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Mexico's Experiments with Bank Privatization and Liberalization, 1991-2002

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During the 1990s Mexico conducted two experiments with its banking system. In the first experiment (1991-96) it privatized the banks. This experiment took place without institutions that promoted the monitoring of banks and without institutions that promoted the monitoring of borrowers and the enforcement of property rights. The result was that banks did not behave in a prudent manner and the banking system collapsed. In the second experiment (1997-2002), Mexico reformed many of the institutions that promoted bank monitoring and it opened up the industry to foreign investment. It did not, however, reform the institutions that promote the monitoring of borrowers and the enforcement of property rights. The result was that bankers behaved prudently, but prudent behavior means that they do not lend to firms and households.

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Over the past decade Mexico has conducted two experiments with its banking system. The first took place in 1991 when the government privatized the commercial banks that it had expropriated in 1982. The second took place in 1997, when the government, having had to rescue the banks that it had just privatized, allowed foreign firms to purchase controlling interests in the restructured banks. It also carried out a reform of accounting rules and deposit insurance. Neither of these experiments produced the outcome that the government and the Mexican public expected. The first experiment produced a banking system that became insolvent within four years and that had to be bailed out at a cost estimated at \$65 billion. The second experiment produced a banking system that is stable, but that extends very little credit to firms and households. The ratio of private sector lending to GDP in Mexico is only 11%, an extraordinarily low figure both by Mexico's historical standards and in relationship to that of other middle-income developing countries.

This paper seeks to understand why both of these experiments failed. It argues that there were two central problems during the privatization experiment (1991-96). First, Mexico's institutions structured incentives such that neither bank directors, bank depositors, nor bank regulators had strong incentives to monitor bank behavior. Second, Mexico had weak institutions to assess the creditworthiness of borrowers ex ante and enforce the property rights of bankers ex post. The combination of the two produced lending strategies that, at the very least, were imprudent. During the liberalization experiment (1997-2002), many of the institutions that encouraged imprudent behavior were reformed. The problem of assessing credit risk ex ante and enforcing property rights ex post, however, remained. As a result, bankers adopted a strategy that is optimal

for them under the circumstances but that is negative from the point of view of economic development: they tend to hold government securities or make loans to government entities rather than provide credit for private investment and consumption.

Privatization and Collapse, 1991-96:

All markets are embedded in political systems. The market for Mexico's privatized banks was not an exception to this general rule.

Two features of Mexico's political economy fundamentally shaped the process of privatization. First, bankers faced expropriation risk. From the banker's point of view, the government had few limits on its authority and discretion: a single party had monopolized power since 1929. Second, the Mexican government wanted to maximize revenues from privatization because of it faced a serious fiscal crisis. Let us explore how each of these shaped the process of privatization and the resultant structure of the banking system.

Political Monopoly and Expropriation Risk

Mexico's bankers faced a government that had few limits on its authority and discretion. Mexico had been ruled by a single political party since 1929, the Partido Revolucionario Institucional (PRI). Until the congressional elections of 1997 the PRI held overwhelming majorities in both houses of congress; and until the presidential election of 2000 the president was always the PRI candidate. This meant that there were neither ex ante veto points in the decision structure of the polity nor ex post sanctions for public officials who behaved in an arbitrary fashion. The Mexican president therefore had

virtually unlimited policy authority: congress merely rubber stamped presidential initiatives.

Mexico's presidents had, in fact, used their unconstrained authority to expropriate Mexico's bankers on two occasions during the twentieth century. The first occasion was in 1915-1916, when President Venustiano Carranza expropriated the banks in order to finance his military campaign against Pancho Villa and Emiliano Zapata during the Mexican Revolution. The "intervened" banks, stripped of their liquid assets, were later returned to the bankers in the early 1920s. (Maurer, 2002; Haber, Razo, and Maurer, 2003, chap. 4). The second occasion occurred in September 1982, when President José López Portillo expropriated the banks in an attempt to blame the country's desperate economic situation on the country's bankers, rather than on his government's mismanagement of the economy.¹ Significantly, the expropriation, which required a constitutional amendment, was ratified by the Mexican congress with virtually no debate.

From the point of view of Mexico's bankers at the time of the 1991 bank privatization, there was little reason to believe that the government might not expropriate the banks again. President Carlos Salinas de Gortari (1988-94) might have been pro-business, but there was no telling what his successors might do. Mexico was still a one-party government in which presidents had the authority to reduce property rights at will. Moreover, the Mexican government, as the bankers well knew, did not have to engage in de jure expropriation in order to reduce the property rights of the bankers. The

¹ Because López Portillo sought to blame the bankers for Mexico's economic crisis, he adopted the rhetorical strategy of referring to the expropriation as a "nationalization," as if the banks had been foreign-owned and had been working against the interests of the nation. In point of fact, foreign-owned banks had been legally blocked from operating in Mexico since the 1880s. Exceptions were granted for the "representation offices" of large foreign banks, but these were not permitted to engage in retail banking operations. They existed to facilitate loans to the Mexican government, as well as to provide credit to large

government had a broad range of methods by which it could carry out a de facto expropriation: it could raise the tax rate; increase reserve requirements (and require that those reserves be held in government bonds); finance deficits by increasing the money supply, thereby setting off an inflation that would essentially be a tax on the holders of cash; or impose interest rate ceilings, driving profit margins to zero. To the bankers, the threat of the government taking these measures was not a distant theoretical abstraction: Mexico's governments of the 1970s had actually done all of these things, reducing the property rights of the bankers even before the de jure expropriation of September 1982 (Del Angel-Mobarek, 2002).

Mexico's potential bankers therefore needed to be compensated for expropriation risk by limiting competition, which would drive up their expected rates of return and allow them to recoup their initial investments in the space of a few years. Had they faced a competitive market, they would not have bid at all, or they would have offered prices that discounted the probability of expropriation.

Government Incentives, Auction Rules, and NAFTA Restrictions

From the point of view of the Salinas government, receiving a low price for the banks was an unattractive option. It faced two inter-related crises: one fiscal, the other political. Solving both of them simultaneously required that the government maximize the revenue from the sale of the banks.

The fiscal crisis had its roots in the 1970s, when Mexico's governments began to spend far more than they could raise through the country's inadequate taxation system.

scale Mexican firms. They typically did this in cooperation with Mexican bank. Significantly, foreign bank representation offices were excluded from the 1982 expropriation.

These deficits were financed by increasing the money supply, by directed lending from the banking system to government-owned firms, and by borrowing from foreign banks. By the summer of 1982 this strategy had become unsustainable: Mexico was entering into a hyper-inflation and the government could not service the foreign debt. The government of José López Portillo (1976-82) therefore defaulted on its international debts, converted dollar denominated accounts to pesos at the official rate of exchange (roughly half the black market rate), blamed the bankers for the collapse of the exchange rate, and then expropriated the banks. Neither the governments of Miguel de la Madrid Hurtado (1982-88) nor Carlos Salinas de Gortari (1988-94) had the ability to raise taxes effectively. Foreign borrowing, for obvious reasons, was also not a viable alternative. Thus, they had to cut spending.

Spending cuts exacerbated the political crisis faced by the PRI, which was increasingly facing a population that had grown tired of austerity and lowered expectations. (Real GDP growth from 1982 to 1988 was flat, while the population grew at 1.5 percent per year). Carlos Salinas' electoral victory in 1988 was by the smallest margin in the history of the PRI, and even that narrow victory was the product of electoral fraud.² The future of the PRI therefore required social spending programs that could be strategically directed so as to purchase electoral support.

Salinas' strategy to satisfy his fiscal and political constraints was therefore to find extraordinary (non-recurring) revenue sources. The obvious source of these revenues was the sale of state-owned firms, which covered every imaginable type of enterprise,

² Fearing that Salinas was losing the election, the government announced that the computer system that counted votes had crashed. During the intervening days, while the computers were putatively being repaired, the president of the PRI proclaimed Salinas' victory. A deal was subsequently struck with one of

including hotels, airlines, steel mills, sugar refineries, and banks. Inasmuch as many of these firms tended to be money-losers (over half of government revenues went to support the operating losses of state-owned enterprises) their sale would not only provide extraordinary revenues but would also reduce the drain on the budget.

It was, in short, in the interests of the government to obtain the highest price possible for the privatized banks. The government therefore pursued strategies that were consistent with this goal.

One of the government's strategies was to signal potential bidders that they would not have to operate in a competitive environment. The Mexican banking industry at the time of privatization in 1991 was composed of 18 banks, four of which controlled 70 percent of total bank assets. The government therefore did not break these up, but sold them as is. The government also made it clear that it would regulate entry into the banking industry: obtaining a charter required the permission of the Secretary of the Treasury. This, of course, raised the charter value of the banks on offer.

The government also signaled potential bidders that they would not have to compete against foreign banks. First, foreign banks were not allowed to participate in the 1991-92 bank auctions. Second, the NAFTA agreement of 1994 severely limited the participation of foreign banks in Mexico. NAFTA provided that U.S. and Canadian banks could own no more than 30% of a Mexican bank's capital. It also provided that U.S. and Canadian banks could not purchase a controlling interest in any Mexican bank whose market share exceeded 1.5 percent and that the total market share under their control could not exceed eight percent. This restriction essentially meant that foreign banks were

the opposition parties (the Partido de Acción Nacional) to burn all of the original ballots. All of these facts have recently been admitted to by former President Miguel de la Madrid.

excluded from the market, because there were only two banks with market shares of 1.5 percent or less. Over a six-year transitional period U.S. and Canadian banks could gradually hold larger market shares, up to a cap of 15 percent by the year 2000. Even after this transitional period, however, NAFTA allowed the Mexican government the right to freeze the purchases of Mexican banks by U.S. and Canadian concerns for a three-year period if foreign banks as a group controlled more than 25 percent of the market. Foreign banks were also still subject to the rule that they could own no more than 30 percent of a Mexican bank's stock. (Murillo 2002: 35).

Finally, the government structured the auction process so as to maximize the prices on offer. The formal rules of the auction specified that bids would be sealed and that the managerial expertise of the bidding groups would be taken into account. (Unal and Navarro 1999). The notion that the government would take the quality of management into account was eviscerated by a decision to only do so if the second highest bid was within three percent of the first highest. This meant that the highest bidders always won the auction.

The government also did not bring Mexico's accounting standards in to line with generally accepted accounting standards. One of the most lenient of Mexico's bank accounting rules was that when a loan was past due, only the interest in arrears was counted as non-performing. The principal of such loans could be rolled over, and counted as a performing asset. Moreover, past due interest did not have to be written off: it could be rolled into the principal and the capitalized interest could be recorded as income. Reforming this rule (as well as others that inflated bank assets) would have lowered the market value of the banks, because it would have increased the ratio of non-performing to

total loans, lowered the banks' reported rates of return, and decreased the book value of assets. How much lower the banks would have been valued is difficult to know. It is known, however, that the government had contracted outside consulting firms to provide it with a valuation of the banks. It did not, however, make the results of those studies public. (Unal and Navarro, 1999).

The government then auctioned the banks sequentially. Rather than a single round of sealed bids, the government sold the banks in six rounds of bidding between June 1991 and July 1992. This increased competition for the banks in the later rounds, thus creating a "cascade effect." In Table 1 we demonstrate that the most important determinant of the price paid for a bank (in terms of its bid-to-book ratio) was the bidding round in which it was purchased. All things being equal (size of bank, profitability, number of bidders) each additional round of bidding pushed up the bid-to-book ratio by .30. This ratio is stable across alternative specifications and is always significant at the one percent level. In fact, bidding round is the only statistically significant variable that has a positive sign in the regressions. Surprisingly, neither the rate of return on assets, the rate of return on equity, nor the number of bidders is statistically significant.³ Perhaps most surprisingly, the market power of a bank (measured as the log of bank assets) is statistically significant, but it has the wrong sign: market power is negatively correlated with the bid to book ratio. This is not the outcome that one would expect from theory: one would usually expect that the market power of a bank would be capitalized in its auction price.

³ We measure profitability as both the rate of return on assets and the rate of return on equity over the three years prior to the auction.

One might argue that the positive correlation between the bid-to-book ratio and the bidding round is an artifact of the way we measure the bidding variable (a single variable with a range of 1-6, corresponding to each bidding round). We therefore re-estimated the regressions measuring bidding round as a series of dummy variables (one for each bidding round). The results we obtain, reported in Table 2, are consistent with the results in Table 1. The dummies for bid rounds two and three have low magnitudes and are not statistically significant. In bid round four, however, both the magnitude and the statistical significance of the dummy increases—although it is still only significant at the 20 percent level. The dummies for bid rounds number 5 and 6, however, have very large magnitudes (1.68 and 1.38, respectively) and both are highly significant. In short, our results are not sensitive to the specification: a series of sequential auctions dramatically raised the bid to book ratios.

This set of institutional arrangements produced an average (weighted) bid-to-book ratio of 3.04, and an income of \$12.4 billion for the Mexican government.⁴ Indeed, bid-to-book ratios of 3.04 suggest that bankers paid a substantial premium. In United States bank mergers during the 1980s, for example, the average bid-to-book ratio was 1.89 (Unal and Navarro, 1999: 78). Mexico's bid-to-book ratios were also high by European standards: in European bank privatizations the typical bid-to-book ratio was on the order of 2.5—and European bankers did not face the same expropriation and default risk as did Mexican bankers. Research by Gunther, Moore, and Short (1996) indicates that the share of past due loans, the return on banking assets, and the industry's capital to asset ratio were all moving in a direction indicating increasing weakness among the government-

owned banks. An analysis by Unal and Navarro (1999) of the market value of traded shares around the time of the auction is consistent with the Gunther, Moore, and Short view: the prices paid at auction carried a premium of 45 percent over the value of that equity as priced by the Mexican stock market.

Who Monitored the Banks?

Even had the circumstances been ideal, it would have taken a heroic effort to create a stable and profitable banking system when the bankers had paid 3.04 times book for the banks. The circumstances were, however, far from ideal, because the institutions created in the process of bank privatization severely weakened bank monitoring and, instead, encouraged reckless behavior.

Reckless behavior by banks is typically prevented by monitoring by three groups: government regulators, bank directors, and bank depositors (particularly large corporations who have significant deposits at risk). In theory, if the latter two groups have money at risk, government regulation is not even necessary. This was the case, for example, in the nineteenth century United States, when banks were chartered by state governments that did not actually have the administrative capacity to regulate the hundreds of banks that operated within their borders. (Rockoff, 1974, 1985).

Depositors had no incentives to monitor the banks because they had no money at risk. *All deposits*, including interbank deposits, were insured by the government. Not surprisingly, research by Martinez Peria and Schmukler (2001) that analyzes changes in time deposits and interest rates in Mexico from 1991 to 1996 finds that various measures of banks' riskiness did not influence deposit growth through September 1995. Banks with

⁴ A bid to book ratio of 3.53 is commonly cited in the literature. This is the unweighted average. But, Mexico's largest banks actually received lower multiples of their book value when they were auctioned

riskier loan portfolios offered higher interest rates, and those rates attracted deposits. This left the owners of these banks free to aggressively pursue high risk lending policies.

Mexico's regulators were also not effective monitors: they were inexperienced, and the tools they had at their disposal were blunt in the extreme. It was, after all, the government itself that had designed Mexico's extremely permissive bank accounting standards. Mexico's bankers may, in fact, have expected a high degree of regulatory forbearance. (Gruben and McComb 1997).

This meant that bank directors had to be counted on to monitor one another. The evidence indicates, however, that they did not have enough of their own capital at risk to give them the incentives to be effective monitors. The original payment plan devised by the government called for a 30 percent payment three days after the announcement of the auction winner, with the remaining 70 percent due in 30 days. The bankers, however, convinced the government to replace these rules with one that gave them time to finance their purchases with outside sources of funds. Under the new plan, the first payment was reduced to 20%, a second payment of 20% was to be paid 30 days later, and the remaining 60% was to be paid four months after that. The bankers used the five month period between the auction and the final payment to raise the funds to purchase the banks from outside investors. Some funds were raised from small Mexican investors, some from loans from foreign banks, and some by issuing commercial paper. Some of these outside funds, particularly the commercial paper and the foreign bank loans, might then

than the smaller banks. Hence, the weighted average ratio was 3.04.

have been refinanced with loans from the very banks that had just been purchased. (Unal and Navarro, 1999).⁵

Poised for Collapse:

The lack of effective monitoring meant that the Mexican banking system quickly began to accumulate a large volume of non-performing loans. As Table 3 demonstrates, when we sum the value of declared non-performing loans (which only included past due interest) to the value of “rediscounts” (the rolled over principal of those non-performing loans), the result is that as early as December 1991 more than 13 percent of the loan portfolios of Mexico’s banks were non-performing. By December 1993 the rate was over 16 percent.

Thus, the Mexican banking system was poised for collapse even before the peso devaluation of December 1994, which caused the central bank to raise interest rates and generated a widespread default among borrowers with variable rate loans. Gonzalez-Hermosillo, Pazarbasioglu, and Billings (1997) have demonstrated this using a hazard model to predict bank failure after privatization through 1995. Their results strongly show that it was not the macroeconomic shock of the 1994-96 peso crisis that led to bank failure. Rather, that event served as a tipping point for banks that were fragile to begin with given their aggressive and risky lending. Gonzalez-Hermosillo, Pazarbasioglu, and Billings (1997) also demonstrate that “contagion effects,” or the overall fragility of the

⁵ In the case of Banca Serfin (Mexico’s third largest) an additional departure from the usual procedures might also have reduced the director’s capital at risk. Unlike its practice in all the other bank auctions, the government held back 16% of the stock from the bidding process. This remaining 16 percent was a purchasing option for the group that bought the bank that they could exercise after the auction process closed. (Unal and Navarro, 1999).

banking system, set the stage for the entire system to become destabilized by the tequila crisis. In other words, it was not just individual banks actions that led to that bank's downfall, it was the actions of its competitors as well. The peso crisis simply tipped the scales of a precarious industry.

How the industry came to this precarious situation is the subject of some debate. There is widespread agreement that the root cause was ineffective monitoring. There is not, however, agreement on whether ineffective monitoring allowed inexperienced and over-optimistic bankers to act in an imprudent manner or whether ineffective monitoring allowed bankers to engage in tunneling. The two hypotheses are not mutually exclusive: both could have been going on.

The first view—that bankers were inexperienced and overly-optimistic—stresses that the level of financial penetration in Mexico in 1991 was quite low by the standards of developed countries, and thus bankers perceived that there would be lucrative returns from entering the underserved Mexican market. (Mansell-Carstens, 1996: 294-96). This view also stresses that the bankers evidently believed that they had purchased secure oligopolies—which is why they had paid 3.04 times book value for the banks. (Gruben and Welch 1996). They underestimated, however, the degree to which banking markets in Mexico were contested. They also misjudged the government, which soon granted charters to an additional 17 banks. By 1993, just two years after privatization, the Herfindahl Index had fallen from .14 to .10, implying that the competitive structure of the banking industry had moved from being identical to one in which there were seven banks of equal size to one in which there were ten banks of equal size. (See Table 4) Thus, the bankers found themselves in a scramble for market share. As Gruben and McComb

(1997 and 2003) have shown, Mexico's banks actually competed so aggressively for market share that they operated beyond the point where marginal costs equaled marginal revenue.

The inexperienced banker view would also stress that Mexican bankers did not know how difficult it would be to assess credit risks. There was, in fact, no private credit reporting in Mexico. The Mexican Bankers Association had started to pool credit information in the early 1930s, but in 1934 the central bank took this authority from them and established a government-run agency. As often happens with government-run credit reporting, the banks had little incentive to report their loans to the agency, and thus this system became moribund. (Negrin, 2000). Had the situation been different—had bankers not paid 3.04 times book for the banks or had they not been scrambling for market share—they could have gradually built up credit histories by making loans of modest size, and then increased (or decreased) credit based on borrowers' repayment records. The scramble for market share and the high prices paid for the banks, however, meant that banks did not have this luxury.

Finally, the inexperienced banker view would stress that Mexico's bankers did not understand how difficult it would be to enforce their property rights once borrowers reneged. Thus, they made large numbers of housing and real estate loans, not realizing that it would take, on average, seven years for them to foreclose on bad loans. Thus, collateral recovery rates were amazingly low: five percent in 1991 and 1992, seven percent in 1993, and nine percent in 1994. (See table 5). The situation was actually much worse than these figures indicate, because Mexico's departure from generally accepted accounting practices meant that the value of non-performing loans was seriously

under-reported. Had generally accepted accounting practices been followed, the ratio of repossessed collateral to non-performing loans would have been far lower than the data presented here.

The second view, which we will call the tunneling view, would stress that Mexico's bankers were not sheep to be fleeced, they were experienced businessmen who understood the environment in which they operated. It would also stress the fact that evidence from later in the 1990s (the period 1995-98, when the government was intervening insolvent banks) indicates that the bankers had engaged in widespread insider lending, and that the loans they made to themselves had lower interest rates, higher rates of default, and lower rates of collateral recovery than unrelated arm's-length loans. (La Porta, Lopez-de-Silanes, and Zamarripa 2003.)

There is not yet sufficient evidence to adjudicate between these two views. The La Porta et. al. results support the tunneling hypothesis. Their research, however, focuses on the period when the banks were already being intervened by the government. Mexico's bankers may have realized that they were about to lose control of their banks, and thus had strong incentives to make loans to loans to themselves that they did not intend to repay. An analysis of loan portfolios during the period 1991-95 would be necessary in order to provide a fully compelling test.

The Expansion of Credit and the Growth of Non-Performing Loans:

Regardless of the specific mechanism, one thing is certain: bank credit in Mexico grew at a prodigious rate. As table 6 demonstrates, the compound rate of growth of bank lending was on the order of 24 percent per year. Housing loans in particular grew

phenomenally fast: from December 1991 to December 1994 real lending for housing and real estate nearly tripled. Moreover, this is a lower bound estimate of the growth of housing lending because it includes only performing loans. Much of the housing portfolio was non-performing, and the principal value and past due interest of these loans were continually rolled over into an accounting category called “rediscounts”. Inasmuch as the value of rediscounts was nearly equal to the total value of housing loans in December 1994, the threefold increase in housing loans from December 1991 to December 1994 is a lower bound estimate. The actual rate of growth might have been nearly twice that.

Even more rapid than the growth in lending, was the growth of non-performing loans. Table 3 presents estimates of non-performing loans based on different ways of treating the various rollovers and restructurings that were permitted under Mexican accounting rules. One way that banks handled past due principal was to “rediscount” them—essentially creating a category of rollovers that reflected the low probability that the loans would be repaid. These rediscounts were not listed in the portfolio of performing loans, but they were not listed as being non-performing either. If we add these rediscounts to declared non-performing loans, then the default rate jumps dramatically. For example, instead of being 3.6 percent in December 1991, (the declared ratio of non-performing to total loans) the ratio would have been 13.5 percent. Instead of being 6.1 percent in December 1994 (the declared rate) it would have been 17.1 percent. The practice of “rediscounting” loans began to be phased out by banks in 1995. Instead, they began to renew or restructure unpaid principal, and treated these rollovers as performing. In the third column of table 3 we include the value of these renewed or

restructured loans along with rediscounts and declared non-performing loans. Treating these rollovers as past due loans produces even more striking results. Instead of a non-performing ratio of 5.7 percent in December 1996, the ratio jumps to 32.5 percent. Even this figure is likely an underestimate, because banks were allowed to swap many of their non-performing loans for bonds from Mexico's deposit insurance system as part of a bailout (a subject to which we will return at length). If we add the value of these FOBAPROA bonds to the value of declared non-performing loans, rediscounts, and restructured or renewed loans, then the percentage of loans that were non-performing actually exceeded the percentage of loans that were in good standing: in December 1996 the non-performance ratio would have been 52.6 percent.

Bank Efficiency and Profitability

The response of Mexico's bankers to high rates of default and low rates of collateral recovery appears to have been to follow even more imprudent strategies. The loan category that was subject to the highest rate of default was housing. Nevertheless, banks responded to the growing ratio of non-performing housing loans by making yet more housing loans. In addition, bankers maintained thin reserves. In table 7 we calculate the capital adequacy ratios of Mexico's banks. We are unable to calculate these ratios on the basis of risk-adjusted assets (as is commonly done in such analyses) because of the lack of adequate data prior to 1997. We are able, however, to estimate a uniform series of asset values by applying post 1997 accounting standards to pre-1997 bank financial statements. Our results indicate that during the 1991-95 period, banks maintained capital-assets ratios of only six to seven percent. Had we not adjusted the data to bring pre-1997 financial statements into line with post-1997 financial statements,

the capital assets ratios would have been even lower still—in most quarters the ratio of capital to assets would have only been five percent.

In the short run, under-capitalization allowed Mexico's bankers to earn a high rate of return on equity. Our calculations of the rate of return on equity, presented in table 8, indicate annual returns of better than 20 percent through 1993. These high rates of return on equity were generated, however, by the fact that the banks maintained low levels of reserves. If we look at rates of return on assets a less sanguine picture emerges: from 1991 to 1993 the rate of return on assets was on the order of 1.5 percent per year. Even this figure, however, is inflated because of the banks' practice of rolling over past due interest into principal, and treating the increase in principal as income.

Collapse and Bailout

Even had there been no peso crisis of 1994-95, the Mexican banking system would have collapsed. The government's mishandling of the exchange rate merely hastened the banking system's demise. There is a sizable literature on the so-called Tequila Crisis, but for our purposes here we note that the overvaluation of the peso by the Salinas government made a bad situation worse.⁶ The crawling peg exchange rate policy of the Salinas government had been established to help fight inflation, and it had been largely successful in accomplishing that goal. Given the fact that Mexican interest rates were considerably higher than U.S. rates, and that the government was signaling an intention to maintain a stable (and overvalued) exchange rate, there were strong incentives for both Mexicans and foreigners to deposit funds in Mexican banks. There were also incentives for Mexican firms, including banks, to sign debt contracts

denominated in dollars. By the end of 1994, however, it was becoming increasingly clear that the exchange rate was seriously overvalued. Once that happened, bank depositors had every incentive to withdraw their funds and convert them to dollars before the government allowed the currency to float freely. Firms with dollar denominated debts could not, however, act so quickly: as a result, the peso value of their debts nearly doubled in the space of a few days once the exchange rate was allowed to float.

The collapse of the exchange rate in December 1994 created two problems for the banking system. First, foreign currency loans represented roughly one-third of total loans made by Mexican banks. Many of these loans, however, had been made to firms without sources of foreign currency income. (Krueger and Tornell, 1999). Second, the collapse of the peso required that the government pursue a tight monetary policy, raising central bank interest rates. The interbank loan rate, at its peak, hit 114 percent. Mortgage interest rates jumped to 74 percent by March 1995, from 22 percent just five months before. (Gruben and McComb 1997). The rapid rise in interest rates pushed risky, but performing, loans into default. As the stock of non-performing loans mounted, and as the size of the deposit base shrank because of the run on the peso, the banks became insolvent.

The dimensions of the collapse can be seen through several measures of bank performance. In table 3 we estimate the ratio of non-performing to total loans. If we include principal rollovers and the value of FOBAPRA bonds as non-performing, then the ratio of non-performing loans grew from 17 percent at the end of 1994 to 36 percent by the end of 1995, and to 53 percent at the end of 1996. As debtors stopped making payments, income from loans dropped precipitously. Net interest margins (the spread

⁶ See Krueger and Tornell 1999 for a discussion of the exchange rate policy and its implications for the banking sector.

between what banks charge for loans and what they pay depositors) actually became negative from December 1995 to September 1997 (See Table 9). As a consequence, bank financial margins (which include income and expenses from securities investment as well as loan-deposit operations) fell as well (See Table 9). Not surprisingly, banks retreated from the loan business. Real lending to consumers and businesses contracted by 64 percent from December 1994 to December 1997. (See Table 6).

The government responded with a bailout of the banking system. The bailout accomplished two goals: it prevented the complete collapse of the banking system (with its consequent negative impact on the overall economy), and it avoided a re-nationalization of the banks. These goals were accomplished, however, at significant cost to Mexican taxpayers.

The particulars of the bailout, which had four interlinked pieces, warrant some discussion. First, the government sought to prop up the banks by lending them the capital necessary to maintain adequate reserves. A trust fund was created (known by its Spanish acronym, PROCAPTE) by the government's bank deposit insurance agency (known by its Spanish acronym, FOBAPROA) with funds provided by the central bank. This trust fund essentially lent the banks capital sufficient to maintain a 9 percent capital ratio in exchange for five-year bonds from the bank. In the event of non-payment, the bonds were convertible to ordinary stock that could be sold by the government. Second, the government moved to protect some borrowers, and in so doing protected the banks. The government established an indexed accounting unit (known by its Spanish acronym, UDIS) and allowed loans to be re-denominated in these units. Banks were then allowed to transfer loans to a government trust fund, which converted them to UDIS and which

bore a real interest rate of four percent plus a margin to reflect the credit risk of the borrower. Third, Mexican banks had significant amounts of short term, dollar denominated debt. The government therefore opened a special dollar credit window at the Bank of Mexico to provide them with foreign currency. Fourth, the government cleaned the bank's balance sheets of non-performing loans through its deposit insurance agency (FOBAPROA). In exchange for their non-performing assets, the banks received a non-tradable, zero coupon ten-year FOBAPROA bond that carried an interest rate two points above the government CETES (treasury bond) rate. The bankers agreed that for each peso in FOBAPROA bonds they received, they would inject 50 centavos of new capital, so as to recapitalize the bank. Banks were charged with collecting the principal and interest on the loans transferred to FOBAPROA. As a practical matter, however, they did not do so. (Krueger and Tornell, 1999; Murillo 2002).

Banks that were in serious financial distress were intervened by the government's National Banking and Securities Commission (known by its Spanish acronym, CNBV). Ultimately, there were 15 such banks. When a bank was intervened, the CNBV cleaned the non-performing loans from the balance sheet through the FOBAPROA bond mechanism discussed above and injected new capital through the government backed recapitalization program. The government, via FOBAPROA, also guaranteed all of the deposits of the bank. Finally, the CNBV arranged for the bank to be sold to another institution, or it liquidated the bank.

Mexico's bankers may have anticipated the intervention and bailout. Indeed, given that Mexico had unlimited deposit insurance and that many of the banks were "too big to fail," it is hard to see how they would not have expected one to take place. The

anticipated intervention and bailout, however, appears to have created problems of moral hazard: for some bankers there were incentives to make large loans to themselves—and then default on the loans.⁷ As La Porta et. al. (2003) have shown, 20 percent of all large loans from 1995 to 1998 went to bank directors. These insider loans carried lower rates of interest than arm's length loans (by four percentage points), had a 33 percent higher probability of default, and had a 30 percent lower collateral recovery rate.

Not surprisingly, the FOBAPROA bailout was not (as originally anticipated in early 1995) a one-time event. Rather, it became an open-ended mechanism, with additional non-performing loans being transferred from banks to FOBAPROA through 1999. (See table 6). For the same reason, bank interventions were also not a one time event, but were spread out from 1994 to 2001. As of June 1999, the total cost of the bailout programs was 692 billion pesos (\$65 billion) roughly 15 percent of Mexican GNP. (Murillo, 2002: 24, 27).

The fact that the banking system bailout involved an implicit transfer from taxpayers to bank stockholders, who included some of Mexico's wealthiest men, produced a political firestorm in Mexico—one that held up 1999 budget for nearly nine months. Ultimately, it was agreed that the annual cost of the banking sector rescue would be paid for by the government out of each year's budget. This was a de facto admission

⁷ Mexico's bankers had been engaged in related lending for over 100 years before the failed related loans of 1995-98. Related lending during this earlier period a rational response to the difficulty of enforcing contract rights through the legal system. Related lending during the pre-1991 period did not, in fact, result in bankers looting their own banks. First, bank directors monitored one another through complex networks of interlocking directorates. Second, shareholders developed mechanisms to monitor directors. Third, because there was no deposit insurance, depositors policed banks by withdrawing deposits from risky banks. (Maurer 2002; Del Angel-Mobarek, 2002; Maurer and Haber 2004).

that the loans converted to FOBAPROA bonds were unrecoverable. FOBAPROA was disbanded, and was replaced with a new deposit guarantee agency, the Bank Savings Protection Institute (known by its Mexican acronym, IPAB). FOBAPROA bonds were therefore swapped for similar IPAB bonds, and IPAB was given the task of recouping and liquidating the assets backed by those bonds. (McQuerry 1999).

Liberalization without Property Rights

Saving the Mexican banking system not only required that the government bail out depositors (and some of the stockholders), it also required that the banks be put on a more sound footing.

The government therefore carried out a series of reforms designed to improve monitoring and recapitalize the banks. First, insider lending was made more difficult. Banks were required to publish consolidated accounts that included the operation of their subsidiaries. In addition, they were precluded from making loans to bank officers and employees that were not part of their employee benefits. Second, capital requirements were increased and a regulatory system was introduced that established reserve minimums in accordance with the riskiness of a bank's portfolio. Third, the accounting treatment of past-due loans was reformed to bring it into line with generally accepted accounting standards. Finally, as of January 2003, deposit insurance was limited to 10 million UDIS. Coverage will decline over time to a maximum of 400,000 UDIS by January 2005.

The government also lifted all of the restrictions on foreign ownership of Mexican banks. The government began to remove restrictions on foreign bank acquisitions of Mexican banks in February 1995, when foreign banks were permitted to purchase

Mexican banks with market shares of six percent or less. This still kept the largest Mexican banks off the table. In 1996, all restrictions were removed on foreign bank ownership in Mexico (with the new regulations going into effect in 1997).

As a result, foreign banks began to purchase controlling interests in Mexico's largest banks. In December 1996 (just prior to the new rules regarding foreign ownership), only seven percent of total bank assets in Mexico were controlled by foreign banks. Roughly one-half of these foreign-controlled assets were in free standing investment banks—what we refer to in Table 10 as Foreign de Novo banks—which did not engage in retail lending. These foreign de novo banks, as well as large foreign banks with no prior presence in Mexico, quickly began to purchase Mexico's largest retail banks. By March 1997, 14 percent of bank assets in Mexico were controlled by foreign banks. By December 2000, 48 percent of bank assets were controlled by foreign banks, and as December 2002 (when Citibank purchased Banamex), the share of Mexican banks under foreign control increased to 66 percent.

The entry of foreign banks into the Mexican market succeeded in recapitalizing the banking system. As table 7 demonstrates capital-asset ratios have increased monotonically since 1997, hitting 9 percent by the end of 1997, 10 percent by 1999, and 11 percent by 2002.

The combination of foreign bank entry, along with new accounting standards also appears to have reduced the level of non-performing loans in the banking system. As of 1997, banks had to declare both interest and principal as non-performing. In addition, banks could no longer carry bad loans in special accounting categories, they had to either be moved back into the regular loan portfolio or be declared non-performing. As table 3

demonstrates, the level of non-performing loans has declined monotonically since the entry of foreign banks and the enactment of the accounting reforms. In December 1997, by which time the changes in accounting rules governing non-performing loans had gone into effect, 10.2 percent of all loans were considered non-performing. By December 2000, that number had been cut in half (to 5.5 percent) and continued to trend downwards. In December 2002 the ratio was 4.4 percent.

The entry of foreign banks into the Mexican market has also had a positive effect on administrative efficiency of banks. In table 11, we present regression results from Haber and Musacchio's study of the impact of foreign bank entry on bank performance. Their results indicate that the entry of foreign banks since 1997 has served to push down administrative costs. Specification 2 indicates that the 50 percent increase in foreign market share from 1997 to 2003 reduced administrative costs by 0.50 percentage points (50 percent times the coefficient of $-.010$). When Haber and Musacchio decompose this effect, they find that the decline in administrative costs is not produced by a spillover effect from foreign banks to domestic banks. The coefficient on time (which represents the trend for domestically owned banks) is not statistically significant. Mexican banks acquired by foreign banks (denoted as foreign MA banks in the table), as well as foreign de novo banks, start out with significantly higher administrative costs than their domestic competitors. Foreign MA banks, however, have undergone a rapid decline in administrative costs, on the order to 0.1 percentage points per quarter.

Foreign bank entry also appears to have increased competition in financial services, broadly defined in Mexico. In table 12 we present regression estimates made by Haber and Musacchio on the effect of foreign banks on net financial margins (the profit

margin on all bank operations, including securities trading, lending, and fee income). Their results indicate that as foreign market share increases, net financial margins decrease (specification 2). When they decompose the foreign effect on net financial margins (specifications 5 and 6), they find that the effect of foreign bank entry affects domestic as well as foreign banks. The coefficient on time, which captures domestic banks, is negative (0.3 percentage points per quarter). The coefficients on Foreign MA and Foreign de Novo banks are larger still (0.4 percentage points and 0.6 percentage points per quarter). These results are robust to alternative specifications not reproduced here.

Property Rights and Bank Strategies

The entry of foreign banks into the Mexican market has not, however, solved all the problems of the Mexican banking system. Mexico's bankers still face difficulties in enforcing their property rights. Mexico does not have transparent bankruptcy laws, and the court system is inefficient in the extreme. Bankers have therefore responded in two predictable ways—neither of which is good from the point of view of economic growth.

The first response by banks to weak property rights is that they charge high loan margins. As table 9 indicates, the trend in net interest margins since 1997 has been upwards. In table 13 we present the regression results from Haber and Musacchio's study of foreign banks in Mexico. Their results indicate that the trend in table 9 is not an anomaly. Controlling for the bank characteristics and the performance of the macro economy, they find that as the market share controlled by foreign banks doubled, net interest margins *increased*. When they decompose the impact of foreign bank entry they find that foreign MA banks (Mexican banks purchased by foreign banks) have not

reduced their net interest margins. At the same time, domestic banks and foreign de novo banks have increased their net interest margins (by .001 percentage points per quarter). These results are robust to alternative specifications, not reproduced here. In short, the results indicate that while foreign banks may have made the financial services industry, broadly defined, more competitive, they have not made the credit sector of that industry more competitive.

The second response by banks to weak property rights is to reduce their loan portfolio. As table 14 demonstrates, Mexican banks, particularly those that are foreign owned, have gradually retreated from the loan business. Rather than earn income from lending, which is subject to default risk, they have increasingly allocated their assets to the holding of securities. In 1997, 71 percent of Mexican bank assets were dedicated to loans. By 2002, loans made up on average, only 59 percent of assets. The drop is even more pronounced when we treat foreign owned banks in isolation from domestically owned banks. Foreign MA banks had, on average, loan asset ratios of 72 percent in 1997. By 2002, the ratio of loans to assets in those banks was only 54 percent. Foreign de Novo banks retreated even further. Their loan assets ratio in 1997 was 59 percent. By 2002 it had fallen to 10 percent.

The decline in lending is not just relative to the size of assets. It is an absolute decline. As table 6 indicates, the real value of total bank lending at the end of 2002 was less than half of what it was at the end of 1994. Moreover, these estimates understate the decline in lending. During the initial phase of bank privatization in Mexico, virtually all lending went either to consumers or to the private sector (see table 15). Since the 1995-96 crisis, the banks have retreated from consumer and private sector lending. By the end

of 2002, the real value of loans for commercial, housing, and consumer purposes was only one-quarter what it had been in December 1994. (Table 15).

As a result, banks play only a small role in financing the real economy in Mexico. As table 16 demonstrates, bank lending as a percentage of GDP was only 15 percent at the end of 2002. To put this into perspective, in a typical OECD country, the ratio of bank lending to GDP is on the order of 100 percent. Moreover, it is low even by Mexican historical standards. Nearly 100 years ago, in 1910, the ratio stood at 25 percent. Moreover, because banks have shifted their lending strategies away from private firms and individuals, the ratio of lending for non-government purposes to GDP is lower still: 11 percent. If we exclude Fobaproa bonds held in bank loan portfolios, the ratio is lower still: 7 percent.

Not surprisingly, surveys carried out by Mexico's central bank indicate that, as of 2002, only 15 percent of small firms, 19 percent of mid-sized firms, and 24 percent of large firms report that banks were their principal source of financing. The vast majority of firms, regardless of size, report that they relied on their suppliers for most of their financing. Moreover, the surveys, which have been run quarterly since 1998, indicate that the relative importance of bank financing has been declining over time. (Serrano 2001).

Conclusions and Implications

Are there any general lessons from Mexico's experiments with bank privatization and liberalization?

Privatizing banks is not the same as privatizing other state-owned enterprises. A privatized hotel chain, steel mill, or airline can fail without serious effects on the rest of

the economy. The failure of a privatized banking system, however, will generate large negative externalities. Indeed, it can set off a generalized contraction throughout the real economy.

Policy makers should give considerable thought to designing institutions that will encourage bankers to behave prudently. This has several practical implications.

First, banking systems should not be privatized with the goal of maximizing government revenues. The practice generates incentives that may run contrary to the establishment of a stable banking system. In the Mexican case, for example, it gave the government an incentive to bend the rules governing payment for the banks, which, in turn, reduced banker's capital at risk.

Second, prior to privatization, governments should adopt generally accepted accounting standards. This may force them to write-down the value of the banks prior to sale.

Third, policy makers should give considerable thought to structuring institutions that will monitor banker behavior. Given that depositors tend to be fully insured in most government-run banking systems, it is difficult to privatize banks without retaining the extant system of deposit insurance. This will reduce the incentives of depositors to monitor the banks. Regulators are also likely to be inexperienced. After all, during the periods of government ownership, the incentives to build a regulatory agency to police bank behavior are not likely to be very high. This means that incentives have to be crafted so that bank directors will have strong incentives to monitor one another. Fundamentally, this means directors must have significant amounts of their own capital at risk.

Prudent behavior is, however, only half of the battle. If property rights are difficult to enforce, then prudent bankers will not extend credit. Enhancing property rights enforcement, however, is not something that can be done overnight. The enforcement of some types of loan contracts may, for example, be taken out of the hands of inefficient (and corrupt) judicial systems. As of the end of 2003, for example, mortgage contracts in Mexico are enforced through a system of bilateral trusts that allow banks to foreclose without recourse to Mexico's inefficient judiciary. Not all types of loan contracts, however, can be easily enforced (and disputes adjudicated) outside of the courts. Part of building an efficient and stable banking system is building an efficient and stable judicial system, and that, unfortunately, cannot be done with the stroke of a pen.

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Table 1**Decomposing Bid to Book Ratios in Mexico's Bank Privatization**

Dependent Variable is the Price Paid/Book Value

T statistics are in parentheses

Method: Least Squares

	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5
Constant	2.66 (7.32)	6.57 (4.65)	4.95 (4.02)	3.7 (2.74)	4.1 (2.30)
Log of Assets		-0.33 (-2.17)	-0.31 (-2.63)	-0.3 (-2.42)	-0.2 (-1.60)
Bid Round	0.25 (2.70)		0.27 (3.35)	0.3 (3.95)	0.3 (3.06)
Number of Bidders			0.17 (1.44)	0.2 (1.93)	0.2 (1.55)
Return on Equity				0.01 (1.69)	
Return on Assets					0.1 (0.63)
N	18	18	18	18	18
Adjusted R ²	0.27	0.18	0.49	0.55	0.47
Log likelihood	-17.89	-18.95	-13.38	-11.59	-13.11
Durbin-Watson	1.37	1.13	1.79	1.44	1.69
F-statistic	7.29	4.70	6.54	6.27	4.79
Prob(F-statistic)	0.02	0.05	0.01	0.005	0.01

Table 2

Alternate Specifications of Price to Book Regressions

Dependent Variable is the Price Paid/Book Value

Method: Least Squares

Variable	Coefficient	t-Statistic
Constant	3.08	1.98
Log of Assets	-0.18	-1.29
Number of Bidders	0.28	2.17
Return on Equity	0.01	1.46
Bid Round 2	0.33	0.80
Bid Round 3	-0.06	-0.10
Bid Round 4	0.77	1.41
Bid Round 5	1.68	3.69
Bid Round 6	1.38	2.86
Adjusted R-squared	0.56	
Log likelihood	-8.15	
Durbin-Watson stat	2.15	
F-statistic	3.71	
Prob(F-statistic)	0.03	

Table 3
 Non Performing Loans (At Year End)

Year	Declared Non-Performing (NPL) as Percent of Total Loans	Declared NPL Plus Rediscounts as % of Total	Declared NPL Plus Rediscounts Plus Renewed and Restructured as % of Total	Declared NPL Plus Rediscounts, Restructured and FOBAPROA as % of Total
1991	3.6%	13.5%	13.5%	13.5%
1992	4.7%	14.7%	14.7%	14.7%
1993	6.0%	16.2%	16.2%	16.2%
1994	6.1%	17.1%	17.1%	17.1%
1995	6.2%	13.3%	26.8%	36.3%
1996	5.7%	10.8%	32.5%	52.6%
1997	10.2%	10.2%	10.2%	39.0%
1998	10.2%	10.2%	10.2%	39.7%
1999	8.2%	8.2%	8.2%	43.5%
2000	5.5%	5.5%	5.5%	34.4%
2001	4.9%	4.9%	4.9%	32.7%
2002	4.4%	4.4%	4.4%	27.1%

Table 4

Market Structure of the Mexican Banking System, 1980-2002

<u>Year</u>	<u>Herfindahl Index on Assets</u>	<u>Four Firm Ratio on Assets</u>
1980	0.14	65%
1982	0.13	66%
1983	0.14	67%
1984	0.15	68%
1985	0.15	69%
1986	0.16	72%
1987	0.18	76%
1988	0.20	78%
1989	0.19	76%
1990	0.15	69%
1991	0.14	67%
1992	0.13	63%
1993	0.10	54%
1994	0.15	68%
1995	0.12	63%
1996	0.11	59%
1997	0.16	71%
1998	0.14	66%
1999	0.14	67%
2000	0.17	74%
2001	0.18	77%
2002	0.16	73%

Source: Indices calculated by the author from CNBV data.

Table 5

**Collateral Repossessions as Percent of
Declared Non-Performing Loans**

Year	Percent
1991	5%
1992	5%
1993	7%
1994	9%
1995	16%
1996	13%
1997	9%
1998	12%
1999	14%
2000	20%
2001	23%
2002	19%

Source: Authors' estimates from CNBV,
Boletín Estadístico de Banca Múltiple, 1993-2002;
and *Banca Múltiple*, Diciembre 1982-Diciembre 1993.

Table 6
 Mexican Bank Lending, By Category
 (Balances at Year End, in Millions of Real--December 2000--Pesos)

Year	Commercial ¹	Consumer	Housing	Government ²	Fobaproa ³	Interbank	Renewed or Restructured ⁴	Rediscounted ⁵	Declared Non- Performing ⁶	Total
1991	776,386	91,312	114,805					112,256	40,516	1,135,275
1992	961,879	127,757	178,439					148,728	69,739	1,486,542
1993	1,181,744	118,880	248,808					187,766	110,864	1,848,061
1994	1,423,325	109,387	299,437			8		244,066	134,469	2,210,693
1995	801,937	51,617	192,304	957	156,237	900	222,249	117,548	101,680	1,645,428
1996	513,686	27,745	80,338	18,587	273,760	5,536	295,744	68,554	77,913	1,361,865
1997	405,675	39,415	173,251	88,181	340,212	11,984			120,110	1,178,827
1998	388,886	32,400	178,847	92,705	346,423	15,842			119,229	1,174,333
1999	312,687	35,238	147,583	91,707	377,561	17,797			87,527	1,070,100
2000	318,320	40,596	131,224	153,331	290,161	13,890			55,069	1,002,592
2001	288,685	54,548	119,868	147,977	258,939	16,817			45,598	932,432
2002	296,116	71,837	114,223	188,042	216,169	24,179			41,485	952,051

1. The commercial loan category did not exist before 1997, thus it was estimated as a residual of total loans minus consumer, housing, government, interbank, restructured and renewed and non performing loans.

2. Does not include government bonds, which are held in the securities portfolio.

3. Value of Fobaproa bonds held by banks. They are treated as loans, because they represent loans transferred to Fobaproa and IPAB.

4. Restructured and Renewed represent loans in danger of default, which are then either restructured or rolled over. They are treated separately by banks from 1995 to 1997. In 1997, new accounting standards require banks to either declare these as non-performing or move them back to their constituent source (consumer, housing, commercial, interbank, government).

5. Rediscounted loans are non-performing loans whose principal has been rolled over

6. Prior to March 1997 non-performing loans only include past due interest. The principal was held in rediscounted loans. As of March 1997, non-performing loans included both past due principal and interest.

Non-performing loans both before and after 1997 include reductions for write downs against reserves.

Source: Aggregates created by the author from the loan portfolios ("Carteras de Credito") published by the CNBV in CNBV, Boletín Estadístico de Banca Múltiple, 1993-2003 and CNBV, Banca Múltiple, 1982-1993. Deflated using the wholesale price index from the Banco de México web page: <http://www.banxico.org>

Table 7
Capital Assets Ratio, Weighted Average of Mexican Banks
At Year End

<u>Year</u>	<u>Ratio</u>
1991	6%
1992	7%
1993	7%
1994	6%
1995	7%
1996	6%
1997	9%
1998	9%
1999	10%
2000	10%
2001	10%
2002	11%

Assets not adjusted for risk.
1991-96 assets adjusted for accounting changes after 1997.

Table 8

Average (Weighted) Annualized Rates of Return of Mexican Banks

Year	Return on Assets ¹	Return on Equity
1991	1.3%	20.7%
1992	1.6%	24.7%
1993	1.7%	25.0%
1994	0.7%	9.0%
1995	0.3%	4.8%
1996	-0.7%	-11.5%
1997	0.5%	6.1%
1998	0.5%	5.8%
1999	0.2%	2.0%
2000	1.0%	10.0%
2001	1.2%	11.4%
2002	0.7%	6.7%

Source: Calculated from CNBV, *Boletín Estadístico de Banca Múltiple*, 1993-2003 and CNBV, *Banca Múltiple*, 1982-1993.

1. Changes in accounting rules in 1997 required that we adjust pre-1997 reported assets in order to make them comparable. Reported assets from 1990 to 1996 were adjusted by subtracting deudores por reporto and futuros a recibir, and adding preventive provisions for credit risk.

Table 9
Bank Profit Margins

Year	Quarter	Net Financial Margin	Net Interest Margin
1991	March	1.4%	
1991	June	1.3%	
1991	Sept.	1.4%	
1991	Dec.	1.6%	3.6%
1992	March	1.7%	
1992	June	1.6%	
1992	Sept.	1.6%	
1992	Dec.	1.9%	3.2%
1993	March	2.2%	
1993	June	2.2%	
1993	Sept.	1.7%	4.1%
1993	Dec.	1.5%	1.3%
1994	March	1.6%	1.5%
1994	June	1.3%	1.4%
1994	Sept.	1.4%	1.4%
1994	Dec.	1.5%	1.6%
1995	March	2.0%	1.5%
1995	June	1.4%	0.1%
1995	Sept.	1.1%	0.5%
1995	Dec.	1.3%	-0.6%
1996	March	1.0%	-2.0%
1996	June	1.1%	-1.5%
1996	Sept.	0.9%	-1.5%
1996	Dec.	0.8%	-1.0%
1997	March	1.0%	-0.5%
1997	June	0.9%	-0.3%
1997	Sept.	0.9%	0.0%
1997	Dec.	1.4%	
1998	March	1.3%	0.8%
1998	June	1.3%	0.9%
1998	Sept.	1.5%	1.1%
1998	Dec.	2.3%	1.4%
1999	March	1.8%	1.1%
1999	June	1.7%	1.1%
1999	Sept.	1.8%	1.3%
1999	Dec.	1.9%	1.3%
2000	March	1.8%	1.0%
2000	June	1.5%	1.1%
2000	Sept.	1.7%	1.1%
2000	Dec.	1.8%	1.0%
2001	March	1.9%	1.5%
2001	June	1.9%	1.4%
2001	Sept.	1.9%	1.4%
2001	Dec.	1.7%	1.3%
2002	March	1.5%	1.3%
2002	June	1.6%	1.3%
2002	Sept.	1.7%	1.5%
2002	Dec.	1.8%	1.4%
2003	March	1.5%	1.4%

Source: Haber and Musacchio, 2004.

Table 10
 Foreign Bank Market Shares, By % of Bank Assets
 (At Year End)

<u>Year</u>	<u>Domestic</u>	<u>Foreign de Novo</u>	<u>Foreign M&A</u>	<u>Total Foreign</u>
1991	99%	1%		1%
1992	99%	1%		1%
1993	97%	3%		3%
1994	97%	4%		4%
1995	95%	2%	3%	5%
1996	93%	3%	4%	7%
1997	89%	4%	7%	11%
1998	80%	2%	18%	20%
1999	80%	2%	18%	20%
2000	52%	3%	45%	48%
2001	54%	5%	40%	46%
2002	34%	4%	62%	66%

Table 11

Administrative Costs Regressions¹

T Statistics in Parentheses

Dependent Variable is Administrative Costs/Assets

	<u>Spec. 1</u>	<u>Spec. 2</u>	<u>Spec. 3</u>	<u>Spec. 4</u>	<u>Spec. 5</u>	<u>Spec. 6</u>
Constant	0.020 (13.15)	0.024 (12.85)	0.016 (4.56)	0.017 (4.62)	0.017 (4.64)	0.016 (3.95)
MktShare	-0.051 (-1.66)*	-0.038 (-1.23)	-0.039 (-1.22)	-0.035 (-1.03)	-0.030 (-0.94)	-0.037 (-1.08)
Loans/Assets	-0.001 (-0.36)	-0.004 (-1.46)	-0.001 (-0.57)	-0.002 (-0.86)	-0.006 (-2.35)**	-0.004 (-1.32)
Foreign MA			-0.001 (-0.32)	0.002 (0.36)	0.010 (1.73)*	0.01 (1.65)*
Foreign de Novo			0.012 (1.70)*	0.014 (1.97)**	0.021 (2.99)***	0.020 (2.65)***
Time					0.000 (-0.88)	-0.000 (-0.96)
Time*Foreign MA					-0.001 (-2.52)***	-0.001 (-2.40)**
Time*Foreign de Novo					0.000 (-3.95)***	-0.000 (-3.35)***
Foreign MktShare		-0.010 (-3.60)***		-0.010 (-3.26)***		0.004 (0.66)
Observations	830	830	830	833	830	833
Number Groups	41	41	41	41	41	41
R ² Within	0.00	0.02	0.01	0.02	0.06	0.05
R ² Between	0.05	0.03	0.11	0.11	0.11	0.13
R ² Overall	0.03	0.04	0.09	0.10	0.11	0.11
F	1.64	5.44	2.16	3.58	7.61	5.11

1. Functional form is OLS with fixed effects. Observations are quarterly, March 1997 to March 2003. No observations for December 1997.

* significant at 10%. ** significant at 5%. *** significant at 1%.

Source: Haber and Musacchio, 2004.

Table 12
 Net Financial Margins Regressions
 T Statistics in Parentheses
 Dependent Variable=Net Financial Margins/Assets

	<u>Spec 1</u>	<u>Spec. 2</u>	<u>Spec. 3</u>	<u>Spec. 4</u>	<u>Spec. 5</u>	<u>Spec. 6</u>
MktShare	0.223 (0.76)	0.259 (0.89)	0.104 (0.35)	0.111 (0.37)	0.047 (0.16)	0.045 (0.15)
Equity/Assets	0.123 (3.04)***	0.110 (2.73)***	0.131 (3.23)***	0.116 (2.88)***	0.037 (0.88)	0.038 (0.92)
Growth Industry	0.097 (1.16)	0.081 (0.98)	0.102 (1.23)	0.086 (1.04)	0.099 (1.25)	0.107 (1.35)
Inflation	1.794 (5.92)***	1.504 (4.84)**	1.801 (5.97)***	1.516 (4.91)***	0.719 (2.13)**	0.618 (1.79)*
Real Interest Rate	0.000 (0.19)	-0.001 (1.49)	0.000 (0.03)	-0.001 (1.60)	-0.002 (2.46)**	-0.002 (2.10)**
AdminCost/Assets	-0.222 (-0.56)	-0.169 (-0.43)	-0.190 (-0.48)	-0.132 (-0.33)	0.011 (0.03)	-0.015 (-0.04)
Loans/Assets	0.607 (25.52)***	0.594 (24.90)***	0.614 (25.76)***	0.602 (25.20)***	0.576 (24.18)***	0.579 (24.22)***
Foreign MktShare		-0.131 (-3.72)***		-0.130 (-3.70)***		0.068 (1.35)
Foreign MA			-0.008 (-0.21)	0.012 (0.32)	0.075 (1.39)	0.070 (1.30)
Foreign de Novo			-0.179 (-2.80)***	-0.156 (-2.45)**	-0.089 (-1.38)	-0.098 (1.50)
Time					-0.003 (-3.14)***	-0.004 (-3.23)***
Time*Foreign MA					-0.004 (-2.05)**	-0.004 (-2.05)**
Time*Foreign de Novo					-0.006 (-4.83)***	-0.006 (-4.83)***
Constant	0.301 (17.26)	0.376 (14.18)	0.375 (11.10)	0.438 (11.66)	0.502 (12.55)	0.500 (12.49)
Observations	832	832	832	832	832	832
Number of Groups	41	41	41	41	41	41
R2 within	0.55	0.56	0.56	0.57	0.59	0.60
R2 between	0.64	0.64	0.63	0.64	0.66	0.66
R2 overall	0.58	0.58	0.56	0.57	0.59	0.58
F	138.99	125.34	110.48	102.41	95.15	88.07
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

1. Functional form is OLS with fixed effects. Observations are quarterly, March 1997 to March 2003. No observations for December 1997.

* significant at 10%. ** significant at 5%. *** significant at 1%.

Source: Haber and Musacchio, 2004.

Table 13

Net Interest Margin Regressions¹

T Statistics in Parentheses

Dependent Variable is Net Interest Margin

	<u>Spec. 1</u>	<u>Spec. 2</u>	<u>Spec. 3</u>	<u>Spec. 4</u>	<u>Spec. 5</u>	<u>Spec. 6</u>
Constant	0.021 (1.90)	0.006 (0.42)	0.019 (1.60)	0.005 (0.37)	-0.004 (0.26)	-0.004 (0.29)
Cash/Assets	0.009 (0.55)	0.080 (0.49)	0.009 (0.53)	0.008 (0.47)	0.007 (0.41)	0.008 (0.45)
NPL/Loans	0.003 (0.13)	0.001 (-0.04)	0.004 (0.22)	0.000 (-0.01)	-0.016 (-0.76)	-0.016 (-0.76)
AdminCost/Assets	0.709 (3.36)***	0.716 (3.41)***	0.705 (3.33)***	0.715 (3.39)***	0.767 (3.64)***	0.761 (3.60)***
MktShare	-0.091 (1.14)	-0.104 (-1.31)	-0.102 (-1.24)	-0.107 (-1.31)	-0.093 (-1.13)	-0.094 (-1.14)
Equity/Assets	-0.034 (-1.91)*	-0.033 (-1.85)*	-0.035 (-1.92)*	-0.033 (-1.85)	-0.015 (-0.76)	-0.016 (-0.80)
Loans/Assets	-0.020 (-1.60)	-0.017 (-1.42)	-0.019 (-1.46)	-0.017 (-1.36)	-0.019 (-1.46)	-0.018 (-1.42)
Growth Industry	0.047 (1.56)	0.039 (1.29)	0.047 (1.55)	0.039 (1.29)	0.034 (1.10)	0.034 (1.12)
Inflation	-0.114 (1.13)	-0.045 (-0.43)	-0.112 (1.10)	-0.046 (-0.43)	0.042 (0.35)	0.026 (0.21)
Real Interest Rate	0.000 (0.85)	0.001 (1.95)**	0.000 (0.89)	0.001 (1.94)*	0.001 (2.26)**	0.001 (2.34)**
Foreign MA			0.006 (0.59)	0.002 (0.19)	0.000 (-0.01)	-0.001 (-0.07)
Foreign de Novo			0.006 (0.26)	0.003 (0.13)	-0.003 (-0.12)	-0.004 (-0.17)
Foreign MktShare		0.028 (2.42)**		0.028 (2.35)**		0.011 (0.66)
Time					0.001 (1.97)**	0.000 (0.98)
Time*Foreign MA					0.000 (0.27)	0.000 (0.29)
Time*Foreign de Novo					0.001 (2.10)**	0.001 (2.03)**
Observations	524	524	524	524	524	524
Number Groups	31	31	31	31	31	31
R ² Within	0.05	0.06	0.05	0.06	0.07	0.07
R ² Between	0.32	0.37	0.22	0.32	0.19	0.21
R ² Overall	0.08	0.09	0.06	0.08	0.07	0.07
F	2.83	3.16	2.34	2.63	2.63	2.48

1. Functional form is OLS with fixed effects. Observations are quarterly, March 1997 to March 2003. No observations for December 1997.

* significant at 10%. ** significant at 5%. *** significant at 1%.

Source: Haber and Musacchio, 2004.

Table 14
 Loan-Asset Ratios by Bank Origin
 (Weighted Averages, at Year End)

<u>Year</u>	<u>All Banks</u>	<u>Domestic</u>	<u>Foreign M&A</u>	<u>Foreign de Novo</u>
1991	60%	60%		49%
1992	70%	70%		60%
1993	71%	71%		61%
1994	64%	64%		65%
1995	66%	67%	64%	26%
1996	64%	65%	53%	33%
1997	71%	72%	72%	59%
1998	69%	71%	61%	57%
1999	64%	65%	58%	48%
2000	63%	67%	61%	30%
2001	57%	58%	60%	16%
2002	59%	72%	54%	20%

Source: CNBV, *Boletín Estadístico de Banca Múltiple*, 1993-2003 and CNBV, *Banca Múltiple*, 1982-1993.

Table 15
 Bank Loan Portfolios
 (Balances at Year End, in Millions of Real--December 2000--Pesos)

<u>Year</u>	<u>Private Sector & Consumer Lending¹</u>	<u>Government Interbank and Fobaproa</u>	<u>Total</u>	<u>Private Sector & Consumer as % of Total</u>
1991	982,502	-	982,502	100%
1992	1,268,076	-	1,268,076	100%
1993	1,549,432	-	1,549,432	100%
1994	1,832,149	8	1,832,157	100%
1995	1,268,107	158,095	1,426,201	89%
1996	917,514	297,883	1,215,397	75%
1997	618,340	440,377	1,058,717	58%
1998	600,133	454,970	1,055,103	57%
1999	495,508	487,065	982,573	50%
2000	490,141	457,382	947,523	52%
2001	463,101	423,733	886,834	52%
2002	482,176	428,390	910,566	53%

1. Includes commercial, consumer, housing, and restructured or renewed loans.

Source: See Table 6.

Table 16
Bank Lending as a Percent of GDP
(At Year End)

<u>Year</u>	<u>Total Loans as % of GNP¹</u>	<u>Private Sector Lending as % of GNP²</u>	<u>Private Sector (Excluding Fobaproa) as % GNP³</u>
1991	24%	20%	20%
1992	29%	24%	24%
1993	35%	28%	28%
1994	38%	30%	30%
1995	32%	27%	24%
1996	26%	22%	16%
1997	21%	15%	8%
1998	21%	14%	8%
1999	18%	13%	6%
2000	16%	12%	7%
2001	15%	11%	7%
2002	15%	11%	7%

1. Includes all performing loans. Declared non-performing loans and rediscounts non included.
2. Includes all performing loans, except those to government entities.
3. Includes all performing loans, except those to government entities and the value of Fobaproa bonds held in the loan portfolio.