

ECONOMIC COMMENTARY

Federal Reserve Bank of Cleveland

Should the United States Hold Foreign Currency Reserves?

by Gerald H. Anderson and Owen F. Humpage

The United States holds a \$43 billion portfolio of foreign exchange reserves—mostly German marks and Japanese yen—to defend against unwanted depreciations of the dollar in the world's currency markets.¹ By selling these reserves when demand for its currency weakens, the United States can reduce the supply of dollars and thereby resist a decline in the dollar's foreign exchange price.

Although this approach can sometimes be effective, we argue that, for the United States, it is unnecessary. This country—indeed, any nation with a well-developed money market—need not sell foreign exchange to reduce the supply of its currency; open-market sales of Treasury securities can accomplish the same end. Moreover, whereas many observers warn of exchange risk, we contend that the most important costs of holding a substantial foreign exchange portfolio and of intervening in the foreign exchange markets are the uncertainty about monetary policy priorities and the possible conflict with price stability that can develop. The enhanced ability to set an independent monetary policy focused on domestic price stability is, after all, the main reason for adopting flexible exchange rates.

■ Official International Reserves

All countries hold official portfolios of international reserve assets to meet temporary exchange-rate, or balance-of-payments, problems. As in many countries, U.S. official international reserves consist mainly of foreign exchange holdings. Although we typically think

of foreign exchange as foreign currencies, the term more accurately refers to liquid claims on foreign governments that earn near-market rates of return. In addition to its foreign exchange reserves, the United States also holds official reserves in the form of gold, Special Drawing Rights, and a reserve position in the International Monetary Fund (IMF).²

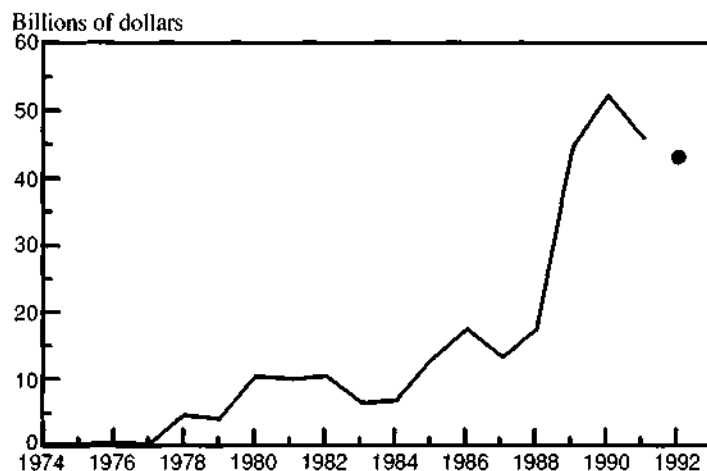
Besides using official international reserves, most countries can also finance a defense of their exchange rates by borrowing foreign currency.³ The United States, for example, maintains an extensive set of short-term credit lines ("swap" facilities) with many nations primarily for this purpose, and we have also occasionally sold foreign-currency-denominated bonds to acquire ammunition for intervention.

Of all the types of international liquidity—official international reserves or borrowing facilities—central banks tend to favor foreign exchange reserves. These are available virtually instantaneously, do not require government-to-government consultation, and, unlike borrowing, run no risk that the lender will demand some type of macroeconomic policy concession to draw on the credit line.

In part reflecting these considerations, the United States began acquiring foreign exchange in the early 1980s (see figure 1). Prior to 1978, we held only a small amount—typically much less than \$1 billion—with gold making up

The United States, like most other industrial nations, holds a large portfolio of foreign exchange reserves, which we acquired over the last 10 years through intervention in the world's currency markets. This *Economic Commentary* contends that for countries with well-developed money markets and flexible exchange rates, holding vast amounts of foreign currency offers few advantages.

FIGURE 1 U.S. FOREIGN CURRENCY RESERVES



NOTE: Data are year-end figures through 1991. Dot represents May 1992.

SOURCE: International Monetary Fund, *International Financial Statistics*, various issues.

the lion's share of our official international reserves. The extraordinary growth in U.S. foreign exchange holdings occurred in 1988 and 1989 as a result of attempts to prevent the dollar from appreciating further against the mark and yen. By 1990, our official international reserves were valued at about \$83 billion. Of this amount, \$52 billion, or approximately 60 percent, was foreign currency.⁴

In an effort to adjust these holdings, the Federal Reserve undertook a series of off-market transactions with foreign monetary authorities last year.⁵ As a result, U.S. foreign exchange reserves have fallen to \$43 billion.

■ International Reserves, Central Banks, and Money

Official international reserves are assets on a central bank's balance sheet and thus are a source of a nation's monetary base (see box 1).⁶ When a central bank acquires foreign exchange through intervention, it does so by trading its own currency, thereby expanding the nation's money supply. As a method for influencing the domestic money supply, exchange-market intervention differs from open-market operations in government securities, or from lending operations with commercial banks, only in the nature of the central bank assets involved. A central bank can increase

its monetary base either by acquiring international reserve assets (including foreign exchange), by purchasing government securities, or by lending reserves to domestic commercial banks.

In most industrialized countries, however, central banks attempt to prevent their foreign-exchange-market interventions, which are motivated by exchange-rate objectives, from affecting their domestic monetary policies, which are motivated by inflation or business cycle objectives. They do this by *sterilizing* their intervention with an offsetting transaction in some other asset. Suppose, for example, that in an attempt to defend the mark-dollar exchange rate, the Federal Reserve System buys \$100 million equivalent of German marks from commercial banks, thereby expanding the U.S. monetary base by the same amount. If this transaction were inconsistent with its domestic objectives, the System could simultaneously sell \$100 million in U.S. Treasury bills to commercial banks, thereby reversing, or sterilizing, the previous monetary expansion. The Fed sterilizes all U.S. exchange-market intervention, in the sense of not allowing intervention to interfere with its monetary policy objectives.⁷

■ Money, Exchange Rates, and Intervention

Nearly all economists agree that when central banks allow intervention to alter their relative money supplies, exchange rates (which, after all, are simply the relative prices of currencies) change. Many, however, question whether sterilized intervention can have lasting—or even predictable—influences on exchange rates.⁸

Empirical investigations show that sterilized intervention does not provide central banks with a means for determining the long-run path of their exchange rates. Some studies, however, suggest two ways in which such intervention could have transitory effects. First, it might signal future, unanticipated monetary policies to a basically efficient market. Because such a market will discount routine or otherwise predictable changes in policy, the scope for constructive use of sterilized intervention is narrow. Moreover, since a central bank must ultimately accommodate such signals if the market is ever to believe them, intervention of this type cannot remain sterilized. Second, in a market that is temporarily operating on news unrelated to economic fundamentals or that is caught up in a speculative flurry, intervention might shake the exchange rate back to a more sustainable path. But to be successful, traders at the central bank must have better information about market trends and fundamentals than do traders at commercial banks—an improbable scenario.

The important point about sterilized intervention is that it most likely operates by conveying information and by altering market expectations—if it accomplishes anything at all. It does this by signaling to the market, not by changing market fundamentals, so its influence is transitory. Consequently, many economists question the need for holding a large portfolio of foreign currencies to finance sterilized intervention.

BOX 1 MONETARY AUTHORITY'S BALANCE SHEET

Assets	Liabilities
Foreign Assets	Monetary Base
Gold	Currency held by the public
Foreign exchange	Depository institutions' reserves
Special Drawing Rights	
Reserve position in IMF	Other Liabilities
Domestic Assets	Net Worth
Government securities	
Loans to depository institutions	
Other	

■ Why Other Countries**Hold Reserves**

The foregoing arguments notwithstanding, most countries do in fact hold substantial amounts of foreign currency reserves in anticipation of using them to influence exchange rates. There are two interrelated reasons for this, neither of which pertains to the United States.

With the notable exceptions of this nation and Japan, nearly all major industrial countries limit movements in their exchange rates. Countries that have closely integrated goods and labor markets, that experience similar economic disturbances, and that have comparable inflation preferences often find that adopting fixed or relatively inflexible exchange rates between their currencies is more conducive to their economic growth and stability than accepting market-determined rates.

For that reason, most western European nations, including Germany, France, Italy, and the United Kingdom, have adopted a formal agreement that mandates intervention. Members of the European Exchange-Rate Mechanism (ERM) agree to maintain their exchange rates within narrow margins around a fixed but adjustable central rate. Intervention within the margins is optional, but at a margin, it is mandatory.

Many more countries limit the fluctuations in their currencies without a formal agreement to do so, usually by stabilizing their exchange rates with their most important trading partners.⁹ Sweden and Finland, for example, stabilize their currencies relative to a weighted-average index of their exchange rates with close trading partners. Austria and Norway, although not in the ERM, stabilize their currencies relative to those of member nations. Similarly, Canada seems to limit, although more loosely, movements in its currency's value relative to the U.S. dollar.

Although the desire to limit movements in exchange rates offers a motive for holding foreign currency reserves, reserves are not necessarily needed for that purpose. Countries that benefit from holding substantial foreign exchange portfolios lack other means of adjusting their monetary supplies quickly and frequently to the ebbs and flows in the demand for their currencies. They do not have broad, well-developed money markets in which to conduct open-market-type operations, and their traditional instruments of monetary policy are too inflexible to serve the task. Buying and selling foreign currencies affords these nations a flexible means of adjusting their money stocks in a manner sufficient to stabilize exchange rates.

Central banks in most large industrial countries have traditionally implemented their monetary policies by adjusting their discount rates and discount-window quotas with commercial banks, or by rationing bank credit to the general public. Although these instruments can be highly effective, they do not accommodate frequent or marginal adjustments, as do open-market operations—the principal means of implementing U.S. monetary policy. Lacking broad and deep money markets, many foreign central banks cannot engage in open-market-type policies without a substantial risk of creating undesirable interest-rate volatility.

Although many countries lack well-developed domestic money markets, they typically have much more extensive foreign exchange markets. Through foreign exchange transactions, their central banks can adjust their monetary bases to desired levels as the need arises. In the late 1970s, changes in foreign exchange reserves accounted for nearly 70 percent of the movements in Germany's monetary base, and although the importance of such fluctuations for German monetary policy has since declined, they still account for approximately 20 percent of the movements in this aggregate.¹⁰ This is the oft-noted sense in which holding foreign exchange reserves provides central banks with a greater degree of monetary flexibility.¹¹

For countries lacking access to a large-scale domestic money market, holding foreign currency reserves can be useful for making quick, minor adjustments to their monetary base. But the United States neither manages dollar exchange rates nor lacks well-developed money markets; thus, we gain little from holding a large portfolio of these reserves.

■ The Costs of Holding Foreign Exchange Reserves

Most discussions of the costs of holding foreign exchange reserves focus on the potential for exchange-rate revaluation losses. The United States invests its foreign exchange reserves in assets that earn a near-market rate of return. Hence, the overall profit or loss on our foreign exchange position reflects two

components: investment returns, and any valuation gains or losses.

Official data on profits or losses consider the interest earnings on our foreign exchange position, but to assess the investment return properly, one must also account for the opportunity costs of holding foreign currency. The return on a portfolio of short-term U.S. Treasury securities could represent these opportunity costs.¹²

Valuation changes in our foreign exchange position stem from changes in exchange rates. With most of our reserves held in German marks and Japanese yen, any depreciation of these currencies relative to the dollar will result in valuation losses.

Although profits and losses expand with the amount of our foreign exchange holdings, focusing on a portfolio's return is something of a red herring. If proper account were taken of opportunity costs and if currencies were invested at market rates of return, one would expect that, over time, interest parity would ensure that the net investment results and any valuation gains or losses would tend to balance out. Indeed, the United States has experienced periods of both losses and profits on its portfolio.

A more important cost of holding a large amount of foreign exchange and of intervening is the possible interference with domestic monetary policy objectives. Although the United States has intervened from time to time since 1973, we, unlike the ERM members and many other countries, have refrained from fixing dollar exchange rates precisely to avoid this situation.

Exchange-market intervention can be fully consistent with a monetary policy designed to promote domestic price stability, but only when the exchange-market disturbance is domestic in origin and monetary in nature. During the late 1970s, for example, the dollar depreciated sharply because of an overly expansionary U.S. monetary policy. The Federal Reserve intervened to acquire dollars at the time, which was fully consistent with the monetary tightening required to reduce inflation. The move was unnecessary, however, since the System could have achieved the same effect through open-market operations. In fact, despite intervention in the late 1970s, the dollar did not begin to strengthen until after 1979, when the Fed made credible changes to tighten its policy stance.

When an exchange-market disturbance is not domestic in origin and monetary in nature, attempting to stabilize exchange rates through intervention is incompatible with price stability. If, for example, foreign demand for U.S. goods increases, intervention to stem the dollar's appreciation would tend to raise domestic prices. Although such a move might stabilize the exchange rate, it could destabilize the domestic price index.

In addition to the immediate problem of potential incompatibility with monetary policy, intervention can also raise questions about future monetary priorities because it suggests that, under certain circumstances, the monetary authority might arbitrarily depart from price-level objectives. This could reduce the credibility of a central bank's inflation stance, particularly in a country lacking a consistent track record for price stability.

Similarly, holding a large portfolio of foreign exchange reserves implies that a central bank attaches a substantial probability to the prospects of a future currency depreciation, and that it is willing to intervene heavily to offset that depreciation. The implication is that the bank either lacks faith in its own ability to avoid an excessive monetary expansion, or that it does not consider price stability to be its primary policy objective.


■ Conclusion

In 1973, when the present system of flexible exchange rates began, many economists expected the world's central banks to reduce their holdings of foreign exchange reserves. This did not happen, in part because of an unwillingness to give private-market forces totally free rein in determining exchange rates, but more importantly, because most countries lacked sufficient capacity for open-market-type operations. In recent years, some nations have been developing more-flexible monetary policy instruments, which could eventually lead to reductions in their foreign exchange holdings.

In these respects, the United States is exceptional, having both a well-developed money market and a desire for monetary independence. With but trifling exception, the Federal Reserve can influence exchange rates only by altering U.S. money growth, which requires only open-market operations, not foreign exchange operations. Moreover, the exceptional cases in which sterilized intervention might be effective do not require a huge portfolio of foreign currency. In either case, the costs of pursuing exchange-rate policies can be a diminution of price stability and of public confidence in the Federal Reserve's assertions of a price-stability goal.

■ Footnotes

1. All data are from the International Monetary Fund, *International Financial Statistics*, various issues. The latest publicly available data are for May 1992. All annual data pertain to year-end amounts.
2. Special Drawing Rights are reserve assets that the IMF issues to member countries for use in official transactions. A member nation's reserve position in the IMF is the amount it can borrow without restriction.
3. Usually, this borrowing is government to government, with the lender creating reserves for the borrower. In late 1978 and in 1980, however, the United States publicly issued foreign currency bonds abroad.
4. In 1990, the remainder of our official reserves consisted of \$11 billion in Special Drawing Rights, \$11 billion in gold, and \$9 billion in our reserve position with the IMF.
5. See "Treasury and Federal Reserve Foreign Exchange Operations," *Federal Reserve Bulletin*, vol. 77, no. 10 (October 1991), pp. 784-788, especially p. 787.
6. Typically, a nation's fiscal authority—its Treasury or Ministry of Finance—holds some or all of its international reserves, and the central bank's balance sheet contains a corresponding entry. We treat all intervention as solely central bank policy, a simplification that does not affect our conclusions.
7. The Federal Open Market Committee (FOMC), however, sometimes factors exchange rates into its deliberations, so that U.S. monetary policy is not completely divorced from exchange-rate considerations. See Dianne B. Pauls, "U.S. Exchange Rate Policy: Bretton Woods to Present," *Federal Reserve Bulletin*, vol. 76, no. 11 (November 1990), pp. 891-908, especially p. 901.
8. See Owen F. Humpage, "Central-Bank Intervention: Recent Literature, Continuing Controversy," Federal Reserve Bank of Cleveland, *Economic Review*, vol. 27, no. 2 (1991 Quarter 2), pp. 12-26.
9. This is particularly true of developing countries.
10. See Manfred J.M. Neumann and Jürgen von Hagen, "Monetary Policy in Germany," in Michele Fratianni and Dominick Salvatore, eds., *Handbook on Monetary Policy*. Westport, Conn.: Greenwood Press, forthcoming 1992.
11. Since the early 1980s, Japan and most large European countries have increasingly conducted monetary policy through their money and (more important) interbank markets, rather than through the traditional instruments mentioned above.
12. See Michael P. Leahy, "The Profitability of U.S. Intervention," Board of Governors of the Federal Reserve System, International Finance Discussion Paper No. 343, February 1989.


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by William P. Osterberg

Recent research suggests that central bank intervention may influence the volatility of foreign exchange rates or impair the efficiency of such markets. Using official daily intervention data for Germany, Japan, and the United States, the author tests for whether the anticipation of intervention explains wider bid-ask spreads. No evidence is found for such a relationship in the spot and forward rates of marks/dollars and yen/dollars. Rather, it appears that narrower spreads are associated with periods of purported intervention and that spreads are narrower if, conditional on the occurrence of intervention, the market is likely to have expected intervention.

An Ebbing Tide Lowers All Boats: Monetary Policy, Inflation, and Social Justice

by David Altig

Some economists argue that, because low-income individuals are unduly burdened by unemployment and not much affected by inflation in the short run, fairness dictates expansionary monetary policy in times of sluggish economic activity. However, individuals with low incomes are likely to be hurt in the long run if such policies lead to higher inflation. This paper argues that the same social justice criterion that justifies the call for the Fed to "do something" during recessions supports the case for a long-run anchor to the price level.

Sluggish Deposit Rates: Endogenous Institutions and Aggregate Fluctuations

by Joseph G. Haubrich

This paper provides an equilibrium analysis of how endogenously arising financial institutions alter the impact of macroeconomic shocks. It explains the low volatility (sluggishness) of bank interest rates relative to other short-term rates and illustrates a powerful principle: When aggregate disturbances also have distributional consequences, the shock can change the pattern of prices specified by efficient contracts. Interest-rate sluggishness arises because banks provide insurance against individual uncertainty, which itself is affected by economic conditions.

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