Black December
Banking Instability, the Mexican Crisis, and Its Effect on Argentina

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The World Bank
Washington, D.C.
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and Development/THE WORLD BANK
1818 H Street, N.W.
Washington, D.C. 20433, U.S.A.

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Manufactured in the United States of America
First printing June 1997

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The author wishes to acknowledge helpful comments made by Saul Lizondo and V. Hugo Juan-Ramon. He also thanks Suman Bery, Jorge Canales, Allan Meltzer, and Guillermo Perry for their useful suggestions.

Library of Congress Cataloging-in-Publication Data
García, Valeriano F.
Black December: banking instability, the Mexican crisis, and its effect on Argentina / by Valeriano F. García.
p. cm.
“April 1997.”
HG2710.5.A6G37 1997
330.982’064—dc21 97-19841
CIP
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IN DECEMBER 1994 Mexico shocked the world and stunned the international financial community. A nation considered a model of economic reform and good financial health was suddenly bankrupt: Its international reserves had depleted, its currency was on free fall, it was about to default on its sovereign debt, and its banking system was on the verge of collapse. Uncertainty gripped the whole Latin American region.

The international financial community feared the effects of the Mexican crisis on other Latin American countries. Earlier experiences with large capital inflows into Latin America had not concluded happily, either. The capital inflows of the 1920s ended with the economic crisis of the early 1930s, and the large capital inflows of the late 1970s ended with the debt crisis that began in 1982. That crisis, marked by the Mexican debt default, left many other countries in Latin America unable to pay their external debt. This debt overhang increased country risk and reduced foreign investment. In many cases, additional fiscal difficulties arose because the external debt was socialized. Under strong pressures from international commercial banks, governments took over the private debt, bailing out the debt-ridden business sector.

By socializing the debt the governments created a fiscal problem, shifting the financial burden to the taxpayer, particularly through the inflation tax. The result was that capital inflows reverted to open capital outflows, and inflation surged. Moreover, income distribution worsened because the inflation tax is highly regressive. In many instances, the same business sector that had been bailed out caused the capital outflows.

Despite the history of banking instability in Latin America, the depth and scope of the 1994–95 Mexican crisis caught many people, including economists, by surprise. Mexico had made considerable reforms and its government economic managers were highly trained and highly regarded professional economists. Due to fiscal strengthening and general economic reform in Mexico, neither this country in particular, nor the region in general, appeared vulnerable to sudden and drastic changes in capital flows. Although structural, long-run, capital flows can change through a combination of changes in
national savings and in domestic expenditures, those functions are deemed stable.

However, the most recent Mexican crisis illustrates the crucial role in economic destabilization played by short-term policies that result in an excess supply of money. In Mexico excess money caused reserve losses, additional current account deficit, exchange rate instability, and a reduced demand for money. In the context of a fixed exchange-rate regime, the balance-of-payment deficit resulting from the excess supply of money could have been predicted by the monetary approach to the balance of payments. In the case of Mexico the prediction was correct.\(^2\)

The Mexican crisis caught observers by surprise in part because the 1990s had been a time of sweeping structural reforms in Argentina, Mexico, and Peru. Most Latin American countries, including Mexico, had adjusted their economies by privatizing important sectors, deregulating many others, improving their fiscal stances, and opening their borders to the benefits of international trade. Brazil had also gone a long way in reforming trade, while Chile continued to be stable politically and economically, and the Brady external debt program had given some relief. Interest rate increases in the United States during 1994 were moderate, and the source of capital inflows into Latin America, coming from the net savers in East Asia, remained stable.

**Banking Blues**

The 1994–95 Mexican crisis was not the first banking crisis in Latin America. Historically, this region has had a large share of banking instability. In the last two decades, Argentina, Chile, Mexico, and Venezuela have experienced the most resounding crises, while other countries, such as Bolivia, Brazil, Peru, and Uruguay, have also suffered their own set of banking problems.

The size of these crises has been staggering. In Argentina during 1982–83, the real value of deposits declined by 58 percent from the previous year's levels, and some leading banks, like Banco de Intercambio Regional and Banco de Italia, among others, had to be liquidated. In a second crisis during early 1995, Argentina's monetary stock was reduced in nominal (and real) terms by almost 20 percent in a four-month span.\(^3\) To put this figure into perspective, it is worth noting that during the world economic depression of the 1930s, it took nearly four years (from August 1929 to March 1933) for the U.S. money stock to decline by 35 percent. According to Friedman (1963), this contraction of the money stock was the main reason for the length and severity of the worldwide depression.

In Chile during the 1982–83 banking debacle, the government took over more than 50 percent of the nation's banking assets. In the 1982 Mexican crisis, the whole banking system was nationalized by the Lopez-Portillo government, and in early 1995, the newly privatized banking system was again at the brink of collapse. In Venezuela's 1994 banking breakdown, the cost to the nation of solving its banking crisis was estimated at about 14 percent of its gross domestic product (GDP); in addition, the crisis directly affected 55 percent of the country's banking system and more than 6 million people.

It is important to remember that recent banking crises have not been confined to Latin America. In the 1990s the Baltic countries, Estonia, Latvia, and Lithuania, have experienced severe crises.\(^4\) Developed countries that many Latin American countries saw as models of good regulation and efficient supervision were themselves hit by similar problems. During 1995–96, Japanese banks' non-performing loans were estimated at between U.S.$400 billion\(^5\) and U.S.$800 billion. In 1995, Japan's largest credit cooperative, Kizu; Tokyo's largest bank, Cosmo; and the nation's biggest regional bank, Hyogo; collapsed as a result of their bad portfolios. The Japanese government responded by raising taxes and strengthening deposit insurance. Finland, Sweden, and Norway have also recently experienced large banking losses. In the U.S., the breakdown and subsequent government bailout of U.S. savings and loans cost taxpayers several hundred billion dollars.

The Mexican banking system was particularly affected by the 1994–95 crisis. Aggregate past due loans increased by 31 percent in a one-month period (January to February 1995).\(^6\)
According to estimates, the Mexican bail-out will cost taxpayers about 9 percent of GDP. It is commonly believed that most banking crises have mainly been caused by macroeconomic imbalances, coupled with structural weaknesses in the financial system. In turn these banking crises have feedback to the economy. Also, capital inflows (and outflows) are given a prominent role in explaining the recent crisis.

**CAPITAL INFLOWS**

The structure of capital inflows in the '90s was much different from that of the previous decade; there was a much larger share of non-debt portfolio flows, longer-term debt, and direct foreign investment. The World Bank has been instrumental in supporting these structural changes. Some economists were indeed concerned about the sustainability of large current-account deficits, but their worries were subsumed in the overall atmosphere of optimism.

Long-term capital inflows adjust for the difference between desired domestic savings and desired investment. This adjustment has monetary and exchange rate implications. If the country has a floating exchange rate, the nominal exchange rate adjusts in response to increases in capital inflows. In this system, the balance of payments is always balanced in the sense that the current account is equal to the capital account, and there is no change in international reserves.

If the country has a fixed exchange rate, the excess supply of dollars generated by the initial capital inflow goes into the coffers of the central bank, which issues domestic currency. Initially, there is a balance-of-payments surplus, measured by the increase in international reserves. Later, the excess supply of domestic currency will work itself out through a current account deficit, and the central bank's foreign exchange holdings will return to their initial level.

In a fixed exchange-rate system, the real exchange rate will adjust through a rise in the domestic prices of nontradables.

Capital inflows can also be associated with increased demand for money, particularly in heavily dollarized economies. In this case the inflows will not cause current account deficits. If the country is open and has a fixed exchange rate, part of its capital inflows will be generated by changes in its demand for money and supply of domestic credit; this is the "domestic" component of capital flows. Other capital inflows—investment opportunities, for example—are "exogenous." Both domestic and exogenous forces produce capital flows that alter the underlying equilibrium real rate of exchange.

The ability of Argentina, Chile, and Mexico (until 1994) to keep inflation in check—and even to reduce it—in the presence of large capital inflows suggests an increase in the demand for money in those economies. The best example is Argentina, where the flows have boosted both international reserves and the supply of money, but inflation has dropped to international levels. A highly dollarized economy, Argentina has used part of its capital inflows to meet the growing demand for international money.

Under a floating exchange-rate regime, capital inflows do not necessarily produce inflation. Capital inflows change the real exchange rate and consequently change relative prices, but they cause inflation only to the extent that the central bank, acceding to political pressure to "protect" the export sector, increases its holdings of international reserves in order to reduce exchange rate appreciation. When the central bank cannot sterilize the increase in the money supply by reducing other sources of monetary expansion, the accumulation of reserves produces inflation (Calvo, Leiderman, and Reinhart, 1992; Corbo and Hernandez, 1993).

**CHANGING CAPITAL FLOWS AND THE REAL EXCHANGE RATE**

In most Latin American countries, the domestic currency has appreciated over the past few years (Dooley, Fernandez-Arias, and Kletzer, 1994; Calvo, Leiderman, and Reinhart, 1992 and 1993). Argentina and Mexico have experienced the sharpest appreciation recent years. Chile's real exchange rate is much more stable than those of the other countries, but it still has tended to rise. In Brazil appreciation gradually subsided be-
between 1992–93 but picked up again under the Real Plan.

An increase in capital inflows causes appreciation in the domestic currency. In other words, it increases the relative price of nontradable goods. Several studies have noted that capital inflows have the same effect on exchange rates as a mineral discovery or a permanent increase in the terms of trade (this phenomenon is sometimes called “Dutch-disease”) (Corden and Neary, 1982; Corden, 1984; Corbo and Hernandez, 1993). This occurs regardless of the exchange-rate regime (Calvo, Leiderman, and Reinhart, 1993; Corbo and Hernandez, 1993). With a fixed exchange-rate regime, the exchange-rate appreciation will occur through price increases and, if the country has a “clean” float, through appreciation of the nominal rate. The dollar price of tradable goods will not change in either case, because for small countries, it is given.

Argentina, which has had a truly fixed nominal exchange rate since 1991, has had no trouble adjusting to increasing capital inflows, because under this type of exchange-rate regime, the equilibrium exchange rate requires that the domestic price of nontradables increase. But if the rate of capital inflows slows, a more depreciated domestic currency would result. If the nominal exchange rate is fixed, deflation (not just a reduction in inflation) will occur. This deflation would result in substantial recession and unemployment, in particular if the labor market is rigid.

Exporters dislike appreciation of the domestic currency rate because it affects their ability to sell their goods in international markets, and they will lobby against competition from abroad. If they are successful, the government could reverse trade liberalization. But if the government maintains liberalized trade, these producers may postpone investment in the export sector because of their diminished international competitiveness.

Appreciation of the real exchange rate, however, could reduce the cost of investment goods for local business. In particular, to the extent that an economy cannot produce capital goods and must import them, appreciation will increase the benefit of importing high-technology goods. In this way, appreciation could benefit the export sector. This will be especially important as broad market reforms and trade liberalization take effect, because these reforms may increase the need for new investment.

The above general description of banking crises and capital flows leads to the purpose of this paper—to discuss in general the main causes of banking distress and crises and, in particular, the Mexican crisis and its aftershocks in Argentina.

First, we discuss the anatomy of recent episodes of financial distress and crisis. Most of the banking sector crises are preceded by a banking boom. The banking expansion goes hand-in-hand with financial liberalization, reduced rate of inflation, increased capital inflows, increased demand for money, and credit expansion. Then, financial distress occurs, caused by a combination of macroeconomic imbalances, changes in relative prices (including exchange rate appreciation and high real interest rates), poor enforcement of regulations, and a perverse asymmetry generated by the joint effect of fractional reserve requirements and deposit insurance.

Second, we discuss the traditional determinants of capital flows, emphasizing profitability (interest rates) and risk (interest-rate differentials). We claim that to understand long-term trends in capital flows, it is very important to scrutinize savings and investment functions, but to understand short-term swings, it is crucial to look at the balance of payments as a monetary phenomenon (Johnson, 1958).

Third, we provide background material describing the size, composition, and use of recent capital flows to Argentina, Chile, Brazil, and Mexico. We compare the size and structure of the current capital inflows to those of the late 1970s, assessing different financial indicators. In addition, we show that these financial indicators pointed to a substantial improvement in each country’s creditworthiness before the 1994–95 crisis.

Fourth, we discuss whether current account deficits are a curse or a blessing. Current account deficits allow a country to profit from investment
opportunities, but they also allow a country to spend on consumption beyond its means. Current account deficits have been blamed for the Mexican and other banking crises and are now in low regard. All the same, if there are surplus countries, there have to be deficit countries. Not all deficits are bad and some of them, in fact, might be quite good for long-term growth.

Fifth, we attempt to explain the Mexican crisis. We stylize three different hypotheses explaining the causes of the crisis as completely exogenous, completely endogenous, and hybrid. We conclude that “Mexico’s crisis can be summed up as the classic case of a pre-determined exchange rate that becomes unsustainable due to the expansion of domestic credit and the reduction in money demand.” The causes of the crisis were mainly endogenous, meaning that even though there were some exogenous shocks to Mexico, including political violence, domestic policy mainly caused the country’s economic breakdown.

Sixth, we discuss the aftershocks of the crisis and its impact on Argentina, which was greatly affected by the Mexican collapse. The Mexican fiasco triggered a full-fledged run on Argentina’s banking system, with deposits reduced by 18 percent and the money supply by 20 percent between January and May 1995. During that same year, real income in Argentina fell by 4.5 percent. We contrast the policy response of Argentina, which followed the rule of a currency board, with that of Mexico, which followed a discretionary policy.
ANATOMY OF BANKING
DISTRESS AND CRISSES

THE DESCRIPTION AND ANATOMY of recent world experiences with financial crises have been amply illustrated in the literature, by, among many others, Giorgio (1996), Gorton (1986), Kaminsky and Reinhart (1995), Meltzer (1995), and Rojas-Suarez and Weisbrod (1966). There is rough agreement about the stylized facts describing the path of economic variables before and during these crises, but there is less agreement about the weight given to those variables in determining causalities and the length and depth of these crises.

FINANCIAL BOOM: INCREASED DEMAND FOR MONEY AND CAPITAL INFLOWS

Before the crises we have generally observed a financial boom due to deregulation of the financial sector, opening of the capital account on the balance of payments, and macroeconomic stabilization.

These financial booms coincided with high income growth and an improved business environment, coupled with high real interest rates. The latter did not produce an immediate impact on banks' portfolios, because at their onset, they coincided with the expansionary phase of the business cycle. Business cycle expansion was propelled by promising expectations of stability, deregulation, and increased capital inflows, among other factors.

During these phases, an increased demand for money did not produce a recession, because it was fed from the open capital account or, to a lesser extent, from the central bank. This was particularly the case in exchange-rate-anchored stabilization plans in which money supply was demand-determined or endogenous, as in Chile (1979–81), Argentina (1991), and Mexico (1990–94). During these episodes, the capital account contributed greater capital inflows than desired by the excess demand for money (those inflows had an important exogenous component), resulting in current account deficits and a boom in expenditures.

Alternative plans, monetary based stabilization (MBS), anchored by the monetary base, often produced early recessions as a result of very high interest rates. Those rates were created by
central bank failure to feed enough money to satiate the initial increase in demand for money (Mundell, 1971). This occurred in Latin America except for Peru, which in 1991 launched and ambitious and successful stabilization plan anchored in the monetary base, coupled to a freely floating exchange rate, very tight fiscal policy, and vast structural reform.

It is noteworthy that Peru did not experience a recession, but in fact experienced the kind of boom usually associated with exchange-rate-based stabilization plans (ERBS). This anomaly might well be explained by the large share of this country’s money supply that was endogenous due to the large dollarization of the economy.

**Financial Bust: Reduced Demand for Money and Capital Outflows**

In many ERBS plans, the expansionary process comes to an abrupt end as a result of domestic policies that are inconsistent with the fixed exchange rate. The most common factor shaking confidence in specific countries has been a time-inconsistent fiscal-cum-exchange rate and monetary policy, as seen in Argentina during 1979–81 and 1985–86 and in Mexico during 1981–82 and 1994.

In Argentina during 1979–81, increased fiscal expenditures increased the stock of debt to unsustainable levels. By the end of 1989, Argentina’s domestic debt had again reached a ceiling, and the government again confiscated a large share of its citizens’ financial wealth. The other clear example of this phenomenon occurred in Mexico in 1994, when official development banks increased domestic credit to the private sector in a way that was inconsistent with the fixed exchange rate, finally causing the crisis.

In both the Argentine and Mexican crises 1994–95, there was a reversal of the exogenous component of capital inflows, which aggravated the crises, although it did not cause them. Ultimately, the sharp reduction in capital inflows reversed the expenditure boom to an expenditure bust, resulting in a deep recession and high unemployment.

**High Interest Rates Affect Bank Portfolios**

During the downturn, the deleterious effect of high interest rates could no longer remain hidden by the expansionary phase of the business cycle. High interest rates and changes in relative prices that occurred during the early phase of the stabilization plan affected the market value of the banks’ portfolios. The capital basis of banks was eroded and became negative for some of them, helping to trigger the crises.

High interest rates and increasingly appreciated domestic currencies have been found to precede many banking crises (Giorgio, 1996). Interest rates have been high for many reasons, including increased demand for money and credit to finance a expenditure boom; increased risk in credit operations; increased risk of devaluation, increased country risk, and sterilization of capital flows by the central bank.

In Chile’s crisis during 1981–82, its exchange-rate-based stabilization period coincided with an appreciating dollar and a fall in copper prices (de la Cuadra and Valdez, 1992). The interest rate had a floor determined by the Libor rate, which had been very high. When the price of copper plummeted, putting downward pressure on domestic prices, real interest rates skyrocketed affecting banks’ portfolio.

**Changes in Relative Prices**

Many recent crises in Latin American countries have been instigated by sharp changes in relative prices related to stabilization plans. The irony is that even good economic policies have been the source of banking problems due to their effect on relative prices. The banks’ pre-stabilization portfolios may have been profitable with a pre-stabilization set of relative prices, but through relative price changes, stabilization substantially reduced the real value of banks’ asset portfolios.
Furthermore, many stabilization plans, with their emphasis on deregulation and privatization, have often modified the government's role as a major contractor (mostly of infrastructure), rendering old government-related business unprofitable. Some firms adjusted and others perished, while bank portfolios suffered. This source of banking problems, for example, was particularly important in Bolivia during its 1994–95 banking distress.

**BREWING THE CRISIS:**
**FRACTIONAL RESERVE REQUIREMENTS AND DEPOSIT INSURANCE**

Banking crises in Latin America cannot be understood without comprehending the troublesome nature of fractional reserve requirements. Fractional reserve requirements imply an inverted pyramid, with a small reserve base supporting a large quantity of deposits and credit. In the early phase of the stabilization process, when there is expansion of that base, there is euphoria.

Fractional reserve requirements mean that small changes in the reserve base expand deposits and credit by many times. Conversely, a small reduction in the monetary base reduces credit and money supply many times.\(^{13}\)

Deposit insurance\(^{14}\) has been widely used to avoid the domino effect caused by both fractional reserve requirements and an increment in the cash-to-deposits ratio (a run on the banks). In the short run, deposit insurance became a crucial instrument in halting ongoing crises. In the long run, as explained below, it combined with some macroeconomic fundamentals to set the stage for a full-fledged crisis.

**THE PERVERSE ASYMMETRY**

In all of the banking crises, which affected very different countries and diverse banking systems, the common factor has been the important role of moral hazard and what we call the perverse asymmetry problem. Perverse asymmetry refers to the tendency of the public, because of fractional reserve requirements and deposit insurance, to disassociate the quality of a banking system's assets from its liabilities.

In the early phases of stabilization, high interest rates attract more depositors who, due to the moral hazard introduced by deposit insurance, believe that their funds are insulated from the market value of bank assets. Later, in the contractionary phase of the cycle, deposits continue to increase independent of the banks' economic situation.

Consequently, the constant dollar value of the liability side of the banking system increases. By contrast, during the subsequent downturn, bank portfolios deteriorate due to high real rates of interest or changes in relative prices (mainly in the exchange rate). This in turn affects the market value of the bank's assets. Consequently, to repay interest (and some principal) to its old depositors, banks have to rely on new depositors. In this game, interest rates continue to go up, weakening banks' asset portfolios.
DETERMINANTS OF CAPITAL FLOWS

THERE ARE THREE EX-POST ACCOUNTING identities that shed light on capital flows by focusing on their ex-ante determinants: the investment-savings gap, the expenditure-income gap, and the money supply-money demand gap. The investment-savings gap emphasizes the investment-savings functions and is an useful approach for long-term prediction of capital flows: We know that if a country has a low savings rate and high investment opportunities, it probably has a relatively high interest rate and would finance part of its investment with a deficit in its current account. The expenditure-income or absorption approach emphasizes the determinant of production and expenditures, and the monetary approach emphasizes the excess ex-ante flow demand (or supply) for money. The monetary approach provides the most useful model for analyzing the kind of shock experienced by Mexican international reserves since October 1994, which ultimately caused the nation's banking and exchange-rate crisis.

INCREMENT IN INTERNATIONAL INTEREST RATES: UNLIKELY CAUSE FOR THE MEXICAN CRISIS

Several studies have found that the main determinant of capital flows are interest-rate differentials (Dooley, Fernandez-Arias, and Kletzer, 1994; Fernandez-Arias, 1994; Calvo, Leiderman, and Reinhart, 1992 and 1993). These studies claimed that in the 1990s, capital flowed to Latin America because interest rates dropped in the United States and other industrial countries,
while returns remained high in Latin American countries. Thus, they hypothesize that if interest rates in industrial counties rise again, capital will flow out of Latin America. These studies stated that there was room for a significant rise in interest rates that would sharply reverse capital flows and cause great hardship in the region.

Chart 1 shows the annual Libor percentage rate. During 1994 there were indeed increments in the Libor rate, but notice the difference between this situation and that of the late '70s. The problem did not originate in higher international rates, but in low domestic rates due to both a policy of sterilizing some initial capital outflows and expanding domestic credit in the context of the reduced demand for money.

Long-term real interest-rate differentials respond to and are formulated by long-term structural forces that are determined by the marginal propensities to save and to invest. Economists generally accept, for example, that the main determinant of the difference in the ex-ante interest-rate differentials and current account flows between Japan and the United States has been the difference in these countries’ savings rates. In the short term, however, sharp changes in interest-rate differentials can also arise due to mistakes in monetary policy.

An important structural feature underlies Latin America’s capital flows: its low savings ratio, coupled with its higher investment ratio. Relatively large gross savings from Japan and the United States have been an important determinant of capital flows to Latin America. Had the region had a savings ratio similar to Japan’s, it would not have received net capital inflows.

In the short run, however, the Mexican crisis has highlighted dramatically the importance of the domestic policy underlying the volatility of capital flows. In the Mexican case, the problem was the inconsistency of a fixed exchange rate with expansive, non-passive monetary and credit policy.

Argentina between 1979 and 1981 provides another historical example of the importance of domestic policy. Its combination of tight domestic credit, loose fiscal expenditures, and fixed (pre-determined) exchange rates led to very high interest rates, luring large amounts of hot capital. A small, higher-than-scheduled devaluation in February 1981 acted as a warning signal that triggered the outward stampede of capital, thus causing the collapse of the nation’s economic strategy. That poorly managed devaluation resembles the one that triggered the recent Mexican debacle.

A final example is Chile during 1982–83, when a sharp deceleration in capital inflows to that country caused an extremely severe crisis. This deceleration was not due to an increment in international interest rates; in fact, interest rates in the United States collapsed after 1981. Within the context of a pegged exchange rate, Chile had increased domestic credit to the private sector by 50 percent in 1980 and again by 50 percent in 1981. As in Argentina during 1981 and in Mexico during 1994, the Chilean crisis was mainly due to endogenous forces, namely, very large increases in domestic credit, coupled with a pegged exchange rate and significant appreciation of the domestic currency.
RECENT FOREIGN INVESTMENT in Latin America has had a contractual nature very different from that of the late 1970s. A large share of recent capital inflows has taken the form of non-debt portfolio investment and direct investment. Gradual increment in international interest rates would probably have caused a deceleration of capital inflows to Latin America, but this phenomenon did not cause the Mexican stampede.

It is relevant to note that, from the middle '80s through the early '90s, Argentina, Chile, and Mexico faced an improved financial situation with regard to short-term debt (Table 1). Between 1982 and 1994, debt-to-GNP and debt-to-export ratios declined in all these countries. Argentina experienced the greatest improvement; its ratio of short-term debt-to-GNP fell from 21 percent in 1982 to only 3 percent in 1994.

The following tables present some traditional indicators of the relative burden of external debt:

Ratios of total debt and debt service to GNP also improved for all four countries (Table 2). Argentina's debt to GNP ratio fell by almost

| Table 1 |
|-------------------|---------------------|------------------|-------------------|
| **Ratio of Short-Term Debt Outstanding to GNP and to Export for Selected Latin American Countries, 1982 and 1994** |                     |                   |                   |
| **Ratio to GNP**  | **1982**           | **1994**         | **1982**          | **1994**         |
| Argentina         | 0.21               | 0.03             | 1.70              | 0.34             |
| Brazil            | 0.07               | 0.06             | 0.75              | 0.63             |
| Chile             | 0.15               | 0.10             | 0.65              | 0.33             |
| Mexico            | 0.16               | 0.09             | 0.95              | 0.56             |

half between 1982 and 1994, and its debt service ratio fell by two-thirds. Chile and Mexico experienced similar improvements in these ratios. Brazil had modest improvement in its debt ratio but, like the other countries, it also experienced significant improvement in its debt service ratio.

The preceding tables show that, until 1994, most financial indicators made it unlikely to foresee the scope and depth of the recent Mexican crisis. The crisis showed, however, that Mexico's strengthened financial status was no guarantee against collapse. The lesson is that it takes a long time to build up economic and financial strength, but it takes very little time to throw it overboard, which is as true for individuals as it is for countries.

In 1994, therefore, three events brought to life a scenario that most people had previously believed to be very unlikely: a sharp increment in Mexican domestic credit, an important reduction in money demand, and a drying up of international reserves. The consequence was a banking and economic crisis with massive devaluation.

In the '90s long-term capital flows in Latin America increased relative to short-term flows. Nevertheless, one lesson from the Mexican crisis is that capital flows usually classified as long term can be just as hot as short-term flows. As long as there are secondary markets providing liquidity, the classification of long- and short-term is not very useful. The most important classification, with regard to the stability of flows, is the ratio of foreign direct investment to total flows.

Just as in the late 1970s, Latin American countries in the 1990s had been experiencing surpluses in the capital account of the balance of payments. But the size and the composition of the 1990s flows were different from the earlier ones. The most important change has been in the contractual nature of the flows; by the 1990s debt flows had declined relative to portfolio and foreign direct investment.

---

Table 2
Ratio of Total Debt and Debt Service paid and (due) to GNP for Selected Latin American Countries 1982 and 1994

<table>
<thead>
<tr>
<th></th>
<th>1982 Debt</th>
<th>1994 Debt</th>
<th>1982 Debt Service Paid and (Due)</th>
<th>1994 Debt Service Paid and (Due)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>0.55</td>
<td>0.28</td>
<td>0.06 (0.02)</td>
<td>0.02 (0.02)</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.35</td>
<td>0.28</td>
<td>0.07 (0.04)</td>
<td>0.03 (0.04)</td>
</tr>
<tr>
<td>Chile</td>
<td>0.76</td>
<td>0.46</td>
<td>0.15 (0.08)</td>
<td>0.08 (0.05)</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.53</td>
<td>0.36</td>
<td>0.10 (0.05)</td>
<td>0.05 (0.05)</td>
</tr>
</tbody>
</table>


Table 3
Selected Debt and Financial Indicators for Selected Latin America Countries 1981 and 1994

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>29.1</td>
<td>19.6</td>
<td>38.5</td>
<td>12.9</td>
<td>31.6</td>
<td>8.0</td>
<td>36.2</td>
<td>14.2</td>
</tr>
<tr>
<td>Brazil</td>
<td>4.5</td>
<td>1.5</td>
<td>4.1</td>
<td>1.2</td>
<td>5.7</td>
<td>2.4</td>
<td>4.1</td>
<td>2.2</td>
</tr>
<tr>
<td>Chile</td>
<td>6.5</td>
<td>5.8</td>
<td>2.9</td>
<td>7.1</td>
<td>12.5</td>
<td>27.4</td>
<td>2.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Mexico</td>
<td>3.6</td>
<td>51.0</td>
<td>2.3</td>
<td>70.7</td>
<td>4.6</td>
<td>87.1</td>
<td>1.4</td>
<td>7.5</td>
</tr>
<tr>
<td>Short-term Debt</td>
<td>36.2</td>
<td>6.1</td>
<td>19.0</td>
<td>21.0</td>
<td>19.1</td>
<td>21.9</td>
<td>32.0</td>
<td>24.6</td>
</tr>
<tr>
<td>Average Interest</td>
<td>11.9</td>
<td>7.8</td>
<td>15.0</td>
<td>8.0</td>
<td>15.0</td>
<td>7.5</td>
<td>15.0</td>
<td>5.7</td>
</tr>
<tr>
<td>Average Maturity</td>
<td>13.8</td>
<td>2.3</td>
<td>10.0</td>
<td>8.5</td>
<td>10.6</td>
<td>3.4</td>
<td>9.2</td>
<td>7.5</td>
</tr>
</tbody>
</table>
During 1995 the rate of capital inflows to the region was substantially reduced. Although the inflows did not change to outright capital outflows, they grew at a much slower pace. It is noteworthy that much of the reserve loss experienced by the Mexican Central Bank did not reflect reserve losses of the Mexican citizens. During the recent crisis, millions of small national investors switched their portfolios, substituting dollars for pesos. Rather, the loss to Mexican citizens will come at the increment of their future tax liabilities.

Table 4
Debt and Nondebt flows to Selected Latin American Countries, 1975-93
(average ratios to GNP)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>0.037</td>
<td>0.013</td>
<td>0.014</td>
<td>0.004</td>
<td>0.006</td>
<td>0.022</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.035</td>
<td>0.012</td>
<td>0.006</td>
<td>0.010</td>
<td>0.011</td>
<td>0.007</td>
</tr>
<tr>
<td>Chile</td>
<td>0.053</td>
<td>0.066</td>
<td>0.027</td>
<td>0.008</td>
<td>0.010</td>
<td>0.026</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.044</td>
<td>0.017</td>
<td>0.032</td>
<td>0.009</td>
<td>0.011</td>
<td>0.034</td>
</tr>
</tbody>
</table>

Size of the Flows

We express capital flows as a ratio to GNP to highlight their relative importance. While Brazil, Chile, and Mexico have received larger capital inflows in the 1990–94 episode than in the 1975–81 episode, the flows, when expressed as a ratio to GNP, are only about half those received by Chile in the first episode (see Table 4).

In the first episode, the inflows to Mexico peaked in 1981 at 7 percent of GNP. Between 1983–85, the country accumulated capital outflows equivalent to 4.2 percent of GNP. Since then, Mexico recovered spectacularly; its capital flows became positive again in 1989, and its capital inflows exceeded 8 percent of GNP in 1991, 1992, and 1993. During 1995 capital flows were dramatically reduced.

For Argentina and Chile, the inflows as a ratio to GNP recently reached their highest levels since the 1975–81 episode, but remained well below the peaks in that episode. In Argentina, the flows peaked in 1979, reaching 7 percent of GNP. They then fluctuated annually between 2 and 3 percent of GNP, finally becoming outflows in 1989 and 1990. In 1991, however, Argentina again became a net recipient of capital flows. In 1992 and 1993, inflows were above 4 percent of GNP, roughly half the level of inflows received in 1979.

In Chile, inflows peaked in 1981, when they reached a formidable 15 percent of GNP. But in 1982, the flows dropped to only 5 percent of GDP, triggering a serious crisis. In 1992 and 1993, flows to this country were above 6 percent.

Finally, for Brazil the new inflows have reversed the downward trend of the 1980s, but they remain moderate relative to GNP compared with those of the other countries in the sample and with Brazil's earlier experience. In Brazil, inflows peaked in 1974 at 6 percent of GNP and stayed above 3 percent until 1985. The flows then fluctuated around zero until 1991, before finally climbing to about 2 percent of GNP in 1992 and 1993.

Composition of the Flows

The composition of the flows to Latin America has changed drastically since the late 1970s and early 1980s when medium- and long-term commercial bank loans predominated. The emphasis has shifted from debt flows to nondebt flows, and in Argentina and Brazil, nondebt capital now accounts for a larger share of capital inflows than does debt (see Table 4). Much of the capital has been allocated to portfolio investment and direct investment—foreign investors have become partners. And most important, a large share of the inflows has been directed to the private sector rather than to the government.

Nondebt flows in Argentina reached about 1 percent of GNP in 1980 and 1981, and then fluctuated throughout much of the decade. But
in 1988 they began a fairly steady upward climb, reaching 1.5 percent of GNP in 1989 and continuing to increase. In Chile nondebt flows rose to about 1.8 percent of GNP in 1982. Although these flows then dropped below 1 percent in some years during the debt crisis, they have since recovered, rising above 2 percent of GNP in the 1990s. The most impressive growth in nondebt flows occurred in Mexico, where such flows increased from about 1 percent of GNP in 1980–82 to more than 3 percent of GNP in 1992–93. The exception to this trend of expanding nondebt flows has been Brazil, which has exhibited a downward trend in these flows as a share of GNP.

Equity financing has been aided by the creation of depository receipts which permit trading in securities not listed on local stock exchanges. These receipts, which take two forms—American depository receipts (ADRs) and global depository receipts (GDRs)—represent claims on, for example, Latin American securities and can be traded in the United States and Europe. This mechanism has expanded the investor base for developing country securities. In the United States institutional investors are permitted to hold ADRs because they are considered U.S. securities (Chuhan, Claessens, and Maningi 1993; El-Erian 1992; World Bank 1994).

Although it remains small, foreign direct investment has increased in Latin America. It has grown in part because these countries have been friendlier in recent years toward foreign investors and because foreign investors have confidence in the steps that all these countries have taken since the first debt crisis in 1982. As part of those policies, Brady-type debt restructuring deals have helped to boost country creditworthiness in Latin America.

Capital inflows allow the recipient country to increase expenditures in domestic and foreign markets for goods, services, and assets. In terms of the balance of payments, this means that capital inflows enable the economy to run a deficit in its current account (a surplus in its capital account), spending more than it currently earns.

During the two episodes of large capital inflows in the past twenty years, Argentina, Brazil, Chile, and Mexico already were running deficits in their current accounts; the capital inflows allowed these economies to finance larger deficits, that is, to use more resources from abroad.

When explaining the current account as a gap between expenditures and income, it is important to know if that gap is due to a fall in permanent or transitory income. In the case of a transitory gap, foreign resources could be used to smooth consumption over time following a temporary adverse shock to production. For example, faced with a natural disaster, a country might lower its savings to smooth consumption and use resources from abroad to maintain investment at an optimal level, generating a deficit in the current account.

For Latin American economies, the possibilities for smoothing consumption are limited because their creditworthiness deteriorates when they are hit by a large shock (Mathieson and Rojas-Suarez, 1992; Gertler and Rose, 1991). Moreover, historically, most countries have borrowed more when their economies have been strong than when they have suffered a shock (Calvo, Leiderman, and Reinhart, 1992).

The decision by governments to run current account deficits to smooth the effects of negative shocks deemed temporary could be bad if those shocks turn out to be more permanent. In a classic example of a government failure (as opposed to a market failure), Brazil, in response to the oil shocks of the 1970s, followed a two-pronged but inconsistent strategy. First, it initiated a costly substitution of alcohol-based fuel for oil, a measure consistent with a perception that the oil shock was permanent. Second, it borrowed vast foreign resources, running large current account deficits.

This strategy of borrowing was consistent with a perception that the oil shock was temporary. Eventually oil prices fell by roughly half, but they never returned to their original levels. The government's strategy of using alcohol substitution as a long-run solution and huge debt as a
short-run palliative proved ill-fated. It financed rapid growth during the late 1970s and early 1980s, but this artificial growth later collapsed.

Argentina, Brazil, Chile, and Mexico have used their economic capacities to draw on foreign resources for different objectives. These objectives are revealed in the trends in investment and gross national savings for each country; the gap between these trends is reflected in each country’s current account balance. In the 1990–94 episode of capital flows, none of these countries used its capacity to borrow foreign resources to smooth the effects of a shock. Rather, their borrowing stemmed from improved investment opportunities, coupled with the low savings ratio and relatively high interest rates.

From the perspective of the investment-savings gap, until 1982 Mexico borrowed abroad to finance increased investment. This foreign-financed rate of investment proved unsustainable, however, and the rate declined until 1990. During 1990–94 investment increased, but savings continued to decline. Thus, Mexico used foreign real resources to dampen the effect of reduced savings on investment. This situation deteriorated when Mexico used its own stock of reserves to finance domestic expenditures.

Between 1976–81 Chile also substituted foreign for domestic savings at an increasing rate, to sustain investment and to increase consumption. This episode ended in severe crisis, due not only to the savings-investment gap, but also to other factors like its credit policy.

Argentina has shown an important decline in its savings ratio between 1978 and 93. Its savings have begun to pick up during the past three years, but it is too early to detect a change in the trend. Argentina’s savings-investment gap is, nevertheless, far smaller than Chile’s was in the period around 1980 and also smaller than Mexico’s in the recent crisis.
CURRENT ACCOUNT DEFICITS are many times discussed either as a curse or a blessing: In fact, they are neither. Both curses and blessings are God-given, exogenous, and this is not the case for current account balances.

When a country runs a current account deficit, its foreign sector is usually described as weak, and, when the current account deficit increases, as deteriorating. The implication is that current account deficits are bad and current account surpluses good, which is a mercantilist anachronism.

An increase in the current account deficit can be good or bad depending on the source of change. For example, a U.S.$1 billion increase in the current account deficit could be due to investment falling by U.S.$200 million and savings falling by U.S.$1.2 billion, or it could be due to investment increasing by U.S.$1.2 billion, and savings by U.S.$200 million. The source of financing of the current account is also important. As is clearly shown by the recent Mexican experience, a current account deficit (a flow) financed with a given stock of international reserves is unsustainable.

Tables 5 and 6 show the sources of change in the current accounts of the four countries for three periods, 1975–81 (the high-debt years before the 1982 crisis), 1982–89 (the post-crisis years), and 1990–93 (the recovery years before the Mexican crash). The same information is presented in both tables, but arranged in different ways to make comparisons easier.

Notice that Mexico is the only country in 1990–93 showing both a negative change in national savings and a positive change in investment. This resulted in a large negative change in its current account.

Argentina’s current account appeared to have deteriorated in both 1975–81 and 1990–93 and improved in 1982–89. But when we look at the source of the changes, we realize that this interpretation is wrong. In the high-debt period of 1975–81, the savings ratio decreased an aver-
Table 5
Average of Changes in the Current Account Balance, National Savings, and Domestic Investment in Selected Latin American Countries, by period, 1975-93
(as a percentage of GNP)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>-0.89</td>
<td>-0.57</td>
<td>0.21</td>
<td>-0.54</td>
<td>-0.34</td>
<td>-0.88</td>
<td>-0.30</td>
<td>0.70</td>
<td>1.00</td>
<td>-0.88</td>
<td>-0.30</td>
<td>0.70</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.37</td>
<td>-0.41</td>
<td>-0.79</td>
<td>-0.60</td>
<td>-0.19</td>
<td>-0.79</td>
<td>0.47</td>
<td>-0.27</td>
<td>-0.73</td>
<td>-0.41</td>
<td>-0.27</td>
<td>-0.73</td>
</tr>
<tr>
<td>Chile</td>
<td>-1.77</td>
<td>-1.41</td>
<td>0.06</td>
<td>1.68</td>
<td>2.95</td>
<td>1.28</td>
<td>-0.82</td>
<td>-0.58</td>
<td>-0.05</td>
<td>-1.71</td>
<td>-0.58</td>
<td>-0.05</td>
</tr>
<tr>
<td>Mexico</td>
<td>-0.41</td>
<td>0.51</td>
<td>0.92</td>
<td>0.59</td>
<td>-1.14</td>
<td>-1.73</td>
<td>-1.25</td>
<td>-0.33</td>
<td>0.93</td>
<td>-1.73</td>
<td>-0.33</td>
<td>0.93</td>
</tr>
</tbody>
</table>

Note: dCA is change in current account balance; dSV is change in national savings; and dINV is change in domestic investment.
Source: World Bank

The Sustainability of Current Account Deficits

There is a lack of general agreement on the significance of current account deficits. Some authors, for example Edwards (1995) maintain that the main cause behind the Mexican peso crisis was an unsustainable current account deficit that, starting in 1992, was financed by very large capital inflows. In this vein, capital flows are the cause of the problem, not the effect.

Although it is seldom expressed, there is a very important distinction to be made regarding the source of current account deficits that bears on their sustainability. Current account deficits can be fed by two sources: capital inflows and a reduction in the stock of the country’s international reserves. A current account deficit or flow that is financed by a given stock of international reserves is unsustainable because the stock is being depleted. (When the reasons for the depletion are deemed temporary, the International Monetary Fund and/or the World Bank come to

Table 6
Average Change in Current Account Balance, National Savings, and Domestic Investment in Selected Latin American Countries, by Course of Change, 1975-93
(as a percentage of GNP)

<table>
<thead>
<tr>
<th>Country</th>
<th>Change in current account balance (dCA)</th>
<th>Change in national savings (dSV)</th>
<th>Change in domestic investment (dINV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>-0.89</td>
<td>0.54</td>
<td>-0.30</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.37</td>
<td>0.60</td>
<td>0.47</td>
</tr>
<tr>
<td>Chile</td>
<td>-1.77</td>
<td>1.98</td>
<td>-0.53</td>
</tr>
<tr>
<td>Mexico</td>
<td>-0.41</td>
<td>0.59</td>
<td>-1.25</td>
</tr>
</tbody>
</table>

Source: World Bank
the rescue.) In the case of Mexico, an increasingly large share of its current account deficit became financed with its reserves and, hence, became unsustainable.

A current account deficit can be permanent (the U.S. has had a deficit for many years and so have Malaysia and Thailand), unless there is a perception by foreign investors that increment in domestic credit or money supply is pushing the deficit to unsustainable levels and that a devaluation is imminent, as in the recent case of Mexico. Capital inflows are a function of profit, risk, and the underlying savings-investment relationships. If these relationships are stable, there is no risk of stampedes. In the case of Mexico, the risk increased both because of the large increment in domestic credit and the real exchange-rate appreciation.
"NO ONE PREDICTED the sheer size of the debacle in Mexican financial markets. A peso at 4.2 to 4.5 was conceivable; but the peso below 7—even if only for a day or so—was beyond anyone's expectations. And although most people foresaw that the prices of financial assets were heading for a fall or a 'correction,' no one believed that they would plummet. They did."

(Sir Alan Walters, AIG World Markets, April 1995)

THE EXOGENEITY HYPOTHESIS

Under this hypothesis, the main causes of the crisis were political events, especially violent ones, and investors' herd instincts, coupled with rising U.S. interest rates. The political events began with the Zapatista revolt of January 1994 and exploded with the Zapatista resurgence at the end of December 1994. During this period the government and the Zapatistas held peace talks; nevertheless, there were other political upheavals, including the assassinations of a presidential candidate and other important public figures. This unrest had an important impact, touching off the speculative attack against the peso and the ensuing crisis.

The governor of the Central Bank of Mexico, Miguel Mancera, has articulated this exogeneity hypothesis (Wall Street Journal, January 31, 1995). According to Mancera, in 1994 the Central Bank followed a monetary policy that changed domestic credit each time there was a change in the international reserves, which altered with each event of political violence. Accordingly, all changes in the balance of payments were due to exogenous political events, and the Central Bank only reacted to these changes.

The part of this hypothesis outlining the herd instincts of investors was articulated by Mexican Foreign Minister Jose Angel Gurria. In his words, the market could not be taken seriously because the "market" was nothing more than fifteen guys in tennis shoes in their 20s (Wall Street Journal, January 20, 1995). Capital flows were very large and, by nature, speculative.
Suddenly the interest rate differential was not enough to counter the perceived increased risk from the worrisome Zapatista uprising. One large institutional investor withdrew; the herd instinct prevailed, and others followed.

THE ENDOGENEITY HYPOTHESIS

The endogeneity hypothesis is as follows: By the second half of 1994, domestic credit, especially credit granted by official development banks, increased dramatically. An excess supply of money caused a loss of reserves and a higher deficit in the current account. The endogenous explanation’s paradigm is the monetary approach to the balance of payments. Changes in international reserves are explained by changes in the demand for money and changes in domestic credit. In Mexico political violence did affect the demand for money, but more important, official development banks increased domestic credit to finance the private sector. Ultimately, changes in domestic credit caused changes in international reserves.

WHICH IS THE BEST HYPOTHESIS?

Clearly, the exogenous explanation is not convincing. By September 1994 the monetary base was 23 percent higher than in September 1993, and the credit of development banks had risen 32 percent. At the same time, the income velocity of circulation of money was increasing.

From February through August 1994, the ratio of international reserves-to-base money declined steadily, but the reserves were still larger than the base. After September 1994, the same ratio nose-dived, while the ratio of short-term debt to total debt climbed.

The significant increment in domestic credit caused the reserve losses that ultimately doomed the stabilization effort, but even assuming that political violence and herd instincts were also important factors, the fact is that in each episode of political violence and flight away from domestic money, the Central Bank did not allow the monetary base to contract.

During 1994 the Central Bank increased domestic credit every time an episode of political violence reduced international reserves, and this voided the automatic, passive mechanism that should be implicit in a sustainable pegged exchange-rate regime. The Central Bank precluded any automatic adjustment by trying to sterilize reduction in reserves induced by increases in the income velocity of money. The Central Bank focused on holding interest rates down in order not to affect commercial banks’ portfolios and economic activity. Economic theory proved right, and the Central Bank could not control both the rate of interest and the nominal exchange rate.

The next chart shows the log of domestic credit. Domestic credit increased by 27 percent from 1993-III through 1994-III, while the exchange rate increased by 9 percent during this same period. During the last two quarters of 1994, the level of domestic credit was growing at an increasing rate, with a 31 percent annual rate increase for the period between August 1 and November 30. This huge increment in domestic credit was taking place in a context of both a pegged exchange rate (the nominal rate was on the upper bound of the band) and a reduced demand for money. This huge disequilibrium could only be sustained for a short time, as long as international reserves did not reach a critical point. By December 1994, it had exploded.

Chart 2
Mexico: Domestic Credit

![Chart 2](image-url)
To sum up, Mexico’s crisis can be explained as the classic case of a pegged exchange rate that becomes unsustainable due to an expansion of domestic credit and a reduction in money demand. The large current account deficit was only a symptom of these underlying problems. In this endogenous scenario, the crisis was triggered by the market’s sudden perception that a devaluation was imminent.
AFTERSHOCKS OF THE MEXICAN CRISIS: ITS IMPACT ON ARGENTINA

THE MEXICAN CRISIS produced an economic shock in Mexico and aftershocks in Argentina, Brazil, and other major Latin American countries. During 1995 real income in Argentina fell 4.5 percent. Between December 20, 1994, and March 1995, both the Argentine and Brazilian stock exchange indexes lost approximately 40 percent, and Argentina faced a banking crisis. However, different countries showed different levels of resilience to the economic aftershocks.

The 1995 aftershocks of the Mexican crisis included:

1. Reduced rate of capital inflows
2. Higher domestic interest rates
3. Lower demand for money and need for tighter fiscal policy
4. Reduced growth
5. A more fragile financial system

Economists disagree as to the causes of the crisis, and consequently, about capital controls. Those economists who view the crisis as mostly due to exogenous factors would advise capital controls. Economists who believe mostly in endogenous causes will emphasize domestic policies.

If the exogenous explanation of the crisis takes hold, we would expect pressures for capital-flow controls. We would also expect pressures for higher trade barriers and subsidies and a general backslide of many structural reforms.

The Mexican pegged exchange-rate regime was totally different from the Argentine currency board arrangement. For example, in 1994 Mexico prevented the automatic adjustment mechanism that would have been consistent with a fixed exchange rate by increasing the monetary base when the peso was under pressure.

The outstanding feature of a currency board is its automatic adjustment rule, which is the opposite of the discretion exercised by central bankers regarding sterilization and other monetary control mechanisms. Most importantly, a
currency board imposes a hard budget constraint on the treasury. Under this system, the treasury can finance its deficit only with debt, either domestic or foreign, but it cannot finance its deficit with an inflation tax. Also, the system's basis in rules allows it to withstand the kinds of pressures that central banks cannot. Independent central banks are not the answer.17

Argentina was greatly affected by the Mexican crisis. The main reason was the general perception, mostly outside Argentina, that the Argentine peso was grossly overvalued, and most important, that the nation's fiscal situation had been deteriorating. It seemed that the time of reckoning for Argentina had arrived. Investors not wanting to be caught in an exchange-rate crisis began moving capital out of the country.

Markets have good memory, and since both Argentina and Brazil had confiscated financial wealth, the fiscal accounts became a crucial variable for investors to gauge. The “tequila effect” hurt Argentina, not only because its currency had appreciated considerably since 1991, but also because its fiscal accounts had deteriorated substantially since the second quarter of 1994.18

The next table shows the Argentine pre-crisis fiscal panorama.

The reaction of Argentina was an attempt to improve its fiscal stance; total revenues increased from a 1994 average of $14.88 billion in the third and fourth quarter to a 1995 average of $17.16 billion, while total expenditures were kept at the same quarterly average level during 1995 of $14.86 billion.

Furthermore, Argentina’s government steadfastly maintained the currency board, basically played by its rules (accepting that money is endogenous and there was little room for increasing domestic credit), and weathered a sharp recession. After one year, the banking system had recovered all its pre-crisis deposits.

The sharp reduction in capital inflows—and the fear that the government would repeat the 1991 forced swap of government bonds for time deposits—caused both a run away from banks in search of cash and a run on the peso in search of dollars. The former is an increase in the desired cash-to-deposit ratio, the latter an increase in desired velocity. Each of these events has a different effect. A sharp increase in the cash-to-deposit ratio causes bank failures and an exogenous reduction in the money supply. By contrast, an increase in desired velocity of circulation means decreases the money demand.

The golden rule of a currency board is that the ex-post money supply is completely endogenous (or demand-driven). In other words, an excess demand for, or excess supply of, money is automatically accommodated by changes in the nominal money supply.19 There could be several sources of ex-ante exogenous changes in the money supply; which are not associated with changes in the demand for money.

For example, let's assume that the World Bank provides Argentina with the resources to finance its fiscal deficit. In this case, the Argen-

<table>
<thead>
<tr>
<th>Quarter</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Revenues</td>
<td>12.50</td>
<td>12.87</td>
<td>12.25</td>
<td>12.55</td>
</tr>
<tr>
<td>Current Expenditures</td>
<td>11.23</td>
<td>11.27</td>
<td>11.18</td>
<td>12.82</td>
</tr>
<tr>
<td>Surplus</td>
<td>1.27</td>
<td>1.60</td>
<td>0.6</td>
<td>-0.25</td>
</tr>
<tr>
<td>Total Revenues</td>
<td>13.77</td>
<td>15.57</td>
<td>13.45</td>
<td><em>5.1</em></td>
</tr>
<tr>
<td>Total Expenditures</td>
<td>13.15</td>
<td>13.49</td>
<td>12.68</td>
<td><em>5.04</em></td>
</tr>
<tr>
<td>Total Surplus</td>
<td>0.72</td>
<td>2.10</td>
<td>-0.03</td>
<td>-0.07</td>
</tr>
<tr>
<td>Total XP Surplus</td>
<td>0.70</td>
<td>1.63</td>
<td>-0.03</td>
<td>-0.17</td>
</tr>
</tbody>
</table>

In billion of pesos

XP Surplus does not include privatization proceeds

Source: Boletin Oficial, Secretaria de Hacienda
tine treasury deposits those dollars in the central bank in exchange for pesos. The treasury, when spending those pesos, creates an exogenous excess supply of money. The market adjusts this disequilibrium through a current account deficit—and through inflation if the inflow of foreign capital is not a one-time event.20

Another example of an exogenous change in money supply is changes in the cash-to-deposit ratio. The increase in the cash-to-deposit ratio in Argentina, for 1994-V through 1995-I caused both a liquidity squeeze on the banking system and a reduction in the money supply. This type of reduction in the money supply is in fact exogenous (driven by changes in the multiplier of the monetary base). The only way that a change in the cash-to-deposit ratio would have no exogenous effect on money supply would be in a banking system with 100 percent reserves, and this was not the case in Argentina. A currency board regime coupled with a banking system that has fractional reserve requirements and very limited deposit insurance has little defense against a liquidity crisis because there is no lender of last resort.

The main reason for the Argentine banking problems were a shift away from money (reduction in money demand) and a reshuffling of bank portfolios toward cash and away from deposits. The next graph shows both features—the fall in total deposits and the increment in the cash-to-deposit ratio.

Notice the impressive growth in total deposits. From January 1992 through November 1994, total deposits in the banking system increased by 200 percent. The crisis, which began in December, had by March 1995 reduced deposits by about 13 percent. Furthermore, the cash-to-deposit ratio had increased by about 50 percent. Both events created great distress in the financial community and posed a threat to the payment system.

Despite its benefits, the currency board framework does not have a lender-of-last-resort mechanism. For example, during the existence of currency boards in colonial Africa, banks were foreign-owned and, if necessary, they had a lender of last resort in the major financial centers. One way to prevent liquidity crises is to implement a narrow banking system whereby banks have 100 percent reserves against demand deposits. All other deposits are really “certificates of participation” (similar to mutual funds), and the investors do not have an ex-ante fixed return bearing the risk of the banks’ investments. This, in fact, was the thrust of the Friedman-Simons proposal to avoid banking crises in the U.S.

Chart 4 shows the important shifts in portfolio composition in Argentina between 1992 and 1996. From January 1993 until October 1994 there is a gradual substitution of peso deposits in favor of dollar deposits. After November there is indeed a run against peso deposits both relative to dollar deposits and to cash. Given the fear of devaluation, the substitution against peso deposits made the banks potentially weaker because of the peso-to-dollar structure of their deposits.

Chart 4
Argentina: Portfolio Substitution

![Chart 3](Source: Carta Economica)  ![Chart 4](Source: Carta Economica)
assets. This structure was rigid in the short run.

The next chart shows the real quantity of money and the ratio of liquid money to total money. It shows that the Argentine banking system has been hit by both a moderate shrinking of intermediation resources and a liquidity crunch.

Chart 5  
Argentina: Stock of Money in Dollars and Ratio M1 to M3

![Chart Image]

Notice the sharp increment in the liquidity ratio during the first quarter of 1995. This increment is much higher than the expected seasonalities observed before. Also, notice that the liquidity shift coincides with a significant fall in the real quantity of money.

Responding to the dramatic increase in the desired cash-to-deposit ratio, the Argentine Central Bank opened a limited rediscount facility. Some interpreted the bank’s move as abandoning the core elements of its currency board, which it in fact did not do. If the rediscount window is used only to offset exogenous changes in money supply due to changes in the money multiplier, there will be no violation of the golden rule of currency boards. This golden rule, as stated above, makes changes in the monetary base an exact reflection of changes in the income velocity of money. This behavior ensures a new stable equilibrium due to its effect on interest rates.

During the 1995 banking crisis the Argentine Central Bank seems to have followed Walter Bagehot’s advice, albeit belatedly and unwittingly. Under the 1844 Act currency issue in England was subject to 100 percent gold reserves, so that the Bank of England could not always satisfy the demand for Bank of England notes during a crisis unless the government suspended convertibility. Bagehot’s advice to the Bank of England in 1873 has been summarized by Meltzer (1994) as follows:

1. The central bank is the only lender of last resort in the monetary system.
2. To prevent illiquid banks from closing, the central bank should lend on any collateral that is marketable in the ordinary course of business. It should not restrict lending to paper eligible for discount at the central bank in normal periods.
3. Central bank loans, or advances, should be made on demand at a rate of interest above the market rate. This discourages borrowing by those who can obtain accommodation in the market.
4. The above three principles of central bank behavior should be stated in advance and followed in a crisis.

Under its convertibility law, Argentina could only increase the monetary base if backed by U.S. dollars and a small share of dollar-denominated debt. In February 1995 the government changed that rule, allowing the Central Bank to open a rediscount window.21 Bagehot’s rule for crisis management and the rediscount window of the Argentine Central Bank are compatible with both the gold-standard rule and the currency-board rule. This holds true as long as central banks restrict their rediscount activity to the management of banking liquidity crises.

The objective of the new rediscount facility to offset changes in money supply sprang from changes in the cash-to-deposit ratio. In fact, the Argentine Central Bank could be subject to the same criticism that Bagehot launched against the Bank of England a century ago. In his book Lombard Street, Bagehot criticized the Bank of England, not because it lent in crisis but for hesitating and doing it too late (Meltzer, 1994). Under its new rule the Argentine Central Bank
still continues to back up its issue of cash with U.S. dollars.

The change in the composition and quantity of the financial portfolio experienced during the crisis had little effect on total credit to the private sector due to the limited rediscount granted by the Central Bank, and most important, to the reduction of quite high (45 percent) reserve requirements. Nevertheless, in the aftermath of the crises, new lending was mostly to the government (a lot to the states, with a federal guarantee) and to AAA borrowers.

**WHAT TO DO IN THE FUTURE?**

In 1996 the central bank, aware that it might not be able to act as a lender of last resort, negotiated with foreign banks a commitment to lend to it about U.S.$5 billion in case of a run on the banks. This is an step in the right direction, but it would not be enough to fend off a serious run (the total money supply M3 is about $55 billion).

In most countries, including Argentina, the banking system alters money supply through changes in credit and vice versa; consequently, money creation is inextricably linked to credit creation. Furthermore, in this system any significant increment in the cash-to-deposit ratio creates the threat of a collapse of the whole banking sector, no matter how solid the sector actually is.

A much more resilient financial system for Argentina would be one that separates the two functions of the banking sector—administering the payment system and intermediating across savings and investment. This system was proposed in the '30s by the “Chicago School” of banking reform, whose most important proponents were Simons, and later, Friedman.

The basic tenet of the proposal is for the banking system to have 100 percent reserves on demand deposits and a credit department where the only depositors are risk-taking investors. This system is invulnerable to changes in the cash-to-deposit ratio. Naturally, no institutional set-up could prevent a run away from the whole banking system, but a narrow banking system would minimize the damage.

Following the currency board framework, the central bank should be closed and a Currency Board PLC should be created. The Argentine-peso interest rate is greater than the Argentine-dollar rate (due, of course, to devaluation expectations), and the Argentine-dollar rate is greater than the U.S. Treasury-bill rate (due to country risk); lending real rates are falling but still very high, and this affects the banking portfolio and long-term growth. Closing the Central Bank, along with fiscal reform measures, would boost confidence in the government's claim that the convertibility law will not be repealed.

**UNEMPLOYMENT AND THE REAL EXCHANGE RATE**

Argentina's strength—its currency board—is also its weakness, evident in the inflexibility of its exchange rate to real depreciation. The way Mexico handled its devaluations during the 1994–95 crisis has not helped to promote the idea that it is much less painful to devalue than to deflate. So far, Argentina has chosen to deflate, keeping its nominal exchange rate unchanged. If the nominal exchange rate is fixed, the only way to achieve a real depreciation is by a fall in prices and nominal wages. If this is not achieved, the price of real devaluation will be larger unemployment. Argentina already has a historically high unemployment rate; therefore, the situation could become socially difficult.

Keeping the nominal exchange rate and adjusting through deflation has some benefits. For one, to keep afloat, businesses have to incorporate new technology and cost-saving measures. In other words, they have to increase productivity to survive. For another, the hard budget constraints imposed by the currency board have prompted the Argentine government to slash more federal expenditures, to privatize its minority stake in business enterprises, to put a cap on large pensions, and to force some provinces to privatize their provincial banks. Had the government faced a soft budget constraint implied by a floating exchange rate, these measures would probably have not taken place.
Argentine domestic currency appreciation can be offset by increased total factor productivity and by real devaluation of the dollar. Productivity has been increasing, but mostly in the labor sector. Current evidence suggests that total-factor productivity has increased only modestly. At the same time, the dollar has devalued in the last three years (1994–96) about 40 percent relative to the yen and 22 percent relative to the Deutsche mark.22

This has surely helped the peso, which because of its fixed value to the dollar, has devalued in a similar fashion as the dollar.

The next chart shows the Argentine real exchange rate.23 Although the domestic currency has appreciated substantially since 1991, we do not know how far it is from equilibrium if any. Most importantly, the chart shows that the domestic currency has experienced an important reversal to steady appreciation. By the end of 1993 the real appreciation of the peso reached its trough, and from then until the end of 1995, it depreciated significantly. Nevertheless, its value still is 60 percent relative to that of the second quarter of 1990.

Chart 6
Argentina: Real Exchange Rate
Dollar Exchange Rate, Weighted by Argentinian Trade Pattern

Source: International Financial Statistics and Direction of Trade Statistics
Index 1990:1 = 100
AS WE HAVE DISCUSSED, Argentina's and Mexico's institutional frameworks were completely different. Argentina had a currency board, while Mexico had an exchange-rate crawling-band. How do the two regimes compare?

In a true fixed and automatic exchange rate regime the changes in foreign exchange are experienced at the same time as the changes in the monetary base. No lag nor lead would be detected. In an active monetary policy, in the context of fixed exchange rate, we would find (Granger) causality from money (or domestic credit) to foreign assets if the Central Bank took the initiative and increased the monetary base or money supply.

In the case of an active sterilization policy we would find a (Granger) causality from foreign assets to the monetary base. For example, if there was an exogenous shock causing reserve losses and the Central Bank reacted increasing domestic credit to sterilize it. Both effects could, or could not, cancel each other out. It is interesting to find out if these lead-lag relations in Mexico show any significance. The results are presented in Table 8 and 9.

Table 8 which relates stocks is not conclusive but Table 9, which relates flows, shows that

<table>
<thead>
<tr>
<th>Null hypothesis</th>
<th>F-statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEH is not Granger Caused by MEFAUS</td>
<td>0.46</td>
<td>0.64</td>
</tr>
<tr>
<td>MEFA is not Granger Caused by MEH</td>
<td>1.19</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Lags: two months
MEH: Stock of Monetary Base
MEFAUS: Stock of Central Bank's holding of foreign exchange
Period: 1993.06-1994.11
Table 9
Mexico: Changes in the Monetary Base and Changes in Foreign Assets Causality Tests

<table>
<thead>
<tr>
<th>Null hypothesis:</th>
<th>f-statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDH is not Granger Caused by MEDFA</td>
<td>0.021</td>
<td>0.99</td>
</tr>
<tr>
<td>MEDFA is not Granger Caused by MEDH</td>
<td>4.182</td>
<td>0.03</td>
</tr>
</tbody>
</table>

MEDH = Changes in the Monetary Base
MEDFA = Changes in Bank of Mexico’s international reserves
Lags: two months

Table 10 shows that, in Argentina, the monetary base and foreign assets of the Central Bank were highly correlated. Also, the real quantity of money was highly correlated with the foreign assets of the Central Bank. This is to be expected in a fixed exchange-rate regime. Mexico shows a negative correlation between base money and foreign assets and very small correlation between movements in real money and movements in foreign assets. This is additional evidence that Mexico followed a loose rule regarding passive monetary policy.

Table 10
Correlations (Coefficient of determination)

<table>
<thead>
<tr>
<th></th>
<th>Base Money and FA</th>
<th>Real Money and FA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>.84</td>
<td>.77</td>
</tr>
<tr>
<td>Mexico</td>
<td>-.16</td>
<td>.18</td>
</tr>
</tbody>
</table>

FA = Foreign Assets holdings of the Central Bank
Money is M1

Next, Chart 7 shows the ratio of foreign assets held by the Central Bank to the monetary base in Mexico and Argentina.

Chart 7
Mexico and Argentina: Ratio of Central Bank’s Foreign Assets to Monetary Base

Mexico clearly shows four distinct periods:

changes in the monetary base (Granger) caused changes in international reserves. The results of Table 9 do not “prove” anything. They simply add more circumstantial evidence to the claims that endogenous changes in domestic credit had a relevant role in explaining reserve losses.

Another test highlighting the differences between the Mexican-managed pegged exchange rate and the Argentine institutionally fixed rate is to look at the correlation between the monetary base and the foreign assets of the central banks. For Argentina we expect that changes in the Central Bank’s holdings of foreign assets would lead to changes in the monetary base in the same direction—a positive correlation. If Mexico had an active monetary policy on average, we would expect that changes in money supply would cause changes in the opposite direction in foreign assets—a negative correlation.

Under a true fixed exchange-rate regime, we would also expect that movements in the foreign assets of the central bank would be strongly correlated with movements in the real demand for money. Under this regime, the transmission mechanism is the following: an increment in the real demand for money changes interest rates; this affects capital flows, and foreign assets are channeled to the central bank in exchange for domestic currency. Table 10 presents the correlations among base money, real quantity of money, and foreign-asset holdings of the central banks of Argentina and Mexico for June 1993 through November 1994. We have omitted December 1994, because of the Mexican devaluation.
2. March through April 1994: In a two-month period, foreign reserves plunge, becoming roughly equal to the monetary base.

3. May through October 1994: Foreign reserves are kept stable and equal to the monetary base.


Argentina shows the pattern forced on it by the convertibility law, whereby the Central Bank is required to hold almost 100 percent international reserves. Notice that from April to October 1994, Mexico's Central Bank had dollar backing equal to 100 percent of its monetary base. This was the reason many analysts were still confident about the future of Mexico. Also, and most importantly, the data available in November and early December 1994 dated back to March and April of that year.

Chart 8 shows the changes in the international reserves of Argentina and Mexico relative to the flow of their current accounts. Positive figures mean that changes in foreign assets of the central banks have been financing current account deficits. Negative figures seen at the bottom part of the chart mean that capital flows are larger than the current account deficit.

This chart shows that, between 1993-I and 1994-I, Mexico's current account deficits were indeed smaller than its capital inflows, and the Central Bank was accumulating reserves. This picture changed drastically in 1994, with the fatal quarters being the second and the fourth. (As shown in Chart 8, the crucial months were March through April and November through December, with some recovery in the third quarter and a final debacle in the fourth. In the second quarter of 1994, the current account deficit was about U.S.$7 billion and the loss in international reserves was about U.S.$12 billion. This was clearly the definition of insustainability.

The next chart shows the income velocity of money and the rate of growth in the monetary base for January through November 1994.

**Chart 9**
**Mexico: Income Velocity of Money and Growth of Money Base**

Chart 9 makes clear that, after May 1994, the Central Bank of Mexico was actually increasing the rate of growth of the monetary base at the same time that the money demand was decreasing. The reaction of a system dedicated to supporting a fixed exchange rate should have been the opposite. In particular, notice the explosive increment in the rate of growth of the monetary base during October and November 1994.
SUMMARY AND CONCLUSIONS

The main cause of the Mexican crisis was not an unsustainable current account deficit. Although the current account was indeed unsustainable, this was a symptom of the problem and not a cause. The main cause of the Mexican crisis was not, as some analysts have suggested, political violence and investors' herd instincts. Political violence certainly did not help the situation, with each episode causing a one-time increment in the income velocity of money. These increments, however, were not a crucial determinant of the crisis.

The main cause of the Mexican crisis was an inconsistent monetary and exchange-rate policy that caused both an increment in the current account deficit and a deficit in the balance of payments. The increment in the current account deficit (a flow) was increasingly financed by international reserves (a stock), which caused a balance-of-payment deficit that in turn made the exchange-rate peg unsustainable. When the stock was depleted, the crisis ensued with full force.

Because of lack of timely disclosure of key market information—mainly about Central Bank reserves, domestic credit, and current account deficits—disequilibriums in the system were allowed to build up.

The Mexican banking sector suffered because of a lack of proper capitalization that could not absorb the increment in a non-performing portfolio. The portfolio deteriorated because of the large changes in relative prices, mainly the exchange rate; the sharp increment in interest rates; and the drastic 7 percent fall in real income during 1995. The banking bail-out had a large fiscal cost that hiked interest rates and expected inflation.

The Mexican crisis hit Argentina with force, mainly because the latter's exchange rate was deemed overvalued relative to its weakening fiscal stance. The Argentine currency board responded to the sharply reduced capital inflows and according to its automatic rules reduced the monetary base. This action, combined with the banking crises, reduced money supply by 20 percent during the first five months of 1995, causing a drastic reduction in real income of about 4.5 percent.

Argentina needs a "confidence shock" in order to increase its capital inflows and reduce the dollar-peso interest-rate gap and the country risk. These problems could be addressed by the following actions in specific sectors:

1. Fiscal: Argentina should tackle its fiscal weakness by reducing expenditures by a permanent and significant amount, and not by increasing the tax burden. In fact, a fiscal reform should reduce the very high VAT tax rate and increase the tax base.

2. Institutional: Argentina should close its Central Bank, which under a currency board arrangement has no role, and instead form a Currency Board PLC.

3. Banking: Argentina should direct its banking system to the narrow banking alternative, thus separating money from credit and getting rid of deposit insurance.

4. Labor: Argentina should carry on its labor deregulation, which is crucial to reducing the current rate of unemployment.
NOTES

1 Due to a significant time-lag in the disclosure of the Mexican Central Bank data, economists were not aware of the large increase in domestic credit, the reduction in money demand, and the fall in international reserves experienced by October through November and December 1994. However, early during that year, some economists were already concerned about the sustainability of the current account deficit and by the rate of increase in domestic credit. The number of economists who claimed that they had correctly predicted the Mexican crisis increased substantially ex-post.

2 Mexico did not have a strict fixed exchange-rate regime, but for analytical purposes, we can assume that it had one. Mexico’s debt crisis of the early ’80s was very different from that of the 1994–95 crisis. In the late ’70s most of the outstanding debt was contracted under floating interest rates, with financing costs mounting as world interest rates skyrocketed. In addition, the worldwide oil-price collapse helped trigger the crisis by drying up petro-dollars, the so-called source of capital flows.

3 Central Bank of Argentina, Boletin Mensual, several issues.


5 In this report United States currency will be designated as “U.S.$”; otherwise, the “$” symbol will refer to pesos.

6 World Bank estimates.

7 International Monetary Fund country reports.

8 Here we are considering a one-shot capital inflow. If the capital inflow continues at the same constant rate, all things being equal, the current account deficit also will continue at the same pace, and the initial change in the international reserves of the central bank will remain constant.

9 In the case of Argentina, the current account deficit financed a large share of new, imported, capital goods.

10 Argentina in 1979 had a tablita that was a pre-announced path of the nominal exchange rate. It also had a domestic credit tablita to make both the exchange rate tablita and the targeted increment in international reserves consistent. This straightjacket proved not enough to halt fiscal expenditures. The model left out a crucial variable needed to restrain government expenditures: A ceiling on government debt.

11 For an excellent review of the literature concerning different explanations for the high interest rates observed during stabilization periods see Philip L. Brock, “High Interest Rates and Guarantor Risk in an Open Economy: A Case Study of Chile, 1975–1983” (paper written for the World Bank and presented at the first meeting of Central Bank Research Centers, Mexico, 1996).

12 Sterilization of capital inflows has been widely used in many Latin American countries (particularly in Brazil), although it has been proven to be perverse in two ways. First, it increases the fiscal deficit, since the cost of domestic debt is higher than the return on international reserves. Second, it increases the incentives for continued capital inflows, causing a vicious circle.

13 In a world of no exogenous capital flows and a fixed exchange rate, there would be no problem on the money market, because money demand determines money supply. Nevertheless, when there are exogenous flows, even though it is still true that money demand ultimately determines money supply, the money multiplier complicates the process and imposes undesired variability and noise to the money and credit markets.


15 Some researchers have claimed that an additional endogenous force in Chile was its indexation rule. Chile had a backward indexation of wages, and due to falling inflation, the indexation rule would have caused a overshooting of real wages. This explanation is not satisfactory because employment was increasing and unemployment had reached very low figures.

16 We define capital flows in terms of the capital account balance. A capital inflow would be associated with a surplus in the capital account and a capital outflow with a deficit. We estimate the balance in the capital account as the change in international reserves less the balance in the current account.
Larry Sjaastad of the University of Chicago has many times claimed that an independent central bank does not necessarily mean independent central bankers.

The Argentine 1994 fiscal accounts were much better than its 1980 fiscal accounts, but experience had taught Argentines a harsh lesson, and they had learned it well: Income velocity of money (M1) was 10 in 1979, and after three years of stability, it was still 17 in 1994. It is well known that the same fiscal deficit has different inflation implications for different levels of income velocity of money.

There will also be changes in the price level if the non-traded sector is large.

In some instances, some countries have issued domestic debt to sterilize the effect of its foreign borrowing on the domestic money supply. This has prevented the exchange rate from appreciating at the cost of increasing the country's fiscal burden due to high domestic interest rates.

This rediscount facility has a limit equal to the stock of commercial banks' required reserves.

During 1997-I the dollar has appreciated substantially.

The real exchange rate is the nominal exchange rate for the United States, weighted by the Argentine trade pattern and multiplied by the ratio of the respective consumer price indexes of Argentina's major trading partners to the Argentine consumer price index. These countries, representing 90 percent of Argentine trade, are: Germany, Brazil, Chile, Spain, Holland, Italy, Japan, Uruguay, and the United States.

We are ignoring here changes in the demand for dollar holdings by the population.

There is room for substantial expenditure reduction according to a study conducted by FIEL, "La Administracion Publica Nacional," 1996. Buenos Aires: C.E.A. Also there is room for reduction in the expenditures of the States.
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