

■ For Stability

Record swings in the dollar since 1980 have intensified a desire for greater exchange-rate stability and have rekindled an interest in exchange-market intervention. The recent U.S. experience strongly suggests that intervention does not afford countries an independent policy lever with which to influence exchange rates systematically. Intervention can have a temporary, announcement-type effect on exchange rates by altering expectations, especially expectations about policy, but exchange-rate stability depends on the appropriateness, stability, and compatibility of more fundamental macroeconomic policies among nations.

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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.

■ Footnotes

1. See: Owen F. Humpage, "Intervention and the Dollar's Decline," Federal Reserve Bank of Cleveland, *Economic Review*, Quarter 2, 1988, pp.2-16.

2. If investors view bonds, U.S. and German in our example, as imperfect substitutes, and if they do not anticipate future taxes to service the bonds, a change in exchange rates and/or interest-rate differentials will accompany the changing proportions of bonds in the markets. Although these conditions could exist, the magnitude of the effect seems negligible (See Michael M. Hutchison, "Intervention, Deficit Finance and Real Exchange Rates: The Case of Japan," *Economic Review*, Federal Reserve Bank of San Francisco, (Winter 1984):27-44.

3. At the G5 meeting, France, West Germany, Japan, the United Kingdom and the United States discussed policies to reduce global trade imbalances. At the G7 meeting these countries, together with Canada and Italy, focused more on policies to stabilize the dollar's exchange value.

4. Even between Monday, September 25 and October 4, day-to-day intervention and day-to-day exchange-rate movements were not correlated. Only the initial intervention seemed to matter as the market awaited expected policy changes.

5. See Sam Y. Cross, "Treasury and Federal Reserve Foreign Exchange Operations, August-October 1985, Interim Report," *Quarterly Review*: Federal Reserve Bank of New York. (Winter 1985-86):45-48.

6. Martin Feldstein in "New Evidence on the Effects of Exchange Rate Intervention," *National Bureau of Economic Research Working Paper No. 2052*, October 1986 reaches a similar conclusion about the G5 episode.

7. See Sam Y. Cross, "Treasury and Federal Reserve Foreign Exchange Operations, February-April 1987 Report," *Quarterly Review*: Federal Reserve Bank of New York. (Spring 1987): 57-63, and Sam Y. Cross, "Treasury and Federal Reserve Foreign Exchange Operations, May-July 1987 Report," *Quarterly Review*: Federal Reserve Bank of New York. (Autumn 1987): 49-54.

8. One could argue that the dollar would have depreciated faster without intervention, but one cannot confirm this.

Intervention and the Dollar

by Owen F. Humpage

Central banks often intervene in the foreign-exchange market, buying and selling currencies in an effort to influence the exchange rates. These transactions can involve billions of dollars and can risk substantial losses for central banks should they end up holding a currency that depreciates.

Whether or not central-bank intervention produces a more stable, more predictable exchange rate is not clear and is a subject of debate among economists. Many argue that intervention, as a policy independent of monetary and fiscal policies, has little, if any, effect on exchange rates. The scale of intervention is often small relative to the scale of the market transactions, and past studies suggest that systematic intervention cannot supplant fundamental market forces.

Proponents of intervention, however, point to recent U.S. experiences as evidence that intervention affects exchange rates. They contend that central-bank intervention in late 1985 contributed to the dollar's depreciation and that heavy central-bank intervention last year helped stabilize the dollar. Although a cursory look at the evidence might lead one to this view, a close inspection reveals only a weak, and quickly dissipating relationship between intervention and the dollar's movements during this period.

This *Economic Commentary* summarizes the findings from a recent study of U.S. intervention between August 1984 and August 1987.¹ The evidence indicates that day-to-day U.S. intervention was not systematically related to day-to-day exchange-rate movements, but that intervention in some cases did seem to affect exchange rates temporarily. By reviewing the circumstances and events surrounding each episode of U.S. intervention, one can learn about how, and when, central banks might successfully employ an intervention policy.

■ Intervention and Exchange Rates: What's the Connection?

Intervention purchases and sales of currencies have the potential to alter the money supplies of the countries whose currencies were bought and sold. Such money-supply changes could have a strong influence on exchange rates, which, after all, are the price of one nation's money in terms of another.

If this were the extent of the operations, we would have little more to write about. Central banks, however, routinely attempt to neutralize the effects of intervention on their money supplies through transactions with other, more conventional instruments of monetary policy. For example, if

Does U.S. intervention have a lasting effect on the foreign-exchange value of the dollar that is independent of monetary policy actions? The author examines evidence from a recent study of U.S. intervention during a three-year period and discusses the relationship between intervention and exchange rates.

the Federal Reserve wishes to prevent an intervention purchase of West German marks from increasing the U.S. money supply, it can sell an equivalent dollar amount of U.S. Treasury securities through open-market operations. The sale of Treasury securities reduces the U.S. money supply. Countries usually neutralize the monetary effects of intervention because they wish to focus their monetary policies on domestic objectives, such as preventing inflation or promoting growth, and because they believe that they can conduct an independent intervention policy successfully.

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Although money supplies remain unchanged, the process of neutralizing the monetary effects of intervention alters the supply of government bonds denominated in one currency relative to the supply of bonds denominated in another currency. In our example above, the Federal Reserve increased the amount of U.S. Treasury securities in the market. If necessary, Germany also might offset any impact of intervention on its money supply by reducing the amount of German treasury securities in the market. Under certain conditions, generally thought to exist in the exchange markets, the changing currency composition of bonds in the market could alter exchange rates.²

Intervention also can influence exchange rates by altering expectations in the exchange market. Currency traders use all available information, including information about future events, in establishing current exchange quotes. Intervention, to the extent that it improves the flow of information in a "disorderly" market, or provides new information to the market, can alter expectations and, hence, exchange-rate quotations.

If intervention is to affect expectations, market participants must believe that the monetary authorities possess better information than they do. With the possible exception of knowledge about future policy changes, monetary authorities probably do not consistently have better information than private dealers. Consequently, intervention that hopes to influence market expectations must do so primarily by altering attitudes about future economic policies.

Such intervention is not, however, strictly independent of monetary and/or fiscal policies. Its success depends largely on its ability to inform the market about future policy changes and to hasten its response. Such intervention also must be reinforced by the expected change in monetary policy, or else it will lose

credibility. Moreover, such intervention could affect exchange rates only when the market does not anticipate policy changes; such instances are not likely to occur very often.

■ **No Systematic Relationship**
Although a theoretical basis exists for a systematic relationship between intervention and exchange-rate movements, our investigation of intervention during the period of the dollar's depreciation failed to find such a relationship. Day-to-day U.S. intervention was not related to day-to-day movements in either the mark-dollar, or yen-dollar exchange rates in a manner that indicated intervention could smooth exchange-rate fluctuations routinely. This was true despite the general circumstances surrounding the interventions episode.

For example, intervention was not systematically related to exchange-rate movements between August 1984 and February 1985. During this period, the dollar's appreciation began to slow and eventually came to an end, as the dollar increasingly seemed overvalued in terms of trade considerations, and as U.S. monetary policy began to ease. Between August 1984 and February 1985, the United States intervened on relatively few occasions and in relatively small amounts. This intervention was not closely coordinated with foreign central-bank intervention.

It was also true, however, that there was no systematic link between U.S. intervention and exchange-rate movements from September 1985 through November 1985 when U.S. intervention was heavy, persistent, and closely coordinated among those central banks participating in the G5 agreement.³ Perhaps even more interesting, we failed to find a systematic relationship between intervention and exchange-rate movements over this period even though intervention generally attempted to push the dollar in a direction consistent with market fundamentals.

Following the G7 meeting in February 1987 between the U.S. and its major trading partners, intervention was again heavy, persistent, and closely coordinated, but again it did not exhibit the expected relationship to daily exchange-rate movements. This episode differed from the previous episode in that central banks were trying to stem the persistent depreciation of the dollar and to stabilize it relative to the yen and the mark. Sometimes we found a weak relationship in this period, but the sign of the correlation was opposite that which we anticipated. The dollar appeared to depreciate following intervention purchases of dollars.

■ **A Temporary One-Time Response**
Although our study failed to find a systematic relationship, we did uncover instances when individual intervention transactions appeared to have temporary effects on currency values. A common characteristic of these occasions is that they seemed to convey some information that the market did not appear to possess.

Often major episodes of intervention, including the G5 and G7 experiences, last for weeks, with intervention occurring almost daily at first and eventually tapering off. Nevertheless, only the initial intervention transaction or a transaction that followed a long period of no intervention seemed to affect the exchange rate. Transactions that quickly followed other intervention never seemed to affect exchange rates. These subsequent interventions did not seem to contain additional news.

Simply being the first in a series of intervention transactions, however, was not sufficient to generate an exchange-rate response. The intervention also needed to be associated with some development, suggesting that official attitudes about the dollar had changed and that a policy adjustment would follow. A response also seemed more likely when it was closely coordinated among the central banks.

The most dramatic example of this temporary, announcement-type effect occurred immediately following the September 20-21, 1985, G5 meeting. Prior to the meeting, the dollar had been depreciating, but the market was becoming uncertain about how much of a depreciation the United States would accept. On the one hand, economic activity was not robust, suggesting that the Federal Reserve would not tighten at the risk of slowing the economy further; on the other hand, the narrow measure of money was growing above its target range, suggesting that the System might tighten soon to avoid an acceleration of inflation. This created some uncertainty about the dollar, since a depreciation might help real economic growth, but could raise prices. The market was ripe for a signal.

The G5 communique and the highly visible, closely coordinated intervention that immediately followed the meeting seemed to provide two signals to the market. First, because the United States initiated it, the G5 meeting appeared to mark a change in the Administration's hands-off policy towards the dollar. Prior to the G5 meeting, the dollar's persistent strength and the growing trade deficit were not a major policy concern, and the U.S. Administration did not endorse frequent exchange-market intervention. It now seemed that promoting a dollar depreciation would garner more weight in U.S. policy discussions.

Second, the G5 announcement suggested that the Federal Reserve System would not move aggressively to bring money growth back within the target ranges. In response, the dollar fell a very sharp 5 percent against the German mark and 4.6 percent against the Japanese yen on the Monday following the G5 announcement.

The dollar continued to depreciate sharply through October 4, as the market looked for additional confirmation of policy changes, but thereafter any effects of the intervention faded.⁴ The dollar began to appreciate against the German mark as further policy initiatives to lower the dollar against the mark were not forthcoming and as the Germans began to express satisfaction with the mark's appreciation to date. The dollar continued to depreciate somewhat against the yen. Japanese officials had announced some additional policy initiatives to encourage a yen appreciation and had not been as quick as their German counterparts to disavow their currency's appreciation.

By late November, however, West Germany, Japan, and the United States had ceased intervention and the United States did not intervene again until 1987. During the entire G5 intervention episode, the United States sold over \$3 billion against German marks and Japanese yen, and other large central banks sold approximately \$7 billion.⁵ The dollar continued to depreciate throughout 1985 and 1986 in response to changing market fundamentals. Outside of the one-time shift downward in the dollar on September 25 and possibly through October 4, the continued depreciation of the dollar was not related to U.S. intervention.⁶

The importance of policy changes, rather than intervention was illustrated following the G7 episode. In February 1987, the major central banks met in Paris to discuss trade and exchange rates. The resulting communique, the Louvre Agreement, vaguely suggested that the participants had agreed informally to a set of reference zones for the yen-dollar and the mark-dollar exchange rates. Following the Paris meeting, the volume of foreign central-bank intervention increased.

In late March, the United States intervened frequently and heavily as the dollar depreciated below 150 yen because of fears of a trade war with Japan. From March 23 through April 6, the United States sold an equivalent \$3 billion of yen. Intervention continued intermittently throughout May and early June with the United States selling a small amount of yen and a modest amount of marks.⁷

As in the G5 episode, the major central banks closely coordinated their intervention efforts in late March and early April. The transactions also were highly visible; at various times, Federal Reserve Chairman Paul A. Volcker, Vice-Chairman Manuel H. Johnson and U.S. Treasury Secretary James A. Baker acknowledged that intervention was under way.

Unlike the G5 episode, however, the central banks now were trying to offset market forces rather than to push the exchange rate in a direction consistent with the market, and until late in April, they gave no indication that they would alter monetary policies. Consequently, the dollar continued to depreciate against the yen at a rapid pace despite intervention.⁸

The dollar-yen exchange rate broke its sharp descent only after policy changes were initiated. At the end of April, Chairman Volcker indicated that the Federal Reserve System was "snugging" monetary policy, and Japanese Prime Minister Nakasone indicated that Japan would ease monetary policy. In May, the West German Bundesbank lowered some of its official money-market rates. In late May, the Japanese also announced a sizable fiscal package designed to stimulate their economy and to reduce their trade surplus. The dollar firmed against the yen and the mark on the belief that these changes in monetary policy would widen interest-rate spreads in favor of the dollar.