
FRBSF WEEKLY LETTER

May 13, 1988

Divine Intervention?

The extent and speed of the depreciation of the foreign exchange value of the dollar since the beginning of 1985 surprised and alarmed analysts, policymakers, and business leaders alike. Reaching a peak in February 1985, the dollar's fall initially was welcomed as the long-overdue market adjustment of an over-valued currency. But the dollar's continued slide aroused fears that the currency was falling too far and too fast, resulting in renewed inflationary pressures in the U.S. and slower economic growth abroad. These concerns led finance ministers and central bankers at the Louvre meeting of the Group of Seven (U.S., Germany, Japan, Italy, Britain, France, and Canada) in February last year to issue a communique calling for greater dollar stability. The communique stated that currencies were now "within ranges broadly consistent with underlying fundamentals," and the governments agreed to stabilize the dollar both by altering their macroeconomic policies and by intervening in the foreign exchange markets to prevent "excessive" volatility.

Since the Louvre G-7 meeting, central bank intervention in foreign exchange markets has been massive. Central banks abroad have purchased billions of dollars in foreign exchange markets. West German international reserves jumped more than 50 percent last year — growing to \$79.3 billion from \$51.7 billion during 1987. Japan's reserves jumped more than 90 percent in 1987, growing to \$81.0 billion from \$42.3 billion. Italy, the United Kingdom, and Canada had similar proportional gains.

This *Letter* reviews the theory of and recent experience with foreign exchange market intervention and finds that intervention policy alone cannot be relied upon to stabilize the value of the dollar within a particular target zone unless it also is supported by a shift in monetary policy stance. Recent easing of monetary policies in Japan and Germany may contribute to dollar stability if these policies are sustained.

Monetary Intervention

To analyze the exchange rate impact of official intervention in the foreign exchange market, it is

important to distinguish between "monetary," or unsterilized, intervention operations and "non-monetary," or sterilized, intervention operations.

In a monetary intervention aimed at supporting the dollar, the Bank of Japan (Japan's central bank), for example, typically buys dollars from a Tokyo bank and credits the bank's reserve position in yen. The Tokyo bank ends up with fewer dollars (its foreign currency asset) and greater yen (home currency) reserves. Such intervention by the Bank of Japan creates a position of excess reserve holdings for the Japanese banking system.

With excess reserves, Japanese banks are in a position to expand domestic (yen-based) lending. The greater availability of credit offered by banks, in turn, tends to lower its price — Japanese interest rates — and raise the stock of deposit money. Increased deposit money balances is the monetary component of intervention operations.

This monetary component of official intervention is likely to have powerful effects on exchange rates. Lower relative interest rates in Japan, for example, generate an outflow of funds to U.S. capital markets as the yields on Japanese securities fall relative to U.S. securities. As investors try to sell Japanese securities and buy dollars to acquire higher yielding U.S. securities, upward pressure is placed on the dollar exchange rate and it appreciates. Moreover, if market participants believe that intervention operations represent or "signal" the Japanese central bank's willingness to sustain such easing, the effect on exchange rates likely will be magnified.

Numerous empirical studies indicate strong causal links running from monetary intervention to exchange rates. This is not surprising. The monetary effects (money supply changes and interest rate movements) of such intervention operations working through the foreign exchange market are analogous to regular open market monetary operations working through the domestic bond market. Both change bank

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reserve holdings in an analogous fashion. The difference between the two is that in the intervention case, private banks' foreign asset holdings are changed, while in the case of open market operations, banks' domestic bond holdings are changed. Hence, sustained monetary intervention likely will have a powerful and long-lasting effect on exchange rates primarily to the extent that it represents a fundamental change in the central bank's monetary policy stance. That is, monetary intervention influences the overall money growth rate, in addition to shifting the apparatus of monetary control from domestic open market operations to intervention in the foreign exchange market.

Non-monetary Intervention

In the previous example, the Bank of Japan's purchase of dollars in the Tokyo foreign exchange market was allowed to increase the Japanese money supply and lower Japanese interest rates. The Bank of Japan, however, could pursue non-monetary intervention by offsetting or "sterilizing" this monetary effect through the sale of a domestic (yen-denominated) security in open market operations. This action reduces Japanese commercial bank yen reserves to their initial level. The Japanese banking sector would have more domestic securities in its portfolio, and fewer dollar-denominated securities (those purchased by the Bank of Japan).

Japanese banks may have preferred the initial mix of securities in their portfolios. If so, they will try to restore their portfolios by buying dollar-denominated securities and selling yen securities. This private shift toward dollar securities at the expense of yen securities is likely to induce capital outflow from Japan towards the U.S., which, if quantitatively important, would place upward pressure on the dollar exchange rate and cause it to appreciate.

These non-monetary or "sterilized" intervention operations are likely to have much weaker effects on exchange rates than their monetary counterparts, however. Empirical research either has failed to find any significant effects of sterilized intervention on exchange rates, or has found that both its initial magnitude and duration over time seem to vary from episode to episode.

There are several reasons why the effects of sterilized intervention on exchange rates are likely to be small, and to some extent unpredictable. First, sterilized intervention, by definition, offsets monetary effects and works only through changes in interest rates associated with portfolio rebalancing. Second, investors may view foreign and domestic securities as reasonably close substitutes, at least on the margin. In our example, if Japanese banks largely are indifferent between yen and dollar-denominated securities on the margin, the Bank of Japan's attempts to stabilize the dollar by buying dollar securities for yen securities is likely to induce only a small rebalancing effort and a small effect on exchange rates and interest rates.

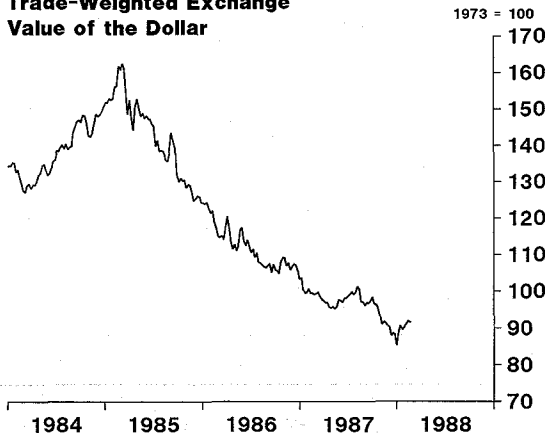
Third, investors' asset preferences between domestic and foreign securities respond to a variety of factors, including expectations regarding future policies, prospects for inflation, and the overall investment climate. Thus, other factors besides central banks' sterilized intervention operations also "upset" investors' portfolio balance, and may work against the intervention operations. Most important in this regard are bond financed government budget deficits, which may introduce billions of dollars of new security issues into private portfolios every year. Deficit financing "upsets" portfolio balance, and in turn, induces capital flows and exchange rate effects on a scale typically much greater than that associated with sterilized intervention operations.

For these reasons, the effect of non-monetary, or sterilized, central bank intervention on exchange rates is difficult to detect empirically. Unlike the effects of monetary intervention, both the initial impact and the duration of non-monetary intervention seem to vary greatly in terms of magnitude and timing.

Recent Experience

On a day-to-day basis, the central banks of Germany and Japan generally attempt to sterilize their intervention operations. In effect, however, both West Germany and Japan have allowed a large part of their dollar purchases in the foreign exchange market to go unsterilized following the Louvre agreement. As a consequence, both German and Japanese money growth has been rapid over the past year. In Japan, the growth rate of

Chart 1
Trade-Weighted Exchange
Value of the Dollar

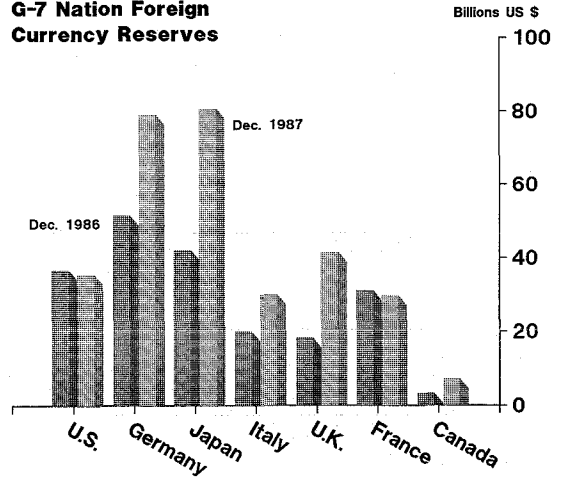


broad money has accelerated almost continuously since the beginning of last year, and for the October-December quarter hit 11.8 percent — the highest rate since the second quarter of 1979. The Bank of Japan is projecting even higher growth this quarter. Similarly, money growth in West Germany has overshot target ranges for the second year in a row.

Supporting these moves, both the Bank of Japan and the Bundesbank lowered their central bank discount rates by 50 basis points early last year. Money market interest rates also declined in both countries — rates in Japan declined from 4.18 percent in December 1986 to 3.2 percent recently, while rates in Germany declined from 5.0 percent to 3.2 percent over the same period.

Monetary ease in Japan and Germany was not pursued uniformly during the course of the year, however. In the late summer, the Bank of Japan and the Bundesbank made some attempt to slow liquidity growth in response to a strengthening dollar and concerns about the emergence of inflationary expectations. The Bank of Japan tried to moderate credit expansion by limiting discount window borrowings and allowed short-term interest rates to rise in the face of strong money market conditions. The Bundesbank also raised short-term interest rates. However, concern about the stability of the dollar and the potential for financial market collapse that arose in late October caused the two central banks to abandon these attempts at restraint and continue with more expansionary policies.

Chart 2
G-7 Nation Foreign
Currency Reserves



But have these moves helped stabilize exchange rates? The evidence suggests that monetary intervention has been moderately successful, while the effects of non-monetary intervention have been more difficult to detect. The dollar did not stabilize immediately following the Louvre agreement, despite large scale intervention operations that were allowed to have monetary effects. Then, between May and August the dollar rallied sharply, appreciating almost four percent on a trade weighted (monthly average) basis. However, when Germany and Japan tightened monetary policy through domestic operations, the dollar's gains quickly were reversed and the dollar depreciated a further 11 percent after August. (See chart.) Since the end of last year, the dollar exchange rate has been somewhat more stable, but was again under downward pressure at the end of March and in mid-April.

Thus, it appears that sustained monetary ease abroad may be necessary to stabilize the exchange value of the dollar. In this context, the recent bouts of dollar weakness may be attributable to uncertainty in the market over the Japanese and German commitments to maintain their present stances of monetary ease.

Michael Hutchison

Alaska Arizona California Hawaii Idaho
Nevada Oregon Utah Washington

Research Department
Federal Reserve
Bank of
San Francisco

NOTE

The table entitled, "Selected Assets and Liabilities of Large Commercial Banks in the Twelfth Federal Reserve District," will no longer be published in conjunction with the *Weekly Letter*. For those in need of these data, a more timely publication entitled, "Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries" (F.R. 2416x), is available from the Statistical and Data Services Department of this Bank.