The China Syndrome or the Tequila Crisis

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Abstract

The paper deals with the recent Mexican economic crisis from various perspectives. On a general plain an attempt is made to explain how moral hazard comes about and then how it intertwined with the way Mexican events unfolded. Its main thesis is that beyond flawed policies the root of monetary crises lies in incorrect institution building. Exchange rate policy is one such institution, the other, lending of last resort: the expectation by market participants that lurking in the background there is a central bank or an international institution with an open purse. The expectation that someone is ready to provide the liquidity that the market might not provides an incentive for imprudent or abusive behavior (creates moral hazard). Under this light an attempt is made to understand the causes of the deep economic breakdown Mexico experienced in 1995, almost a meltdown, with widespread international implications. The origins of this crisis can be traced to the expropriation of private commercial banks, to liberalization policies that otherwise would have been advisable but were combined with a defective privatization ant to decisions of the incoming (Dec. 1995) Zedillo administration. A perfunctory presentation of the rescue process and its costs is presented before the paper ends with some considerations regarding a preventive economic policy built around the minimization or avoidance of moral hazard.

The Primary Sources of Moral Hazard

There have been 112 worldwide banking crises in just the past 30 years, three of them in Mexico (1977, 1982 and 1995), comprising 93 countries (Sánchez Santiago 6/6/00 and Klingebiel 2000). These economic breakdowns have frequently been followed by salvage operations of bank depositors that involve considerable jumps in public debt. Besides the fiscal costs, there have been substantial capricious wealth transfers, personal and corporate bankruptcies, output contractions, inflation, and often a severe questioning of the efficacy of the market model for economic organization. A cause and effect confusion about the causes of some of these crises has led even reputable economists to question some market features, such as freedom of capital movements, at least as temporary measures for some economies\(^1\) (Krugman, 1998 and 1999). Given the importance of the matter and the lack of consensus between economists and/or policy makers about the origins of these crises, a search for answers to this

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\(^{1}\) CEO of Avantel, a Mexican Telecommunications Company, and former Vice Governor of the Bank of México

\(^{1}\) Although “Kono and Schuknecht (1998) find that the liberalization of financial services leads to less distorted and less volatile capital flows, not the contrary”. Taken from footnote 44 on Bank restructuring in practice: an overview by John Hawkins and Philip Turner. Policy paper 6, August 1999. Bank for International Settlements.
transcendental matter is imperative. Perhaps the fundamental question ought to be: have we faced policy or institutional failures?

As with many matters, the answer may have eluded us because we have failed to pose the proper questions. Money meltdowns (Shelton, 1994), whether in the form of national banking collapses or international epidemic (systemic?) crises, are attributed to a wide diversity of causes, but seldom (Hayek, 1976) to fundamental institutional flaws. Regulation and supervision of financial sectors, the horse popularly flogged, may even be a source of moral hazard. Therefore, when dealing with regulation and supervision, it might prove fruitful to attempt to identify the ultimate causes of moral hazard. At the macro level the primary source of financial shocks seems to be an erroneous choice of the exchange rate regime. At the original sin level (Hausmann and Eichengreen, 1999, apply this term to another phenomenon) the ultimate root of moral hazard is central bank credit. On this epistemological vein, exchange rate “regimes” owe their existence to central banks.

The large number of financial crises of recent, their substantial contagion effects onto emerging markets, because the most recent viruses (Mexico, Southeast Asia, Russia) emerged from them, and their potential for creating destructive chain reactions even among developed markets have given rise to renewed research about their causes. The belief that lack of supervision of financial institutions is the primary cause has spawned proposals for a cosmopolitan approach to supervision and considerable thinking is being dedicated to the design of new rules, with concentration on improving opaque and untimely information from some emerging markets.

The reason for the uniqueness of financial markets in this regard is the potential for fraudulent or careless behavior (moral hazard). Fraudulent potential comes of course with every contract, but systemic fraudulent potential has an ulterior root: central banks. In any national economy the singularity of central banks originates in their ability to create unlimited quantities of domestic base money. In turn, when faced with liquidity problems national governments turn to the international community for international base money. The possibility of recourse to outside support is a source of moral hazard, but the potential for abuse is enhanced because assistance does not have to come from real resources.

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2 Other endeavors are not that different. On a recent Sunday the priest wove his sermon around a sign that impressed him on a highway that said: “Christ is the answer”, and in the line below, “But what is the question?”

3 Hayek’s ideas concerning private banking have more empirical support than generally acknowledged as portrayed in the role the Suffolk bank performed in New England as a reliable lender of last resort, despite a generalized panic. Rolnick, Smith and Weber (2000).

4 Aggarwal, p 394 (1999) observes: “Although, this IMF led rescue reduced the losses suffered by the Japanese, German, and U.S. banks that had made high risk, high margin, loans to Asian countries, it worsened the moral hazard problem in international banking and increased the likelihood of future imprudent bank lending sprees (like those in Latin America in the 1980s and in Asia in the 1990s)."
(savings), some central banks and the IMF (SDR's) have the potential to issue internationally accepted means of payment\(^5\). These international lines of credit are drawn upon sometimes automatically and often as a result of concerted international rescue efforts. Therefore, national moral hazard is compounded by the expectation of international assistance, if the consequences of non-support are deemed to be systemic.

The fact that means of payment are connected, sometimes in seemingly interminable chains that would collapse and irradiate multiple reactions if one of their links were destroyed, is also a cause for concern and may even have originated the perceived need to have a lender of last resort. There is a generalized opinion that payment chains cannot be broken, that in a fix liquidity has to be provided at all costs. Under this assumption we have an explanation for the need for national and world central banks. Without a gold standard another justification for the need for central banks are growing economies: if the fiduciary money required by the growth of transactions were not provided, the price level would have to fall continuously.

The causal chain is thus originated at central banking. Central banking is at the source of potential unlimited lending of last resort; in turn commercial fractional reserve banking creates a daily need for such (intra-day or end-of-day lending)\(^6\) last resort lending, but also enhances the quantities that may eventually be required from the central bank. Fractional reserve banking also increases the asymmetry in returns that may be obtained from speculative or fraudulent banking investments: owners or administrators will benefit from leveraged investments but may bear only a fraction of the losses.

The monetary policy origins of moral hazard

First, as promised, some comments on the implications for moral hazard of exchange rate regimes\(^7\). Despite all the hoopla about exchange rate combinations, there are only two possible regimes: a fixed exchange rate at one extreme, and a freely floating one at the other. Combinations converge with time into the first regime or are equivalent to the second one, even if disguised around

\(^5\) The dollar, the Euro and the Yen are internationally accepted currencies that can be issued on a last resort basis. The IMF as a lender to “forestall or cope with an impairment of the international monetary system”, GAB, or General Agreement to Borrow, feeds on lending from the 11 large industrial countries. The IMF also has an issuer role as a creator of supplementary reserves in the form of SDR (Special Drawing Rights), although SDR issuance has been non-existent since 1970. (Bordo and James, 2000) The moral hazard that arises from the role of international institutions was not born out of the “Tequila” crisis as Bordo and James (2000) suggest, witness the international, and IMF, support for France in 1968.

\(^6\) Intra-day lending has been diminished or eliminated by payment systems that have evolved towards the instantaneous settlement of every transaction. End-of-day lending can also be reduced or eliminated, but with fractional reserve banking the central bank will always lurk in the background as a potential savior under a desperate liquidity need.

\(^7\) This is the so-called “Corners Hypothesis”. Frankel, Schmukler and Serven (2000) provide an out of the oven theoretical and econometric discussion of this issue.
some policy guidelines. A lower or an upper exchange rate band, or both, as departures from the two extreme regimes to achieve some eclectic combination, implacably end up with the characteristics and vices of a fixed regime.

All recent international economic crises had fundamental common elements: substantial capital inflows, i.e., large current account deficits and a commitment to defend fixed exchange rates or exchange rate bands. An undue credit expansion into frequently unrecoverable loans was another shared feature. The official explanation for the Mexican crisis: low saving rates, is conspicuously absent in the Asian experience. The aftermath of these crises were banking collapses and rescues of depositors. These experiences raise the customary chicken and egg question: did “good” economic policies attract net capital inflows? Or, did fixed nominal exchange rates because of the high yield implicit in one-sided bets lure “excessive” net capital inflows that were not necessarily well invested?

The first hypothesis is presented to defend these policies while they hold, but even if good economic policies are a magnet for capital inflows, fixed exchange rates are to blame for speculative and ultimately destructive behavior. In this regard the behavior of foreign capital inflows into Mexico prior and after the Dec. 1994 crisis is telling. Short-term capital flows were large and volatile during 1994 leading to the Dec. 1994 crack, while becoming small and stable since the beginning of 1996. The opposite is true of foreign exchange inflows to the Mexican money market prior to the crisis (prior to the flexible exchange rate), when from 1990 to September 1994 $40 billion in short-term capital poured in.

The explanation to such a behavior reversal may lie in the moral hazard originated in an exchange rate commitment, whose effects are accentuated by the speed and liquidity that characterize today’s financial markets. To appreciate the above, consider the amounts invested by foreign residents in Mexico’s money market (government securities and other money market instruments) as of two significant dates: end of Dec. 1995 and end of Dec. 1999. At the end of

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8 See Frankel et al. above for a discussion of the Chilean experience with the so-called real exchange rate targeting.
9 As much can be said of the recent Mexican, the Russian, the Brazilian and the Southeast Asian crises. The Scandinavian and UK crises of 1992 also fit the pattern. For the Asian economies see Aggarwal, p. 396 (1999). The Asian flavor described by Aggarwal is truly universal: “As could have been expected, the countries that seem to have suffered the most had pegged (semi-fixed) exchange rates with few restrictions on cross border capital flows. Although such arrangements helped attract large amounts of external capital, they also did not allow these countries to easily adjust to forces of supply and demand in the currency markets when these countries started suffering significant current account deficits. These current account deficits put increasing downward pressures on their currencies and led to continued borrowing of ever-larger amounts from international lenders, even though these loans were increasingly short term in nature.
10 The same can be said of the Asian crises: 1998.
11 1995 is left out because during that crisis year the government decided to stop issuing and to liquidate the amount of Tesobonos outstanding. The behavior of short-term capital from
1995, the stock amount of these investments was $3.8 billion. One year later, on Dec. 1996, it had barely edged up to $3.9 billion and to 4.1 billion by the end of 1999. Over the course of three years not only was the change in the number minimal; its ups and downs were also insignificant.

The shift in the exchange rate regime between the pre-crisis and post-crisis periods may explain the radical shift in the nature of foreign capital flows into Mexico. The current stability of short-term capital flows, to the extent that their variability reflects a lesser volatility of their stock demand, may hold the key to understand the remarkable stability of the exchange rate over the recent period. In turn, the perilous situation into which the Mexican economy fell before 1995 was the outcome of pathological market behavior provoked by the fixed, or quasi-fixed, exchange rate that prevailed at the time, without the automatic self-adjusting processes of a currency board.

The performance described above is more remarkable given the large influx of other categories of foreign resident capital into Mexico: during the past three years the country has been the second largest emerging market recipient of foreign direct investment in the world, second only to China. It has also received large equity investments as well as a resumption of foreign bank loans and the floating of private liabilities in international money markets. These flows that pour into more resilient stocks contributed to finance current account deficits that cumulated $39.5 billion over 4 years (1996-1999), plus an increase of international reserves of $15 billion.

Not only did the amount of foreign resident’s money channeled to Mexican monetary instruments remain stationary over this latter period, but it is also more impervious to shocks: its term to maturity is considerably longer than the forty-eight-hour investments that flowed in large quantities prior to the 1995 crisis. The instruments now being purchased by foreign residents tend to have a maturity of at least three months, with six months to one year being the favorites\(^\text{12}\).

The evidence weighs heavily to support the notion that Investors behave rationally while pathological market outcomes are a creature of government intervention. During the years under the peso-dollar band (1991-1994), when the exchange rate veered toward the floor of its initially narrow interval, a combination of high peso yields and exchange rate appreciation attracted large volumes of short-term capital inflows. Once the exchange rate stuck to its floor, investors continued to obtain high yields under the understanding that exceptional returns were possibly transitory, because the availability of hard currency, despite the implicit promise of convertibility, had as a limit a fraction of December 1995 up to the present has already been detailed above. The turbulence of that year’s continuous crises, including some political ones, also justifies its exclusion.

\(^\text{12}\) Along this line of reasoning Trigueros (1997) concludes that foreign direct investment, portfolio investment and foreign currency deposits issued by commercial banks, as well as the direct credit they obtained, exhibited remarkable stability after the onset of the crisis.
the country’s international reserves. The interest rate required to bring capital in, given those uncertainties, had therefore to include a premium, and the term for which money market investors were willing to commit their capital had to be extremely short, allowing them to keep one foot in and the other outside, so to speak.

As long the central bank had sufficient international reserves the other extreme possibility was for the exchange rate to be at its peso-dollar ceiling. During the existence of the band, this phenomenon only occurred when radical political events\textsuperscript{13} created confidence shocks. Each of those shocks drained international reserves. At some critical juncture the incentive for investors was to try to be the first out of the local currency, in a situation that corralled them into such a desperate corner that virtually no interest rate would have been sufficient to encourage them to stay.

The implications of a fixed regime for moral hazard are clear: it places the central bank at the mercy of short-term international money managers. At one of the two extreme possibilities for the exchange rate, an excess supply of foreign currency tends to appreciate it. To hold on to the exchange rate, the central bank will have to purchase the excess supply of foreign currency, will accumulate reserves, will issue internal domestic debt and will end up subtracting credit from the economy.\textsuperscript{14}

Mexico’s experience is one more confirmation that an exchange rate commitment generates two polar possibilities. One is to attract vast foreign inflows invested in extremely short-term instruments, the other, to have investors fly away as quickly as possible. But this is old stuff, of course: that exchange rates tend to veer off to their allowable extremes, and that, once there, the system has all the flaws and

\textsuperscript{13} Given the reserve depletion originated in the political shocks, the vulnerability derived from enormous instantly callable liabilities was sooner or later going to detonate a free for all among international investors. Several runs during the year drained reserves from close to 30 billion dollars to only 13 billion as of end of Nov. 1994. Then the dies were cast when at his Dec. inauguration Zedillo shock confidence by his failure to confirm outgoing Treasury Secretary Pedro Aspe (Barro, 1996, Bartley, 2000 and Sarmiento, 2000) at the helm of the Treasury: hard currency resumed its exit instead of flowing back in, until the signal for the final attack was given by Zedillo’s overrule of the Foreign Exchange Commission (whose members are 2 Central Bank Governors, the Treasury Secretary and one Undersecretary) that had recommended to float and thereby seal the scant remaining precious international reserves. Zedillo instructed them instead to set a new ceiling to the exchange rate (ephemeral as it turned out) that opened a window for the almost exhaustion of reserves leading, in a mere day and a half, to a forced float and to provide the final dead knell to confidence. Then, the government’s failure for several months to present a coherent program to face the budgetary needs that the exchange rate collapse was going to create deepened the crisis. Only ample hard currency backing from the US Treasury and from international institutions explains the avoidance of a monetary (and political?) collapse.

\textsuperscript{14} This is a misnomer. The total amount of credit remains constant even if the central bank’s credit is negative, just as there is no credit injection when at the other end of the exchange rate band the central bank ends up subtracting credit as it tries to prevent a depreciation of the exchange rate. In this latter case the central bank’s balance sheet would record an “expansion of internal credit” with total credit, again, remaining constant.
dangers of a fixed exchange rate, was pointed out several decades ago by Harry Johnson. Otherwise, if the exchange rate does not stick to either of its extremes, the system behaves as a floating exchange rate. So why contaminate it with bands? Unfortunately, it seems necessary to continue rebottling old wines for the consumption of some economists, as well as for policymakers.

To conclude this section, the case study of Mexico is congruent with the hypothesis that one of the sources of moral hazard, in this case with substantial macroeconomic consequences, is the incentive provided to speculators to play the short-term capital Ponzi scheme created by fixed exchange rates. This behavior adds to whatever problems the commercial banking system may face from its own moral hazard roots and may be sufficient to create a banking crisis, without having government officers and banks engaged in irresponsible acts. But the exchange rate regime was not the only economic policy flaw of the period under examination.

The Banking Original Sin (Or Home Made Moral Hazard)

With some important exceptions (Hayekians\textsuperscript{15} and followers of Henry Simons among others), economists tend to confuse bank demand deposits\textsuperscript{16} with savings that can be tapped for long-term projects. A representative example from the literature is the following: “banks issuing demand deposits can improve on a competitive market by providing better risk-sharing among people who need to consume at different random times”. (Diamond and Dybvig, 1983. Reprinted in Federal Reserve Bank of Minneapolis, 2000).

In a Fisherian intertemporal model (Fisher, 1930) there is room for intermediary institutions (McKinnon, 1973) that select borrowers (or claims issued by negative savers) and diminish portfolio risk by bundling assets with negative risk covariance, and that in turn issue liabilities held by individual savers. But there is no reason for these institutions to be also issuers of demand liabilities, they can issue consols or time matched claims on themselves. In fact, whatever the time distribution of the consumption pattern of savers, demand deposits run the risk of being massively and instantly converted into cash and may lead to an unmanageable run with systemic and macroeconomic consequences. Given these risks, the only possible explanation for institutions with grossly mismatched balance sheets is the existence of someone willing to come to their rescue in case of need. Such is the source of original sin, which of course lays the foundations for the committing of venial sins such as credit to the private sector financed with sight deposits. Venial sins are transformed into mortal ones when the size and growth of such credit become excessive.

Among recent crises the Mexican experience shares several traits with the almost immediately succeeding Asian ones. We know now that collapsed Asian

\textsuperscript{15} Feito (1999).
\textsuperscript{16} Demand deposits are part of the definition of money or hoarding.
countries also experienced vast credit expansions of dubious quality. The similarities between the Mexican and the Asian crises and others include as well astronomical increases in real estate prices\(^{17}\). More fundamentally, because of their exchange rate systems, excessive amounts of short-term money\(^{18}\) were fatally attracted. The similarities end there, however, because Asian countries' high export growth had petered out prior to their crises, while Mexico's non-oil exports were growing in 1994 at a pace of 20 per cent, over an already high base\(^{19}\).

As we realize the nature of Mexico's and of other recent crises, one of the fundamental questions raised is, what should economists watch? Reflecting on the evidence reviewed and on recent developments\(^{20}\) it is becoming ever more evident that economists should discard the Freudian (anal?) obsession with the real exchange rate, or with the current account of the balance of payments. But as we shall see, perhaps a combination of an all inclusive (well-measured) public budget, the growth in credit and some market oriented measurement parameters of the health of the financial system are the symptoms one should be aware of.

Another issue raised by recent crises is the appropriate exchange rate regime. Some economists or policymakers may opt for what I believe are the increasingly futile bands, others for flexible exchange rates. The argument presented above suggests that the answer is to be found at either of two extremes: either no autonomous issuing of currency at all -with the currency board as an approximation to this solution- or a flexible exchange rate. However, a well-functioning flexible exchange rate requires institutional buttress, it is not sufficient to simply let it loose. Among other ingredients coverage mechanisms are essential, local institutions that allow for cover may be found wanting, however. At the end of the leg of a transaction investors have to be assured of the delivery of hard currency. The importance of this ingredient was evident at the outset of the Mexican crisis. Despite a deep local market in forward contracts, the foreign exchange market did not contribute to the stabilization of the peso and of local interest rates until the appearance of futures transactions in the Chicago Merc guaranteed delivery\(^{21}\).

Having expanded on the pros and cons of alternative exchange rate regimes and their implications for the attraction of some particular capital flows, one should

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\(^{17}\) In Mexico City real estate prices (Table 1) increased 17.6 times in the December 1987 - December 1994 period, while the consumer price index over the same time span increased 3.6 -fold. These asset price bubbles coincided with a large expansion of mortgage credit into housing and office building booms.

\(^{18}\) There were exceptions, such as Korea, which relied mostly on bank loans.

\(^{19}\) Contrary to some widely held perceptions; information concerning the behavior of the Mexican economy was available to anyone who wanted to see it. Data on the balance of payments, the nature, size, and volatility of capital flows, the size and speed of expansion of credit, and the growth of the non performing portfolio of the banks were there for anyone to observe, with a timeliness and quality equaled even then by few countries.

\(^{20}\) The real exchange rate is, at end 2000, back at its supposedly "dangerous" 1994 level.

\(^{21}\) Gil Díaz (1999).
pay tribute to the obvious, to the other institutional elements essential to a well functioning economy and therefore to a well behaved floating rate. Recent currency stability in Mexico was aided by the reforms detailed above, but it would not have been possible without a deep contraction in domestic credit to the private sector which compensated for the government deficit, without wage revisions that have not outstripped gains in productivity, nor without political stability.

A Leveraged Buy Out, Complementary Regulatory Failures and the Onset of the Tequila Crisis.

The crisis was not gestated in one moment or in one year; its explanation should be sought in the tensions the economy accumulated like a pressure cooker during the 6 years prior to Dec. 1994 and, more fundamentally, in the wounds inflicted upon the banking sector by their 1982 expropriation. Said pressures are closely related to banks, to their human capital losses after being expropriated, to the way they were privatized, and to the renewed favorable environment brought to Mexico through dexterous treasury budgetary management, privatization of sclerotic state enterprises, and market deregulation.

Prior to Dec. 1995 credit expansion went haywire: credit increased 25 percent per year in real terms for six consecutive years. A substantial portion of the loans that the banking system churned out in this interval had a poor or nonexistent possibility of recovery even before the skyrocketing interest rates and the exchange rate depreciation that ensued December 1994.

Several factors enhanced the intrinsic deposit banking moral hazard responsible for this expansion: a) after several years of government ownership the human capital of commercial banks had eroded considerably, b) the capitalization of some banks was thin or completely transparent, and c) the financial system underwent a substantial liberalization.

The liberalization of the banking system released sudden copious resources that banks felt compelled to lend, the increase in lending induced an increase in aggregate demand that would in turn contribute to widen quickly and excessively the deficit on the current account of the balance of payments. The new liberal measures included the disappearance of forced sector loans, the freeing of interest rates, and the elimination of reserve requirements.

Having stated the above, not all bank privatizations were flawed. There were three kinds of banks, or three groups or tiers of purchasers of banks.

One tier of shareholders immediately started figuring out how to conduct fraudulent operations through their banks. It is not a question of bad loans; it is a question of black holes in their accounts, money whose final destination has not

\[22\] To be fair one should point out at least 2 exceptions: Banorte and Banamex.
been found. The amounts irretrievable reach several billion dollars solely from these operations, involving large irrecoverable amounts that were not an isolated case of maybe an imprudent loan or a soured investment project. Some of the small and medium-sized banks that comprised this tier were in the hands of people who are now being prosecuted or who are abroad facing extradition requests. Many of these funds were simply channeled to their owners’ private uses.

The next tier is the thin capitalization tier. Purchasers raised the money needed to bid for the banks by convincing other investors that they would enjoy large capital gains and lured them thus into accepting loans to pay for the shares they were committing to buy as soon as they had control of the bank. The first tier also used this capitalization ruse, but it was not the root of their failures. Regarding this second tier, bidders paid too little or nothing for their banks, a consolidation of assets and liabilities would have cancelled most of their apparent capital. In this tier and in the other 2 the capital of some banks was subscribed with “cross-financing” that involved an understanding between different groups of bidders to lend from bank A to the purchasers of bank B in order to have bank B do the same with the purchasers of bank A. There were even instances of development bank lending to buttress some acquisitions.

The third tier is where the two big banks are situated, as well as a few others, some very small ones actually (Banorte is the prime example). In this tier one finds that real capital was put in and that there were no fraudulent schemes; but even in this segment one finds cases where there was some poor lending, although a substantial portion of this bad lending had taken place before the banks were privatized.

At the beginning of the Salinas presidential term commercial banks found themselves with a sudden gush of funds while still in government hands. The initial primary reason for this windfall is that there was a reduction of government debt. Internal Government debt went down from 20% of GDP to 5% of GDP over a couple of years as the proceeds of the privatization of all kinds of firms went, as well as some current government surpluses, into a liquidation of that debt. Besides, the successful renegotiation of the government’s external debt was concluded just before the banks were privatized, putting Mexican banks again into the international borrowing market. These 2 developments propitiated rapid credit increases, and, under weak management and supervision, the bad loans started to be generated.

Simultaneously far-reaching financial sector liberalization was undertaken that introduced several desirable features that should provide for a more competitive banking sector. But as will be seen throughout this section, since the reform was incomplete some of its features encouraged an additional increase in the supply of credit of such magnitude and speed, that it overwhelmed weak supervisors, the scant capital of the banks and even borrowers.
Besides the 2 elements described above, several other factors contributed to facilitate the 1988-94-credit explosion: the improved economic expectations brought about the real estate and stock market boom already mentioned above and a strong private investment response. The latter due in part to the need to adjust the capital stock to the substantial restructuring requirements that the trade opening and market deregulation placed on the economy. Besides the reduction of public debt there was an abundance of loanable funds because of the phenomenal increase in the domestic and foreign availability of securitized paper.\textsuperscript{23}

<table>
<thead>
<tr>
<th>Year</th>
<th>Price Index</th>
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</thead>
<tbody>
<tr>
<td>1987-IV</td>
<td>1,930.29</td>
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<tr>
<td>1988-I</td>
<td>2,422.87</td>
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<tr>
<td>1989-I</td>
<td>7,814.56</td>
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<tr>
<td>1990-I</td>
<td>12,012.23</td>
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<tr>
<td>1991-I</td>
<td>16,451.04</td>
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<tr>
<td>1992-I</td>
<td>23,079.09</td>
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<tr>
<td>1993-I</td>
<td>31,933.75</td>
</tr>
<tr>
<td>1994-IV</td>
<td>33,927.21</td>
</tr>
</tbody>
</table>

\textit{Source: Banco de Mexico. Dirección General de Investigación Económica.}

A balance sheet adjustment of the private sector underway by the second half of 1993 and the late adoption by some commercial banks of more prudent policies were signs that the non-performing loan problem had exceeded manageable dimensions before 1994: “Wide insufficiency of capital was becoming perceptible, a phenomenon explained by the relatively high level of past due loans that had not been adequately provisioned. Moreover, some commercial banks were operating with serious problems that were not readily noticeable to the financial authorities. In some instances, bank administrators acted with disregard to existing regulations and proper banking standards.”\textsuperscript{24} Consumer and housing credit increased because of natural causes but banks pushed even these loans beyond reasonable standards. There was poor borrower screening and credit volume excesses, and then the 1993 economic growth slowdown made the net indebtedness of the private sector burdensome.

As of the second quarter of 1994 sharply higher real interest rates\textsuperscript{25} and a considerable but still orderly depreciation of the peso, prior to the December

\textsuperscript{23} Hale (1995).
\textsuperscript{24} Mancera (1997).
\textsuperscript{25} The demand for peso assets has been shown to be highly sensitive to changes in the price of the 30-year US Treasury bond that experienced a sharp rise in 1994. See Calvo, G.A., L Leiderman y Reinhart (1993).
debacle, the aftermath of the assassination of a presidential candidate and other unfortunate political events, poured gasoline onto an already burning coal.

The devaluation of December 1994 had a limited immediate impact on the financial position of commercial banks.\textsuperscript{26} Nonetheless, the devaluation prompted other damaging effects as inflation and interest rates skyrocketed, economic activity collapsed, the burden of servicing credits denominated in domestic and foreign currency increased, and banks’ capitalization ratios collapsed.

The financial situation of private firms evolved from an unprecedented net asset position at the end of 1988, to a substantial, quick and fragile indebtedness by 1994. A remarkable coincidence of converging events and policy measures combined to produce this phenomenon. In fact, all the cards were stacked in favor of a collapse.

a) The financial sector was liberalized, lending and borrowing rates were freed and remaining credit channeling was abolished.

b) Government surpluses drastically reduced public internal peso debt. The debt reduction freed the portfolio of banks and facilitated the elimination of reserve requirements.

c) To calculate non-performing loans, banks applied a “due payments criteria”: the amount of payments due after 90 days was recorded as delinquent, instead of the value of the loans themselves.

d) Banks were hastily privatized, in many instances with no due respect to “fit and proper” criteria in the selection of shareholders, nor of their top officers.\textsuperscript{27} It must be noted, however, that the banks remained in government hands for half of the expansionary period and that part of the sour loans had already been extended. (Table 2)

\begin{table}  
\centering  
\caption{Privatization Dates of Commercial Banks}  
\label{table:privatization}  
\begin{tabular}{ll}  
\hline
   \textbf{Bank} & \textbf{Date} \\
\hline
{\textsuperscript{26} The banks’ last effort to cover their positions contributed to the fast depletion of reserves prior to the float. The explanation lies in a foreign currency liabilities-matching requirement that they had been allowed to satisfy in part through holdings of Ajustabonos, securities linked to the CPI. Understandably, the Ajustabono position was largely eliminated in the week prior to the devaluation: between December 15 and 23, the banks increased their dollar assets to the tune of US$3.2 billion. The amount was substantial and originated in an earlier speculation in Ajustabonos that had led banks to hold inordinate amounts of them. Since banks could not issue matching liabilities, allowing them to fund these assets with dollar liabilities was considered an expedient way to prevent them from incurring losses. The regulator’s bet would have worked under a smoothly depreciating exchange rate, but the expectation of a discontinuous devaluation fueled by Zedillo’s failure to act promptly, detonated a sooner and harsher crisis.}  
\end{table}

\textsuperscript{27} Honohan Patrick (1997). P.13
Multibanco Mercantil de México August, 1991
Banpais "
Cremi "
Confía September, 1991
Banco de Oriente "
Bancrecer "
Banamex "
Bancomer October, 1991
BCH November, 1991
Serfin January, 1992
Comermex February, 1992
Somex March, 1992
Atlántico "
Promex April, 1992
Banoro "
Banorte June, 1992
Internacional "
Banco del Centro July, 1992


e) Several banks were purchased without their new owners proceeding to their proper capitalization, as required by their financial situation, since shareholders often leveraged their stock acquisitions, sometimes with loans provided by the very banks bought out or from other reciprocally collaborating institutions.

f) Taxes on inter country capital flows (dividends, interest, etc.) were drastically reduced or eliminated.

g) Foreigners were allowed to hold short-term “domestic” government debt as of December 1990.

h) Short-term, dollar-indexed, peso-denominated Mexican government securities, Tesobonos, were issued at the end of 1991.

i) The higher echelons of banks lost a substantial amount of human capital during their government years. With these officers institutional memory migrated as well. This experience is not unique to Mexico: “…formerly regulated banks may lack the necessary credit evaluation skills to use newly available resources
effectively.” 

and: “Unless properly overseen, liberalization can result in too rapid growth of bank assets, over-indebtedness and price-asset bubbles.”

j) Full government backing of bank deposits.

k) There were no capitalization rules based on portfolio market risk. This regulatory failure encouraged asset-liability mismatches that in turn led to a highly liquid liability structure, more than two thirds overnight for the banks, with a potential to create huge strains on the lender of last resort capabilities of the central bank.

l) Banking supervision was weak and also overwhelmed by the great increase in the portfolio of banks.

m) Some commercial banks abused the unlimited supply of daylight overdraft facilities at the central bank and created vast amounts of deposits drawing on the inter bank credit market and on the money market.

n) The banking sector did not have a consumer loan credit bureau nor did it actively utilize the business bureau available.

o) The wide trade opening and deregulation that swept the economy altered relative prices and canceled opportunities in traditional sectors. Formerly privately “good” projects turned into bad ones and altered the relative ability to service debt of many sectors and or types of enterprises.

p) There was a phenomenal expansion of credit from the development banks.

q) Unprecedented and huge amounts of foreign capital became available worldwide and particularly to Mexico. One of the salient newcomers to these capital markets were securitized flows.

r) The banking sector faced procedural and judicial difficulties that enhance the spread between lending and borrowing rates. This problem was considerably accentuated by the onset of inflation (in the former inflationary period banks did not have a substantial amount of credit outstanding) and the economic collapse of 1995.

Table 3

See Lindgren, García and Saal (1996), p. 100. Also Honohan (1996): “Often hailed as the panacea for banking weaknesses of one sort or another, privatization has all too often been the regime change which incubated more serious problems. This has been the case both in transition economies and in developing countries that had operated with state owned banks. The problem has generally lain in the lack of suitability or experience of the new owners, in the inadequate capitalization of the privatized banks or both (Honohan, Patrick. (1996)).


Ibid-p. 12.
Dollar Denominated Financial Obligations
Of the Financial System

<table>
<thead>
<tr>
<th>November, 1994</th>
<th>US Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance of the External Debt of the Commercial Banks</td>
<td>25,966.0</td>
</tr>
<tr>
<td>Balance of the Short Term Foreign Debt of the Development Banks</td>
<td>4,562.2</td>
</tr>
<tr>
<td>Tesobonos</td>
<td>24,690.7</td>
</tr>
<tr>
<td>Total liabilities of the Commercial Banks with Mexican Residents (net of inter bank operations)</td>
<td>112,902.0</td>
</tr>
<tr>
<td>Net International Reserves</td>
<td>12,483.9</td>
</tr>
<tr>
<td>Cash in circulation</td>
<td>14,251.1</td>
</tr>
<tr>
<td>1995 Interest on the Foreign Debt</td>
<td>11,715.9</td>
</tr>
<tr>
<td>Public Sector and Banco de México</td>
<td>7,368.9</td>
</tr>
<tr>
<td>Private Sector</td>
<td>4,347.0</td>
</tr>
</tbody>
</table>

All the elements listed above combined with a greatly improved perception of the country’s short and long-term prospects to generate the conditions that would result in the Mexican crash. A paragraph from Linden et al portrays well what went on: [Referring to Mexico 1994-present] “After many years of nationalized banking [from 1982 to mid-1992], commercial banks lacked the experience and organizational and information systems to adequately assess credit and other market risks and to monitor and collect loans. Accounting practices did not follow international standards. Concentration of loans and loans to related parties was a problem in those banks that were subsequently subject to intervention.” 31 In relation to many countries the Bank Soundness book finds that: “Banks that are, or were recently, state-owned were a factor in most of the instances of unsoundness in the sample” 32 and “It becomes more difficult to distinguish good from bad borrowers when bank loans are growing rapidly.” 33

This combination of factors constitutes another experience 34 of how, despite important economic achievements, financial liberalization 35 can go stray in an environment that has no adequate safeguards against the predatory practices banks can be induced to by full deposit protection. Thin or no capitalization was

31 Ibid. P. 107.
32 Ibid. P. 107.
33 Ibid. P. 110.
34 Chile’s 1982-83 crisis has many parallels with Mexico’s. See Gil-Díaz (1995) and Velasco (1987)
35 Mancera (1997) discusses the causes of the increase in private debt and provides a full presentation of the diverse financial salvage operations required in the aftermath of the crisis.
another key ingredient that combined with the other factors to induce imprudent credit growth.\textsuperscript{36}

Fast credit growth and its aftermath is not an exclusive feature of Mexico’s crisis. Chile’s 1982 crisis suffered from the same. Kaminski and Reinhart (1996) reviewed the experiences of 20 countries that experienced banking and balance of payments crises and found that in about half, the banking crisis preceded the balance of payments crisis. The causal pattern reversed in only a few instances. Thus, there is support for the notion that unsound banks exert negative effects on the external balance and the exchange rate. \textsuperscript{37} Also: “All the sampled countries except Venezuela experienced a sharp expansion of credit to the private sector prior to the crisis.” \textsuperscript{38}

The numbers related to the expansion of credit during the Salinas administration are impressive. From December 1988 to November 1994, the amount of credit outstanding from local commercial banks to the private sector rose in real terms from 90.3 billion pesos to 340 billion. Also in real terms, the relative increase in this credit over the six-year period was 277 per cent, or 25 per cent per year. \textsuperscript{39}

Some items of this expansion provide a better picture of the trends that characterized it: credit card liabilities rose 31 per cent per year, direct credit for consumer durables rose at a yearly rate of 67 per cent and mortgage loans at an annual rate of 47 per cent. All these rates of growth are in real terms.

In dollars, external credit flows to the private sector went from -193 million in 1988 to 23.2 billion in 1993 and to 27.8 billion in 1994. The flow fell to 8.9 billion in 1994, but this decrease was more than compensated by the lower international reserves of Banco de México that year, which went down by 18.9 billion. Therefore, the total use of external resources was of 27.8 billion in 1994.

The accumulated amounts related to external flows are also substantial. \textsuperscript{40} A total of 97 billion dollars over the six-year term that increases to 115.9 billion once the fall in reserves that occurred in 1994 is included.

These rates of growth are portentous. As Honohan (1996 p. 1 of Annex) warns, “…there are general indicators which apply whether or not there is a macroeconomic boom and bust cycle.” Then Honohan lists among others, the following telltale signs:

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\textsuperscript{36} “Unusual asset price movements, rapid growth of lending, specially for property transactions and for financing of stock market positions, capital inflows: these are some of the tell-tale signals of a credit financed asset-price boom which may prove to be unsustainable.” Honohan (1996), p. 13.
\textsuperscript{37} Lindgren \textit{et.al.} (1996), p. 77-78.
\textsuperscript{38} Ibid. P. 84.
\textsuperscript{39} All the figures quoted in this section were provided directly by the Economic Research Department of Banco de México.
\textsuperscript{40} See Table 4.
“One measuring balance sheet change, namely the growth in aggregate lending (in real terms). This is the classic indicator of individual bank failure and may also serve for systems.”

“Two drawn from the structure of the balance sheet, namely the loan-deposit-ratio and reliance on foreign borrowing.”

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>943</td>
<td>97,096</td>
</tr>
<tr>
<td>Loans</td>
<td>-1,548</td>
<td>23,984</td>
</tr>
<tr>
<td>Banks</td>
<td>1,380</td>
<td>16,209</td>
</tr>
<tr>
<td>Non-banks</td>
<td>-2,928</td>
<td>7,775</td>
</tr>
<tr>
<td>Portfolio</td>
<td>-389</td>
<td>43,787</td>
</tr>
<tr>
<td>Shares</td>
<td>0</td>
<td>28,403</td>
</tr>
<tr>
<td>Bonds</td>
<td>-389</td>
<td>14,381</td>
</tr>
<tr>
<td>Direct Investment</td>
<td>2,880</td>
<td>30,325</td>
</tr>
</tbody>
</table>


But the story is not yet complete. Starting in 1993, the government decided to break with a long and healthy practice of including in the definition of its consolidated deficit the amounts channeled through government development banks, a concept known as the deficit or surplus, as the case might be, due to “Financial Intermediation”.

Financial Intermediation had been included in the deficit: a) to restrain overall budget expansion, b) to prevent the use of development banks to disguise public expenditures, c) because they expand credit based on central and not market decisions, and d) their loans to the private sector were of dismal quality.

<table>
<thead>
<tr>
<th>Year</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1.07</td>
</tr>
<tr>
<td>1991</td>
<td>2.80</td>
</tr>
<tr>
<td>1992</td>
<td>2.66</td>
</tr>
<tr>
<td>1993</td>
<td>3.33</td>
</tr>
<tr>
<td>1994</td>
<td>3.68</td>
</tr>
</tbody>
</table>

Source: Banco de México.

The abandonment of this deficit definition contributed to an additional expansion of credit and to careless lending: “During the past government Nacional
Financiera extended 470,000 credits, of which half were not viable...” and “...they were not viable even before the crisis.”

From the figures shown in Table 5 it can be appreciated that the pressure from financial intermediation to GDP was not negligible to explain the size of current account deficits that were 3.0 per cent, 5.1 per cent, 7.4 per cent, 6.5 per cent and 7.9 per cent of GDP each year between 1991 and 1994.

The unseemly attraction of foreign resources, the liquidation of large amounts of government debt which crowded-in low quality bank lending, combined with the moral hazard cocktail concocted by the various measures already enumerated, nurtured an increase in private aggregate demand which contributed to the rapidly rising current account deficit. Furthermore, the deficit was financed in a large proportion by short-term capital. This deficit was combined with the commitment, a pledge consecrated in the Pacts, to contain the exchange rate within a widening, but relatively tight band.

For most of the period the exchange rate stuck to its peso/dollar floor, as high interest rates attracted short-term capital, development banks and private firms borrowed abroad and foreign money flowed into the stock market. The central bank essentially accommodated the demand for base money (i.e., currency) and in that endeavor sterilized foreign exchange inflows or outflows, allowing international reserve increases or decreases as the case might have been. Because of the predominant excess supply of dollars, the amount of reserves constantly increased, up to the uncertain period prior to the US Congress vote on NAFTA, when the increase was temporarily interrupted, only to resume after NAFTA was approved up to the start of 1994’s political wobbles.

Table 6
International Reserves
(Billions of dollars at the end of each year)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>6.4</td>
<td>6.6</td>
<td>10.2</td>
<td>17.5</td>
<td>18.6</td>
<td>24.5</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Source: Banco de México.

41 Borja, Gilberto, Director of NAFINSA, the biggest development bank, for a brief period that was interrupted when he made the statement quoted (1996).
42 See Table 5.
The deficit in the balance of trade rose 5.83 percentage points of GDP over the period, explainable up to 81 per cent by the rise in private investment. But a substantial portion of this increased private investment went into unprofitable ventures, thus contributing to the non-sustainability of the current account deficit. Some of these undertakings were highly leveraged toll-roads, or unrecoverable home mortgages, or credit unions that invested with low or negative returns and were financed with vast resources channeled through the development banks. Some of the credit, in turn, went to finance non-existent enterprises, or the hugely leveraged acquisition of bank shares, or to non-collateralized loans, etc.

### Table 7
Current Account Deficit as a Proportion of GDP (Percentages)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.4</td>
<td>2.8</td>
<td>3.0</td>
<td>5.1</td>
<td>7.4</td>
<td>6.5</td>
<td>7.9</td>
</tr>
</tbody>
</table>

*Source: Banco de México, Annual Report (1995).*

Thus financial disequilibria, a classical overindulgence in credit, a frenzy of spending and a substantial short-term debt combined with the sitting-duck features of a fixed exchange rate, linked-up to set the stage for the initiation of the 1995 economic crisis.

The crisis had little or nothing to do with lower savings, as can be seen in Table 8, as argued by many, but a lot to do with excessively rapid spending and credit expansion, as McKinnon and Pill (1995), Calvo and Mendoza (1995) and Hale (1995) have pointed out.

### Table 8
Consumption and Investment Growth
(Changes as a proportion of GDP in constant prices)

<table>
<thead>
<tr>
<th></th>
<th>Consumption</th>
<th>Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X - M</td>
<td>Total</td>
</tr>
<tr>
<td>Years 1989-94</td>
<td>5.83</td>
<td>1.4</td>
</tr>
</tbody>
</table>

*Source: Banco de México, taken from the National Accounts.*

The virtually fixed exchange rate exhibited its virtues by steadily stabilizing prices, as well as its dangers within the environment created, particularly the fragility of the economy to a speculative attack.

Just as many European currencies collapsed in 1992 after unrelenting speculative attacks on their narrow bands, 1994 political events triggered what for one economist was a death foretold but a surprise nonetheless: a drain in

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43 4.74% / 5.83%.
45 Some rumblings had a timely appearance in the literature: “In a February 1993 survey on México, The Economist alerted readers that the potential problems affecting the financial sector
international reserves until the exchange rate ceiling had to be abandoned on December 1994.

A Financial Interpretation of the Crisis.

Are recent economic crises, the European in 1992 and Mexico’s in 1994 the result of unsustainable policies given unexpected shocks, or a reflection of multiple equilibriums not closely related to measured fundamentals? 46

The classic position related to misaligned fundamentals can be traced back to Johnson (1972), where an excess credit expansion is translated into a loss of international reserves. A balance of payments crisis is the outcome of the depletion of international reserves. This position can also be found in Sargent and Wallace (1981) who provide a closed economy vision in which a persistent deficit and real interest rates above the rate of economic growth eventually unclench debt saturation. At this point private agents refuse to continue purchasing debt and the deficit is monetized. Inflation ensues. This chain of events is not very different from the open economy model. Finally, Krugman (1979) in a model reminiscent of Mundell (1968) follows on this tradition in a futile attempt to time the speculative attack, which will force an abandonment of the exchange rate and thereby propitiate a rise in inflation. 47

In all these classic approaches, an excessive expansion of credit leads the public, national and/or foreign, into a refusal to continue purchasing debt and in all of them a day of reckoning is finally forced upon the government and society.

Bordo and Schwartz scroll the experiences of currency crises dating from the XVIII century to Mexico’s recent episode and find reassuring evidence to support the classical contention: currency crises stem from inconsistencies between currency commitments and internal prices, or impending wars. 48 Literally “…the theory of self-fulfilling speculative attack may have intellectual merit but contributed nothing to our understanding of real-world events. In every crisis examined here, the fundamentals are more than adequate to account for the actions of speculators.” 49

This account brings us back into the Mexican crisis. Which were its fundamental causes? All the factors listed above made some contribution, but the contention of this paper is that those truly essential or that had the greatest significance

49 Honohan (1997) p. 2 and 3, reaches similar conclusions.
were the combination of the exchange rate regime\textsuperscript{50} with a rapid expansion of credit, a substantial part of which was of poor quality to boot.\textsuperscript{51} The surge of bad credits is in turn explained by flimsy bank’s capitalization and the failure to ensure that bankers met the “fit and proper” criteria to own or to manage the institutions.

The next few paragraphs will be dedicated to identify the detonators of the 1995 economic implosion under a quasi-fixed exchange rate. One frequently cited is the Fed tightening of 1994. Fed tightening does matter; in the early 1980s Fed actions were an important part of the explanation of international economic behavior. Rates went up dramatically in the US and worldwide. They had a big impact on the US economy and its economic slowdown depressed Latin American export prices. But did the 1994 jacking up of US interest rates really matter that much to Mexico, or rather were the political shocks of that year trigger the depletion of international reserves, together with the fact that Mexico’s current account was getting far out of line given banking mismatches and the overhang of a huge amount of liquid liabilities redeemable in dollars under declining international reserves?

How important are those retrospectively relatively small movements of US interest rates in 1994 as a driver of what happened to the peso/dollar exchange rate? In the context of the accumulated pressures and the knife-edge the economy was traversing in 1994, the US interest rise contributed to aggravate Mexico’s travails but it cannot be singled out as the cause of a crisis of the magnitude Mexico experienced in 1995.

It would be incorrect to isolate a factor, like the proportion of short-term government debt held by foreigners whose holdings have been shown to be particularly volatile.\textsuperscript{52} Such volatility is probably derived from the ease with which, under a fixed or quasi-fixed exchange rate, fluctuations in the demand for peso assets have to be, and are expected to be, readily accommodated.\textsuperscript{53} Volatility and risk stem in part from the exchange rate regime. A floating rate presents

\textsuperscript{50} Bordo and Schwartz (1996).
\textsuperscript{51} Honohan (1996) p. 13: “Unusual asset price movements, rapid growth of lending, specially for property transactions and for financing of stock market positions, capital inflows: these are some of the tell-tale signals of a credit financed asset-price boom which may prove to be unsustainable.” Many other such quotes and evidence are found in the literature. Rapid growth in bank lending is considered “...a classic leading indicator of individual bank failure, and may also serve for systems.” (Honohan. 1996. p.1 of Annex) and M. Gavin and R. Hausmann (1995) See also Honohan (1997), p. 3 to 6.
\textsuperscript{52} See Guillermo Calvo (1996), p. 120.
\textsuperscript{53} Evidence of how different institutional arrangements condition market behavior can be found in the comparison of the 1988-89 adjustment period with the 1995-96 one (See Alejandro Werner, (1997). Werner found that the volatility of interest rates and the average value of the real interest rate were much lower in the latter period. Both intervals have several similarities, the most important one being that both were phases of adjustment to a crisis, but also a major difference: in the 1995-96 adjustment program a flexible exchange rate was adopted versus a predetermined rate in the 1988-89 program.
speculators with currency uncertainty compounded by other risks, notably market value risks.

The lower risk speculators confront under a fixed exchange rate is borne by the government, i.e., by society at large. The insurance premium paid by society to cover exchange rate risks is proportional to the size of the international reserves needed to reassure investors that potential claims will be satisfied. Mexico’s reserves were insufficient even before December 1994 because of the size of the country’s financial sector. Some authors puzzled by the depth and virulence of the Mexican financial crisis have tried to explain it, at least partly, by pointing out the financial vulnerabilities of the country. In this endeavor, Calvo compares Mexico’s public debt service requirements for 1995, including amortizations, with those of Argentina, Brazil and Chile and relates them to exports. The result is a rather high figure for Mexico, 160 per cent, while the corresponding values for Argentina and Chile hovered around 50 per cent. Brazil had a ratio similar to Mexico’s, but mostly non-volatile investors held its debt: banks.

This line of reasoning is insightful, but does not go far enough. Although Calvo does relate \( M_2 \) to international reserves, the amounts involved at risk of a sudden demand shift refer to a concept much wider than \( M_2 \). All domestic and foreign liabilities, peso and foreign currency denominated, have to be honored if there is a run on a country committed to a fixed exchange rate. The amounts involved according to Mexico’s figures for 1994 are staggering. At the end of November 1994, US$30 billion of short term bank debt, 25 billion of Tesobonos, 100 per cent of commercial banks liabilities to resident claimants or 113 billion, the interest on all private and public external debt due in 1995, approximately 11.7 billion, plus 14 billion of currency in circulation.

Thus, total amount that all potential claimants expected to collect under a run, at the prevailing exchange rate, equaled roughly 200 billion dollars, or 45 per cent of the country’s GDP, or 15 times the international reserves held at the end of November 1994. The reason for adding up the concepts enumerated is that bank liabilities had full government backing. Therefore, there is no justification to include only Tesobonos, or these plus \( M_2 \), nor to exclude items belonging to bank liabilities or any other government bond. One must also take into account that about 70 per cent of all bank liabilities were payable overnight and that the rest were extremely short term.

But this situation of extreme liquidity was not new to Mexico or to most other countries. What was new was the coexistence of a formidable growth in the volume and speed of international capital movements with the persistence, in

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55 One could even counter argue that the lowest risk convertibility entails regarding the possibility of a flight from the local currency is to be found in holdings which may be totally liquid but that are needed for transactions \( (M_0 \text{ or } M_1) \) and, conversely, that the highest convertibility risk comes from those bank and government obligations not included in \( M_2 \).
some countries, of a fixed exchange rate. In this regard Mexico’s currency collapse was not much different from that of several European countries in 1992.

Hence, the combination of a fixed exchange rate, i.e.; a commitment to convert to foreign exchange (a substantial amount of) domestic financial assets, the rise in US interest rates, and the 1994 political shocks comprise the true measure of Mexico’s financial vulnerability at the end of 1994.

That under the minuscule amount of international reserves left Mexico entered an extremely volatile period is no wonder, holders of Tesobonos (close to 30 billion) wanted to cash them in as they matured since they expected the turnover of Mexico’s large short term debt, public and private, to be drastically reduced or suspended.

Another thesis has to do with solely or mostly central bank behavior during 1994. This outlook ignores that fractional reserve banking requires a lender of last resort. Banks cannot liquidate loans when there is a run. Because of this simple but inescapable fact, all the lines that have been written about the so-called excessive expansion of the central bank’s internal credit during 1994 are nonsensical. The logic of a fixed exchange rate is implacable. When there is a run banks are, all of the sudden, left with more loans than deposits. Hence, when the central bank lends to commercial banks to balance their positions, it is simply fulfilling its unavoidable obligation as lender of last resort. This chore is either performed by foreign creditors, which is unlikely when there is a run, or by the central bank. The critics referred to ignore that the root problem is not the (unavoidable) behavior of the central bank during 1994, but rather the existence itself of a central bank with all the moral hazard consequences derived thereof plus the amplifying element of the quasi fixed exchange rate regime prevailing at the time.

If commercial banks had had reserve requirements or large liquidity coefficients the qualitative nature of the argument remains. It matters little that in a run banks run down their reserves at the central bank. In this latter case the accounting result is that the central bank swaps dollars in exchange for the lower reserves held with it by commercial banks, instead of providing the dollars to the commercial banks in exchange for an increase of their liabilities at the central bank.

The fact that this latter operation is labeled “central bank credit” and the other one is not is immaterial. In the reserves at the central bank case, the central bank’s liabilities decreased pari-passu with its loss of international reserves, a result analogous to the so-called increase in central bank credit. Finally, if the central bank requires banks to hold part of their liabilities in liquid foreign assets, the central bank accounts may not even budge under a run, and yet the qualitative and economic result is the same, the commercial banks lower

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57 The liquidity coefficient.
simultaneously an asset and a liability. In this case part of the nation’s international reserves are held by commercial banks. That is the reason why, even though there is a loss of hard-currency reserves, the accounts of the central bank remain untouched.

To sum up the sequence of events amply described and documented elsewhere, the chain reaction was initiated by an increase in the demand of dollars. This increase had a counterpart in a lower demand for peso assets, and was followed, as it turns out simultaneously because of the implacable mechanics of the daily clearing of the payments system, by an increase in credit from the central bank to the commercial banks.

Therefore, in circumstances such as those described above, the increase in central bank credit is a fatal consequence of the fall in the demand for pesos, it is a passive reaction, and it is an unavoidable outcome of the lower demand for Mexican assets under a fixed exchange rate regime.

The Depositor’s Bailout and its Cost

The budgetary cost and the process itself have been the object of numerous pieces in the literature although the final cost cannot be determined until the banks reach the end of their “loss-sharing” period and Fobaproa, the entity in charge of safeguarding and disposing of the assets, realizes the last of the saleable ones. However, public debt will likely rise instead of experiencing a partial netting out from asset realizations because the quality of most of the portfolio in the hands of the government is generally dismal and because there are still some banks within the aegis of the National Banking Commission whose weak assets have not been transferred to Fobaproa. Furthermore, some sizeable debt has been left to “float” around, with no apparent debtor, which will sooner or later end up booked as public debt. The preliminary estimate of the net increase in government debt as a result of the banking crisis is 64 billion dollars or 13% of 1999’s GDP (Mackey, 1999).

The rescue of depositors turned out to be successful in preventing a run on banks. Given the amount of economic and political uncertainty, that is no mean feat. But a rescue operation should ideally minimize moral hazard by operating within a one fell swoop. In this regard a piecemeal rescue created lingering problems, increasing the amounts of debt covered and subsidizing borrowers of different kinds with the application of programs successively put forward in response to the demands of pressure groups. Not creating a bad bank, not acting immediately to remove bankers and shareholders from failed institutions,

58 See Mancera (1997), and Gil-Díaz and Carstens (1997).
59 “Asian countries now have non-performing loans that are estimated to be between 30 and 40% of national GDP’s whereas Japan’s non-performing loans are estimated to be as much as a trillion dollars and over 30% of its GDP”. In Aggarwal, p. 397 (1999).
60 A recent reliable reference on the rescue operations is Elizabeth Mcquerry (1999).
and not putting the cleansed banks immediately under new ownership and administrators contributed to worsen the quality of the portfolio and to magnify the amount of forbearance. The end cost was thus magnified as well as the moral hazard involved.

Beyond the incrementalist (Mcquerry, page 19, ibid.) approach, another major source of difficulties is the confusion into one agency, the National Banking Commission, of the roles of supervision and rescuer. The Treasury was in principle directly responsible for the conduction of the second role, but in its default, it fell into the able hands of the President of the Commission quoted above, who however able, could not have possibly successfully reconciled the two contradictory functions.

Some Lessons

The perils of exchange rate policy have been amply discussed above. Exchange rates exist because there are currencies, and the latter, instead of being issued privately, are public monopolies. All this is quite obvious, what is not so evident is that there is a need for a national currency nor, if there is one, that the central bank has to be the lender of last resort.

Central banks avoid lending responsibilities and the moral hazard thereof under a currency board arrangement, but it is hard to understand why would anybody want to have a currency board when the alternative of no own currency is available. Having a currency is clearly an inferior alternative to not having one at all if the choice is a currency board, because the public is never fully convinced that the board commitment is forever. As a consequence interest rates and growth suffer, and unions will forever attempt to test the authorities resolve.

If national money exists, then a floating rate seems to be the preferred alternative. But a floating rate is only one element of a multidimensional basket of necessary policies. A floating rate will not be conducive by itself to a well functioning financial system. Sound fiscal and monetary policies are of course part and parcel of the Decalogue of the indispensable background for a healthy financial system. But even then, the financial system, being continuously under the centrifugal force of moral hazard, needs to thrive under a set of additional constraints.

Supervision and reliable accounting practices are two of the constraints one cannot do without, and they go together. But the argumentation of this document and the evidence presented suggest that we should not go about these matters in the fashion we have been accustomed to think of them. Official supervision implies, at least in the public’s perception, a shared responsibility by the government on the performance and integrity of bankers. A failed bank is a failed supervisor notwithstanding deposit insurance, another of the multiple sources of

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moral hazard. Therefore the public will inevitably request public support after the collapse of a supervised bank.

A natural outcome of this discussion would be then to have a private agency perform supervision, to separate this function from the institution that controls the monetary base. But the accounting practices and rigor of even international accounting firms is hostage to national interests when dealing with the private institutions of emerging markets. This leads us into perhaps international rating agencies. Which still leaves open the question of what they ought to rate. The answer may lie pretty much in the checklist of what national supervisors are already supposed to be doing, such as fit and proper criteria regarding controlling shareholders and officers, high minimum capital requirements, mark to market asset valuations, reserve ratios against non-performing loans, the criteria for identifying and classifying the latter, a publicly available data base on the standing of borrowers, etc. Stuff that is well known in the literature and that has been well reasoned and defined by the Basle Committee.

The IMF and Basle could provide specific guidelines for emerging market financial systems, but no supervisory role should be attached to institutions such as the IMF given their need to find political middle ways (forbearance?) amongst their members when worrisome vital statistics begin to manifest themselves on any given economy. A market-oriented solution should rely to the extent possible on entities removed from government control or undue government influence.

Would there be a role for national regulatory institutions beyond providing a few general guidelines such as the ones suggested above? Since central banking is likely to remain a national prerogative, any solution will maintain a mixed character. Another desirable rule in this context would be to reduce moral hazard even more by requiring full liquidity coverage (not reserve requirements as many non-monetary economists tend to recommend) of sight deposits and of other quasi-liquid instruments, which would contribute to reduce the reliance on day to day and even, to some degree, on emergency lending of last resort. The same would be required of foreign exchange commitments by commercial banks. Local authorities should also require banks to publish information in a manner that is readily understandable to the general public. The purpose of such information would be to allow the public to easily discriminate risk among the different banks.

Within the same market-oriented spirit all commercial banks should be required to issue subordinated debt in international markets. This measure would make a strong contribution towards attracting a careful scrutiny from international investors and would ensure that only strong institutions are allowed to operate\textsuperscript{62}.

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\textsuperscript{62} Calomiris and Powell (2000) discuss the usefulness of this instrument for the case of Argentina. A relevant quote from this paper in this context is the following: \textit{“the market-if it has the correct information-may be more willing and able to discipline weak institutions than their supervisors.”}
A minimum of 2% of deposits may be a sufficient amount as related (but not quite fulfilled) by Calomiris and Powell (Ibid.) for Argentine banks.

Deposit insurance, one of the many sources of moral hazard, would have to be eliminated. It may be that its sudden elimination would create substantial short-term desintermediation, depending on the circumstances of any particular country, but a phased elimination would put the system under a different standing.

The measures outlined in this final section have a double inspiration: one, to isolate the banking system as much as can be done from the umbilical cord of central banking. The other source of inspiration is to eliminate the moral hazard originated in indigenous regulatory agencies. Unfortunately, all these answers are second best solutions because the ultimate source of moral hazard, the unlimited potential of additional liquidity, will always lurk in the background as long as central banks exist.
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