The Myth of a Strong Dollar Policy

Ben Craig and Owen Humpage

A strong dollar policy is the yeti of economics. Despite occasional sightings, most recently by the National Association of Manufacturers, the American Farm Bureau, and the AFL-CIO, scientific evidence indicates that no such species exists.[1] The U.S. Treasury, which sometimes hints that it harbors the beast, simply lacks flexible policy instruments with which to manage dollar exchange rates. To be sure, U.S. tax policies help create an investment climate that attracts (or deters) international financial flows, and those flows affect dollar exchange rates. Some observers, for example, maintain that tax reforms in 1981 encouraged financial inflows and bolstered the dollar's exchange value and that tax law changes in 1986 had just the opposite effect. The Treasury, however, does not—and should not—manipulate tax policies to manage the dollar. Treasury officials also occasionally comment on exchange rates and create temporary blips in the market, but official pronouncements cannot sustain an exchange value.

While the Federal Reserve has the policy instruments with which to pursue an exchange rate objective, doing so has one of two implications: Either the Fed achieves its exchange rate goal at the expense of its inflation objective, or the exchange rate target is irrelevant because maintaining the inflation objective also promotes the exchange rate goal. The Fed came to this realization gradually over the past 30 years, after repeated and largely unsuccessful attempts to

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[1]See the testimony before the U.S. Senate Committee on Banking, Housing, and Urban Affairs at the oversight hearing on "The Treasury Department's Report to Congress on International Economic and Exchange Rate Policy," 107th Congress, 2nd Session, May 1, 2002.

influence exchange rates. Since the early 1990s, the Fed has generally eschewed exchange rate policy in favor of an inflation objective, leaving the highly efficient foreign exchange market to determine rates.

In this article, we describe the instruments available to the Treasury and to the Federal Reserve System for affecting exchange rates. We explain why Treasury interventions, which have no effect on the Federal Reserve's target for the federal funds rate, have very little, if any, effect on exchange rates. Then we discuss the dilemma that the Fed faces when it attempts to achieve two policy goals—an exchange rate objective and an inflation target—with monetary policy alone. We conclude with a note on the efficient nature of exchange markets. We begin, however, by explaining why the traditional metric for judging the dollar overvalued, or too strong, offers a poor description of its equilibrium.

What Does a Strong Dollar Policy Look Like?

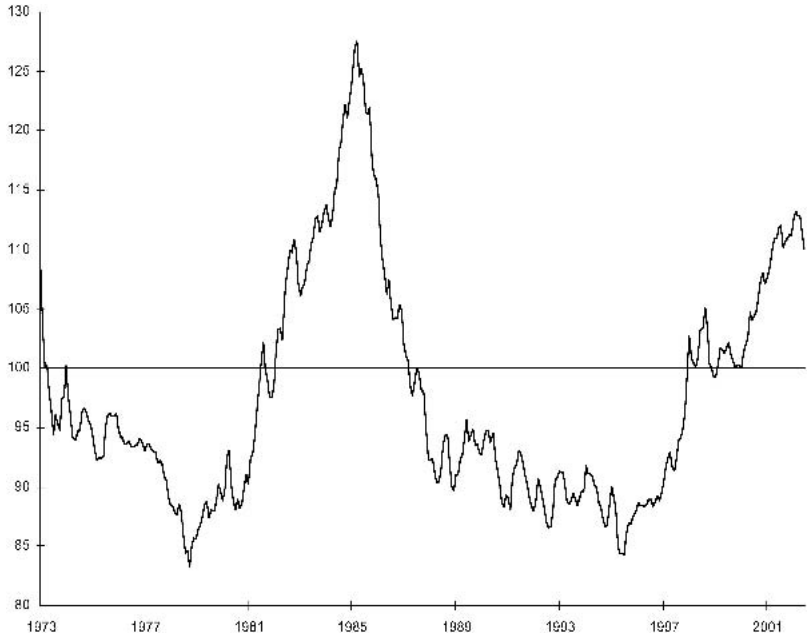
Strong dollar policy sightings usually accompany an appreciation of the dollar, particularly when that appreciation takes the dollar substantially above its purchasing power parity (PPP) level. Critics then complain that the dollar is overvalued, implying that its current value does not represent equilibrium, and warn that the situation is detrimental to U.S. economic interests and that the Treasury should alter its strong dollar policy to correct the problem.

"Overvalued" can be a subjective and vague term, but economists usually adopt relative PPP as the metric. A currency is "overvalued" if its current exchange rate exceeds its relative PPP value. The relative PPP theory holds that over time exchange rates will move in such a manner as to exactly offset international inflation differentials among countries. If the annual rate of inflation in the United States is 4 percent and the annual average rate of inflation abroad is 2 percent, then the relative PPP theory predicts that the dollar will depreciate 2 percent per year on average against the currencies of our trading partners. Similarly, if the rate of inflation in the United States is lower than that experienced abroad, the dollar should appreciate by exactly the difference between the domestic and foreign inflation rates.

Real exchange rates, such as the Fed's real broad dollar index (Figure 1) provide the easiest way to gauge PPP. The Fed constructs the index so that it equals 100 when PPP holds between the dollar and a weighted average of 36 of our most important trading partners. The real broad exchange rate index began to rise above 100 in 1998, indicating that the dollar was exceeding it relative PPP value.

When the dollar exceeds its relative PPP value, U.S. goods and

FIGURE 1
REAL BROAD DOLLAR INDEX
(March 1973 = 100)



SOURCE: Board of Governors of the Federal Reserve System.

services are priced out of world markets. The appreciation of the dollar after 1998 seriously eroded the competitive position of U.S. manufacturers and farmers. Conceptually, this development creates arbitrage opportunities, shifts worldwide demand patterns, and alters prices and exchange rates in such a way as to restore relative PPP. Unfortunately, the reversion back, as Figure 1 suggests, can take many years. Empirical estimates suggest that the average half-life of the process is anywhere between two and five years.[2]

Although the dollar eventually appears to revert back to relative PPP, this metric offers a very poor description of equilibrium in the foreign exchange market. For one thing, relative PPP implicitly assumes that monetary factors—not real phenomena—determine (or,

[2]Froot and Rogoff (1995) and Rogoff (1996) provide surveys of purchasing power parity. Recent cross-country panel-data tests for the period of floating exchange rates suggest a shorter half-life than the traditional bilateral tests with long time series. See, for example, Lothian (1997) or Papell (1997).

at least, dominate) price changes within countries (Froot and Rogoff 1995). Monetary factors ultimately affect the general level of prices, but real phenomena, like oil shocks or sector-specific productivity changes, affect relative prices. Changes in relative prices can produce changes in conventionally measured real exchange rates and imply a deviation from PPP without creating cross-border arbitrage opportunities (Grabbe 1991). Such deviations will persist, but they do not represent disequilibria.

PPP also fails as an equilibrium exchange rate concept because it implicitly assumes that goods trade dominates the determination of exchange rates. The real appreciation of the dollar between 1995 and 2000, however, reflected a net inflow of foreign savings that helped finance an investment boom in the United States. According to the balance of payments identity, a current account deficit of equal size must accompany any net inflow of foreign savings. A real appreciation of the dollar—above its relative PPP level after 1998—promoted the necessary current account deficit and, therefore, was consistent with maintaining equilibrium in the balance of payments when cross-border financial flows shift.

While the appreciation of the dollar beyond its PPP value has affected the competitive positions of the U.S. manufacturing and agricultural sectors, the associated capital inflows have benefited U.S. investment. Are we to conclude that the U.S. Treasury runs a strong dollar policy to benefit investment at the expense of manufacturing? To run a strong dollar policy, the Treasury must actually be able to manipulate exchange rates.

Treasury Intervention and the Federal Reserve's Balance Sheet

In the United States, the Treasury has primary statutory responsibility for determining the nation's exchange rate system. Consistent with that authority, the Treasury maintains the Exchange Stabilization Fund—a portfolio of foreign currency and dollar denominated assets—primarily for the purpose of intervening in the foreign exchange market.[3] The Fed keeps its own, separate portfolio of foreign exchange for the same purpose. The Fed and the Treasury typically intervene in concert and split the proceeds of the transactions evenly between their two accounts.

[3]The Exchange Stabilization Fund also makes loans to developing countries; see Schwartz (1997) and Osterberg and Thomson (1999).

The Federal Reserve Bank of New York (FRBNY) executes all transactions for both the Treasury and the Federal Reserve System. The FRBNY usually transacts directly with commercial banks, but sometimes intervenes through the brokers' market, using a commercial bank as its agent.[4] In either case, the FRBNY makes or accepts payment in dollars by crediting or debiting the reserve account of the appropriate commercial banks. Except for the instrument involved (foreign exchange), the mechanics of the transactions are similar to those of an open market operation.

Like an open market operation, the Fed's portion of any U.S. intervention has the potential to drain or add bank reserves, customarily with a two-day lag. The Treasury's actions affect bank reserves only if the Treasury's cash balances at the Fed change.[5] In either case, however, the Federal Reserve never allows intervention to affect its monetary policy operations; it always sterilizes (offsets) the impact of intervention on bank reserves.[6]

Sterilization occurs automatically by virtue of the Fed's operating procedure. The FRBNY's Open Market Desk manages total reserves in the U.S. banking system in such a way as to achieve the target for the federal funds rate that the Federal Open Market Committee (FOMC) establishes in its monetary policy deliberations. The FOMC almost always sets the target for the federal funds rate with domestic objectives—inflation, business-cycle developments, financial fragility—in mind. Given its estimate of depository institutions' demand for total reserves, the Desk manages the supply of reserves through open market operations to keep the actual federal funds rate at the target rate. In the process, the Desk must take account of and offset various transactions that appear on the Federal Reserve's balance sheet and that can affect the amount of reserves in the banking system. Among those items are changes in the Treasury's cash balances and changes in the Fed's portfolio of foreign exchange. Federal Reserve staff will attempt to estimate these on a day-to-day basis, but whether anticipated or not, the Fed will respond to them quickly in defense of the target for the federal funds rate. Consequently, intervention in the

[4]When the FRBNY intervenes through a broker, the market may not know that the FRBNY was a party to the transaction because the broker only reveals the agent's identity to the counterparties.

[5]For a more complete explanation under alternative means of financing an intervention, see Meulendyke (1998).

[6]If the Federal Reserve did not routinely sterilize all interventions, the Treasury could affect the money stock through its purchases and sales of foreign exchange, which could compromise the Fed's independence.

foreign exchange market is never permitted to change reserves in a manner that is inconsistent with the day-to-day maintenance of the target for the federal funds rate. All central banks that use an overnight reserve-market interest rate as a short-term operating target necessarily sterilize their interventions in this way.

Sterilized Intervention and Signaling

If the Federal Reserve routinely sterilizes all U.S. interventions in the foreign exchange market, then those transactions cannot alter fundamental economic determinants of exchange rates, like the monetary base or overnight interest rates. How then does sterilized intervention affect nominal exchange rates?

The predominant view among economists is that intervention may sometimes affect the market's perceptions and expectations of those fundamentals.[7] If information is costly, exchange rates cannot continuously reflect all available information. Access to costly information will differentiate market participants. A substantial literature seems to confirm that exchange markets are not perfectly efficient processors of information, even publicly available information. We cite three examples: Ito (1993) finds that expectations, as revealed in survey data, are not homogeneous, suggesting that traders have asymmetric information sets. Peiers (1997) finds evidence in the pattern of exchange rate quotes following a Bundesbank intervention that suggests insider information and price leadership. Neely et al. (1997) demonstrate that *ex ante* trading rules generate profits, a finding that is not consistent with informationally efficient markets along the lines presented in Fama (1970). In such a market, exchange rates perform a dual role of describing the terms of trade between national currencies and transferring information from more to less informed agents.[8] If monetary authorities have better information than the market and if they can convey that information through their official actions, sterilized intervention could influence exchange rates.

Are the traders at the FRBNY really more knowledgeable than traders at Citibank? Taking a cue from Mussa (1981), some economists contend that central banks have better information about future monetary policy changes than the market and might signal that information (intentionally or unintentionally) through their currency

[7]A second channel of influence is the portfolio-balance mechanism, but with the exception of Dominguez and Frankel (1993), empirical support for that channel is lacking.

[8]Baillie, Humpage, and Osterberg (2000) survey intervention from an information perspective.

transactions. Such signals could be particularly credible, since intervention would give monetary authorities an exposure to a foreign currency that would result in a portfolio loss if they failed to validate them.[9] Official purchases of foreign exchange would signal an easier monetary policy, and sales of foreign exchange would indicate a tightening.

If U.S. monetary authorities consistently acted in this manner, market participants would associate interventions with future policy moves, immediately adjust their expectations of future exchange rate movements, and adjust their bid–ask quotes accordingly. U.S. interventions would then be correlated with corresponding movements in dollar exchange rates and in the target rate for federal funds.

As a general description of the effects of U.S. intervention, signaling lacks compelling empirical support. Compare, for example, Bonser-Neal et al. (1998) who find some support for the proposition, and Fatama and Hutchison (1999), who find no support (see the myriad references listed therein). As an explanation of certain episodes, however, this view may have some merit. In a study of U.S. intervention between September 1985 and March 1997, Humpage (2000) finds that successful interventions occurred immediately after the Plaza agreement and the 1987 stock market crash, both periods of monetary uncertainty.

As a monetary policy signaling device, however, intervention can be cloudy as often as it is clear. The Federal Reserve System's euro purchases on September 22, 2000, for example, seemed inconsistent with the increases in the federal funds rate that the FOMC had authorized between June 1999 and May 2000. We doubt that any FOMC member viewed those interventions as an expression of future easing. The Fed did not lower the target for the federal funds rate until January 2001, well after the euro-dollar exchange rate was a pressing issue. Similarly, intervention in the late 1980s and early 1990s often conflicted with the FOMC's monetary policy designs and caused some FOMC members to express their dissatisfaction with intervention by dissenting on related issues (Board of Governors of the Federal Reserve System 1990: 117; 1991: 109–10). At times, the Federal Reserve has refused to intervene for its own account and only executed interventions for the Treasury's account. Would the market ever interpret Treasury interventions as a signal of monetary policy? Fatama and Hutchison (1999) show that intervention adds to volatility in the federal funds futures market. This suggests that intervention

[9]Of course, once validated, the intervention would no longer be sterilized.

can create uncertainty about monetary policy and increase the difficulties associated with implementing monetary policies.

Why limit the signaling device to monetary policy? All information has an acquisition cost. If FRBNY traders were regularly better informed than the market, official intervention could consistently improve market efficiency. Humpage (1999, 2000) tests this proposition and finds that the probability of a successful U.S. intervention was low—less than one-half of all cases that occurred between late 1985 and early 1997. When it seemed successful, intervention tended only to slow rates of appreciation or depreciation; it did not alter the direction of an exchange rate movement. Hence, sterilized intervention cannot maintain a strong dollar or cause a reversal in the dollar's direction. Humpage's findings were fairly typical of the empirical literature more generally (e.g., Edison 1993, Almekinder 1995, Baillie et al. 2000, and Sarno and Taylor 2001). Because sterilized intervention does not affect exchange rate fundaments, it offers an extremely weak lever with which nominal exchange rates can be nudged along a market-determined path. The Treasury, which can undertake only sterilized intervention, cannot supplant market forces to conduct a strong dollar policy.

Nonsterilized Intervention and Monetary Policy

Only the Fed can consistently determine nominal exchange rates through its monetary policy decisions. As Furlong (1989) illustrates, the FOMC—on rare occasion—has adjusted its monetary policy stance in response to movements in the dollar's exchange value. Other central banks have done likewise. Doing so, however, sometimes forces a central bank to choose between an inflation objective and an exchange rate objective. The potential for conflict between the two depends on the nature of the underlying disturbance to the exchange market. A central bank that pursues these two objectives with a single tool—monetary policy—loses some credibility with respect to both objectives. How much inflation will it accept to avoid a further appreciation of the exchange rate? How big an appreciation will it accept to avoid inflation?

To illustrate the potential conflict between policy goals, we consider the effects of four types of disturbances to the foreign exchange market. We show that only when the underlying disturbance is domestic in origin and monetary in nature will pursuing an exchange rate objective not conflict with an inflation objective.

Domestic Money Supply Shock

Assume that the Fed creates money at a slower pace than the public's demand for money is growing. The inflation rate in the United States will fall relative to the inflation rate abroad, and, in keeping with relative PPP, the dollar will appreciate. If in this situation the Federal Reserve offsets the dollar's appreciation through the nonsterilized purchase of foreign exchange or through a standard open market acquisition of Treasury securities, it would need to expand the money supply in line with the growth in demand for money. The dollar would stabilize, and the domestic inflation rate would no longer fall.

As this example suggests, when the initial exchange market disturbance stems from a domestic monetary imbalance, the exchange rate objective and the domestic inflation target do not conflict. Pursuing an exchange rate policy is indistinguishable from maintaining an inflation objective. The exchange rate target, in this case, is redundant.

Foreign Excess Money Growth

If the disturbance affecting the exchange markets stems from a foreign monetary imbalance, stabilizing the exchange rate conflicts with an inflation objective. Assume that foreign money growth accelerates beyond what is necessary to accommodate foreign money demand. Foreign inflation rates rise relative to U.S. inflation rates, causing the dollar to appreciate. The Fed could offset the nominal appreciation of the dollar through an expansion of the money supply, but doing so would generate a higher rate of inflation.

An Increase in the Supply of Home Goods

Nonmonetary shocks can also alter exchange rates and create problems for a central bank that attempts to maintain both an exchange rate objective and an inflation target. An increase in the productivity of domestic workers, for example, will increase the supply of domestic goods and lower their price. If the enhanced productivity is associated with new capital, the return on capital will rise. The higher rate of U.S. productivity growth will prompt a dollar appreciation as demand for U.S. output rises or as foreign investors seek to take advantage of higher returns in the United States.[10]

Although the domestic price level falls, the situation is not defla-

[10]A country cannot have a current account surplus and a net foreign financial inflow at the same time. While the net impact of a productivity shock on the balance of payments is unclear, the dollar's appreciation is unambiguous.

tionary and does not require a monetary response. With the money stock held constant, the productive capacity of the economy will expand as the price level falls. If the Federal Reserve attempts to arrest the dollar's appreciation, however, it will supply more money than is demanded at the new equilibrium, and the inflation rate will be higher than if the adjustment had proceeded without the intervention. When the initial disturbance to the exchange rate is domestic in origin and real in nature, intervention can conflict with a domestic inflation objective.

An Increase in the Supply of Foreign Goods

For much the same reason, an increase in the supply of foreign goods would create a policy conflict if the Federal Reserve maintained both an inflation objective and an exchange rate target. An increase in foreign supply would lower the relative price of the foreign goods and cause the dollar to depreciate in foreign exchange markets. Faster foreign productivity growth would have no direct bearing on the U.S. price level. If the Fed attempted to offset the depreciation of its currency by tightening monetary policy, it would foster a deflation. When the underlying exchange rate disturbance is foreign in origin and real in nature, exchange rate objectives conflict with inflation objectives.

As the foregoing examples suggest, monetary policy cannot always maintain simultaneous exchange rate and inflation objectives. This explains why fixed exchange rate regimes have often proven so fragile, and why the Fed has become reluctant to intervene in the foreign exchange market. Exchange rate objectives and inflation goals are only compatible when domestic monetary policy creates the underlying exchange market disturbance. In such a situation, however, the exchange rate objective is redundant to the inflation target, and the Fed can pursue both policy goals through open market operations.

Nonsterilized Intervention, Foreign Exchange, and the Federal Funds Rate

The Fed sometimes has factored exchange market developments into its monetary policy decisions and has occasionally altered its target for the federal funds rate while simultaneously intervening in the foreign exchange market. Let us assume that this has only occurred following a domestic monetary disturbance, when the exchange rate and inflation objectives are compatible. One might expect that implementing the appropriate monetary policy change through

the purchase or sale of foreign currency could have a bigger impact on the exchange rate target than implementing the move through open market operations in Treasury securities. The relative efficiency gain might provide a justification for the official exchange market transactions.

Two recent empirical studies, however, suggest otherwise. Using an event-study methodology, Bonser-Neal et al. (1998) show that changes in the target for the federal funds rate are correlated significantly with changes in the spot German mark—U.S. dollar exchange rate and with changes in the Japanese yen—U.S. dollar forward premiums. Intervention undertaken in conjunction with changes in the target for the federal funds rate, however, has no apparent effect on exchange rates, even though the researchers cumulate it over the previous two weeks. Craig and Humpage (2001) repeat this experiment and find the results robust to slight modifications in the definition of terms and the sample size.

Bonser-Neal et al. (1998) focus on the response of the exchange rate to changes in the target for the federal funds rate, and they include only interventions that are roughly contemporary with changes in the target rate. They do not consider the exchange rate response to intervention more broadly. Humpage (1999) does just the opposite. He considers only exchange rate movements immediately around intervention episodes and includes only changes in the federal funds rate target that occur contemporaneously with the intervention. His estimates show that when a change in the target accompanies an intervention, the combined operation is virtually certain to affect exchange rates. Like Bonser-Neal et al. (1998), the results indicate that a change in the rate target alone guarantees an exchange rate response; intervention does not exert a separate influence on exchange rates. Intervention is not more efficient than traditional open market operations.

Conclusion

Approximately $1.5 trillion worth of foreign exchange changes hands across the globe every day. Large banks in their capacity as market makers stand ready to buy or sell foreign currencies, hoping to profit from the small spreads in their bid-ask quotations. Their foreign exchange traders face strong incentives to acquire every piece of relevant information about current and anticipated economic developments and to incorporate that information immediately into the rates they offer. While no market can be perfectly efficient with respect to information, foreign exchange markets, and financial mar-

kets in general, are highly efficient processors of information. We might not like the prices that such markets produce, but they are an outcome of a continuous market-clearing process. They are not the product of some mythical beast.

The Treasury lacks the necessary discretionary policy instruments with which to conduct a strong dollar policy. U.S. tax policy can indeed create incentives that attract or deter international capital flows and affect dollar exchange rates, but the Treasury does not manipulate tax laws to achieve an exchange rate objective. Its interventions may, on rare occasion, dampen a day-to-day change in nominal exchange rates, but the Treasury cannot set, reverse, or otherwise decide the price of foreign exchange. The Federal Reserve, which conceivably could set nominal exchange rates, has learned that having foreign currency prices evolve from a monetary policy focused on inflation benefits the country substantially more than producing inflation as the by-product of a monetary policy trained on exchange rates. As with the yeti, the strong dollar policy is more shadow than substance.

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