Riding the Tiger

How central banks in developing countries can best intervene in volatile foreign exchange markets

Jorge Iván Canales-Kriljenko, Roberto Guimarães, Shogo Ishii, and Cem Karacadağ

OFFICIAL intervention in the foreign exchange market is a risky business, particularly for developing countries with low central bank credibility and a weak external liquidity position. Intervention can often be expensive and fail to achieve the desired result. The depletion of reserves by Mexico in 1994 and by Thailand in 1997 to defend their currencies was an important factor in their financial crises. Since then, both Brazil (until early 1999) and Turkey have faced the challenge of stabilizing their exchange rates through intervention. Even for the major currencies, the jury is still out on the effectiveness of intervention. The euro's sharp appreciation against the U.S. dollar has spurred debate over the prospect of coordinated intervention to arrest the dollar's fall, reminiscent of the days of the Plaza Accord in the late 1980s, when the rise of the dollar had become a concern.

Despite the controversy surrounding it, however, intervention remains an important tool for central banks, particularly in developing economies. After a brief review of recent trends and country experience, this article discusses possible elements of best practice on intervention.

Central banks operating flexible exchange rate regimes in developing countries intervene in the foreign exchange market for four main reasons:

• *Correcting misalignments or stabilizing the exchange rate*. Exchange rate overvaluation can undermine a country's export competitiveness and weaken its external liquidity position, while an undervalued or excessively depreciating exchange rate can create inflationary pressures. For many developing countries, the exchange rate is considered a symbolic and visible measure of the government's success in macroeconomic management. Intervention is thus often used to counter sharp exchange rate movements and to smooth volatility.

• *Calming disorderly markets*. A collapse of liquidity, when market intermediaries face difficulties in matching suppliers with end users of foreign exchange, can have serious adverse effects on the real economy if it persists.

• *Accumulating reserves*. Accumulation of foreign exchange reserves is often a high priority, especially in the aftermath of a currency crisis, when building investor confidence, strengthening debt repayment capacity, and regaining market access are of paramount importance.

• *Supplying foreign exchange to the market*. Where the public sector is a prime foreign exchange earner and the central bank is the foreign exchange agent of the public sector, central banks intervene mainly to supply foreign exchange to the economy at large.

Exchange rates are supposed to reflect basic supply and demand conditions, which, in turn, ought to be linked to underlying macroeconomic and other fundamental factors. Indeed, the academic literature provides favorable evidence of the relationship between exchange rates and fundamentals in the *long term*. However, exchange rates often deviate substantially from values implied by fundamentals and parity conditions in the short term, even in well-functioning markets (Sarno and Taylor, 2002).

The disconnect between short-term exchange rate levels and macroeconomic fundamentals may create a role for ster-

ilized intervention, which influences the exchange rate mainly through its impact on expectations, risk premiums, and order flow (the net buying pressure in the foreign exchange market). In particular, sterilized intervention can be used to limit unwarranted exchange rate movements resulting from temporary shocks that do not affect underlying macroeconomic conditions. For economies experiencing macroeconomic imbalances or structural weaknesses, intervention can help temporarily ease exchange rate pressures only if there is a credible commitment to, and tangible progress on, macroeconomic and structural adjustments.

Trends in intervention

These days, with the exception of the Bank of Japan, the central banks for the major international reserve currencies—the U.S. Federal Reserve and the European Central Bank—seldom intervene. The trend in other advanced economies is similar although, admittedly, the declining frequency of intervention may reflect the relatively more tranquil global financial environment of recent years. For example, the Bank of Canada actively intervened for many years but has not done so since 1998. The Reserve Bank of New Zealand has not intervened since 1985. Some emerging market economies have followed suit. But, in sharp contrast, many developing economies still intervene actively in the spot foreign exchange market (Canales-Kriljenko, 2003).

The prevalence of intervention by developing countries stems primarily from their aversion to excessive exchange rate volatility. Guillermo Calvo and Carmen Reinhart (2002), in their paper "Fear of Floating," document how developing countries tolerate greater volatility in international reserves, domestic interest rates, and commodity prices than in exchange rates. They also find that changes in domestic interest rates, as opposed to intervention in the foreign exchange market, are used more frequently to defend exchange rates.

Intervention in the foreign exchange market may be more effective in many developing countries than in advanced ones, despite the problem of weaker market credibility in the former. Compared with advanced countries, developing countries often intervene in amounts that are significant relative to the market's turnover. Their central banks are usually large customers in the foreign exchange market, especially when the public sector is a significant foreign exchange earner. Exchange and capital controls may also allow central banks to gather more information than other market participants. This stems from, among other things, central bank reporting requirements, which enable central banks to observe aggregate order flow in the market and the net open positions of financial intermediaries.

Currency crises in the 1990s, however, highlight the limited effectiveness of intervention as an independent policy tool. Mexico's yearlong defense of its crawling peg in 1994 ended suddenly when the market belatedly became aware of the central bank's depleted reserve position. Thailand's intervention in defense of the baht in the first half of 1997 failed, virtually exhausting the central bank's net international reserves.

What are the lessons?

Several key lessons emerge:

- Intervention is not an independent policy tool. It cannot generate permanent changes in exchange rate levels when targeted levels are inconsistent with macroeconomic policies.
- Institutional and policy credibility is an important determinant of the effectiveness of intervention. Credibility enhances the effectiveness of intervention and may even obviate the need for it.
- Efficient foreign exchange markets can help minimize instances of misalignment and disorderly markets and hence the need for intervention.

Elements of best practice

But if central banks do intervene, how should they do it? Despite considerable research into the effectiveness of intervention, there has been little guidance on operational issues and best practices for developing countries. The IMF is trying to fill the gap. Central banks face a number of questions on the mechanics of intervention, including

- *rules versus discretion.* Should central bank intervention be rules based or discretionary?
- *amount and timing.* When, and in what amounts, should a central bank intervene in the foreign exchange market?
- *degree of transparency.* Should interventions be announced or kept secret? What are the pros and cons of each?
- *markets and counterparties.* In which currency pairs, instruments, and trading locations should intervention take place? With whom should the central bank trade and how should it approach them?

Addressing these questions requires a comprehensive set of policies and guidelines on a wide range of policy, technical, and administrative issues. The following represents an attempt by the IMF to develop best practices on intervention.

Intervention objectives. The authorities should define the objectives of intervention in precise terms. The objectives are often directly related to the exchange rate regime or involve other aspects of the foreign exchange market, such as disorderly markets. Ensuring precision in intervention objectives is critical to its successful execution and to assessing its effectiveness.

Rules versus discretion. Central banks need to have some degree of discretion in determining when and in what amounts to intervene, but they should still be subject to broad guidelines. Discretion is critical for several reasons. First, an intervention policy rule is not necessary when a commitment to a non-exchange-rate nominal anchor, such as in an inflation-targeting framework, already exists. Second, market participants may take advantage of a central bank if its operations are bound by strict rules. Even if the authorities do not announce the policy rule, market participants can

The challenges for countries with IMF-supported programs

IMF-supported adjustment programs can have important implications for official intervention in countries with flexible exchange rate regimes. In many programs, floors are set on net international reserves (NIRs), which limit the capacity of the central bank to sell foreign exchange. In effect, IMF programs often advise the authorities to confine their interventions to smoothing exchange rate volatility. The reserve accumulation envisaged under many IMF-supported programs—by gradually rising NIR floors—creates, by design, asymmetry in exchange rate and intervention policies. In particular, programs aim to limit interventions in defense of an exchange rate under downward pressure for a protracted period, especially if the exchange rate level is inconsistent with underlying macroeconomic policies.

The challenge for many countries with IMF-supported programs is thus to accumulate reserves and meet their NIR floors while minimizing the impact of intervention on the exchange rate. This challenge is also faced by many other countries and can be tackled in several ways. First, like any other customer, the central bank can intervene in the market in a discreet fashion, without disclosing its purpose or market presence. Second, the central bank can preannounce periodic foreign exchange purchases. While this may minimize the impact on the exchange rate, advance knowledge of the timing and amount of its foreign exchange purchases may allow market participants to take advantage of the central bank.

Interventions to calm disorderly markets and smooth exchange volatility should be rare and warrant particular scrutiny. Disorderly markets are difficult to detect and should not be used as an excuse to intervene in defense of a particular exchange rate level in what is purportedly a flexible exchange rate regime.

often figure it out, speculate against the central bank, and possibly generate losses for it. The central bank must have room for tactical maneuvering. Third, the practical usefulness of "optimal" intervention rules is limited. And, fourth, the interpretation of quantitative and qualitative information usually requires considerable judgment.

Rules-based intervention may be appropriate for a short period under certain circumstances. Brazil's ruled-based intervention policy, which limited the central bank's sales of foreign exchange to $50 million a day in the second half of 2001, was effective in filling the balance of payments gap arising from a reduction in capital inflows, without giving the impression that the central bank was targeting the exchange rate. Similarly, in Turkey, foreign exchange sale and purchase auctions, whose timing and amount are determined and announced ex ante, have been an effective and transparent mechanism for reinforcing the central bank's commitment to a floating exchange rate regime.

Over time, however, many central banks that have experimented with rules-based policies have abandoned or modified the rules to allow for some discretion. For example, Canada's mechanical intervention policy of the 1990s was modified in 1995 and abandoned in 1998 to provide the central bank with greater discretion and to reduce the frequency of intervention (Murray, Zelmer, and McManus, 1996). Similarly, Brazil's rules-based intervention policy, which was revived in mid-2002, was subsequently relaxed in order to give the central bank more discretion over how, when, and by how much it could intervene in the spot market as it responded to changing market conditions.

Intervention amount. There is no simple rule for determining the optimal amount of foreign exchange intervention. Central banks often determine "effective" amounts through trial and error. In some developing economies, the scarcity of reserves is a major constraint. Intervention amounts depend, in part, on their effect on exchange rate expectations. A change in expectations can cause market participants to modify their net open foreign exchange positions and create order flow in favor of the targeted exchange rate, lowering the amount needed for intervention.

A central bank should avoid conducting one-sided intervention on an ongoing basis. Instead, policies should be adjusted to resolve the underlying causes of imbalances in order flow. In this context, intervention can provide an early warning indicator that the policy mix is unsustainable. In the same vein, central banks generally should refrain from intervention financed by foreign-currency borrowing when macroeconomic conditions and the external liquidity position are weak. Such intervention would create high risks—particularly exchange rate and rollover risks.

Timing of intervention. Determining the timing of intervention is highly subjective. It involves an analysis of market indicators and market intelligence, against the background of the central bank's unique experiences and country-specific circumstances. Economic models and policy rules can help anchor a decision-making process, but they still require considerable judgment and are subject to large margins of error. The timing of intervention ultimately depends on the central bank's assessment of the following factors:

- *Exchange rate misalignment.* The extent of misalignment needs to be identified to justify intervention. In practice, central banks have to rely on several indicators of misalignment. However, there is no consensus on which indicators of misalignment are reliable.
- *Nature of shocks.* Whether intervention is warranted or not depends on the nature of shocks. Permanent shocks to domestic monetary conditions or to terms of trade, for example, would be expected to generate a change in expectations and an adjustment in the exchange rate and thus should not be resisted by intervention unless the exchange rate movement triggers persistent overshooting. By contrast, temporary shocks to the economy may warrant intervention if the shock causes unwarranted fluctuations in the exchange rate but does not affect macroeconomic fundamentals. Admittedly, distinguishing between temporary and permanent shocks is difficult.

• *Acceleration in exchange rate changes.* Acceleration in exchange rate changes can be a prime symptom of market illiquidity. However, rapid price movements can also occur in a liquid market but still be a matter of concern because of their potential to create self-fulfilling dynamics of price changes and destabilizing shifts across multiple exchange rate equilibria, prompting intervention.

• *Bid-offer spreads.* Widening bid-offer spreads signal heightened exchange rate uncertainty, which, in turn, may diminish market liquidity. Dealers typically widen bid-offer spreads to protect themselves against exchange rate volatility and unexpected order flow that may signal private information. Wide bid-offer spreads may keep market participants from transacting until the direction of the exchange rate becomes clearer.

• *Composition and magnitude of foreign exchange turnovers.* Information about this may provide important clues on liquidity and prevailing trading dynamics. In particular, a rise in interbank trading relative to customer-bank turnover may indicate that dealers are having to work harder to match customer-initiated foreign exchange orders with final counterparties.

• *Exchange rate volatility.* Volatility often reflects uncertainty in economic policies and other fundamental determinants of exchange rates, among other things. To the extent that price discovery and volatility occur in an orderly (liquid) market, central bank intervention would be unwarranted. Moreover, tolerance of some degree of volatility is essential to provide a sense of two-way risk to the market. Central banks must strike a careful balance between exchange stability and volatility, confining intervention to extreme price movements that may be symptomatic of a breakdown in the functioning of the market. In the long run, governments should make efforts to build policy credibility.

Transparency. Transparency in exchange rate policy and intervention objectives can enhance the credibility of the central bank by holding it accountable for its policy implementation. However, the degree of transparency related to the tactical implementation of intervention policies may vary with the specific objectives of intervention. For example, a central bank may wish to intervene secretly to introduce a sense of two-way risk in the market or to retain an element of surprise.

Choice of markets. Intervention generally should take place in the spot market rather than in the forward market. Spot market intervention directly affects the spot exchange rate. Forward market intervention relies on the transmission mechanism from forward to spot market rates, which can be affected by money market developments as well as by the presence of any exchange and capital controls. It is also easier to find counterparties in spot markets, partly because counterparty limits are usually less binding.

Choice of location and currency. Intervention should normally be conducted onshore and in the currency most widely traded to reduce costs and facilitate settlement. Offshore intervention could be warranted when there is a particularly active market for the currency offshore, destabilizing trading activity emerges offshore, and the central bank wants to resist such activity before it can destabilize the onshore foreign exchange market.

Choice of counterparties. The central bank should establish objective and transparent criteria for choosing counterparties for intervention and trade mainly with market makers, particularly in competitive and efficient foreign exchange markets.

Administration and governance. Close coordination and reliable communication channels must exist among the individuals in charge of adopting and implementing monetary and exchange rate policies. Moreover, the central bank needs to address the governance problems that normally arise when central bank dealers intervene.

Conclusions

Intervention is not an independent policy tool; its success is conditional upon the consistency of targeted exchange rates with macroeconomic policies. Exchange rate misalignments and disorderly markets—the most common justifications for intervention—are extremely difficult to detect, underscoring the need for central banks to be parsimonious in their interventions. Determining the timing and amount of intervention is a matter of judgment and depends heavily on ever-changing market conditions; hence, some degree of discretion is necessary. Exercising discretion judiciously and ensuring transparency in intervention policies and objectives are likely to enhance the effectiveness of intervention while minimizing its risks.

Shogo Ishii is a Division Chief and Jorge Iván Canales-Kriljenko and Cem Karacadağ are Economists in the IMF's Monetary and Financial Systems Department (MFD). Roberto Guimarães was an Economist in MFD at the time this article was written; he is currently an Economist in the IMF's Western Hemisphere Department. This article draws on IMF Working Paper 03/152 by Canales-Kriljenko, Guimarães, and Karacadağ, "Official Intervention in the Foreign Exchange Market: Elements of Best Practice."

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