
The Limits of Exchange Market Intervention

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On April 29, 1983, the Summit finance ministers, central bank governors, and representatives of the European Community (1983) issued a Statement on the Intervention Study, which had been commissioned at the Versailles Economic Summit in June 1982. The final paragraph read:

Under present circumstances, the role of intervention can only be limited. Intervention can be useful to counter disorderly market conditions and to reduce short-term volatility. Intervention may also on occasion express an attitude toward exchange markets. Intervention normally will be useful only when complementing and supporting other policies. We are agreed on the need for closer consultations on policies and market conditions; and, while retaining our freedom to operate independently, are willing to undertake coordinated intervention in instances where it is agreed that such interventions would be helpful.

I would submit that finance ministry and central bank attitudes in the major industrialized countries toward sterilized exchange market intervention have not changed substantially in the intervening 20 years. If anything, officials have become more skeptical about the usefulness of the instrument. They are more reluctant to intervene to counter disorderly market conditions or to reduce volatility that is short-term in nature.¹ They are

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1. The Japanese authorities are the least reluctant, and Ministry of Finance officials are the most likely to be quoted as expressing concern about short-term volatility, leading to more frequent intervention operations. However, as detailed by Ito (2002), since the mid-1990s the Japanese approach has changed substantially, moving away from repeated operations day after day toward larger, tactical operations.

prepared to express an attitude toward exchange market developments when their “close consultations” lead them to a consensus. If they can agree that coordinated intervention would be helpful, they are willing to do it. However, they continue to think that intervention is not a separate instrument of policy and that normally it will be effective only when it is seen to be complementary with and supported by other policies. Those are demanding conditions indeed.

As a Federal Reserve official, I spent much of my career leaning against the current US official fashion with respect to the effectiveness of foreign exchange market intervention. Because during much of that period, including the early 1980s, US official fashion was anti-intervention, I was involved in efforts to demonstrate the effectiveness of the instrument, including service as the Federal Reserve’s representative on the Working Group on Exchange Market Intervention that was chaired by Philippe Jurgensen (1983) (Jurgensen Report). During other periods, such as the late 1970s, when US Treasury officials felt that the inflation problem in the US economy did not require tighter US monetary policy and could be successfully addressed by exchange market intervention, or the late 1980s, when the US authorities intervened in exchange markets heavily, including on 97 days in 1989, with little or no effect, I leaned equally heavily to the other side of the ongoing debate.

The evidence on the short-run effectiveness of exchange market intervention is sufficient in my view to support the judicious use of intervention by the United States as a supplementary policy instrument as long as it generally is used in a manner consistent with other economic policies; however, that same evidence falls substantially short of demonstrating that intervention is a separate policy instrument that can be used to manage exchange rates with any lasting effect. Even in the short run, the evidence is that the probability of the effectiveness of intervention on the spot exchange rate is at best equal to the flip of a fair coin. Moreover, most of the evidence comes from studies in which the test is correlation not causation, in the sense that there is no underlying structural model. Therefore, one cannot dismiss the possibility that the correlations are due to randomness.

What harm is there in using an instrument that may or may not be at all effective but at least is associated about half the time with success? The harm lies in the potential for collateral damage by, for example, distracting the authorities from correcting fundamental economic policies, sending incorrect signals about those policies, or potentially moving exchange rates in directions inconsistent with those policies. These considerations suggest some of the limits on intervention as a policy tool; it may not be effective and it may not be a benign instrument. Moreover, according to the advocates, the effectiveness of intervention is enhanced not only by a need for consistency with fundamental economic policies but also by a need for an international consensus to support coordinated intervention.

The remainder of this paper is divided into two parts. The first addresses the technical question of the effectiveness of exchange market intervention by the major industrialized countries. The second addresses policy considerations from a US or national perspective and from an international perspective.

The Effectiveness of Intervention

The literature on the effectiveness of exchange market intervention on spot exchange rates has blossomed since the early 1980s, aided in large part by the studies that were produced at the Federal Reserve and elsewhere as background for the Jurgensen Report.² Neither the research that was done as background for the Jurgensen Report nor any of the subsequent research justifies the opinion expressed by Kathryn Dominguez in her paper for this conference that the conventional view as of the early 1990s was that “intervention could only be effective if combined with contemporaneous changes in money supply (or, in other words, only if interventions were unsterilized).” Sterilized intervention never has been dead as a policy instrument even for the major economies with large open capital markets; the issue always has been how effective it is and to what extent it can be relied on as an instrument of policy.

Research on the effectiveness of intervention has been aided by the gradual relaxation of prohibitions on access to intervention data, but the availability of those data has proven to be less helpful than many had hoped in resolving the basic issues surrounding the effectiveness of intervention. One reason is the lack of a robust model explaining exchange rate determination.

Dominguez, working alone (1987) and also collaborating with Jeffrey A. Frankel (1993), has been one of the major contributors to this literature. In the paper she presented at this conference, Dominguez continues in that tradition of careful and rich analysis. In part she uses statistical techniques to examine intervention episodes that are as short as a single day and as long as several years.³ She examines intervention by G-3 (Japanese, German/European, and US) monetary authorities. She presents the results of a range of tests from four-hour effects to 48-hour effects and beyond. Averaging across those tests for the G-3, the results are significant and with the correct sign, on a generous interpretation, in about half the cases. The results are similarly uneven for each monetary

2. For a summary of the ten studies produced primarily at the Federal Reserve, see Henderson and Sampson (1983).

3. In the former episodes, she embeds the day of intervention in a month's worth of data to derive her results.

authority's operations and regardless of whether they are buying or selling.

Dominguez chooses to highlight four tests: four-hour impacts, eight-hour impacts, success during the intervention episode (exchange rate movement in the appropriate direction from start to finish), and long-run success (exchange-rate movement in the appropriate direction within three months of the final intervention). The mean score for the 22 (sometimes overlapping) episodes was a success rate of 46 percent. In only four (18 percent) of the episodes were all four principal tests satisfied. This illustrates what Dominguez calls the "problem of temporal correlations" in this literature: the time frame for your measure of effectiveness. She does not highlight what on this basis might be considered the most relevant of her tests, the "48-hour persistence" of the effects of intervention with the correct sign and significance. Only six of the episodes pass this test.

The evidence presented on the long-run success of the intervention is particularly problematic. Not only is it biased because the authorities were free to continue operating until they could declare victory regardless of the effects of their operation, but also she is selective in her interpretation of what she calls a three-month success. For example, the US-Japanese operation in June 1998 purchasing yen passes all four of Dominguez's major tests, but it passes the test of long-run success (the yen stronger after three months than at the start of the intervention) even though two months after the intervention the yen rate was weaker than at the start of the intervention. The basic message of Dominguez's new research is that sometimes intervention appears to have an effect on exchange rates, but long-term or lasting effects are very difficult to prove, and the effects over any time horizon are imprecise and unpredictable.

Conclusions from surveys of the intervention literature range from sympathetic to skeptical. Among the more sympathetic surveys are Sarno and Taylor (2001) and Hutchison (2002). Sarno and Taylor conclude, "Overall, the evidence on the effectiveness of official intervention, through either the portfolio balance channel or the signaling channel, is still mixed on balance, although the more recent literature does suggest a significant effect of official intervention on both the level and the change of exchange rates" (2001, 862). Dominguez concludes on the basis of her study of the 1990s that "intervention policy is both alive and well." This is a somewhat surprising statement in light of the paucity of G-3 interventions since 1995; even the Japanese have sharply cut back on the frequency of their operations.⁴

4. Since February 1996 (and through June 2002), the Japanese authorities operated on only 39 days or about once every other month. In contrast, from the start of 1991 through February 1996, the Japanese operated 179 days, or on average about three days every month. Over the seven years since August 1995, the US authorities have operated on only two days and the European (Bundesbank or ECB) authorities on only four days.

Much of the recent evidence on the effectiveness of intervention has been based on so-called event studies or case studies. The former are more statistically sophisticated than the latter, and in practice either approach often involves the application of a range of statistical techniques, but the more they resemble event studies, narrowly defined, the more likely it is that they discard a good deal of the context found in broader descriptive case studies. See, for example, Fatum (2000), Galati, Melick, and Micu (2002), Hutchison (2002), Ito (2002), and Catte, Galli, and Rebecchini (1994).⁵

Hutchison (2002) concludes, "Empirical work based on event study methodologies is much more supportive of the effectiveness of sterilized intervention than most work based on time-series methodologies." His policy conclusion is that there is "a limited role for sterilized intervention and that it should play a role in short-run stabilization policy." Similarly, Fatum (2000, 18) concludes in his study of US and German intervention, "The results clearly suggested that intervention is indeed effective in terms of influencing the evolution of exchange rates over the short run, thereby questioning the view that sterilized intervention is central bank force of habit rather than rational policy conduct." However, he immediately qualifies his conclusion: "The potency of sterilized intervention on its own should not be exaggerated. Although potentially effective in the short run, sterilized intervention is unlikely to have lasting effects on its own."

The case study and event study literature is not without its critics. One of the most trenchant criticisms is that the selection of events is biased in the direction of a finding of success because in many cases the authorities clearly continued to operate over many days until they could declare victory, but the evidence that such victories were associated with the intervention, as opposed to the other market forces just exhausting themselves, is questionable.⁶

5. Galati, Melick, and Micu are an exception to this generalization. They do provide some context for the episodes they examine. They also apply very sophisticated techniques looking at the effects of intervention on four moments of estimated probability density functions. On balance, they find (using event study methods) that intervention often is associated with the movement of expectations in the intended direction, but impacts vary considerably across episodes, and those movements generally are not statistically significant.

The Ito (2002) paper is of particular interest because, like Dominguez's paper for the conference, it covers Japanese experience in the 1990s. A careful reading of Ito's results points to a similar conclusion: Japanese intervention was effective in the very short run about half the time.

6. One of the first such studies was that by Catte et al. (1994), which I criticized on these grounds when it was first presented (Truman 1994). (Obstfeld (1995) reached a similar conclusion.) The basic problem is illustrated by Dominguez in her conference paper when she cites Japanese and US efforts to turn around the weakness of the dollar in 1995; there was a substantial amount of intervention, including intervention when the dollar was moving up, and eventually the dollar turned in August, but whether, after months of apparently fruitless efforts, the intervention caused the turn is debatable.

Edison (1998) conducts a careful study of US intervention in support of the dollar through sales of deutsche marks and yen from 1993 to 1995 using an event study methodology. However, in her study, the length of the events was limited to a few days at most. With respect to the deutsche mark, in eight episodes she finds that three were complete failures; they neither reversed the movement of the currency of the previous day nor reversed it after a month. Two were definite successes, in that they were associated with favorable movements on the day of the intervention as well as over the next month. Two episodes involved only short-run success, and one involved only longer-run success. With respect to the yen, out of 14 episodes, five were failures, five were definite successes, one was a short-run success, and three were longer-run successes.

Edison also reexamines the Catte et al. episodes for the period January 1985 to March 1991. Their episodes generally involved long periods of intervention. She examines the data on an objective, statistical basis in terms of the results over the month following the end of the operation in place of the subjective judgments by Catte et al. She finds success in about one-third of the episodes, failure in about one-third, and temporary success in about one-third.⁷ Edison (1998) reaches a conclusion that is similar to hers in Edison (1993): “It is possible to show that intervention can have short-lived effects. Thus, this explains why central bankers might want to keep intervention in their toolkit. However, it remains to be shown that intervention can have a long-lasting, quantitatively significant effect.”

One of the principal drawbacks of the case or event study approach is that the studies are not based on structural models and therefore can shed no light on the channels through which intervention may be effective. Sarno and Taylor (2001) suggest that we should expand the list of channels beyond the traditional portfolio balance channel, for which there is limited support to date and which may in any case be losing relevance for the major currencies, and the signaling channel, for which there is greater support, to include what they call a “coordination channel” aimed at overcoming a coordination failure in the market when almost all participants know that an exchange rate has gone too far, but no individual actor has the power or resources to buck the trend.⁸ They motivate their discussion of the coordination channel by an appeal to the literature

7. Temporary success occurs when the postintervention exchange rate move is in the intended direction, but the next intervention episode is in the same direction.

8. The Jurgensen Report put forward 14 possible, not mutually exclusive objectives of intervention. It also discussed sending a signal to the market (paragraph 25)—the coordination channel—and (paragraph 66) the “demonstration effect” of intervention influencing “expectations about future underlying economic conditions or policies”—the signaling channel. The signaling channel also has been associated with Mussa (1981).

on second-generation speculative attacks and the avoidance of a bad equilibrium.

For the policymaker, it is a disappointment that the portfolio balance channel has not been supported by the empirical studies; the supply-and-demand framework of the portfolio balance model is inherently appealing when thinking about intervention operations. The signaling channel, on the other hand, is problematic for the policymaker, because if it is a signal about future policy, in the absence of that policy, the intervention should lose its effectiveness, and in the presence of that policy, it is the policy, not the intervention, that has been effective.

In a significant number of the important episodes of intervention, the crux of the issue is the nature of the signal. For example, in the 1992 phase of the European Exchange Rate Mechanism (ERM) crisis, the United States sold deutsche marks in July and August to signal that the United States was not practicing benign neglect toward the dollar's weakness, but the intention was definitely not to signal that the Federal Reserve's trend of easing interest rates was about to be reversed. For the European participants in this drama, the central issue was the signal conveyed by their massive intervention operations about their economic policies—in particular monetary policy, but also other policies—and whether those policies were going to be addressed solely toward defending existing exchange rate pegs or were going to be addressed toward the needs of the underlying economy. (See Truman 2002.) Obstfeld (1995, 18) concludes with respect to signaling: "Intervention can be used in providing a costly and therefore informative signal of official intentions when markets are confused about policy. . . . But intervention, acting alone, cannot halt market trends for long, let alone reverse them."

The attraction of the coordination channel for the effectiveness of intervention is that it focuses on market dynamics without implicating policy.⁹ One reason for the apparent effectiveness of intervention that is implemented within such a conceptual framework is that by its nature it is designed to catch the market off-guard, forcing short-term traders to absorb losses as they close their open positions and, at least for a period of a few hours, contributing to a market dynamic that differs from one that may have prevailed over the previous days, weeks, or months. Market participants may be led to "think" about whether the rate has moved "too far."

Two implications flow from the conceptual framework of a coordinating channel. First, intervention operations that are repeated or reactive are not likely to be effective. The authorities have a few chances, perhaps,

9. As noted earlier, Galati, Melick, and Micu (2002) look in their research at the behavior of four moments of estimated probability density functions for exchange rates in the context of intervention; this approach is in the spirit of the coordination channel.

extending over a period of at most a few days, to make their point and alter market psychology.¹⁰ If they are not successful, they risk becoming victims of the “tar-baby phenomenon,”¹¹ seeking to extricate themselves from the market without admitting to failure. As a consequence, operations have become larger to ensure that some damage is inflicted on the traders’ positions, and they have become more infrequent. Some call the approach guerrilla tactics.

The second implication of the conceptual framework of a coordination channel is that the authorities have been induced to abandon strategies that seek regularly to counter disorderly market conditions, that is, they no longer try to smooth day-to-day fluctuations in rates, while remaining free to deal with disorder that might be associated with isolated events like the failure of a large financial institution or a political shock. Furthermore, to the extent that intervention is directed at defending a soft or hard exchange rate band, it must rely on another framework for its effectiveness—the portfolio balance or policy signaling channels—because sporadic operations cannot be counted on to have long-term effects, and repeated operations face diminishing returns. On the other hand, to the extent that intervention is a policy tool that is used in the context of a loose notion about the rate that is consistent with long-term economic and financial trends, it would be compatible with a framework for exchange market intervention that relied on the coordination channel and sporadic operations for its effects.

To summarize, my reading of both the economics literature on the effectiveness of intervention and my assessment of the actual use of the instrument by G-3 authorities in recent years is essentially the same as it was a decade ago (Truman 1994, 249): the evidence is sufficient “to support the continued judicious use of intervention as a supplementary policy instrument.”¹² Even Sarno and Taylor (2001, 862), who, as noted earlier, are in the camp of those who are positive about intervention’s effectiveness, state that the studies “allow us to conclude cautiously that official intervention can be effective, especially if it is publicly announced and

10. Many consider the August 15, 1995, joint Japan-US operation as a classic example of such opportunism, going with the flow of the market (Bank for International Settlements 1996, 101).

11. This term, drawn from American literature, was often used by Sam Y. Cross, a former US Treasury official, who was manager of foreign operations for the Federal Reserve System Open Market Account from the early 1980s through 1991, to warn against the risk of entering the market without an exit strategy.

12. To emphasize here a point that has applied throughout this paper, the issue is intervention involving the G-3 currencies. Exchange rates involving less international currencies may be more responsive to intervention, or may be responsive for a longer run, because of either capital controls or other aspects that make them much less perfect substitutes.

concerted and provided that it is consistent with the underlying stance of monetary policy.”¹³

Two aspects of this statement deserve emphasis: First, they conclude that intervention “can” be effective, which is not the same as saying that it is always effective. Second, they lay down three conditions in which it is more likely to be effective: public announcement, multilateral engagement, and policy consistency.¹⁴ While public announcement is simple and now common practice among the G-3 authorities, the other two conditions are more demanding. They are discussed further in the second part of this paper. Reaching international agreement that now is the time to operate in the foreign exchange market is a tedious process, in part because the interests of two or more sets of authorities may differ, and in part because their views may differ on the effectiveness of the instrument and the costs of its overuse. Moreover, frequently there is a lack of consensus that an intervention operation would be consistent with underlying macroeconomic policies. One consequence is that attempts to establish guidelines for G-3 intervention operations such as in the 1987 Louvre Accord are destined to fail within a few days or weeks as soon as conditions and attitudes change to destroy the consensus.

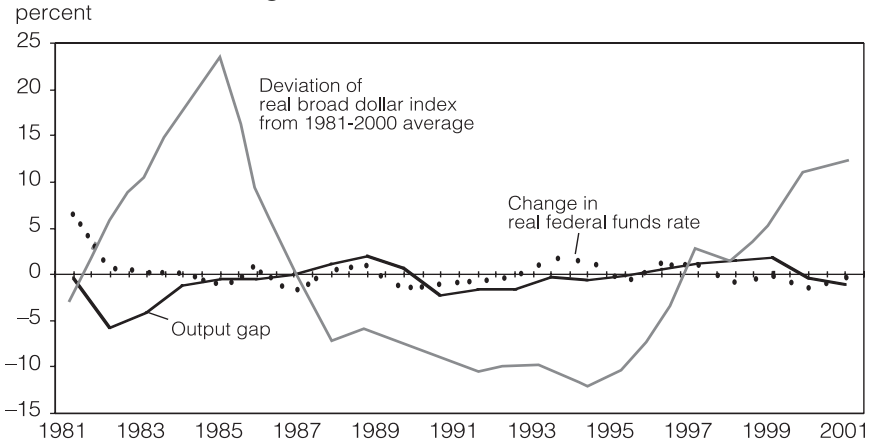
Exchange Market Intervention: Policy Considerations

From a US or national perspective, the overriding objective of macroeconomic policies is to achieve maximum sustainable noninflationary growth. In this context, the foreign exchange value of the dollar and the US current account and international investment position are not policy objectives. Those variables also do not systematically affect the achievement of the primary policy objective using the instruments of monetary and fiscal policy. Policymakers, reflecting the views of the general public, may have preferences about the allocation of fully employed resources between sectors producing traded (manufactured) goods and services and sectors producing nontraded (primarily nonmanufactured) goods and services. They also may have concerns about the sustainability of the US current account balance or international investment position. However, the evi-

13. Ito (2002) as well as other researchers have interpreted their results as consistent with the view that coordinated intervention is more effective, or more likely to be effective. Galati, Melick, and Micu (2002) test this proposition directly and find that coordinated operations do not add to the significance of the intervention.

14. Dominguez and Frankel (1993) also recommended that intervention should be unanticipated, publicly announced, and coordinated. They also argued, as Dominguez recounts in her conference paper, that “intervention was least likely to be effective if it was inconsistent with either future monetary policy intentions or future exchange rate fundamentals.”

Figure 12.1 US output gap, monetary policy stance, and real exchange rate index, 1981-2002



Sources: Output gap: OECD *Economic Outlook*, Nos. 65, 67, and 71; real broad dollar index: Federal Reserve Board statistics; inflation data (to compute real federal funds rate): Bureau of Labor Statistics.

dence from empirical studies, as discussed above, is that they lack an instrument independent of the settings of monetary and fiscal policies to achieve, with any reliability or consistency, the desired allocation of production across sectors or to alter the external accounts.

Policymakers, of course, do take account of actual and potential developments in exchange rates and external accounts when making policy and balancing risks. For example, they try to anticipate the effects of exchange rate depreciation on the real economy and thereby on inflation, they try to anticipate the tendency of exchange rate appreciation to dampen the real economy, and generally they are alert to the possibility that an unsustainable position in the external accounts will eventually be corrected. That amounts to good analysis, but it is not the same thing as directing economic policy at an exchange rate target or at the current account.

Under some circumstances, economic conditions and the orientation of monetary and fiscal policy may be consistent with the judicious use of exchange market intervention in an effort to influence exchange market behavior in a manner that supports those objectives. However, conflicts are common.

Figure 12.1 depicts annual data from 1981 to 2002 for the US output gap (a summary measure of the condition of the domestic economy), the stance of US monetary policy (indexed by the change in the real federal funds rate), and the foreign exchange value of the dollar (as measured

Figure 12.2 Consistency of US monetary policy with the needs of the real economy and the real exchange rate index

		Monetary policy consistent with moving exchange rate index toward average			
		Yes		No	
Monetary policy consistent with needs of real economy	Yes	1984		1987	
		1985	1997	1991	1996
		1988	2001	1992	1998
		1989	2002	1993	2000
	No	1981		1982	
		1994		1983*	
		1995		1986	
		1999		1990	

*Monetary policy unchanged.

Notes: *US monetary policy* indicates change in real federal funds rate.

Needs of real economy indicates sign of output gap.

Exchange rate indicates deviation of real broad dollar index from 1981-2002 average (Federal Reserve).

Source: Author's calculations.

by the broad real exchange rate index developed by the staff of the Federal Reserve Board).¹⁵ The figure illustrates several points.

First, even using these crude indicators, in two-thirds (14 of the 22) of the years the stance of monetary policy was consistent with the needs of the macroeconomy; the direction of monetary policy was toward easing when the output gap was negative and vice versa (see figure 12.2).¹⁶

15. The data for 2002 on the output gap are the latest estimates from the Organization for Economic Cooperation and Development; the 2002 data for the stance of monetary policy and the exchange rate index treat the average through August 2002 as the average for the year.

16. The eight years where this relationship did not hold are three years in the early 1980s (1981-83), when monetary policy continued to tighten in order to stamp out the high inflation and attendant inflation expectations of the late 1970s, and the economy experienced two recessions; 1986 and 1990, when the measure of the stance of monetary policy is distorted by the impact of oil prices (lower in 1986 and higher in 1990) on the consumer price index that is used to deflate the federal funds rate; 1994 and 1995, when the Federal Reserve took preemptive action to tighten monetary policy when the output gap (as measured) was still negative; and 1999 when monetary policy was eased when global financial conditions tightened in the wake of the Russian default although the output gap suggested that policy should be tightened.

Second, in half the years, the stance of monetary policy was inconsistent with bringing the foreign exchange value of the dollar back toward its average value for the entire period, which is presented as a reasonable norm, on the assumption that easier policy would tend to depreciate the dollar and vice versa. In other words, in half the years (11 of 22), there was a potential conflict between the use of intervention to influence the dollar's value and the stance of monetary policy.¹⁷ Restricting attention to the 14 years when the stance of policy was clearly consistent with the needs of the macroeconomy, in half the years, again, there was a potential conflict between the use of intervention and the stance of monetary policy: 1987, 1991, 1992, 1993, 1996, 1998, and 2000. In the last two years, monetary policy was tightening when the dollar was above the average for the period; in the other five years, monetary policy was easing when the dollar was below the average.¹⁸

Third, in six of the seven years in which there was a potential conflict between the use of exchange market intervention to move the dollar toward its average value and the stance of monetary policy, the US monetary authorities did operate in the exchange market. The exception was 1996. In five of those six years, the direction of the operation was consistent with trying to move the dollar toward the average. The sixth year was 1991, when the dollar was below the average and the US authorities sold dollars against yen and both bought and sold dollars against deutsche marks; total dollar purchases did exceed total dollar sales.

Excluding 1991, a judgmental assessment of the success or failure of US foreign exchange market operations in the remaining five years suggests that they failed in their objectives in 1987 (when the dollar continued to fall despite the Louvre Accord) and 1992 (when the dollar also continued to fall). In 1992, the dollar was caught for much of the year in the backwash of the unfolding events of the first year of the 1992-93 ERM crisis. That year also posed the most severe conflict between the needs of the domestic economy and the associated stance of monetary policy and the dollar's external value; the negative output gap was 175 basis points, the real funds rate was reduced by 92 basis points, and the dollar was more than 10 percentage points below its average for the period as a whole.

17. If leaning against *changes* in the real broad dollar index from the previous year is used as an indicator of the direction in which monetary policy should move, again half the years were conflict situations, although, of course, the years are not all the same.

18. For 11 years in which the stance of monetary policy was inconsistent with moving the dollar back toward the average for the period, in six years policy was easing when the dollar was below the average, in four years policy was tightening when the dollar was above the average, and in one year policy was unchanged when the dollar was below the average.

In 1993, 1998, and 2000, results of US intervention operations were mixed. In 1993, the dollar rose based on the broad index of the dollar's value in real terms, and also rose against the deutsche mark, but the dollar fell against the yen. In 1998 and 2000, in which there were one-day US intervention operations, buying yen in June 1998 and buying euros in September 2000, the intervention apparently produced the desired short-run effect of temporarily weakening the dollar against those two currencies, but in both years the dollar later appreciated further against these currencies and appreciated on average for the year in terms of the broad index of its real value.¹⁹

As is generally the case in this area, different observers may choose to interpret differently the evidence just presented. I conclude that it points to the limits of exchange market intervention when it is inconsistent with underlying policies and to the consequent risk of failure that would further discredit the use of the instrument.

The risks associated with exchange market intervention are not limited to the risk of failure, however. Aside from the possibility of failure, four possible risks can be identified. First is distraction risk: intervention may distract the authorities from the use of other policies to address the fundamental problems of the economy. For example, in 1978-79, after the failed attempt of the Carter administration to devalue the dollar to restore US economic prosperity, exchange market intervention was used heavily as an alternative to tightening monetary policy in the face of rising inflation. As I commented to the Federal Open Market Committee (FOMC) during its 1990 discussion of US foreign exchange operations, "Treasury officials [in 1989 and 1990] certainly are on the side that say intervention is and has been and should be—certainly should be—effective. . . . They were in exactly the same situation in the 1978-79 period" (Board of Governors of the Federal Reserve System 1990, 66). The delay in 1978-79 caused by the distraction of exchange market intervention in trying unsuccessfully to deal with the symptoms of a weak dollar led to the highest rate of US

19. For completeness, with respect to the seven years in the yes-yes box of figure 12.2, no intervention occurred in years 1997, 2001, and 2002 to date. In 1984, there were about \$450 million in sales of deutsche marks spread through the year, despite the fact that the folklore is that this was a nonintervention period for the United States; the operations were not successful but were consistent with the thrust of monetary policy and the needs of the macroeconomy as well as with the level of the dollar relative to the longer-term average. In 1985, US sales of dollars were associated with what is generally viewed as successful intervention and consistent with the thrust of monetary policy as well as the needs of the macro economy. In 1988, the US authorities bought dollars early in the year (in what is often considered a successful operation), sold dollars in the middle of the year, and bought dollars again at the end of the year, but sales exceeded purchases, and the net sales were inconsistent with monetary policy and the level of the dollar on average during the year relative to its longer-run average. In 1989, the US authorities engaged in massive dollar sales in conflict with the thrust of monetary policy (see below) and the dollar's level at the time, to little apparent effect.

inflation recorded in the post-World War II period and to the need to adopt draconian measures to bring inflation under control, which in turn were associated with one of the deepest recessions of the postwar period.

Second is signal risk: intervention may send the wrong signal about policy. That was the case in 1989-90, when US monetary policy was tightening and the US intervention operations were oriented toward weakening the dollar. This was a period of conflict between the Federal Reserve and the US Treasury over intervention operations. The FOMC held an extended discussion of the Federal Reserve's involvement in US intervention operations on the basis of a report from a staff Task Force on System Foreign Exchange Operations and against the background of US intervention operations in 1989 on a record 97 days designed to weaken the dollar, or resist its strengthening, at a time when the Federal Reserve was tightening policy.²⁰ Manley Johnson succinctly summarized the policy conflict: "If I were a market participant and I were sitting out there seeing the Federal Reserve talking about price stability and yet selling massive amounts of dollars, I think eventually I'd decide that was a joke as a policy" (Board of Governors of the Federal Reserve System 1990, 55). Gerald Corrigan echoed Johnson's concerns: "As I see it, the biggest danger with intervention—whether or not it's done by the Federal Reserve or the Treasury or both—is the danger that it can ultimately co-opt monetary policy" (Board of Governors of the Federal Reserve System 1990, 58).²¹

Third is exacerbation risk: intervention, if it is successful, may exacerbate problems in the domestic economy. For example, if foreign exchange market intervention had been used extensively in 1999 to lower the foreign exchange value of the dollar when the economy was already booming and the output gap was positive and that intervention had been successful

20. Kaminsky and Lewis (1996) look at this period in some detail, stopping their analysis in February 1990 in the mistaken belief that the Federal Reserve withdrew from joint operations with the Treasury for the remainder of the year rather than just in one or two operations in March. The inconsistency between the stance of monetary policy and the direction of foreign exchange operations, which were also counter to what is depicted in figure 12.1 as a need to strengthen the dollar, contributed to their finding that there was a significant signaling effect in US intervention in the 1985-89 period, but it had the wrong sign, that is, it signaled easing when policy was tightening.

21. Let me be clear—intervention may be justified even when it may appear to be inconsistent with the stance of other policies, but then it must satisfy tougher conditions. In the build-up to the ERM crisis of 1992, the US authorities intervened in the summer of 1992 to support the dollar even as the Federal Reserve was easing in order to demonstrate an absence of US indifference to the dollar's weakness. However, the operations were unsuccessful (Truman 2002). Sushil Wadhvani (2000) advocated consideration of intervention by the Bank of England in mid-2000 when he felt the pound sterling was overvalued, despite the fact that the UK economy was operating at or near full capacity. He said foreign exchange market "intervention could potentially be useful in terms of achieving our overall monetary policy objectives, though it is no panacea." However, he added, "it would be important to only use it when the pre-conditions for likely success were in place."

in reducing the dollar's value substantially, the domestic economy could have suffered extensive damage.

The simulations presented in this conference by Martin Baily illustrate this point. If the dollar somehow had been held constant at its 1991 level during the 1990s, the trade deficit would have been substantially reduced in the late 1990s, but consumption would have been lower, investment would have been lower, inflation would have been higher (even under the assumption that the Federal Reserve would have reacted to the higher growth and inflation), and growth in 2000 and 2001 would have been significantly reduced. It is worth noting that if the Federal Reserve had eased monetary policy in order to reduce the attractiveness of the dollar in the late 1990s, it would have risked overheating the economy. In retrospect, there is now a hot debate about the actual easing of Federal Reserve policy in the fall of 1998, in the wake of the Russian default and the widening of spread in credit markets that brought down Long Term Capital Management (LTCM). The easing carried over into 1999 and produced a reduction in the real federal funds rate of almost one percentage point on average in 1999, and some argue the easing was a mistake because it allowed the stock market bubble to persist for another year and subsequently damaged the economy.

Fourth is success risk: intervention may be too successful.²² In 2000, for example, the US economy appeared to be operating above potential, and monetary policy had shifted toward restraint, although, based on the indicator shown in figure 12.1, the shift amounted to only a few basis points because much of the rise in the nominal federal funds rate was offset by a rise in consumer prices in part associated with higher petroleum prices caused by tight conditions in global oil markets because of rising demand. The risk, as perceived by some policymakers at the time, was that the US economy would slow down, equity markets would collapse, and the foreign exchange value of the dollar would reverse sharply its levitation of the late 1990s. Successful exchange market intervention might have precipitated, in perception if not in causality, precisely the scenario that policymakers wanted to avoid, broad-based turbulence in a wide range of financial markets.

Thus, from a national policy perspective, there may be occasions, such as June 1998 and September 2000, when judicious use of foreign exchange market intervention may be effective even if not fully consistent with the stance of US macroeconomic policies, but those occasions are not likely to be frequent, and each involves a number of potential risks.

Bringing in the international perspective, policy considerations surrounding exchange market intervention are even more complex because all the considerations that have just been outlined from a national perspec-

22. As a senior colleague commented to me in 1985, when a country intervenes to depress its currency it does so at its own peril. In the US case, the peril materialized two years later in a decline in the dollar that was unwelcome and could not be stopped via intervention.

tive are replicated in one or more economies elsewhere in the world. These considerations are relevant because exchange rates are two-sided, by definition, and because of the general perception that coordinated operations have a greater chance of being effective.

Even if the US authorities reach a judgment that the balance is tilted in the direction of operating in exchange markets, views elsewhere may differ. Authorities in other countries have differences in view about the effectiveness of intervention. Views in other countries may also differ because of different economic circumstances; for example, today neither the Japanese nor the European authorities are anxious to see their currencies appreciate because that would be inconsistent with the needs of their domestic economies, which they see as benefiting, in the case of Japan, from export-led growth or being hurt, in the case of Europe, from a withdrawal of external stimulus. Finally, views in other countries may differ on the appropriateness of intervention given the risks of collateral damage as outlined above.

As in the United States, reaching a favorable judgment in other economies that foreign exchange market intervention is appropriate usually involves alignment of the views in the finance ministry and those in the central bank. It may be that one or the other institution has the final say or that one or the other institution is very much a junior partner in such operations, but rarely does intervention occur on any substantial scale over the active opposition of one of the two institutions.²³

In addition to these policy and institutional considerations, coordinated exchange market intervention often involves a host of technical and tactical considerations. Given how rare intervention is these days, time is required to conduct the necessary consultations to crank up the machinery. Tactical considerations include such matters as agreeing on what is to be said before, during, and after the operation. Moreover, it is often important to some participants, as it was to the United States in 1998 and 2000, that it be known who initiated any coordinated foreign exchange market operation.

Conclusion

Exchange market intervention has definite limits as a policy instrument. Its effectiveness is uncertain and imprecise, and therefore it is at best a

23. Each of the G-3 economies operates under different institutional arrangements. In the United States, both the US Treasury and the Federal Reserve have independent legal authority to operate in the foreign exchange market, and they normally act jointly for their separate accounts, unless one or the other party does not agree, which occasionally occurs. In Japan the intervention decisions are made by the Ministry of Finance, which also holds the bulk of Japan's foreign exchange reserves. In Germany, the Bundesbank made intervention decisions. With the birth of the euro, the European Central Bank makes the tactical decisions, but the euro area finance ministries are involved in strategic decisions. In this context, it is somewhat unfortunate that Dominguez, in her paper for this conference, follows the normal convention of associating intervention with the central bank conducting the operation rather than the monetary authority (central bank or finance ministry) that makes the decision.

blunt or a blunted instrument. It is advisable that it be used as a supplement to and consistent with fundamental economic policies, as suggested by the empirical research on the effectiveness of intervention. The US experience over the past 20 years suggests that roughly half the time the potential use of intervention would be in conflict with those policies. The possibility of collateral damage further limits the scope to use the instrument. Finally, it is a challenge to align official attitudes about foreign exchange operations in other countries with the prevailing attitude in the United States because views about these issues, in light of their own experience and circumstances, necessarily differ.

Where does this leave intervention as a policy tool? First, intervention is not a separate instrument of policy that can be used regardless of the stance of other economic and financial policies; it is not effective in achieving discrete adjustments in exchange rates, moving them from one level to another and holding them there. Second, intervention is not an available instrument to manage G-3 exchange rates within target zones or to fine-tune exchange rate movements.

Foreign exchange market intervention is analogous to a drug that has not received, and is not likely to receive, FDA approval for general use. We know it works sometimes, but we do not know why it works. We also know it can have adverse effects, for example, adding generally to financial market turbulence or distracting the authorities from focusing on economic fundamentals. The consequences of using the instrument are decidedly imprecise. As a result, it is dangerous to prescribe the use of intervention except in extreme situations, and it is certainly not recommended for everyday use. This suggests that the instrument should be used sparingly and cannot be counted upon to address satisfactorily actual or perceived misalignments of exchange rates.

It follows that it is appropriate to be modest in any claims about the effectiveness of exchange market intervention. For example, when addressing the legitimate concerns of US manufacturing industries, it is fraudulent and irresponsible to claim that exchange market intervention can be used with any confidence or precision to improve their competitiveness, in particular without requiring any other complementary policy adjustments, such as increases in interest rates or strengthening of fiscal positions, in particular when the economy is at or near full employment.

On the other hand, in the context of a broad consensus that the dollar is misaligned, if such a consensus is shared by the other G-3 authorities, and under conditions in which the principal (monetary and fiscal) instruments of macroeconomic policy are pointed in a consistent direction in all three economies, it is reasonable to consider coordinated intervention operations. I submit that those conditions do not prevail today. The G-3 authorities have not reached a consensus that the dollar is seriously misaligned. US monetary policy may be consistent with a weaker dollar, but US fiscal policy is not, because of the renewed prospect of ever-widening fiscal deficits.

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