

# ECONOMIC COMMENTARY

## Should We Intervene in Exchange Markets?

by Owen F. Humpage

The Group of Five countries (France, Germany, Japan, the United Kingdom and the United States), plus Canada, met in Paris on February 21 and 22, seeking ways to eliminate huge trade imbalances in the United States, Japan and Germany, to encourage greater exchange-market stability, and to thwart growing protectionism.<sup>1</sup>

The recent rapid depreciation of the dollar, which poses major problems both for the United States and for our major trading partners, prompted the Paris meeting. As the dollar depreciates relative to other currencies, foreign exporters find it difficult to compete against U.S. goods in world markets. The dollar depreciation already has contributed to a sharp slowdown in Japan's economic growth. For the United States, fear of continued rapid dollar depreciation increases the risk that international investors will shift funds out of dollar-denominated assets and, thereby, force up U.S. interest rates. Federal Reserve Chairman Paul A. Volcker repeatedly has cautioned about this possible effect. The depreciation also will contribute to higher prices in the United States.

Although vague on the issue, the Paris meeting increased speculation that the participating countries would intervene more forcefully in an attempt to limit movements in key exchange rates. As newspapers recently have reported, Japan, and to a lesser extent, Germany have committed large sums to exchange-market intervention. In contrast, however, the United States has been reluctant to intervene in the exchange

market, believing that when nations conduct intervention independent of their monetary policies it has, at best, a limited influence on exchange rates.

This *Economic Commentary* discusses the U.S. reluctance to intervene in exchange markets. We present three theoretical channels through which exchange-market intervention could influence exchange rates: the monetary channel, the portfolio-adjustment channel, and the expectations channel.<sup>2</sup>

### A Definition

Exchange-market intervention refers to official purchases and sales of foreign exchange, which nations undertake through their central banks to influence the exchange value of their currencies. Although nations have many ways to influence their exchange rate—such as using monetary and fiscal policy, capital controls and trade barriers—exchange-market intervention seems the most direct and most flexible method. Many nations, therefore, frequently resort to intervention. Members of the European Monetary System, for example, routinely intervene to keep their exchange rates within narrow margins.<sup>3</sup>

Much of the recent interest in intervention stems from the belief that intervention enables nations to influence their exchange rates without altering monetary and fiscal policies. To understand this, we first must distinguish between *sterilized* and *nonsterilized* intervention. When a country undertakes sterilized intervention, it engages in other transactions to prevent either the purchase or sale of for-

ign currency from influencing its money-supply growth. In contrast, nonsterilized intervention can alter a country's money supply.

An example can help clarify the important distinction between sterilized and nonsterilized intervention. Suppose the United States wants to slow a depreciation of the dollar relative to the German mark. At the direction of the Treasury Department, the Federal Reserve System would buy dollars with German marks through its foreign-exchange desk in New York. Because this transaction reduces the supply of dollars in the foreign-exchange market, the dollar should then appreciate relative to the German mark. The foreign-exchange desk's purchase of dollars, however, also contracts the money supply in the United States. At this point, the intervention transaction is nonsterilized.

The reduction in the money supply resulting from intervention might be inconsistent with the domestic objectives of monetary policy. Consequently, the Federal Reserve then might wish to offset the impact of the intervention purchases of dollars by purchasing Treasury bills through the System's open-market desk at the Federal Reserve Bank of New York. The purchase of Treasury bills supplies reserves to the banking system and increases the money supply. Thus, by coordinating the activities of the foreign-exchange and open-market desks, the Federal Reserve can offset, or sterilize, the monetary impact of its exchange-market activities.

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The views stated herein are those of the author and not necessarily those of the Federal Reserve Bank of Cleveland or of the Board of Governors of the Federal Reserve System.

1. This article was revised and published after the February Group of Five meeting and has been backdated in order to maintain the continuity of the *Economic Commentary* series - editor.

2. The author presents a more detailed analysis of intervention and a survey of the literature in: "Exchange-Market Intervention: The Channels of Influence," *Economic Review*, Federal Reserve Bank of Cleveland, Quarter 3, 1986, pp.2-14.

3. The United States intervened quite frequently during much of the 1970s, but has intervened relatively infrequently in the 1980s.

While sterilized intervention has no effect on the money stock, it does change the public's relative holdings of U.S. Treasury securities and foreign securities. In our example, sterilized intervention reduces the supply of dollar-denominated Treasury securities in the market.<sup>4</sup>

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### The Impact of Nonsterilized Exchange-Market Intervention

Nonsterilized intervention alters nations' money supplies, whereas sterilized intervention alters relative supplies of government securities.<sup>5</sup> Consequently, we initially discuss the influence of a change in monetary policy on the exchange rate and then describe the unique influence of sterilized intervention. Both types of intervention can influence expectations, which we also will discuss.

Economists have long recognized a relationship between changes in countries' monetary growth rates and changes in exchange rates (or in the balance of payments under fixed exchange rates). Although economists might disagree about the timing, about the precise chain of causation, and about the relative importance of money for determining exchange rates, few would object on theoretical grounds to the inclusion of money among the key determinants of exchange rates.

A common description of the chain of events connecting a reduction in money growth to a currency appreciation would be as follows: If the United States were to slow its money growth, say from 10 percent per year to 8 percent, with other factors unchanged, it would experience an increase in its interest rates, at least initially. If foreign countries maintain their interest rates, international investors will transfer funds from assets denominated in foreign currencies, say German marks, to assets denominated in dollars. To obtain dollars, these investors will trade German marks for dollars in the exchange market. The increased supply of German marks and increased demand for dollars will tend to cause the dollar to appreciate relative to the mark.

The reduced rate of U.S. money growth also might slow the pace of economic activity and reduce the rate of inflation in the United States. But, prices typically adjust more slowly than the exchange rate, so the initial slowing in the money growth rate will cause the dollar to appreciate both on a nominal basis and on an inflation-adjusted, or *real*, basis.<sup>6</sup> The real appreciation of the dollar will make U.S. goods less competitive in world markets, until the U.S. inflation rate adjusts to the slower pace of money growth in the United States.

In summary, nonsterilized intervention is identical to central bank open-market operations, except that the bank would slow the money supply growth through sales of foreign exchange instead of securities. A slower rate of money growth resulting from nonsterilized intervention can result in a persistent nominal appreciation of the dollar and a temporary real appreciation of the dollar. Nonsterilized intervention thus will not have a long-term impact on a nation's competitive position.<sup>7</sup>

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### Sterilized Intervention and Portfolio Adjustments

While little disagreement exists about the ability of nonsterilized intervention to alter exchange rates through changes in money growth, disagreement about the potency of sterilized intervention abounds. Economists have suggested two theoretical channels through which sterilized intervention might influence exchange rates. These are the portfolio-adjustment channel and the expectations channel.

According to the portfolio-adjustment channel, sterilized intervention, which alters the amounts of U.S. Treasury securities relative to foreign government securities in private hands, can cause investors to reorganize their portfolios. This re-diversification can affect exchange rates.

To understand how the portfolio-adjustment effect operates, consider a world in which risk-averse investors, facing uncertain rates of return on an

array of assets, diversify their portfolios instead of holding only the single asset currently yielding the highest rate of return. When we acknowledge that assets denominated in different currencies can carry varying degrees of exchange risk and political risk, a strong incentive then exists for investors worldwide to diversify their portfolios across currencies.<sup>8</sup> In the case of major developing countries, most analysts attach the greatest importance to exchange risk. Economists believe that the exchange risk associated with bonds denominated in a particular currency increases with the proportion of similarly denominated bonds held by investors.

Since sterilized intervention alters the relative amounts of bonds in the hands of the public, it has the potential to affect risk-based premiums. Consider our original example. If the Federal Reserve undertakes open-market operations to sterilize the impact of the dollar purchases on the U.S. money supply, it will reduce the amount of dollar-denominated securities in the hands of the public. The change in the relative supply of dollar- and mark-denominated assets then could lower the relative risk premium associated with dollar assets. Moreover, if the German Bundesbank also sterilized the impact of our sales of German marks through its own open-market operation, it would further affect the relative supplies of securities and the risk premium. The lower risk premium could entice international investors to diversify into dollar assets, thereby causing the dollar to appreciate relative to the mark.

For the portfolio balance approach to operate, investors must view dollar- and foreign-currency denominated bonds as imperfect substitutes because of differences in the risk premium associated with each. If, in our example, investors viewed U.S. and German bonds as perfect substitutes with equal risks, they would willingly substitute German securities for dollar securities in their portfolios. They would see no need to diversify their portfolios and, consequently, no exchange-rate movements would result.

Empirical research does not strongly support the portfolio-adjustment channel. Although the issue remains unresolved, the evidence on the existence of

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4. The purchase of dollars with marks also will increase the German money supply. We assume throughout our example that the Germans sterilize the influence on their money supply by selling government securities to the market.

5. See: "The Channels of Influence," op. cit., pp. 4-5.

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6. The *nominal* exchange rate is the rate that traders and newspapers typically quote. The *real* exchange rate is equal to the nominal exchange rate adjusted for inflation-rate differentials between the countries in question.

7. This description ignores the important contribution of expectations. Expectation, however,

will not alter the outcome of a decrease in the rate of money growth, but can alter the speed and contours with which events take place.

8. *Exchange risk* is the uncertainty associated with unanticipated exchange-rate movements; *political risk* refers to the probability that governments will impose capital controls.

a risk premium between similar assets denominated in currencies of different major developed countries is mixed. But, even if the relevant bonds are imperfect substitutes, it appears that the response to small changes in the risk premium is quite low.

Michael Hutchison, for example, noted that the change in the total outstanding publicly held government debt was the relevant variable for portfolio decisions.<sup>9</sup> Total government debt responds to intervention, to changes in the budget deficit, and to monetary policy. The volume of exchange-market intervention is usually too small, compared to the total volume of outstanding debt, to have a significant impact on portfolio choices. With the publicly held federal debt in excess of \$1.7 trillion, the Federal Reserve and foreign central banks probably would need to undertake a massive volume of intervention before it had a significant impact on investors' portfolio decisions.

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### Expectations

Even in the absence of a significant portfolio-adjustment effect, sterilized intervention could affect exchange rates by altering market expectations. Exchange markets are highly efficient processors of information. Traders make full use of all currently available information, including information about predictable future events and policy decisions. Exchange rates on any given day embody all of this information. Changes in exchange rates reflect new information that has altered traders' expectations. Intervention thus could alter exchange rates if it provided new information to the market.

The scope for altering expectations through official purchases or sales of foreign exchange seems rather narrow. First, the Federal Reserve and the U.S. Treasury probably do not have better information than the market concerning day-to-day developments. Nevertheless, officials do, from time to time, possess better information in the

important sense that market participants might be confused or unsure of the future course of monetary or fiscal policy. If intervention can clarify policy intentions, it thus could alter expectations and exchange rates.

The decision of the Group of Five countries to intervene in late September 1985 (the Plaza decision) seems to represent a recent example of successful intervention that altered expectations in the foreign-exchange market. Prior to the meeting, the dollar was depreciating, but the market seemed uncertain about the future course of U.S. monetary and fiscal policies. The narrowly defined money stock was growing in excess of its target range, suggesting to many observers that the Federal Reserve might reduce money growth.

On the other hand, economic activity seemed weak at the time; many complained that the dollar was overvalued, and banks continued to experience difficulties with agricultural and international loans. These events suggested to many observers that the Federal Reserve might take no action to slow money growth. The United States intervened forcefully immediately following the G-5 meeting, but did not continue to intervene beyond the fourth quarter. Foreign-exchange market participants seemed to view the decision to intervene as a signal that U.S. monetary policy would not move in a direction that might strengthen the dollar. Money continued to grow above the target range and the dollar continued to depreciate.

Designing and implementing exchange-market intervention to influence expectations presents many difficulties. As already noted, the authorities must provide new information to market participants, but the possibilities of doing so seem limited. Experienced market participants will anticipate and adjust for policy decisions. Consequently, intervention will alter expectations only when it is not routine, and when a credible change in monetary policy accompanies it.

If the market believes domestic economic or political consideration prohibit a tightening of monetary policy, it will not respond favorably to intervention

that is designed to slow a dollar depreciation. Such was the case in the late 1970s. Heavy U.S. intervention in 1978 and 1979 to stem the dollar's decline appeared to have little effect, because the market believed that the United States lacked the resolve to end inflation. Only after the Federal Reserve re-established credibility with a new chairman and with a new operating procedure did the dollar begin to appreciate.

If we accept the argument that the authorities have the ability to influence foreign-exchange-market expectations by providing new information about policy, is intervention then the most effective vehicle for introducing this information? Could the central bank not provide the same information more effectively through the announcement of monetary-policy intentions or by altering an instrument of monetary policy?

One reason for thinking that actual currency purchases or sales might be more effective in convincing the market about central-bank intentions is that they represent a bet by the central bank on its own information. Profitable central-bank intervention—buying foreign currency when it is cheap relative to the dollar and selling it when it is expensive relative to the dollar—tends to smooth fluctuations in the exchange rate. As Dale Henderson has noted, when the prospects are such that the central bank will incur a loss on its intervention activity if it does not follow through with the correct change in monetary policy, the market has greater reason to trust that the central bank, in fact, will initiate the appropriate monetary adjustment.<sup>10</sup>

One also might wonder about the extent to which intervention, which alters expectations about future monetary policy, is truly sterilized. Many observers believe that such intervention, when accompanied by a future change in monetary policy, has a significantly larger impact on the market than an unaccompanied change in monetary policy.<sup>11</sup> Nevertheless, ability to alter expectations clearly depends on fulfillment of the expectations.

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9. See Hutchison, Michael M. "Intervention, Deficit Finance and Real Exchange Rates: The Case of Japan," *Economic Review*, Federal Reserve Bank of San Francisco, Winter 1984, pp. 27-44.

10. See Henderson, Dale W. "Exchange Market Intervention Operations: Their Role in Financial Policy and Their Effects," in John F. O. Bilson and Richard C. Marston, eds. *Exchange Rate Theory and Practice*, Chicago: University of Chicago Press, 1984.

11. See Jurgensen, Phillippe (Chairman). *Report of the Working Group on Exchange Market Intervention*, processed, March 1983.

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## Conclusion

Most analysts believe that growing U.S. trade deficits cannot continue. As our international indebtedness grows, foreigners will become increasingly reluctant to acquire additional dollar-denominated assets. This will initiate adjustments in many economic variables, including exchange rates and interest rates, to bring the international economy back into balance. How and how quickly these adjustments take place depends in large part on how rapidly the market decides to adjust its holdings of dollar-denominated assets.<sup>12</sup>

Depreciation of the dollar can contribute to the adjustment process by increasing the competitiveness of U.S. goods and services in world markets. Nevertheless, economists have long realized that the ability of an economy to meet increased demands for its goods

and services limits the contribution of a currency depreciation to improving its trade balance. If the economy is operating at full capacity, the depreciation will not generate much improvement in the trade balance. Ultimately a reduction in the trade deficit requires that the United States reduce its budget deficit, that it promotes savings, and that it encourages production of tradable goods and services.

Exchange-market participants understand these relationships and look for compatible developments in U.S. economic policies. If they believe that the United States is attempting to force a dollar depreciation through an inflationary increase in money growth or that the United States is not taking credible steps to reduce its budget deficit, international investors, who have played an important role in helping finance U.S. credit demands, could shift rapidly out of dollars into assets denominated in

other currencies. Under such circumstances, no amount of exchange-market intervention could supplant appropriate monetary or fiscal policies.

If, on the other hand, monetary and fiscal policy are consistent with a reduction in the trade deficit and an orderly depreciation of the dollar, then intervention can play a useful role in reinforcing the intention of policy should market uncertainty arise. Policymakers should clearly state the objectives of such policies. Under these circumstances, monetary and fiscal policies will help minimize market uncertainty and, hence, the need for intervention.

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12. See Humpage, Owen F. "Should We Be Concerned About the Speed of the Depreciation?" *Economic Commentary*, Federal Reserve Bank of Cleveland, March 15, 1986.

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