs can be used to approximate when the common price level is rising or falling (McKinnon and Ohno, 1987).)

Conversely, to prevent unnecessary conflict, countries should not adopt internal nominal anchors—such as the Consumer Price Index or GNP deflator (both containing nontradable services) or growth in nominal GNP itself—that may be inconsistent with their obligation to maintain fixed nominal exchange rates.

The Transfer Problem

Under fixed exchange rates, international commodity arbitrage and coordinated monetary adjustments would always maintain a rough alignment in tradable goods prices across the three countries. Nevertheless, depending on relative national imbalances between saving and investment, trade deficits or surpluses would develop continually. For example, American dissaving could lead to a transfer of capital from Japan to the United States. How would real adjustment in the trade balance, in response to an international capital flow, be effected once fixed exchange rates were in place?

It is important to distinguish two kinds of relative price or "real exchange" rate changes that are often confused in the literature: (1) the terms of trade or the value of a broad basket of tradable goods of Country *A* vis-à-vis that of Country *B*; and (2) the price ratio of tradable goods to nontradable goods and services *within* a country. Among diversified industrial countries, only modest changes of the second kind—that is, the ratio of tradable to nontradable prices—are relevant for effecting the net transfer of capital from one country to another (Kim, 1987).

Suppose that under fixed exchange rates, American dissaving led to a capital inflow from Japan. Then the increased American absorption—that is, domestic consumption and investment expenditures—from domestic credit expansion would cause some (slow) bidding up of nontradable prices (largely services) in the United States. Similarly, the fall in credit expansion in Japan would induce a decline in Japanese absorption and a slower rate of increase in Japanese nontradables prices

relative to tradables. Although these relative price movements within both countries would be modest, gradual, and need not be permanent, they would be sufficient to support the transfer of saving from one highly open economy to another, as with past experiences of fixed exchange-rate regimes approximating a common currency area.

However, the new monetary standard would rule out precipitate changes in any one country's terms of trade from exchange rate fluctuations arising out of capital flows from one country to another, such as the sharp appreciation of the dollar in the early 1980s. Such "false" changes in the terms of trade can actually impede the transfer process. By depressing absorption in those countries with appreciated currencies and stimulating expenditures in those countries who get their currencies undervalued, absorption adjusts the "wrong way" in response to a capital inflow, possibly delaying the emergence of a trade deficit in the capital importing country.

Bretton Woods Revisited

What does history tell us about industrial economies voluntarily agreeing to fix exchange rates? The relevant examples are the late 19th-century gold standard from 1879 to its sudden demise in August 1914, the Bretton Woods system from 1945 to 1971, and the European Monetary System (EMS) from 1979 to the present. All three were successful in sustaining a high level of international trade, while avoiding major changes in real exchange rates, like those of the last decade, that so undermine investment efficiency and aggravate protectionism. Yet no single historical example is a complete "model" for our current most important problem: to fix the mark/dollar and yen/dollar exchange rates while anchoring their common price level.

True, the Bretton Woods system succeeded in virtually fixing exchange rates among Germany, Japan, and the United States from 1950 to 1970. But this result was more by accident than by design because the 1945 agreement favored some (controlled) exchange flexibility and national monetary independence.

The Bretton Woods authors—principally Britain's John Maynard Keynes and America's Harry Dexter White—imagined that exchange rates should be adjusted from time to time to correct trade imbalances and/or to accommodate differential rates of national price inflation. Under the prevailing Keynesian theory, being able to choose your own rate of price inflation was then thought to be useful in preventing unemployment and targeting investment at the national level. Of course, that view is no longer so much in vogue among professional economists.

But Keynes and White also wanted to prevent unwarranted changes that might give one nation a mercantilistic advantage. Hence the seeming contradiction in the official interpretation of the Bretton Woods Agreements that "par values for exchange rates should be stable but adjustable."

In the circumstances from the late 1930s into the early 1950s, occasional controlled changes in par values were feasible and potentially effective in helping to

balance international payments because trade was limited and capital flows were restricted (McKinnon and Ohno, 1986). Thus governments should negotiate about "necessary" changes in par values without rates changing in an uncontrollable manner beforehand with huge losses in official exchange reserves.

Similarly, within the EMS of the 1980s, occasional small changes in exchange parities have effectively offset price inflation that has been higher in France and Italy than in Germany. Because exchange controls still partly insulate the French and Italian capital markets, these small changes are still feasible, although they have become increasingly traumatic as European financial markets become more integrated. (Nevertheless, by committing themselves in advance to a system of par values for exchange rates, the EMS has been remarkably successful in promoting a convergence of monetary policies toward a common standard (Ungerer *et al.*, 1986). The previously high inflation rates in France and Italy have come down towards the much lower level prevailing in West Germany.)

In contrast, the German, Japanese, and American financial markets are completely open in the 1980s. Hence any negotiations over obvious changes in par values would provoke massive speculative capital flows. Indeed, fixed exchange parities broke down in 1971 precisely because the United States insisted on negotiating a devaluation to inflate faster than her European and Japanese allies, a "right" which was consistent with the economic philosophy underlying the 1945 Bretton Woods articles.

Hence, in foregoing the right of each participating nation to inflate at different rates, the operative economic philosophy behind my fixed exchange rate proposal would be closer to that of a gold standard than to Bretton Woods.

Other economists have suggested different approaches to managing exchange rates. The interesting proposals for flexible target zones for exchange rates put forward by John Williamson (1985) are much more in the spirit of Bretton Woods. Williamson sees controlled exchange rate changes as sometimes being necessary to offset unforeseen changes in a country's terms of trade or other real shocks. In effect, Williamson wants to keep open the option for occasional official adjustments in par values. Hence, his system would remain vulnerable to speculative attack as international investors tried to guess how exchange rates in the future might differ from those now prevailing. Nominal interest rates, particularly at long term, would become very sensitive to anticipations of any official changes in exchange rate parities, even when they were gradual as with a crawling peg. More fundamentally, for investment decisions that are made today, the national money would lose its quality of being a stable long-run standard of international value if (official) exchange rates changed in the future.

In a logically consistent but not empirically practical vein, a second group of economists—Tobin (1982), Dornbusch (1983) and Bergsten (1983)— have toyed with the idea of reimposing exchange controls on the capital account to gain greater stability in exchange rates without giving up exchange flexibility in the long run. By restricting the operation of the international capital market to support monetary nationalism, they want to make the world look more like that seen by Keynes and White in the late 1930s.

An International Gold Standard Without Gold

What was the essential strength of the 19th century gold standard? Unlike other commodities, did the yellow metal have some intrinsic property for keeping a constant purchasing power over other goods and services through time? Did the requirement of gold convertibility prevent badly motivated governments from (mis)managing the issue of national currency?

None of these common arguments in favor of a return to the gold standard carry much weight or fineness. In the 19th century, new gold discoveries tended to create bursts of worldwide inflation—albeit modest by modern criteria; then, the adoption of, or return to, the gold standard by the United States, Germany, Japan, and other countries in the 1870s and 1880s created a shortage of gold reserves and unwarranted worldwide deflation(s) (Cooper, 1982). Throughout the 19th century, greater deflationary pressure was avoided only because paper and deposit monies were substituted for gold coin on a massive scale (Triffin, 1964).

Instead, the late 19th century monetary system worked reasonably well, despite considerable instability in the underlying gold base, because of its *international* character. To defend its national gold parity, each nation came to regulate domestic money issue according to its balance on international payments. Surplus countries automatically expanded their money supplies while those in deficit contracted. Almost by accident, this resulted in generally fixed nominal exchange rates within narrow bands called the gold points for each pair of national currencies, in purchasing power parity, and in similar rates of domestic price inflation in each country.

This common monetary standard set the stage for the great expansion in trade among industrial and primary products producing countries, and for vast transfers of European capital through the London capital market to North America, Latin America, Australasia and so forth without exchange rate changes and without misaligning national price levels. Because speculators know that national money supplies would be adjusted to support the international standard, stabilizing capital flows served to keep exchange rates within their gold points with very little official intervention being required.

Without actually returning to a gold standard, such monetary cooperation resulting in fixed parities and roughly the same underlying inflation rate is quite feasible in the late 1980s. The positive international aspects of the late 19th century system can be reestablished without the disadvantage of an unstable monetary base, where gold coexists uneasily with bank notes, bank deposits, money market mutual funds, and so on. In the proposed new regime as described, the aggregate monetary base of the three blocs would be consciously managed to prevent worldwide inflations or deflations.

Indeed, achieving price stability cooperatively under fixed exchange rates is likely to be easier to manage than if each central bank acts unilaterally under floating rates. Because private portfolio preferences are now so volatile across dollar, yen, and mark assets, any one central bank cannot easily estimate the demand for its own money and

then do a good job of stabilizing its own price level. Unexpected exchange rate changes can impose either more inflation or deflation than previously anticipated. When exchange rates and portfolio preferences across the major currencies are stabilized, however, the impact of joint monetary expansion or contraction on the common price level could well become more predictable.

Once America, Japan, and Europe negotiate such an agreement and their management of the joint monetary base is seen to be successful, most smaller countries (which are not prone to chronic inflation) would voluntarily decide to fix their own exchange rates to the dollar, mark, or yen. In effect, the unique American role (burden?) in the 1950s and 1960s of providing a reserve currency for the rest of the world would now be shared with the EMS group and Japan.

■ *I would like to thank Stanley Fischer, Jacob Frenkel, Marc Miles, Kenichi Ohno, Jurgen Schroder, and Joseph Stiglitz for their helpful comments clarifying various parts of the manuscript. However, they are neither implicated in, nor necessarily committed to, the proposal itself.*

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