

# ECONOMIC COMMENTARY

Federal Reserve Bank of Cleveland

## Can Foreign Exchange Intervention Signal Monetary Policy Changes?

by William P. Osterberg

According to news accounts, on March 3 of this year, 18 central banks spent approximately \$500 million to support the international value of the U.S. dollar. The Federal Reserve System was reported to have spent \$250 million the previous day. While these interventions may have slowed the decline of the dollar, its future course would depend on subsequent policies undertaken by either the U.S. government or other nations.

In general, it is unclear why intervention would have other than a temporary impact on exchange rates, unless, as most researchers have concluded, it signals changes in future monetary policy. Numerous studies have analyzed the impact of such operations on the level and volatility of the dollar's exchange rate with the German mark and the Japanese yen. Their overall conclusion is that while intervention often affects either the level or the volatility of the exchange rate, the direction of the effect varies from study to study and from time to time.<sup>1</sup>

Disparities about the efficacy of intervention in large part reflect disagreement over the mechanism through which intervention influences exchange rates. Many economists and market analysts view intervention as signaling changes in future monetary policy. In the example above, the signal may have been that U.S. interest rates would surpass market expectations.<sup>2</sup>

In this *Economic Commentary*, I discuss some doubts about the ability of intervention to signal upcoming monetary policy changes. For intervention to be a signal, some economists would require that its linkage to policy be clear, that past interventions have had a consistent relationship with subsequent monetary policy so that the implied policy is credible, and that information about the intervention is communicated accurately to market participants.

### ■ How Intervention Works

Intervention operations technically fall under the purview of the Treasury Department, although the Federal Reserve System and the Treasury act in concert and split the transactions for their separate accounts. U.S. intervention operations conducted at the Federal Reserve Bank of New York entail the purchase or sale of foreign currencies against U.S. dollars. By purchasing a foreign currency with dollars, authorities are attempting to depreciate the dollar relative to that foreign currency. Generally, the Fed either places the order to buy or sell foreign exchange with commercial banks or utilizes brokers.

Economists usually analyze sterilized intervention. Sterilization refers to the offsetting transaction undertaken to prevent the purchase or sale of dollars from influencing the domestic money supply. Thus, to sterilize a \$1 billion purchase of German marks, which injects \$1 billion

Foreign exchange intervention by central banks purportedly influences exchange rates by signaling changes in future monetary policy. However, for this signaling mechanism to make sense, the linkage between intervention and monetary policy should be clear, the implied policy should be credible, and information about intervention should be communicated accurately to market participants. The author discusses why all three requirements are highly questionable and why the signaling mechanism should therefore be viewed with skepticism.

into the banking system, the Fed sells \$1 billion of U.S. government securities, which withdraws the dollars. The net result is that investors own \$1 billion more of U.S. government securities, but the money supply has not changed.<sup>3</sup>

The United States is said to sterilize its intervention operations routinely and automatically. However, Lewis (1993) argues that, at times, individual financial institutions involved in the operation may allow their reserve levels to be temporarily influenced by the debiting of their reserve account (in the case of purchasers of foreign exchange).<sup>4</sup> This could explain a relationship between intervention and the monetary aggregates over two-week intervals.<sup>5</sup>

The fact that the intervention operations of other countries may not be routinely sterilized is another complication. This is relevant to determining the impact of intervention, since exchange rates should be influenced by the growth rates of the monetary aggregates of both countries whose currencies are involved in the single exchange rate.

### ■ The Signaling Mechanism

Economists view exchange rates as reflecting market participants' expectations about "fundamentals," defined as all factors that can influence the future supply and demand for currencies. Since the intervening authorities may know something about future policies that the public does not, the market may view a purchase of German marks as a signal that the authorities have information implying that the price is going to rise. In particular, if the intervening authorities have some control over monetary policy, their action may imply something about future interest rates or the monetary aggregates. If the public is confident that the authorities are going to back up their intervention operations with consistent policy, then a relatively small intervention, by sending a signal about future policy, can have a relatively large effect on exchange rates.<sup>6</sup>

### ■ Doubts about the Signaling Mechanism

At least three conditions may be required for the signaling mechanism to make sense. First, assuming that intervention implies something about monetary policy, the implied policy should be credible. In other words, for a sale of dollars to lower the price of dollars, it must be the case that in the past and under similar circumstances, sales of dollars have been followed by monetary policies that indeed lowered the price of dollars.

Second, intervention's implication for monetary policy should be clear. For example, purchases of dollars may imply that monetary policy will increase U.S. interest rates. However, at times, monetary policy decisions themselves involve consideration of exchange-rate effects, so that the distinction between intervention and policy can become blurred. At other times, monetary policy and intervention can conflict.

Third, information about the intervention operations themselves must be perceived accurately by the market. I deal with these concerns in turn below.

### ■ Credibility and the Historical Record

The financial markets may come to disregard intervention that they do not perceive as credible; thus, larger sales or purchases of foreign currency may be required to impact exchange rates. The credibility of intervention could be undermined if authorities attempt to mislead the markets, taking advantage of the fact that intervention does not entail a commitment to any subsequent policy action.

Thus, exploiting intervention's flexibility creates problems. Choosing to mislead the market would require subsequent efforts to reestablish the credibility of intervention as a signal. The higher the cost of not backing up the intervention, the more likely it is that it will be backed up and will be perceived as credible. An obvious potential cost of not backing up an intervention is that the value of the currency being purchased may decline. However, perhaps a more important cost is the potential loss of

reputation, which could even extend into the monetary policy arena.

The credibility of intervention as a signal depends largely on the historical record. Past interventions should have been related to monetary policy in a predictable manner. However, this relationship is not always clear and varies over time.

At certain times, intervention may have been linked to money surprises — that is, to the difference between the actual money supply announced by the Fed and the money supply anticipated and measured by surveys of market participants before the actual data were released (see Dominguez [1992]). Since the Fed may know something about the actual money supply numbers to be released, if the number is going to be larger than the market anticipates, the monetary authorities could signal this by intervening. Selling dollars would signal a desire to expand the money supply more, while buying dollars would suggest that the Fed believes the recent increase was too large. This story implies that money surprises should help us predict when intervention will occur.

At other times, as noted by Lewis (1993), intervention may be described as "leaning against the wind" — a different type of linkage with monetary policy. Suppose that U.S. monetary policy is contractionary, with the side effect of higher U.S. interest rates strengthening the dollar. If the increase in the dollar's value is inconsistent with the overall policy objective, the authorities might sell dollars in an attempt to counter the effect of policy, or to lean against the wind. This implies that monetary policy should help predict intervention. Tight money could lead to selling dollars, while in the Dominguez scenario, a relatively small increase in the money supply could lead to buying dollars.

There is evidence that both stories have been true at some times but not at others. The implication of Dominguez's story — that money surprises help us predict when intervention will occur — was true after the shift in monetary policy in October 1979, but not at other times.<sup>7</sup> However, evidence in favor of Lewis's leaning against the wind story is mixed

**TABLE 1 DESCRIPTIVE STATISTICS FOR ACTUAL, REPORTED, AND RUMORED INTERVENTION: JANUARY 2, 1985 - OCTOBER 11, 1991**

	Number of Occurrences			Average Size	
	Total	Buying	Selling	Buying	Selling
<b>Actual intervention</b>					
U.S. vs. \$U.S.	294	98	196	160.34	177.74
U.S. vs. Mark	203	61	142	111.83	141.21
U.S. vs. Yen	185	66	119	134.73	124.25
<b>Reported intervention</b>					
U.S. vs. \$U.S.	184	52	132	148.08	148.56
U.S. vs. Mark	38	6	32	140.28	108.64
U.S. vs. Yen	37	12	25	131.25	137.25
<b>Rumored intervention</b>					
U.S. vs. \$U.S.	38	16	22	142.81	140.68
U.S. vs. Mark	4	1	3	118.33	98.89
U.S. vs. Yen	3	1	2	143.75	143.75
<b>Errors in Reported Intervention</b>					
	Total	Actual but Not Reported	Reported but Not Actual		
<b>Reported intervention</b>					
U.S. vs. \$U.S.	160	135	25		
U.S. vs. Mark	171	168	3		
U.S. vs. Yen	158	153	5		
<b>Rumored intervention</b>					
U.S. vs. \$U.S.	24				
U.S. vs. Mark	4				
U.S. vs. Yen	2				

**Categories of intervention:**

U.S. vs. \$U.S.: U.S. intervention vis-à-vis unspecified currencies, carried out in terms of U.S. dollars.

U.S. vs. Mark: U.S. purchases or sales of German marks in terms of U.S. dollars.

U.S. vs. Yen: U.S. purchases or sales of yen in terms of U.S. dollars.

NOTE: "Buying" and "selling" columns refer to purchases and sales of millions of U.S. dollars.

SOURCE: Osterberg and Wetmore Humes (1993).

as well — whether or not monetary policy helps to predict intervention depends on whether policy is measured by interest rates or by the monetary aggregates.

Still other research questions particular aspects of the signaling story. For example, Klein and Rosengren (1991) study the timing relationship between intervention and subsequent monetary policy around two important episodes of intervention. Their results show that although intervention initially acts as a signal, the effect dissipates. Overall, they find no consistent relationship between intervention and monetary policy.

Lewis questions another linchpin in the signaling mechanism — the assumption that monetary policy influences exchange rates. In other words, even if intervention signals a change in policy, we need to know if the signal is reflected in exchange rates over short intervals. Lewis concludes that, in fact, monetary policy may not influence exchange rates in the near term.

In a related paper, Kaminsky and Lewis (1993) find that intervention signals changes in monetary policy, but sometimes in the direction opposite to that expected. Overall, it appears that while intervention sometimes influences exchange rates or is related to monetary policy as suggested by the signaling hypothesis, no consistent relationship has yet been isolated.

**■ Institutional Considerations**

Institutional factors may disguise what intervention is implying about monetary policy at any given time. On some occasions, monetary policy has been almost explicitly committed to maintaining exchange-rate goals in case intervention fails. The Plaza Accord of September 1985, which reduced the international value of the dollar, and the Louvre Accord of February 1987, aimed at stabilizing the dollar, are two examples of agreements that may have implied near commitments of monetary policy to back up or even supplant periods of intervention immediately following these agreements.

On the other hand, it may not always be clear to the market whether an intervention is being directed by the Fed or the Treasury. For example, there might have been no linkage between monetary policy and Fed foreign exchange operations that critics claim were undertaken to finance Treasury operations that could otherwise have required congressional approval (in the case of actions undertaken to defend the gold stock in 1961 and 1962).<sup>8</sup> Any ambiguity in the market concerning the relationship between the Treasury and the Fed would be expected to weaken the signal given by intervention.

**■ The Accuracy of Market Information**

Recent research has called into question the accuracy of the market's information about intervention operations, and the impact that such inaccuracy may have on exchange rates. The Fed does not routinely announce its interventions. The possibility that some segments of the market do not know about intervention arises from the way in which the operations are conducted. If the Fed uses a commercial bank as a counterparty, the bank will notify the market that an order has been placed; a broker, however, is under no such obligation. The news from the commercial bank appears on the wire services and may subsequently circulate by less formal means. It is possible that the efficacy of intervention is related either to the method of intervention or to such asymmetry of information.

Several researchers have compared official U.S. intervention data with intervention as reported by the newspapers. The presumption seems to be that information which reaches the newspapers corresponds to that held by the market as a whole. Klein (1993) collected data from *The New York Times* and *The Wall Street Journal* and found that the probability of actual intervention being reported was 0.72, while the chance that reported intervention had occurred was 0.88. Dominguez and Frankel (1993) looked at the same two newspapers plus the *Financial Times* and found that 73 percent of intervention operations were reported.<sup>9</sup>

It is unclear whether the unreported interventions correspond to those undertaken with brokers. In addition, the information about intervention operations that appears in the newspapers is inconsistent, often excluding the exact identity of the intervening countries or the amount of the intervention. In an earlier paper (Osterberg and Wetmore Humes [1993]), I calculated the average reported amounts of U.S. intervention, which are presented in table 1. Klein showed that larger interventions are more likely to be reported.

Some research has shown that the distinction between actual intervention and intervention reported by the newspapers may matter to the exchange market. Dominguez (1993) finds that the impact of unreported intervention is smaller than that of actual intervention that was reported. In a current study, I show not only that the impact of intervention depends on whether it was reported, but also that the sign of the impact varies (Osterberg and Wetmore Humes [1995]). In addition, I find some evidence that for one sample period, false reports of intervention may have affected the yen/dollar exchange rate.

## ■ Conclusion

Although intervention may at times signal monetary policy intentions, analysts should be wary about reading too much into any particular episode. The monetary policy implied by any one intervention may depend on market conditions and available policy options. At times, policy could be expected to support intervention, while at other times it may be motivated by efforts to lean against the wind.

Institutional factors also imply that intervention may sometimes be indistinguishable from monetary policy or that the signal given by intervention for monetary policy may be weakened by ambiguity about the relationship between the Treasury and the Federal Reserve. Recent studies showing that the impact of intervention depends on whether the news reached the newspapers seem consistent with the view that the signaling effect could be undermined by the way in which information is communicated to the market.

## ■ Footnotes

1. Of course, the intervening authorities might claim either that the impact of intervention depends on subtleties which are not adequately modeled by researchers, or that intervention is sometimes undertaken to surprise the market and "keep participants honest," without the expectation that exchange rates will move in any particular direction.

2. In fact, *The Wall Street Journal* (March 3, 1995) reported one analyst's contention that the market would not be convinced by the intervention unless central banks moved interest rates in a manner that would support the dollar.

3. The portfolio balance channel for the influence of intervention operates only if investors care about the currency denomination of their portfolio. In terms of the example given in the text, investors may require a higher rate of return on U.S. government securities in order to be willing to purchase \$1 billion more of them. One way in which the rate of return could be sufficient for investors to hold more U.S.-dollar-denominated securities is if the exchange rate were to change.

4. As discussed below, several commercial banks are typically chosen to be the counterparties through which the Federal Reserve conducts its intervention operations.

5. The two-week intervals are associated with reserve accounting requirements.

6. This signaling mechanism can be contrasted with the belief that, since a typical daily intervention of \$1 billion is a drop in the bucket compared to the over \$1 trillion circulated daily in the world's currency markets, a shift in the demand for foreign currency (or in the supply of dollars) may simply not be great enough to have a significant impact.

7. The Federal Reserve System switched to targeting the monetary aggregates in October 1979. Dominguez found that over an interval following this shift, monetary policy was perceived as highly credible, and money surprises in fact helped to predict subsequent intervention.

8. See Humpage (1994) for further examples and a more detailed discussion.

9. See Dominguez and Frankel (1993), table 5.1, p. 75.

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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.

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