10 Mexico's Monetary Policy Framework Under a Floating Exchange Rate Regime

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The recent currency and financial crises in emerging markets have reignited the debate on viable exchange rate regimes for small, open economies. One common element in all of these crises was the adherence to a predetermined exchange rate. Thus, several analysts have concluded that only under very specific and demanding conditions might there be a comfortable middle ground between a floating exchange rate and the adoption of a common currency. In Latin America this polarization in the choice of exchange rate regimes is clearly represented by the different paths taken by Argentina and Mexico. After more than four years of experience with a floating exchange rate regime, Mexico provides an interesting case study for other emerging economies considering moving toward a more flexible exchange rate regime.

A Forced Transition to Floating: 1994–95

The fragilities that accumulated in the Mexican economy during the early 1990s and the negative shocks the country faced during 1994 culminated in the balance of payments and financial crisis of December 1994. The crisis had three different dimensions. The first was a current account deficit of significant proportions, generated by domestic overspending and financed by short-run capital inflows. The second was the equivalent of a run on Mexican external liabilities, both government and private. The third was the banking crisis that then began to unfold, which required immediate attention both to avoid a domestic run on the banks and to pursue consistency in the macroeconomic

[1]The views expressed in this paper are the sole responsibility of the authors and do not necessarily represent those of the institutions with which they are affiliated.

framework. To confront these three challenges, several measures were implemented during 1995:

- Monetary and fiscal policies were tightened.
- The government negotiated a $52 billion international support package.
- The authorities implemented a series of programs to prevent a systemic run on the banking system, combat moral hazard, minimize distortions, and strengthen financial sector regulation and supervision.

The key to Mexico's success in stabilizing relatively quickly was the adoption of a consistent macroeconomic program immediately after the crisis. In particular, the fiscal authority, by recognizing the costs of restructuring the banking sector and by showing its commitment to deal with this problem with fiscal resources, liberated monetary policy to pursue its primary goal of price stability.

Monetary Policy Since 1995

The devaluation of the peso and the return to high inflation in 1995 seriously damaged the credibility of the Bank of Mexico. Yet having abandoned using the exchange rate as the economy's nominal anchor, monetary policy had no choice but to fill the vacuum.

First, to keep inflation in line, the Bank of Mexico established as an intermediate target a ceiling on the growth of the monetary base for the year. Unfortunately, it soon became obvious that this simple monetary program was not enough to stabilize inflationary expectations, the exchange rate, or inflation itself. In early 1995 the rule-based monetary policy failed to perform as expected, for several reasons:

- In a crisis scenario, the velocity of money becomes very unstable.
- The rule on growth of the monetary base was unable to keep the sudden depreciation of the peso from affecting inflationary expectations and the price level.
- The central bank had hardly any control over the monetary base in the short run.

This experience led the Mexican authorities to modify their monetary policy, from one based solely on quantitative targets on monetary aggregates to one using a combination of rules (on the behavior of the monetary base) and discretion (by influencing the level of interest rates).

To be able to implement the discretionary policy measures transparently, the central bank decided to adopt a zero *average* reserve requirement. Under this scheme, the Bank of Mexico established accounting periods of 28 days, during which banks would be given incentives to post a zero average daily balance in the current accounts they hold at the central bank. Should a bank's average daily balance become negative, the bank would have to pay a penalty interest rate equivalent to twice the prevailing 28-day rate on CETES (bills issued by the Mexican treasury) on the balance. On the other hand, a positive daily average balance would mean that the bank was forgoing the returns it could have obtained had it invested those funds in the market.

To meet the demand for bills and coins, the Bank of Mexico offers credit to banks in daily auctions, so as to offset maturing credits previously granted to the banks, movements in the account of the national treasury, and the monetary impact of the central bank's transactions in foreign currency. The central bank determines the sum of credit to be auctioned each day, so that the overall net average daily balance of all current accounts held by banks at the central bank—accumulated during the specific 28-day accounting period—will close the day at a predetermined amount. If that amount is negative, the central bank puts the banking system in a "short" position; if positive, the system is put in a "long" position. It follows that if the central bank puts the system in the "short" position, at least one credit institution will have to pay the penalty interest rate.

It should be stressed that the Bank of Mexico always supplies the credit necessary to completely satisfy demand for bills and coins, even when the banking system is "short." But in such cases a portion of the credit is supplied at a higher interest rate, which is applied to the overdrafts in the current accounts of one or several banks. When the system is "short," the central bank exerts upward pressure on interest rates, which can be quite significant but is primarily the result of the signal given by the Bank of Mexico.

Since 1996, all the monetary programs that the Bank of Mexico has implemented have included three main elements:

- A yearly annual inflation objective;
- A rules-defined base, together with quantitative commitments on the accumulation of net international reserves and the variation of net domestic credit; and
- The possibility for the central bank to adjust its stance on monetary policy, should unexpected circumstances make it advisable (this element represents the use of discretion in monetary policy management).

The central bank tends to use the "short" mechanism, thereby adopting a more restrictive stance, when it detects future inflationary pressures that are in-

consistent with the attainment of the inflationary target, when it is deemed necessary to restore order in foreign exchange and money markets, or when inflationary expectations are deemed out of line with respect to the original target.

In order to design a suitable monetary policy framework, it is essential to identify the main determinants of inflation and understand how monetary policy interacts with them to affect the rate of increase of the consumer price index (CPI). There are two alternative explanations of the source of inflationary pressures. In the first, the traditional monetary explanation, exogenous shocks to the supply of money cause inflation. In the second, based on models that assume price rigidities, shocks to key prices in the economy (wages, the exchange rate, or prices of public sector output) affect inflation directly, and monetary policy partially accommodates these shocks. In this scenario, the degree of policy accommodation is instrumental in determining the long-run inflationary impact of the shock.

A close look at trends in the growth rate of the monetary base and inflation during 1986–98 indicates that changes in inflation have preceded changes in the growth rate of base money. This suggests that, during this period, exogenous movements in the money stock were not the fundamental cause of inflation. Results of Granger causality tests show causality running both ways between these two variables. However, these results do not quantify the influence that movements in either of these variables had on the other. To analyze this issue in more detail, we estimated a vector error correction model that incorporates, as its endogenous variables, the CPI, base money, the exchange rate, wages, and public sector prices.

The results of the variance decomposition exercises confirm that exogenous movements in the monetary base have not been a cause of inflationary pressures, but rather that the money base has accommodated inflationary shocks coming from the exchange rate, wages, and public sector prices. These results imply that discretionary policy measures (or reactions) to combat shocks should be the main component of Mexico's monetary program. So it is safe to assume that inflationary pressures in Mexico have their origin in nonmonetary factors (validated ex post by the monetary authority). These include external shocks, which may generate a sharp depreciation of the currency; changes in public sector prices; and wage revisions that are inconsistent with the inflation target.

Confronted with these exogenous inflationary shocks, the central bank must decide whether to accommodate their inflationary impact through its monetary policy actions, and if so, whether totally or partially. To understand the problems that the central bank faces, it is convenient to analyze first the case where some accommodation is made to these shocks.

Consider the case where an exogenous shock causes a sharp nominal depreciation of the currency. If this depreciation is perceived as permanent, it will soon translate into increases in tradable goods prices, generating a higher CPI. This, in turn, increases nominal demand for money. If the central bank passively matches the demand and the supply of base money, this expansion will be validated, and the central bank will have accommodated the increase in money demand. An economics textbook would describe this as a once-and-for-all adjustment in the price level, which should be accommodated.

However, in a country with a history of high inflation, the dynamics triggered by such a depreciation are more complicated. The public might be led to revise their expectations of future inflation upward, and this would lead to rises in wages and nontradable goods prices, and thus to subsequent rounds of exchange rate and wage adjustments.

The central bank should be able to offset at least part of the inflationary impact of such an exogenous shock to the exchange rate (or to public sector prices or contractual wages). It can do so, for example, by satisfying the daily monetary base demand, but at an interest rate above that prevailing in the market. This is, in fact, what happens when the Bank of Mexico puts banks in "short" or increases the short position. The resulting higher interest rates may, for example, partly reverse the impact of an exogenous exchange rate shock, limiting the depreciation and moderating the adjustment of inflationary expectations. In fact, this was the Bank of Mexico's attitude during 1998 and 1999, when it increased the short position on several occasions as additional inflationary shocks became apparent.

Exchange Rate Policy Since 1995

The exchange rate of the Mexican peso has been floating freely since late 1994. From time to time since then, the need has arisen for various reasons for the authorities to intervene in the foreign exchange market. In all such cases, the authorities have followed the rule that their intervention must be completely transparent, and without defending a particular level of the exchange rate.

As already mentioned, one of the most important elements of the 1994–95 crisis was the run on the country's external liabilities. On the public sector side, the run concentrated on the now-famous *tesobonos,* which are short-term dollar-denominated government securities. In the private sector, commercial banks faced difficulties in rolling over their external liabilities. Even after the international assistance package was approved, the resources were made available, and the adjustment program was in place, relatively large amortizations of *tesobonos* and bank credits continued. It soon became obvious that if the ex-

cess demand for foreign exchange that generated this abrupt stock adjustment in the holdings of Mexican liabilities was not satisfied by official intervention, a sharp depreciation could ensue, even raising the risk of hyperinflation.

In addition, in the wake of the crisis, Mexico faced the need to rebuild its international reserves. This had to be done, moreover, without affecting the floating exchange rate and without sending any signals to the market that might be interpreted as reflecting a desired level for the exchange rate. To accomplish this task, the Bank of Mexico implemented auctions of dollar put options.

On several occasions under the floating exchange rate regime when the peso has depreciated sharply, liquidity in the foreign exchange markets has almost dried up. Under such circumstances, small changes in the demand for foreign currency have led to disproportionate depreciations of the peso. These conditions might lead to a devaluatory spiral, which could seriously affect inflation and interest rates. To moderate these extreme situations, a contingent dollar sales scheme was introduced in February 1997.

Given the macroeconomic framework that has been maintained during the period of floating exchange rates, the exchange rate regime has not been an impediment to achieving a rapid disinflation: inflation fell from 51.7 percent in 1995 to 18.6 percent in 1998. The volatility experienced by the peso during its float, once the macroeconomic and financial crises were contained, has been similar to that experienced by other currencies with floating exchange rates.

As a simple test of the effects of the different exchange rate regimes on interest rate levels and volatilities, we can compare the behavior of interest rates in the 1996–99 period with that observed during 1989–94, when the performance of inflation was similar. In the current stabilization effort, under a floating exchange rate, interest rates have usually been lower and less volatile than during the years of the Economic Solidarity Pact (1987–94), when a predetermined exchange rate was in place.

In Mexico's experience, the adoption of a floating exchange rate regime has contributed substantially to reducing speculative pressures in financial markets. A very important feature of this regime is that it discourages short-term capital flows, because of the risk to investors of large losses from exchange rate fluctuations in the short run.

The flexible exchange rate also facilitates the adjustment of the real exchange rate toward equilibrium whenever an external shock warrants a new equilibrium real exchange rate, without seriously harming the credibility of the monetary authority. These movements in the real exchange rate are useful to minimize the effects of external shocks on the economy. However, given Mexico's history of high inflation, inflation expectations react immediately

when the peso depreciates. Therefore, the inflation cost of achieving the necessary correction in the real exchange rate has been significantly higher than in other countries.

Conclusion

The recent crises in financial markets underscore the importance of maintaining a consistent macroeconomic framework, whatever the choice of exchange rate regime, so as to avoid financial and balance of payments crises and achieve long-lasting stability. It is clear that assigning multiple objectives to a single monetary policy instrument has led to the collapse of several regimes based on fixed or at least predetermined exchange rates. Therefore one of the most important steps that Mexico undertook after the collapse of the peso was to spell out clearly that monetary policy was going to be focused exclusively on attaining its medium-run goal of price stability. Also important was communicating the determination that the banking sector problem was going to be addressed by specific programs, whose cost the fiscal authority would assume.

The floating exchange rate regime has not proved to be an obstacle to Mexico's efforts to disinflate. On the contrary, it has contributed significantly to the adjustment of the economy to external shocks and to discouraging short-term capital inflows. Thus the floating exchange rate has become a very important element of Mexico's current macroeconomic policy framework.