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ECONOMIC COMMENTARY

Target Zones for Exchange Rates?

by Owen F. Humpage and Nicholas V. Karamouzis

In recent years, growing dissatisfaction with the levels and the volatility of dollar exchange rates has led to calls for greater coordination of economic policies among nations and for an investigation into alternative exchange-rate systems.

A number of economists and policymakers, for example, have advocated limiting the fluctuations of the dollar with a target-zone arrangement for exchange rates. Under such a proposal, countries would establish central exchange rates values for their currencies and would keep the actual exchange rates within a specific margin of the central values.

For instance, if Germany, Japan, and the United States agree on central rates of 150 yen to the dollar and 2.1 marks to the dollar, and set the permissible bands around the central rate at 10 percent, then these countries would keep the actual yen-dollar exchange rate between 142.5 to 157.5 yen to the dollar and would keep the actual mark-dollar rate between 1.99 and 2.20 marks to the dollar.

Specific proposals about target zones differ with respect to how the central rates are chosen and with respect to the width and rigidity of the margins.[1] All proposals, however, seem to share the conviction that a target-zone system will improve the functioning of the international monetary system. In this *Economic Commentary,* we argue that establishing and maintaining target zones presents several conceptual and practical problems, and that such a system might not represent the best policy choice for a large country like the United States.

Why Target Zones?

Since the adoption of floating exchange rates in March 1973, exchange rates have been more volatile than under the fixed exchange-rate system that existed after World War II as a result of the 1944 Bretton Woods Agreement, and have demonstrated a tendency for large cumulative deviations from so-called "equilibrium" values. Critics of floating exchange rates argue that the excessive volatility and cumulative movements of exchange rates impose significant economic costs on the United States and on her trading partners.[2]

Exchange-rate volatility, according to proponents of target zones, disrupts international trade and investment by increasing uncertainty about prices and profits. Individuals engaged in international commerce must expend resources to hedge against foreign-exchange risk or reduce their involvement in international trade. Persistent deviations of exchange rates from their "equilibrium" values alter relative prices among countries with the consequence of distorting consumption, production, and investment. Critics of floating exchange rates cite the record appreciation of the dollar between 1980 and 1985 as a major factor in the slow recovery of American agriculture, and of U.S. tradable-goods industries.

A target-zone system could provide the basis for internationally agreed-upon management of exchange rates. Proponents contend that target zones, by limiting exchange-rate volatility, offer international traders a stable anchor on which to establish prices, to compare profits, and to plan investment across countries. The establishment of a set of target exchange rates and the greater exchange-rate stability is also considered a way to reduce distortions in relative prices across countries, thus minimizing costly and inefficient shifts in resources.

Moreover, proponents contend that target zones would offer greater flexiblity than the old fixed-rate Bretton Woods system. The zones would be wider, and they could be adjusted frequently to offset changes in inflation-rate differentials. Thus, advocates of such systems believe that target zones combine the best features of both the fixed and flexible exchange rates.

Mechanics of Target Zones

If countries are to establish and to maintain target zones, they must agree on a definition of the central rates, on the size of the bands around the central rates, on a mechanism for defending the target rates, and on a means for adjusting the central rate. Each of these concerns presents special problems.

The central rates chosen for a target-zone system should reflect, as closely as possible, the equilibrium value of the exchange rate. Unfortunately, economists agree neither on what determines an equilibrium exchange rate, nor on a

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1. See, for example: Ronald I. McKinnon, *An International Standard for Monetary Stabilization,* Institute for International Economics: Washington, DC, Distributed by MIT Press, March 1984; Robert V. Roosa. "Exchange Rate Arrangements in the Eighties," *The International Monetary System: Forty Years After Bretton Woods,* Conference Series No.28, The Federal Reserve Bank of Boston, May 1984; and John Williamson, *The Exchange Rate System,* Institute For International Economics, Washington, DC: Distributed by MIT Press, September 1983.

precise method for identifying changes in the equilibrium rate. Many exchange-market analysts define equilibrium in terms of a rate consistent with differences in inflation rates across countries, with a balance in the trade accounts, or with a sustainable trade imbalance.[3]

Sometimes, however, the equilibrium exchange rates associated with inflation-rate differentials conflict with the equilibrium suggested by an evaluation of trade flows. For example, consumer prices in Japan have risen 12 percent since late 1980, while the comparable figure for the United States was 27 percent. As will be discussed later, these inflation differentials, taken by themselves, suggest that the yen should trade at approximately 180 yen to the dollar. On the basis of this criterion, the yen, which was recently trading at 158 per dollar, seems overvalued and should depreciate. Nevertheless, Japan continues to run a huge trade surplus, especially with the United States. This suggests that a further appreciation of the yen is in order. In view of this conflicting signal about the equilibrium value of the yen, it seems unlikely that a target zone based on inflation differentials would prove satisfactory to critics of the U.S.-Japanese trade situation.

Nevertheless, most advocates of target zones would choose a central exchange rate that maintains some version of purchasing power parity.[4] Purchasing power parity argues that exchange rates should adjust over time to offset inflation differentials among nations. If, for example, the United States experiences a 27 percent inflation rate and Japan experiences a 12 percent inflation rate, the dollar should depreciate 15 percent against the yen to maintain the competitive position of U.S. traded goods. In the absence of such a depreciation, U.S. goods would become more expensive relative to Japanese goods. Trade would shift away from American products towards Japanese products, resulting in an excess supply of dollars and an excess demand for yen at existing exchange rates. The imbalance could only be corrected by a depreciation of the dollar, by contraction of the U.S. money supply, or by an expansion of the Japanese money supply.

From a practical standpoint, the correct purchasing power parity level of an exchange rate is difficult to calculate. It assumes that "equilibrium" existed in the base year, and that the price indexes used to measure inflation trends in both countries are similar. Moreover, it assumes the relative prices of nontrade goods to traded goods in both countries remains the same. None of these assumptions seem to hold.

Other factors besides inflation differentials also can alter the equilibrium exchange rate. Productivity differentials, technology changes, changes in tastes, and changes in trade laws can all change the relationship between relative-price changes among countries and exchange-rate movements, independent of the inflation process. In a target-zone system, therefore, policymakers have to identify these changes and allow exchange rates to reflect them. This implies that periodic, discrete adjustments might be necessary to a target-zone system using purchasing power parity to define the central rates.

Purchasing power parity relies on inflation differentials to define equilibrium exchange rates and on traded-goods arbitrage to force exchange-rate adjustments. Recent experience has shown, however, that capital flows can dominate trade flows and dictate trends in exchange rates for long periods of time. This is especially true for a country like the United States, which has well-developed, highly liquid capital markets. Between 1982 and 1984, for example, the United States has experienced a growing trade deficit, a situation most economists expected would lead to a dollar depreciation. The dollar, however, actually appreciated through February 1985 to levels well above that predicted by purchasing power parity, largely because of strong capital inflows.

This sharp deviation from purchasing power parity, however, was not inappropriate in view of the supply and demand for credit in the United States. These credit demands, associated with large federal deficits and better investment opportunities, exceeded domestic savings; thus, real interest rates rose. The appreciation of the dollar reflected a flow of foreign savings into dollar-denominated assets; that is, it reflected an efficient allocation of international resources as capital moves into the country with the highest rate of return.

Under a target-zone system, however, if federal deficit reductions are not acceptable, policymakers would have to accommodate the increased federal and private credit demands by increasing the money supply growth rate. Such a policy eventually would generate inflation. Between 1980 and 1985, floating exchange rates enabled the Federal Reserve to focus monetary policy on eliminating inflation. It is not clear, therefore, that target zones would have made the United States better off between 1980 and 1985.

A second difficulty in establishing a viable target-zone system is the choice of acceptable bands around the central exchange-rate targets. The bands must be close enough to provide certainty about the exchange rate, but wide enough to provide some monetary policy independence. If the bands are too narrow and countries are not willing to adjust domestic policies sufficiently, frequent changes in the central exchange rate will be necessary. However, since exchange-rate changes often will create winners and losers among the participant countries, negotiations about the need for a change and about the necessary extent of a change in the central rates could take time. This could contribute to exchange-rate uncertainty about the timing of changes.

With the spot exchange rate against either the upper or the lower exchange-

2. Some economists have argued that excessive exchange-rate volatility results from speculative runs and inefficiency in the market. This could offer a justification for intervention. Nevertheless, we believe that the empirical evidence on this issue is inconclusive. At most, speculative runs and inefficiency would seem to explain only a small part of the dollar's behavior in recent years. See, for example, Jeffery A. Frankel, "The Dazzling Dollar," *Brookings Papers on Economic Activity,* 1985, pp. 199-27.

3. See Owen F. Humpage and Nicholas V. Karamouzis, "A Correct Value for the Dollar?" *Economic Commentary,* Federal Reserve Bank of Cleveland, January 1, 1986.

rate band, speculators know the direction of the adjustment in the central exchange rate, and the resulting speculation could aggravate the pressures for a change in the central rates. Moreover, if the adjustment in the central rate was large, greater than the width of the bands, speculators would face no risk of loss in buying or selling at the rate dictated by the bands.[5]

Most observers seem to choose bands of approximately 10 percent to 15 percent. Williamson seems to support non-rigid bands for which the choice of defending or not defending the currency would depend on the circumstances.[6] It is difficult to see how this would increase confidence in the stability of the spot exchange rate, especially if participants frequently adjusted the central rates.

Nations engaged in a target-zone arrangement must defend their exchange rates within the bands. This can present problems if the requirements of the target-zone arrangement are not consistent with the purely domestic designs for economic policy. The problem results because nations do not possess enough policy instruments to pursue independent inflation and exchange-rate targets.[7] With fiscal policy targeted on short-run fluctuations in real business activity, and monetary policy directed towards maintaining a specific inflation rate, nations must be willing to accept the resulting exchange-rates configuration. If nations, instead, focus monetary policy on maintaining rigid exchange rates, they must accept the inflation that results from this exchange-rate policy.

Nations that successfully maintain a target-zone arrangement will find that their inflation rates tend to converge. Any change in the inflation rate among the participant countries will require a cooperative effort. In effect, a target-zone arrangement requires that countries coordinate their monetary policies. Consequently, target zones sometimes can force policymakers to accept a different inflation rate than they otherwise would.

To better understand the difficulties of maintaining a target-zone arrangement, imagine what would have happened if the United States functioned with such an arrangement over the last six years. The dollar initially began appreciating in 1980. As we argued elsewhere, the appreciation initially reflected a tightening of monetary policy in the United States.[8] Later the appreciation seemed to reflect an improved investment climate and the huge increase in the federal budget deficit, both of which raised real interest rates in the United States. Under a target-zone situation, the United States would have needed either to reduce its federal budget deficit or to increase the money supply to avoid an exchange-rate appreciation. It seems unlikely that the administration would cut military spending or raise taxes because of the dollar's exchange rate, so the burden would have fallen on monetary policy. The United States would have had to increase its money supply greatly to maintain the dollar, but monetary policy at this time was primarily concerned with reducing the rate of inflation and quieting inflation expectations. We would have had to accommodate public and private credit demands at the risk of rekindling inflation.

Alternatively, foreign countries could have conducted a more restrictive monetary policy in order to maintain the exchange-rate targets. Most developed countries were experiencing a very sluggish recovery over the last six years, however, and could ill-afford a restrictive policy.

This brings up an important issue. Maintaining target zones requires coordination of macroeconomic policies and goals among the leading industrial countries. Unfortunately, there is no evidence that coordination of macroeconomic policies will benefit all of the participant countries simultaneously, or that those that benefit the most would compensate those that benefit least. A recent study, for example, suggests that the benefits to the United States from coordinating policies with other industrial countries are rather small.[9]

Moreover, differences in countries' institutional structures and policy objectives limit the extent to which they can coordinate macroeconomic policies. Issues about when to adjust, about what instruments to adjust, and about which countries would do the adjusting when exchange rates appear inconsistent with fundamentals were never resolved in the Bretton Woods system. Proponents of target zones have not offered satisfactory solutions of their own.

If industrialized countries do not coordinate macroeconomic policies, the original exchange-rate targets will soon become unsustainable. Then a system of frequent discrete jumps in exchange rates might replace the current system of floating exchange rates. A system of frequent, small jumps in exchange rates could create more market uncertainty than floating exchange rates, as rumors and denials about impending adjustment in the central rates filter through the market. Such a system would not represent an improvement.

Is Limiting Exchange-Rate Flexibility an Optimum Policy?

Several studies have shown that limiting exchange-rate flexibility is not always the best policy.[10] The optimum degree of exchange-rate flexibility depends on many factors, including: the objectives of policymakers, the nature and persistence of shocks that hit the economy, the relative size of the trade-goods sector, the degree of price rigidity, and the formation of expectations.

Assume, for example, that monetary policy focuses on maintaining a fixed exchange rate. Given an initial stance for monetary policy, an increase in the demand for money, like the ones we observed in the United States in 1983 and 1985, will tend to appreciate the currency. To prevent an exchange-rate appreciation, however, the central bank will supply additional reserves to the banking system. With the supply of money increasing just enough to accommodate the increased demand for

4. *The Exchange Rate System* offers an alternative criterion, but the practical difficulties of implementing Williamson's standard are not significantly less than those discussed here for implementing purchasing power parity.

5. See *The Exchange Rate System*, pp. 65-67.

6. See *The Exchange Rate System*, pp. 62-72

7. Some analysts, advocate the use of *sterilized* exchange-market intervention—that is, using purchases and sales of foreign exchange, that do not alter domestic money growth, to maintain independent inflation and exchange-rate targets. Unfortunately, theory and experience have shown that sterilized intervention can have only a temporary impact on exchange rates, so it does not provide an independent policy instrument. (See Humpage - forthcoming).

money, the actual inflation rate will not change. However, in the case of an unexpected increase in the budget deficit, target zones will not work well. The appreciation of the dollar resulting from the higher credit demands associated with the deficit will induce an increase in the money supply that is likely to be inflationary. In the last case, having target zones is apparently not an optimum policy.

Many countries, nevertheless, believe that the benefits of limiting the fluctuations of their currencies exceed the costs. Most developing nations continue to peg their currencies to the currencies of their major trading partner, or to an index made up of the weighted average value of their major trading partners' currencies. For example, Hong Kong seems to peg its currency to the U.S. dollar. The major European countries, including Germany, and France, have established the European Monetary System, a target-zone arrangement whereby participants, except Italy, establish central exchange rates and limit the fluctuations of their currencies to within 2.5 percent of these central rates. Among the major developed countries, only the United States, Canada, Japan, and the United Kingdom allow their currencies to float in a wider sense.

The countries that fix their currencies are usually countries highly dependent on foreign markets for the goods they consume and for the sale of their output. They are small countries in the sense that changes in their domestic demand and supply conditions have virtually no effect on international prices. Often, the sensitivity of their export and import demands to exchange-rate changes is relatively low; consequently, exchange-rate changes may not have the desired effect on their balance of trade. If foreign demand for such a country's goods falls off, the resulting depreciation of its currency might improve its exports, but it also will greatly increase the cost of its imports.

Exchange-rate changes often have major effects on prices and on wage negotiations in the small country. Often these countries do not have a very diversified set of industries so that a large segment of the economy is influenced by developments in a single market. Nevertheless, even small countries periodically break their pegs with larger ones when the costs in terms of inflation and competition elsewhere in the world become too great.

The United States does not fall into the small-country category. For a large country with a relatively small trading sector like the United States, addressing balance of payments problems through exchange-rate changes seems a better approach than using macroeconomic policy. Yet, credible target-zone arrangement could require just the opposite.

Conclusion

Exchange rates are endogenous variables. This means they do not move on their own. Exchange rates respond to other economic factors, such as changes in interest rates and inflation differentials among countries. Ultimately, exchange rates reflect the prevailing package of macroeconomic policies among countries. If current exchange rates appear to be volatile or out of line relative to their equilibrium values, it is because the underlying monetary and fiscal policies are volatile and unsustainable.

Limiting flexibility of exchange rates without the necessary coordination of macroeconomic policies will not provide a solution to macroeconomic imbalances. The imbalances will show up elsewhere in the economic system. For example, the rapid acceleration of the money supply in the United States in the early 1970s under the Bretton Woods fixed exchange-rate system, led to rapid accumulation of dollar reserves by foreign central banks, to the expansion of foreign money supplies, and to higher world inflation. The Bretton Woods Agreement could not guarantee policy coordination.

The maintenance of target zones narrow enough to eliminate the uncertainty associated with exchange-rate volatility requires a rather close degree of macroeconomic coordination. Ironically, if countries achieve and maintain a mutually consistent set of monetary, fiscal, and trade policies, a system of rigid target-zones becomes unnecessary. Coordination and cooperation itself could maintain exchange-rate stability.

8. See Owen F. Humpage and Nicholas V. Karamouzis. "The Dollar in the Eighties," *Economic Commentary,* Federal Reserve Bank of Cleveland, September 1, 1985.

9. Gilles Oudiz and Jeffery Sachs, "Macroeconomic Policy Coordination among the Industrial Economies," *Bookings Papers on Economic Activity,* 1984:1, pp. 1-75.

10. Jagdeep S. Bhandari, ed. *Exchange Rate Management under Uncertainty.* Cambridge, Massachusetts and London, England: The MIT Press, 1985.

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