

THE MEXICAN PESO CRISIS: CAUSES AND POLICY LESSONS[†]

One Year Of Solitude: Some Pilgrim Tales About Mexico's 1994–1995 Crisis

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This paper addresses the following question: how could Mexico's fiscal, supply-side, and trade reforms lead it into the crisis caused by the December 1994 devaluation? The 1994 political events in Mexico (an armed insurrection combined with terrorism, the assassination of the leading presidential candidate and of the president of the ruling political party, and kidnappings of prominent businessmen as well as political scandals) are most often mentioned in passing or merely as the trigger of a foregone conclusion. We analyze the hypotheses that have been proposed to explain the crisis and conclude that the crisis had a political origin and that some of the financial disequilibria, including the maintenance of a fixed nominal exchange rate in the face of the recent explosion in international transactions, contributed to the crisis (see Gil-Díaz and Carstens, 1996).

I. An Overvalued Real Exchange Rate (RER)

We use three measures of the RER: (i) a bilateral RER, represented by $e_1 = \eta P'/P$, where P' is the U.S. price level, P is the internal price level, and η is the peso/dollar exchange rate; (ii) a multilateral RER, e_2 , whose weights can be GDP or trade; and bilateral or multilateral indexes based on unit labor costs (e_3).

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We start with the December 1987 stabilization plan, which included a depreciation of the exchange rate, a government budget adjustment, and trade liberalization. Table 1 shows that e_1 appreciated 39 percent from December 1987 to November 1994. The table also shows the (multilateral) e_2 , which appreciated 33.9 percent over the same period.

In relation to the RER, Rudiger Dornbusch et al. (1995 p. 21) state, "From the 1987 level, the real appreciation measures as much as 76%," and Dornbusch and Alejandro Werner (1994 p. 11) say, "... Mexico has built up a huge real appreciation." But "huge" compared to what? To Mexico's own economic history? Dornbusch et al.'s estimate, converted into pesos for foreign exchange, gives an appreciation of 43 percent up to 1993, exactly what Table 1 produces for e_1 , and of 40.3 percent for e_2 . Why not take the comparison to 1994 where the level of appreciation is 33.9 percent?

An appreciation of 33.9 percent is not excessive. For example, if $e_1 = 100$, after a 100 percent devaluation it will rise to 200, and then fall to 100 when internal prices have fully adjusted to the devaluation: a 50 percent appreciation in real terms. We can now interpret the 33.9 percent appreciation as measured by e_2 , or 38.8 percent as measured by e_1 , over the December 1987–November 1994 period. It does not seem "huge" if one takes into account that seven years elapsed and that η depreciated 103 percent.

We can now turn to e_3 . In an open economy, the factor of production whose cost may become misaligned is labor. (It does not make sense to consider the relative cost of house rents, or the trend of several possible price indexes. Firms do not pay tuitions or household rents, nor do they buy hamburgers in order to

TABLE 1—MEXICAN CONSUMER PRICES, REFLECTED IN REAL EXCHANGE RATES (RER)

Date	e_1 (Mexico–United States)	e_2 (Mexico–World)
December 1987	172.9	170.0
December 1988	132.8	130.6
December 1989	134.9	130.7
December 1990	123.2	127.7
December 1991	111.9	115.3
December 1992	104.3	106.0
December 1993	99.0	101.3
November 1994	105.8	112.4

Note: Multilateral RER (e_2) reflects GDP weights of 133 countries.

TABLE 2—UNIT LABOR COSTS IN MEXICO

Date	e_3
1975	88.2
1976	88.1
1977	109.6
1981	62.8
1982	94.2
1983	153.3
1992	142.8
1994:1	143.7
1994:2	155.0
1994:3	158.1
1994:4	162.6

Notes: The multilateral real exchange rate, e_3 , is based on manufacturing unit labor costs in eight countries: Canada, France, Germany, Italy, Spain, the United Kingdom, and the United States. The reported values of e_3 are relative, with 1978–1979 = 100. Timely data for more countries are unavailable. The 1994 costs are preliminary.

compete.) Table 2 shows that e_3 (unit labor costs) depreciates from 88 in 1975–1976 to 109 in 1977, after the September 1976 devaluation of almost 100 percent, and then appreciates steadily until it reaches 63 in 1981. The 1982 devaluations bring it up to 94 and to 153 in 1983. Could anyone interpret an index of 153 in 1983, 2.4 times the 1981 level, as anything but an extremely competitive number? The number for 1992 is 143, only 6 percent below the 1983 value, and then it depreciates even more, to 158, historically a very competitive level, in the third quarter of 1994.

A. The Effect of the RER on Growth

If nontradables comprise more than 50 percent of GDP, a fall in the RER should stimulate growth. In Dornbusch et al.'s (1995) tables, currency appreciation does not hinder growth. The only apparent exception is Mexico, where they attribute 1994's growth to government-induced increases in aggregate demand.

Mexican 1980 GDP weights give a disproportionate importance to sectors that stagnated and underweigh star performers. Table 3 uses 1993 weights to recalculate annual GDP growth. Within the 1989–1994 period, growth in output was below Mexico's population growth only in 1993: 1.2 percent versus 1.8 percent. The cumulative growth of the revised GDP series over the 1988–1994 period is 25 percent compared to 21 percent with the original weights.

B. Slow Export Growth

Mexico's exports reached U.S. \$60.9 billion in 1994, continuing a trend without parallel even among the Asian Tigers (Fig. 1). Export growth in 1994 was 17.3 percent, while non-oil exports grew 20.2 percent.

II. The Central Bank Expanded Credit and Set the Stage for the December 1994 Devaluation

Regarding the alleged excessive central-bank credit expansion in 1994, all foreign-exchange losses coincided with a political shock and not with an *ex ante* expansion of credit. Furthermore, if authorities maintain an exchange-rate band, a speculative attack cannot be resisted when the speed and amount of financial resources are overwhelming. Intervention involved U.S. \$25 billion in reserves plus \$30 billion in the issuance of dollar-linked Tesobonos. Except during the brief speculative attacks, the current-account deficit was financed by a surplus in the capital account, and the exchange rate was below the top of the band through November 1994.

Figure 2 compares the interbank borrowing rate (not the then-privileged Cetes [Mexican Tesobonos] market because of its status as bank collateral and, therefore, artificially high price) with LIBOR (London Interbank Offer Rate). After rising 20 percentage points above

TABLE 3—MEXICAN GDP ANNUAL RATES OF GROWTH

Year	Annual rate of GDP growth (percent)	
	1993 weights	1980 weights
1988	1.2	1.2
1989	3.7	3.3
1990	4.7	4.4
1991	4.1	3.6
1992	3.5	2.8
1993	1.2	0.6
1994	3.9	3.5

Sources: National Accounts System, Instituto Nacional de Estadística, Geografía e Informática, and Banco de México Economic Research Department.

LIBOR, the differential fell after the assassination of Luis Donaldo Colosio on March 23, 1994, but remained at 10 percentage points or more when the exchange rate fluctuated *below* its predetermined band. This cannot be characterized as monetary looseness.

Mexico was not prepared for a currency board nonsterilization. While central-bank credit increases in tune with reserve losses, a currency board will instead force an equivalent fall in the money supply. But this requires (a) a large amount of bank (foreign-currency) reserves to draw upon at the central bank, (b) a history of nonsterilization by the central bank (otherwise banks will not know how to react to abrupt foreign exchange movements), and (c) if not ample reserves at the central bank, at least large foreign credit lines to the banks. Either (a) and (b) or else (b) and (c) are necessary to allow banks to cushion the day-to-day movements in the payments mechanism. None of these conditions was present in 1994.

III. Information Was Late and Incomplete, or Did It Favor Nationals

A. Incompleteness and Timeliness

Since the 1940's, international reserves have been reported only three times a year. In 1994 the reserves were reported in April, October, and November. This information and other news contributed a clear picture of the level and trend of Mexico's reserves and other relevant data. The movements in reserves were

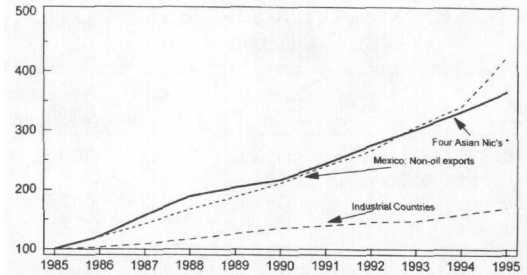


FIGURE 1. NON-OIL EXPORT VOLUME INDEXES (1985 = 100)

Notes: For 1995, the date for Mexico corresponds to the annualized rate of growth for January–October. The “four Asian Nic’s” are Hong Kong, Singapore, Korea, and Taiwan.

Sources: Banco de México and the International Monetary Fund’s *World Economic Outlook* (IMF, 1995).

followed in the Mexican press with sufficient accuracy and timeliness.

B. Information Favored Nationals

According to the International Monetary Fund (IMF, 1995), mostly Mexican residents attacked their currency in the first three weeks of December 1994. The IMF was interested in “asymmetric information opportunities” favoring local investors. But this IMF hypothesis does not fit the facts: (a) Mexico has no restrictions on capital flows. (b) Foreigners had obtained an early cover through their substantial Tesobono purchases and “coberturas” (forwards). If the December peso sales had been made by Mexican residents, they would have been a *late* response. (c) some of the peso sales shortly before the devaluation were conducted by Mexican banks to cover their hedging of short dollar positions, incurred mostly with foreigners. (d) Conjectures about the residency of investors based on the nationality of custodian institutions are nonsense.

IV. Stimulus to Aggregate Demand

Paul Krugman (1995 p. 42) states that “. . . the presidential election seems to have led the Mexicans neither to devalue nor to accept slow growth, but rather to reflate the economy by loosening up government spending.” But Table 4 shows a large contribution

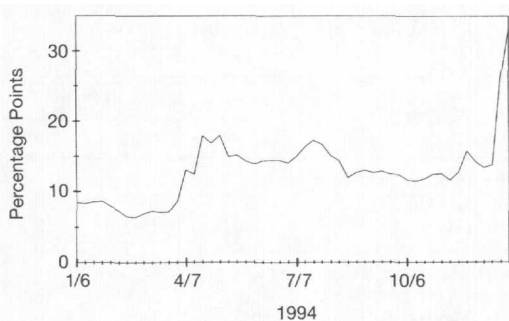


FIGURE 2. INTERBANK AVERAGE INTEREST RATE (TIIP) MINUS LIBOR (WEEKLY OBSERVATIONS)

to demand from the private sector in 1994 and a minor one from public spending. Moreover, the balance of the public sector presented in the Public Accounts (1995) shows a surplus for 1994.

Concerning development banks' credit, Leonardo Leiderman and Alfredo Thorne (1995 p. 6) say, "... there was a marked shift toward relaxation. ... In addition to the inflation-corrected budget, there was a sharp rise of about 3 percent of GDP in net credit creation by public-sector development banks, cumulative over 1993-94." However, Table 5 shows that the amounts channeled by these banks were not extraordinary, and there was not "a sharp rise of about 3 percent of GDP"; the rise was 0.6 percent of GDP.

V. Insufficient Saving

Gross domestic savings (GDS) data (Table 6) are sometimes cited as indicating that there was a decline in saving equal to 4.15 percentage points of GDP, and that savings became abnormally low. For example, Damian Fraser (1995 p. 1) says, "Mexican domestic savings are currently at very low levels, reaching only 13.7% of GDP in 1994, having fallen from above 20% of GDP in 1987." But the GDS concept does not fully measure internal savings, since it does so after net payments to factors abroad. In contrast, the gross national savings (GNS) series (Table 6), which is used in Chile and most other countries (see Andrés Velasco, 1991), does measure savings, and it fell by an amount equal to 2.83 percentage points of GDP, hardly the cause of a balance-of-payments crisis.

TABLE 4—CONTRIBUTION OF AGGREGATE DEMAND TO GROWTH OF GDP

Source	Contribution to GDP growth (percent)		
	1992:4	1993:4	1994:4
Public expenditure	1.09	-0.36	-0.47
Private expenditure	3.15	-1.01	5.86
Net exports	-2.14	2.34	-1.39
Sum = GDP growth (percent)	2.10	0.97	4.01

Source: Banco de México, from the National Accounts.

One should also consider the breakdown of GNS into public and private components (Table 6). The stable private-savings ratio derived is consistent with the stable national-accounts private-consumption figure from 1990 to 1993 (data shown in Gil-Díaz and Carstens, 1996).

VI. Financial Disequilibrium or Overborrowing

Guillermo Calvo and Enrique G. Mendoza (1995) and Ronald I. McKinnon and Huw Pill (1995) focus on financial disequilibria. Calvo and Mendoza discard the overvaluation hypothesis but also dismiss equilibrium theories: "... the investor's decision to attack the peso and not to roll-over public debt, conflicts with the views of temporary and domestic shocks to a fundamentally sound economy" (p. 9); "... the large mismatch between short term debt and reserves ended with the collapse of the currency" (p. 10); and finally, "... privately-held short-term public debt was nearly 3 times larger than gross international reserves" (p. 11). They also provide the theoretical basis for international investors' herd-like behavior.

Calvo and Mendoza do spell out the interactive relationship of politics and economics, recognize Mexico's economic reforms, and attempt to solve the incongruity between these achievements and the crisis, but there are flaws in their arguments. Consider the following: (a) More than 50 percent of the domestic liabilities of commercial banks are liquid, as are government liabilities because of repurchase agreements, and since bank deposits have government backing there is no meaningful distinction between public

TABLE 5—LOAN FLOW FROM PUBLIC-SECTOR DEVELOPMENT BANKS, AS PERCENTAGE OF GDP

Year	Financing
1989	0.3
1990	1.0
1991	2.2
1992	2.1
1993	3.0
1994	3.6

Note: Loan flow includes earned interest.

Source: Dirección General de Investigación Económica, Banco de México.

TABLE 6—MEXICAN DOMESTIC SAVING AS A PERCENTAGE OF GDP

Measure	Percentage of GDP		
	1983	1989	1994
Gross national saving (GNS)	30.3	21.2	18.4
Private sector	26.9	19.5	18.5
Public sector	3.5	1.7	-0.1
Gross domestic saving (GDS)	26.7	20.9	16.8
Private (GDS)	21.8	15.7	12.1

and private debt. Therefore, the percentage of liquid debt has always been several times the amount of international reserves. (b) Banks' external short-term debt grew from U.S. \$8.6 billion to U.S. \$24.8 billion during 1988–1994. (c) Analysts forget the November 1993 North American Free Trade Agreement (NAFTA) episode: as a likely negative vote in the U.S. Congress neared, a speculative attack drained reserves, and investors swapped Tesobonos for Cetes. The central bank sterilized the attack. Once NAFTA was approved, normality ensued, and reserves more than recovered. Was central-bank credit expansion and subsequent contraction the cause or the effect of these movements? It is clear that the origin lies in external political events; nobody criticized the central bank at the time. It was natural to follow the same strategy after the Colosio assassination.

Calvo and Mendoza also fail to notice that the Chiapas insurrection smoldered, and that simple accusations by the now-discredited former Assistant Attorney General, Mario Ruiz-Massieu, created another run on reserves on November 23, 1994. The December 1994 devaluation provides more evidence: the speculative attack on Monday December 19, 1994, unleashed by the Chiapas rebels' renewed activities, forced the government to raise the peso/dollar band 15 percent. Even though it was an unexpected change, it worked, albeit ephemerally. On Tuesday December 20, 1994, the stock market boomed, and the exchange rate floated below its new upper limit. Then, in the last few minutes of market activity, the wire services reported what would later be confirmed to be misinformation, that hostili-

ties in Chiapas had resumed. With that, the peso/dollar ratio hit its new ceiling, and the stock market and international reserves started to plunge.

McKinnon and Pill (1995) are concerned with the moral hazard that results from government backing of deposits at commercial banks, which, in an euphoric liberalized environment, may induce "excessive" amounts of borrowing in a financial system overwhelmed with fresh funds where supervisors fail to supervise adequately banks' portfolios. Their outline coincides with Mexican financial reforms (e.g., the removal of restrictions on foreign resident holdings of Mexican government paper, the elimination of bank's reserve requirements, and the repeal of the withholding tax on foreign borrowings). Also, as the government withdrew internal debt, banks found themselves flush with funds to lend to a great number of borrowers. The amount of loans to the private sector went from U.S. \$17.6 billion in 1988, to U.S. \$102.2 billion in 1994.

VII. Some Conclusions

With few exceptions, the hypotheses offered to explain the December 1994 Mexican fiscal crisis are not validated. Mexico experienced a politically triggered speculative attack that snowballed into a financial crisis. It was *not* a crisis based on the misalignment of real phenomena. However, contributing factors discussed in this paper can help us to understand the crisis and to think about the policy instruments needed to avoid or mitigate a similar problem.

Calvo and Mendoza (1995) and McKinnon and Pill (1995) contain some valuable lessons:

- (i) the role of political changes and of 1994's political shocks in bringing about the crisis;
- (ii) the need to reduce vulnerability to capital movements;
- (iii) the advisability of issuing long-term government debt;
- (iv) the need to reinforce the regulation of commercial banks;
- (v) the nature of the herd-like behavior of international investors.

The adoption of their recommendations would have mitigated the crisis but would not have avoided it. Greater stability would be achieved if these imperfections were corrected, but Mexico and other countries usually go about their economic business under these distortions without trauma. The sale of pesos during 1994 was several times the monetary base, and if quasi-fixed European currencies collapsed during the 1992 attacks, there is no reason to believe that Mexico could have experienced anything different. There is no interest rate high enough to halt a speculative attack under a fixed exchange rate.

The central lesson to be learned is the need to choose the appropriate monetary institutions as is clear in David Hale (1995). (i) A currency board is favored because the money supply is demand-determined, foreign reserves are hostage to money-demand movements, which reassures investors, and the public sector is constrained to budgetary equilibrium. One of the outcomes of this arrangement is that interest rates and inflation mirror those prevailing in the country chosen for the currency peg, thus achieving a lower cost of capital and greater price stability. Speculative activities are reduced to their bare essentials, economic growth is higher, and a longer-term horizon allows exporters to plan for permanent investments. (ii) An independent central bank on the other hand is an improvement over a dependent one, because it focuses the public's attention on central-bank actions and improves accountability. We believe that the choice between (i) and (ii) constitutes the agenda for the future.

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