DEREGULATION AND PRIVATIZATION OF COMMERCIAL BANKING

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Abstract

Privatization is tied to deregulation. This paper studies the effects of deregulation and privatization on commercial banks in Mexico. Our sample allows us to examine the stock market's response to different deregulation and privatization policy actions. The mere announcement of privatization of the banking system produced a mean abnormal return of 15.6% for all commercial banks. Pre-privatization bank shareholders earned a mean market adjusted return of over 65% as a consequence of privatization. We undertake an econometric analysis of the determinants of the private benefits of control, and construct an estimate of the true value of control for the bidders based on the degree of competition in the auction. Based on this measure, we estimate that a mean of almost 20% of book value was not extracted from privatization bidders due to lack of more competition in the auction. Furthermore, this study assesses the effects of deregulation and privatization on industry performance. As a result of freer operation rules, deregulation brought about an increase in activity levels and doubled operating margins. We also find evidence for efficiency gains in privatization emerging from reduced agency costs. Nevertheless, the increased profitability of the industry can only be explained in conjunction with its incomplete deregulation, which retained protective regulation of operation

tions and virtually prevented foreign competition. An estimation of a dominant-fringe firm model and an analysis of post-privatization performance provide support for this claim.

I. Introduction

The word "privatization" triggers thoughts of "regulation," mainly because the traditional industrial organization literature focusses on the choice between a state-owned enterprise (SOE) and a privately-owned regulated firm (see Laffont and Tirole [1993]). In this paper we choose a different perspective, that of *privatization and deregulation*. This view emerges from the observation that a large proportion of privatized SOEs around the world belong to oligopolistic industries typically enjoying protective regulation which shelters them from competitive forces and helps them generate financial resources which in turn reduce the pressure for subsidies (Shleifer and Vishny [1994], López-de-Silanes et al. [1995]). In these cases, efficiency enhancement through privatization requires a significant deregulation effort which goes beyond the shifting of control from public to private hands. Research in this area is very scarce (Vickers and Yarrow [1988]) and it usually takes the form of a company-based analysis, given the monopolistic characteristics of some of these companies. In this paper, we try to improve on previous papers by looking at the interaction between deregulation and privatization and by analyzing the effects of these two policies on performance of all commercial banking institutions privatized in Mexico.

Our sample consists of all commercial banks privatized in Mexico during the early 1990's. We look at privatization as the auction of a controlling package of shares with existing minority shareholders. Our data opens new avenues since the stock market's reaction to privatization and deregulation news can be studied. Indeed, information is available because most of the banks were already trading on the stock market prior to privatization, some of the bidders were also quoted in the market, and all the privatized banks remained in Mexico City's Stock Exchange after privatization. The data also allows us to provide insight into the determination of privatization prices and in the measuring of private benefits of control. Finally, we undertake a performance analysis of the pre- and post-privatization and deregulation periods evaluating and modelling the observed behavior.

The paper is organized into six sections. Following the introduction, section two briefly explores the periods of nationalization of the Mexican Commercial Banking System (MCBS) and of partial privatization through the stock market. Performance yardsticks point to increased profitability and operating margins which could be explained by the heightened monitoring resulting from stock market entry. We conclude this section with an international comparison of the MCBS following its seven years of government ownership.

In section three we analyze the market's reaction to different changes in regulation.[1] A probe into performance during the deregulation years shows that profit and operating margins nearly doubled, partially fueled by the substantial increase in the loan portfolio's growth rate.

Section four examines two different aspects of privatization. First, an analysis of the market's reaction to privatization news uncovers the presence of sizable and statistically significant positive abnormal returns following the first public announcement of privatization of the whole banking system, while no significant effects are found when the winning bidder is disclosed. These results suggest that "private bread tastes better than public bread, no matter who the baker is." Second, following Grossman and Hart [1988], we divide privatization auction prices into security benefits and private benefits (i.e. market price and control premium) and proceed to econometrically analyze the determinants of both of these price components. In analyzing the premia paid for control, we model bidders' behavior based on the idea that the degree of competition in the auction is responsible for the difference between the observed voting premium and the "true voting premium" which reflects the true value that bidders attach to the asset. We proceed to estimate an equation which assumes that the bid observed is a function of the bidder's true valuation, several company and auction characteristics, as well as the number of bidders. Based on this estimation, we evaluate a Taylor approximation on the number of bidders which we then use to adjust the observed voting premium obtaining an estimate of the "true voting premium." Our estimates fall within the theoretically predicted underpayment according to the number of bidders involved in the auction.

Section five studies performance after privatization and deregulation. We account for the effects of the structural changes on performance and search for the possible sources of the observed efficiency gains. We explore five different possible sources of efficiency gains: (1) wealth transfers from employees to the new owners; (2) reduced agency costs; (3) collusive behavior of the privatized banks; (4) persistency of favorable regulation; and (5) deeper business cycles. We find that while the employee-wealth-transfer hypothesis (Shleifer and Summers [1988]) is not present in this sample, there are elements which point to a reduction of agency costs. After privatization and free from government control, banks have restructured their operations to actually become banks. This fact points towards a move away from political governance and compliance to politicians' objectives (see Shleifer and Vishny [1994], and López-de-Silanes et al. [1995]). The analysis of performance data and an estimation of a dominant-fringe firm model support the hypothesis that the increased profitability of the industry can partly be explained by its incomplete deregulation. Until recently, the post-privatization regulatory framework retained protective regulation of operations and prevented foreign competition. Section six summarizes our results.

II. Nationalization and International Comparison of the MCBS

a. Nationalization

In 1982, the President of Mexico nationalized all commercial banks. At that time the banking system consisted of 59 institutions, with "Multiple Banking" as

the most common type of organization (34 out of 59). These multiple banking institutions were among the most profitable since they integrated all banking services under one roof and thus benefitted from economies of scale. Along with nationalization, legal changes were enacted for the purpose of adapting the ownership of the banks to a state controlled scheme.[2] An important structural transformation of the system took place between 1983 and 1988 with the liquidation and merger of several banking institutions, reducing the total number of Multiple Banks to 18 by the end of 1988.[3]

When comparing performance between the periods of private and public ownership up to 1987, we need to take into account the significant concentration outlined above. Having this in mind, and adjusting for the trends of the financial sector in other countries the MCBS deteriorated because of lower investment rates, increased employment, and lower productivity.

b. Partial privatization

In 1987 the first step in reversing state-ownership took place; approximately 30% of the stock of 13 of the 18 banks was offered for sale through public offerings in the stock exchange.[4] Two more banks went public in early 1990, bringing the total to 15 traded banks.[5] Bank shares had a special legal regime; CAPs[6] were reserved for Mexican investors only, and an individual could own at most 1% of the value of capitalization in the banks. This change in ownership structure was meant to alter in some measure the incentives of management since some of their actions were monitored by the market. If so, increases in profitability are expected.

Table 10 summarizes the results of the changes in means between these two periods. During these four years, employment in the banking sector shrank, especially in the first period when it fell at an annual rate of -2.75%. This period saw a reduction in the number of branches, particularly during 1985-1986. Both of these effects were meager throughout 1987-1988 when the economy came out of the previous recession and started growing under a macroeconomic stabilization package. Employment levels continued to shrink but at a lower annual rate of -0.34%, while the number of branches practically stabilized. In response to tighter monetary policies associated with the stabilization package, the growth rate of the loan portfolio substantially decreased. Banks entered more heavily in securities trading, reflecting the increase in the securities portfolio.

A second set of indicators of banking operations reflect a substantial increase in profitability at the same time that the banks entered the stock market. Operating income per branch and profit and operating margins all show substantial increases in 1987-1988, which are only partially explained by the larger interest margin and financial margin to financial revenue ratio. Therefore, although some of these results could be identified as emerging from the turnaround of the economy in the second period, the substantial increase in profits and operating margins suggests increases in profitability due to expenditure discipline and possible reduced agency costs emerging from the entrance of the banks into the stock market.

c. Emerging structure and international comparisons

The outcome of the period of public ownership was a two-tier structure which allows us to classify the 18 banks of the MCBS into 4 categories: (I) large national (3 institutions); (II) small national (3 institutions); (III) multiregional (7 institutions); and (IV) regional (5 institutions). Although there are important differences in profitability and operations among these four categories, three main conclusions can be drawn from a comparative analysis: (i) the smallest banks (regional) remained mainly in traditional banking activities, which explains why they have the largest margins;[7] (ii) multiregional and small national banks (categories III and II) reveal the worst performance, notwithstanding their advantageous position in several regions; (iii) the large national banks consolidated two-thirds of loans while they also engaged in other non-banking operations to compete with the large emerging stock brokerage houses. The three major national banks extended over most of the country with almost 65% of the market, while the other three types of institutions formed an heterogenous group with small penetration. Government ownership meant the creation or a more desegregated market structure with six national banks roughly competing across the nation, while regional and multiregional banks dominated some areas away from the main cities. These structural differences resulted in sharp contrasting effects when deregulation and privatization took place, and play an important role in explaining the current oligopolistic structure we will model in section 4.

When compared to OECD countries, the state-owned financial system: (i) was small in terms of bank assets and number of institutions; (ii) had low human capital employees; (iii) was technologically backwards; and (iv) had severe excess employment problems (see Table 3). These characteristics can be explained by common pattern of regulation characterizing state-owned sectors, like entry barriers, as well as the drastic underinvestment during the years of government ownership. Between 1983 and 1990, investment of the MCBS ranged between 2% and 5% of total expenses while developed countries typically invested around 10%.

In sharp contrast with other countries, like Spain, Mexican financial institutions provide no real national coverage and are highly concentrated in five cities which accounted for 52% of the total funding resources of the system in 1990. There is on average one branch per 18,000 inhabitants as compared to Spain where there is one office for every 2,500 inhabitants. The number of employees per branch is excessively high in Mexican banks, but payroll expenses as a fraction of total expenditure are the lowest among OECD countries. Although operating expenses are above international levels in general, high financial margins rendered substantial profitability levels compared to international banking counterparts. The high level of capitalization of the system is due primarily to the primary offerings of CAPs in 1987, the reduced amount of dividends, and the revaluation of fixed assets due to the high inflation rate. The loan portfolio to assets ratio is similar to those observed in European banks but below those of U.S. institutions.

In brief, after seven years of government ownership, the emerging commercial banking system showed: (1) large concentration ownership; (2) clear excess employment; and (3) continuously decreasing levels of human capital and investment in technology. In 1989, in the middle of a privatization program (see López-de-Silanes [1993b]), the government engaged in comprehensive deregulation and privatization of the banking sector to which we now turn our attention.

III. Deregulation[8]

In 1989 the new administration began a thorough restructuring of the financial system through a series of deregulation packages which ended up in privatization. The goal was to reduce the number of operating limitations and to create a more efficient and competitive banking system. We analyze these measures trying to separate the effects of changes in regulation from the change in control brought about by privatization. Deregulation improved performance and enhanced the growth opportunities of the banking sector, which in turn affected the prices obtained for the banks when privatized. The market's reaction to different bank deregulation and privatization events helps identify the existence of abnormal returns throughout the process, thereby providing a measure of their value for the existing bank minority shareholders.

a. Market's reaction

The event study includes the 15 banks that were publicly traded during the period of the analysis.[9] We use the standard market model to obtain the abnormal returns around the announcement date. In the usual formulation, abnormal stock returns are calculated as the difference between bank i's stock returns and the expected returns according to:

$$AB_{it} = R_{it} - (\alpha_i + \beta_i\, RM_t)$$

where AB_{it} is the abnormal excess return on day t for bank i, R_{it} is the return on bank i's stock on day t, and RM_t is the return on the market index on day t. The parameters of the equation (α_i and β_i) are estimated by using the twelve months of daily returns ending in the month prior to the event.[10] The cumulative abnormal returns for each of the stocks are thus calculated in the usual form:

$$CAB_i = \sum_{i=1}^{T} AB_{it} \qquad (1)$$

where the calculation covers a period of seven days ($T=7$), three days before and three days after the event.[11]
The deregulation effort lasted for almost two years and was concentrated into

five main packages of actions (see Appendix A for further details). The thrust of this effort was threefold: (1) decrease the role of government needs in the determination of banking operations; (2) create a new market structure for financial services as a whole; and (3) curtail entry barriers.

The impact of changes in regulation on the share price will obviously vary in direction depending on the anticipated effects on the bank's performance. Deregulation measures which increase competition or which might lead to margin reductions would be expected to have negative effects on bank share prices. On the other hand, the elimination of restrictions on bank operations with an expected increase in future cash flows would be reflected in higher stock prices.

The first package of deregulation measures of banking operations in March 1989 eliminated interest rate ceilings and substituted the legal reserve for a 30% liquidity coefficient.[12] These changes were expected to increase the competition for funding, offering more competitive rates. Under the new regime competition in the lending market would also increase since banks would have more resources to lend. The results in Table 4, show negative abnormal returns for most banks and a statistically significant negative mean of -3.60% which implies that the market anticipated an increase in competition as an outcome from this measure.

The second package in December 1989 changed the current laws for financial institutions giving more independence from government policies and needs, and allowing larger individual ownership. This change yielded a positive market reaction with a mean abnormal return of 6.63%. The third package involved new laws designed to regulate commercial banking and the financial groups.[13]
The two most significant changes were: (1) the creation of a financial conglomerate of firms in financial activities under the same name (see Appendix A); and (2) a reduction of entry barriers for *domestic investors* which opened the possibility of creating a new commercial bank after privatization took place. The evidence using the market model gives a significant mean return of -3.74% which seems to indicate that the market responded more strongly to the lowering of entry barriers than to the possible creation of the financial groups.[13]

The stricter rules for loan classification enacted in March of 1991 imposed limits on possible gambling that managers could embark on while at the same time penalized the portfolio's growth rate. The empirical estimates indicate that the new stringent loan classification rules had a negative effect on bank stock prices with a significant negative mean abnormal return of -6.93%. Finally, while the elimination of the liquidity coefficient in September of 1991 might be expected to trigger a positive price change of bank stocks, the simultaneous restructuring of on- and off-balance sheet items curtails the positive effect. The results reflect this combination of factors; although the mean abnormal return is positive, significance is not reached.

There are no significant statistical differences across the four groups of banks, suggesting that the market expects similar effects of deregulation across banks given the fact that they are still government owned. The main outcomes of the de-regulatory reforms could be summarized as follows: (i) higher freedom of operation in determining interest rates and management of loan portfolio, getting

away from government funding; (ii) stringent rules on loan portfolios through the enforcement of a capitalization ratio and stricter bad-loan reserve rules; (iii) the creation of the figure of the financial group as a new structure to take advantage of the economies of scale of different financial institutions under the same roof; and (iv) a reduction of domestic entry barriers into the industry. If we consider together all the announcements of regulation changes for the mean institution there an aggregate abnormal return of -3.62%. Less government, or the allowance of higher individual private shareholding is the only event that reflected a significant positive response on average. This new set of rules directly affected the opportunities faced by possible privatization acquirers entering in the determination of their bids.

b. Performance changes

In the period of deregulation, employment increased at a mean annual rate of 1.16%, and the average growth rate of branches also became positive, reversing the trend of the previous four years. Nevertheless, in both cases, the difference in means test is not significant. Contrary to the expected increase in competition with deregulation of interest rate ceilings, the financial margin to financial revenue ratio almost doubles, jumping from 11.8% to 22.8%, while the interest margin remains practically constant (Table 10). This implies that on average banks continued to earn the same margin (7% on each dollar of loans) even though in this period the economy wide interest rate level dropped from an average of 80% to 35%, thus explaining the rise in the financial margin to financial revenue ratio. During 1989-1990, GDP grew at an average rate over 3% and there was large demand for credit. Some of these factors coupled with the increased efficiency in operations due to the changes in regulation could explain the high financial margins of this period.

Under these circumstances it is not surprising to find that deregulation actually increased banks' profitability levels (Table 10). The profit margins continued to grow from an annual mean of 3.29% to 5.37%. Similarly, the operating margin doubled from 4.13% to 8.96%. Maybe the most important effect of deregulation is the change in the real annual growth rates of the loan and securities portfolio. The loan portfolio's growth rate jumped from an average of -15.8% in the pre-deregulation years to over 35% after deregulation. In the same vain, the securities portfolio also turned around from a negative annual growth rate of -7.99% to 30.07%. We can therefore conclude that the main effect of deregulation is an increase in activity levels as a result of freer operation rules.

IV. Privatization

a. Market's reaction[14]

In reaction to possible efficiency gains, stock prices should reflect the change in ownership, making existing shareholders better off. This has been empirically

ested in the takeover literature, (see Jensen and Ruback [1983]). Positive abnormal returns reflect probable cost reductions and unexploited growth opportunities in the target firms. The privatization of banks in our case has some similarities since there exists an expected improvement in management arising from the change of control from public to private hands, thereby leading to positive abnormal returns on the existing CAPs. This only holds if existing shareholders receive a free ride on the improvement made by the acquirers, as suggested by Grossman and Hart [1980]. The absence of abnormal returns would then imply that all efficiency gains are consumed by the acquirers as private benefits.[15]

We considered four significant dates in the privatization process to calculate abnormal returns and results are shown in Table 5. Upon the initial announcement of privatization of the commercial banking system, all banking stocks show positive market adjusted abnormal returns with a significant 15.6% mean market adjusted abnormal return for the whole sample. The date on which a particular bank is announced to be put out for sale and the list of authorized bidders is provided yields positive effects for all individual cases except for two averaging an abnormal return of 7.8% for the sample. These results lead us to conclude that the big news are given in the first announcement of the change from state-owned enterprises to private companies. At the very least, the markets' think that privately-managed companies are more efficiently run than government enterprises, no matter which of the possible bidders gets them.

Supporting this argument, the forth column of Table 5 shows that the announcement of the winner also shows a mixed pattern with large individual effects but overall mean and median abnormal returns close to zero.

The mean cumulative return of the different announcement dates of privatization shows abnormal returns above those reported by Jensen and Ruback [1983] for target firms in successful tender offers. Secondly, the presence of the abnormal returns is consistent with the view in Grossman and Hart [1980] that minority shareholders can free ride on the efficiency gains from the change in management. The acquiring group does not extract all the efficiency gains as private benefits. Following Kaplan [1989], we examine the returns to minority shareholders of the banks throughout privatization.[16] Market adjusted returns for pre-privatization shareholders are positive in all but two cases.[17] The mean market adjusted return is 66.41% with a median of 67.20%.[18] This number can be interpreted as a rough estimate of the value that the market assigns to the change from political to private governance. We can also observe the difference in returns between the subgroup I, or the large national banks, and the rest of the institutions which seems to suggest that there is an expectation that this subgroup would be able to extract higher rents after privatization.

b. Privatization's value of control and bid prices

To analyze the prices paid for banking institutions in privatization, it is necessary to understand what the successful bidders are acquiring, namely control of the board. Grossman and Hart [1988] discuss two types of benefits of control:

security and private benefits.[19] Based on this division, Zingales (1993a) argues that in a control contest, the voting premium paid for the shares is equivalent to the expected value of the private benefits of control. In the following section, we will expand on these ideas considering that in an auction, the number of participating bidders influences the optimal decision of the bidder in terms of how much of the his true valuation for the asset she is willing to pay. The rest of this section will explore econometrically the variables that affect the value of control paid in privatization.

Our goal is twofold: (1) we want to determine which characteristics affect the control premia paid for the privatized banks; and (2) we want to get a measure of the true value of control through the estimation of how relevant competition is in determining observed bids.

Methodology:

The initial sample is formed by all the bids made in the process (successful and unsuccessful) which add up to 60 observations. From this number we eliminate 9 bids made for the three non-publicly traded institutions, one observation that was originally a successful bid but defaulted, and 4 "symbolic bids" which were only made to comply with a requirement in order not to loose the guarantee deposit. Consequently, the final sample for the econometric analysis consists of 46 observations.

The value of control (VC_{ij}) for bidder j of bank i is defined as:

$$VC_{ij} = \frac{(B_{ij} - MP_i)}{MP_i}$$ (2)

where B_{ij} is the price per share offered by the bidder j for bank i and MP_i is bank i's closing market price per share 3 days after the date of the announcement of the auction winner.[20] The average control premium of all 46 bids is 0.378 with a standard deviation of 0.16, while the value of control paid by the successful bidders has a mean and median of 0.53 of the market price. Using MP_i in the calculation of VC_{ij} for all j bidders of bank i is not perfect as MP_i could also vary across j under different ownership after privatization. Unfortunately, it is impossible to obtain such measures for the j loosing bidders under the counterfactual. Nonetheless, the lack of a significant abnormal excess return around the announcement of the winning bid make us feel confident that the biased introduced may not be significant. Tables 6 and 7 present relevant information about the winning bids.

If we were to estimate the determinants of the value of control econometrically, we could propose a simple linear approximation of the form:

$$VC_{ij} = \frac{(B_{ij} - MP_i)}{MP_i} = \alpha_i + X_{ij}\beta_{ij} + \epsilon_{ij}$$ (3)

where X_{ij} represents different characteristics which affect the bid. Estimating this equation would allow us to find the main determinants of the actual value of control offered by the bidders. But this number is different from the true value of control (TVC_{ij}). The origin of this difference is bidder participation.

In order to incorporate the degree of competition in the auction into the measure of control premium, we follow a standard auction theory argument postulating that the observed bid B_{ij} may differ from the true value of company i for bidder j, so that the observed voting premium is less than the true value of control the bidder assigns. For our purposes, we simplify the bidders' behavior by assuming that the observed bid B_{ij} is a function $B_{ij} = g(TV_{ij}, n_i, ...)$ which depends directly on the true valuation of the asset for the bidder (TV_{ij}), and also positively on the number of bidders involved in the auction of asset i (n_i). For the case of first price auctions, Vickrey [1961] showed that under the assumption that all agents are risk neutral, the Nash or noncooperative equilibrium bid function would be:

$$B_{ij} = TV_{ij} \left/ \left(1 - \frac{1}{n_i}\right)\right.$$ (4)

where all variables are defined as above.[21] As $n_i \to \infty$, then $B_{ij} \to TV_{ij}$. Therefore, as the auction becomes less competitive, bidders will tend to bid lower and further down from their true valuation of the firm leaving the seller with a lower payment. For the purpose of econometric estimation we could linearize the general form of $B_{ij} = g(.)$ as:

$$B_{ij} = TV_{ij} - f(n_i)$$ (5)

where $f(n_i)$ measures the surplus the bidder gets to keep due to the lack of competition in the auction. Therefore, in terms of our measure of the value of control, if we take into account this relationship and substitute from it (3) we can observe that we would actually be estimating:

$$VC_{ij} = \frac{(TV_{ij} - f(n_i) - MP_i)}{MP_i} = \alpha_i + X_{ij}\beta_{ij} + \epsilon_{ij}$$ (3')

The econometric estimation of equation (3') produces a biased estimate of the true value of control, since it is based on the actual bid, which is a downward estimate of the true value of control. Therefore, in order to obtain the true value of control (TVC_{ij}) we need to make the following correction for the bias introduced by $f(n_i)$:

$$TVC_{ij} = VC_{ij} + \frac{f(n_i)}{MP_i} = \frac{(TV_{ij} - f(n_i) - MP_i)}{MP_i} + \frac{f(n_i)}{MP_i}$$ (6)

The econometric analysis below allows us to make a correction for this difference

by estimating the value of the underpayment as a percentage of the market price of the stock of the bank i ($f(n_i)/MP_i$). This implies that we need to include this factor in equation (6) leaving us with:

$$VC_{ij} = \alpha_{ij} + X_{ij}\beta_{ij} + \frac{f(n_i)}{MP_i}\gamma_i + \epsilon_{ij} \qquad (7)$$

where we approximate the value of $f(n_i)$ according to a Taylor expansion such that the estimated equation on the number of bidders in Table 8 becomes:

$$VC_{ij} = \alpha_{ij} + X_{ij}\beta_{ij} + \frac{n_i}{MP_i}\gamma_i^1 + \frac{n_i^2}{MP_i}\gamma_i^2 + \frac{n_i^3}{MP_i}\gamma_i^3 + ... + \epsilon_{ij} \qquad (7')$$

This formulation not only allows us to evaluate the relevant factors which affect the true value of control offered for the banking institutions, but it also permits us to look at the effect of competition among bidders in terms of extracting part of their potential surplus.

Determinants of the Value of Control

Table 8 presents the results for all winning and loosing bids where the dependent variable is the value of control. These regressions include different variables in order to control for company performance and labor characteristics, as well as characteristics of the bidder and the auction process itself.[22] Company performance parameters as measured by specific financial or performance ratios from financial statements although having the expected sign in most cases, they do not significantly explain value of control, and we therefore exclude them from the specifications shown in Table 8. We also ran specifications including other proxies for bank performance to try to explain private benefits of control such as the adjusted stock return and its standard deviation, but no significant effects were found here either. Finally, we attempted to test Barclay and Holderness' claim [1989] that banks in relatively worse shape would provide the recipient with lower opportunities to extract private benefits of control and this would be reflected in lower voting premiums offered. Therefore, in regression II, we created a "Bank quality" dummy to reflect relative performance in the industry.[23] Our results are not consistent with the hypothesis of larger premiums for "healthier" institutions as measured by this index.

Consistent with López-de-Silanes [1993a], labor characteristics play a significant determining privatization premia. As a proxy for labor effects we use the number of employees per branch. This ratio has a negative and significant coefficient meaning a penalty for excess personnel. Other labor variables reflecting labor costs and union strength were found insignificant mainly due to the lack of variation across banks. All unionized bank employees belong to the same union which, in the spectrum of unions in the country, is one of the most passive. No

strikes or calls for strikes have been registered in any bank during the 10 years period for which we have available information.

We consider as potential determinants the four classifications previously defined in terms of size: large nationals, nationals, multiregionals, and regionals. This group of dummy variables captures effects such as coverage, economies of scale, positioning, dominance, etc. Size effects explain differences in value of control, as evidenced by individual coefficients and F-tests on size dummies. The large national banks (omitted group in the regressions) fetched the highest premiums for control and regional banks the lowest. These results point towards larger perceived benefits of control from institutions with a widespread coverage across the country or with the possibility of extracting higher rents if the new market structure and regulation allowed such behavior (as we will argue in later sections). Similarly, national banks were strategically sold after the two large nationals, thus probably increasing the competition among all the losers in the first two cases. In fact, all winners of national banks (except one) were losers of large nationals.

The order in which banks were sold is positive and statistically significant, supporting the hypothesis of larger premiums of larger banks as the number of remaining banks decreases. This result indicates that although some entry deregulation for domestic competitors had already taken place, existing barriers to foreign entrants or the advantage of being an incumbent made the last bidders push harder and pay larger values of control in order to get one of the remaining institutions. This result also seems to suggest the existence of a "learning" effect given the concave form of the log function used.

The third regression in Table 8 shows that although industry insiders paid higher values of control, no statistical significance is reached. The more significant adverse selection problems for industry outsiders in relation to insiders, suggested by Shleifer and Vishny [1992] do not seem to be important factors in determining the value of control in our sample. The number of previous bids made by the same bidder also increases value of control but the variance is too large to reach significance. Finally, we included a dummy equal to 1 for those cases where the bidder also included the pre-privatization "regional directors" of the bank. This group usually consists of the principal businessmen living in the bank's region. In all the specifications we ran, the presence of regional directors in the bidding group drew higher values of control offered. This could be interpreted as originating from the specific synergies for this group of investors, but it could also be related to the availability of private information which made this group participate and bid above the others. Supporting this claim is the a posteriori observation that the banks where these bidders were among the winning group have outperformed the rest of the banking institutions after privatization.

True Value of Control

Our second goal is to obtain a measure of the true value of control (TCV_{ij}) which takes into consideration the effect of lack of competition in the auction

allowing participants to bid below their true valuation, thus keeping a surplus. In order to achieve this, we evaluate the polynomial given by the Taylor expansion in equation (7) for each bid i and average these values for all bids in all companies (46 observations). The mean value of this polynomial across bids ($f(n)/MP$) represents the average value, in terms of market price, that the bidders were able to keep as a result of the amount of competition in the auction. Rewriting equation (5), in terms of the value of control, we can say that the average true value of control (TVC) is equal to the sum of the average bid value of control (VC) and the average of the polynomial on the number of bidders:

$$TVC = VC + f(n)/MP \qquad (8)$$

As we calculate the average value of the polynomial for each of the regressions in Table 8, we obtain an average of value of 0.1003 which means that participants in the auction underbid an amount equivalent to 10% of the market value of the company. This number in terms of book value indicates an equivalent underbid of 23.97% for the controlling block of shares. These numbers can also be interpreted as money not extracted from bidders as a result of low bidder participation in the auction or money left on the table. According to (8), since the average actual value of control for all bidders is 0.374, we obtain the lower bound of the average true value of control which is equivalent to 47.4% of market price for all winning and loosing bids.

As a benchmark comparison, if equation (4) were the correct specification for the relation between these variables, the discount of the true valuation that the bidder would have to give up given an average of 3.63 bidders would be 27.5%. Using our simple linearization in equation (5) and for the average of 3.63 bidders in our sample, bidders underbid an equivalent of 21% of their true valuation. The true value of control obtained in our estimation matches that of a CRRA utility function as specified in footnote 22 with a coefficient of risk aversion of 0.75. Therefore, our calculations through the regression analysis above seem to be within the range of those theoretical formulations.

Another calculation suggested by Barclay and Holderness [1989] corrects the value of control by the percentage acquired. The authors argue that this value is a better measurement because it is less skewed and is closer to a normal distribution. In our case this is a normalization and can be interpreted as the value of control in terms of the firm's equity value. The corrected value of control (CVC_{ij}) of bidder j of bank i is thus:

$$CVC_{ij} = VC_{ij} * shp_{ij} \qquad (9)$$

where shp_{ij} is the percentage of shares of bank i proposed to be acquired by bidder j. We followed the same procedure as that specified for the value of control. Table 9 presents the same three specifications as in Table 8 using the corrected value of control (CVC_{ij}) as the dependent variable. The results mimic those of the previous table. Appendix C and Table C show a similar analysis for privatization bid prices.

V. Post-Privatization and Deregulation Performance Changes

Examination of changes in performance of our sample through the different periods in the joint process will help us determine the effects of deregulation and privatization. Previous evidence in this respect is concentrated in studies of a few companies around the world (World Bank [1991], Megginson et al. [1993]). This paper looks at the whole commercial banking industry to identify the causes of the theoretically predicted increase in efficiency tied to privatization. We intend to unveil the origin of the efficiency gains inferred from the previous event study. To evaluate the sources of efficiency gains we consider relevant two of the three hypotheses suggested in Kaplan [1989] in the context of Management Buyouts.
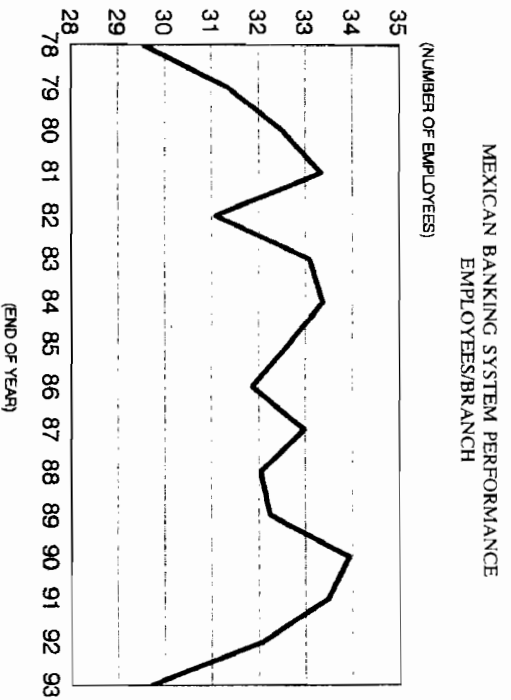
a. Employee-wealth transfers

This hypothesis, as outlined in Shleifer and Summers [1988], argues that the existence of a transfer of wealth to investors by laying-off of workers and reducing wages to employees is one of the source of increase in operating income. As Table 10 shows, on the one hand, the average annual change in employment after privatization is -1.64%, contrasting with the pre-privatization positive growth rate. Labor cuts followed the change in control (Graph 1). On the other hand, the real annual growth rate of personnel expenses per employee more than doubled in the period after privatization, jumping from 14.8% to 32.5%. Therefore, despite a decrease in employment levels, total personnel expenses per employee are growing after privatization (Graph 2). An explanation of this combined behavior could be related to the fact that the increase in wages responded to the competition from the rest of the financial sector which had much higher compensation levels. Therefore, higher wages were needed to attract higher skilled labor. The cuts in employment also show a higher concentration in unskilled labor. These findings do not support the employee-wealth effects as the main source of increases in operating income.

b. Reduced-agency costs: Corporate Governance versus Political Governance

In terms of the second possible source of efficiency gains, we have identified those elements which call for reduced agency costs tied to privatization. The first element concerns banking operations as such. After privatization, the loan portfolio annual growth rate went from 35.08% to 51.97%. Meanwhile, the securities portfolio decreased at an annual growth rate of -2.04%. The combination of these two elements signals that new bankers are becoming exactly that: bankers. Under government ownership, banks had deviated from their main lending activity and had entered the securities market, possibly in reaction to increased competition from the brokerage houses.[24] This deviation reflected management or political objectives, such as size or growth, which are common for state-owned enterprises all over the world. In this setting, privatization reduces the agency problem because now resources are being used for the main activity of the banks: lending.

GRAPH 1

MEXICAN BANKING SYSTEM PERFORMANCE
EMPLOYEES/BRANCH

(NUMBER OF EMPLOYEES)

(END OF YEAR)

Source: National Banking Commission and INEGI.

GRAPH 2

MEXICAN BANKING SYSTEM PERFORMANCE
REAL GROWTH OF PERSONNEL EXPENSES

(PERCENTAGE)

(END OF YEAR)

Source: National Banking Commission.

GRAPH 3

MEXICAN BANKING SYSTEM PERFORMANCE
REAL GROWTH OF OPERATING EXPENSES

(PERCENTAGE)

(END OF YEAR)
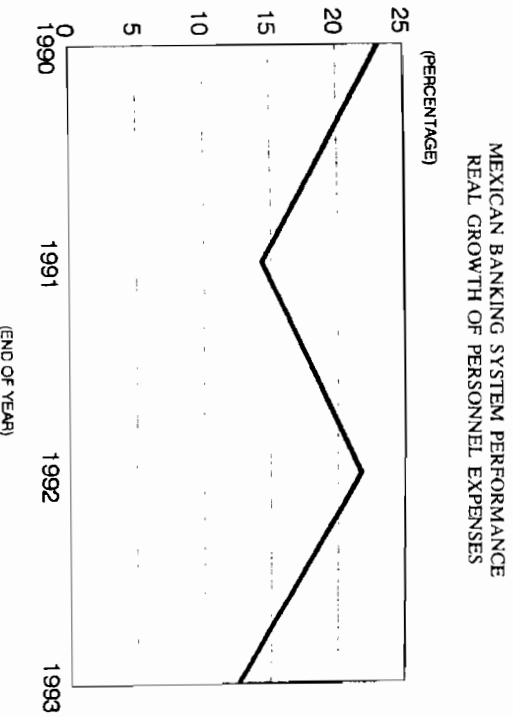
Source: National Banking Commission.

This pattern supports Shleifer and Vishny's [1994] and La Porta and López-de-Silanes [1995] which sets forth that privatized firms, away from political governance, may restructure their operations to match objectives which may differ from those of politicians. It should not be forgotten that the new figure of the financial group allows privatization winners to branch out their operations between banking and brokerage business.

An additional piece of information along the agency theory emerges from the control of the rate of growth of administrative expenses. Unlike the previous period of government ownership which saw administrative expenses rocket to an annual growth rate of almost 40% in real terms the year before privatization, as soon as the private sector took over, administrative expenses have been growing close to a zero real rate (Graphs 3 and 4).

Privatization brought a new ownership structure that is more likely to align the objectives of management and shareholders since: (1) most management teams own part of the shares; and (2) although managers are sitting on the board, they do not hold the majority. It is outside directors with large shareholdings who have the control (Table 11). In this scenario, according to Fama and Jensen [1983], the board of directors could act as an effective mechanism of corporate governance. These factors could explain part of the 20% increase in operating margins in this period.
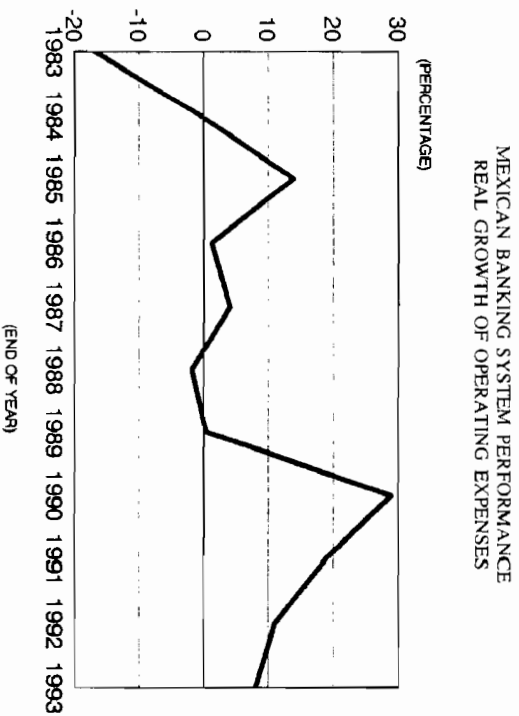
GRAPH 4

MEXICAN BANKING SYSTEM PERFORMANCE
REAL GROWTH OF ADMINISTRATIVE EXPENSES

(PERCENTAGE)

(END OF YEAR)
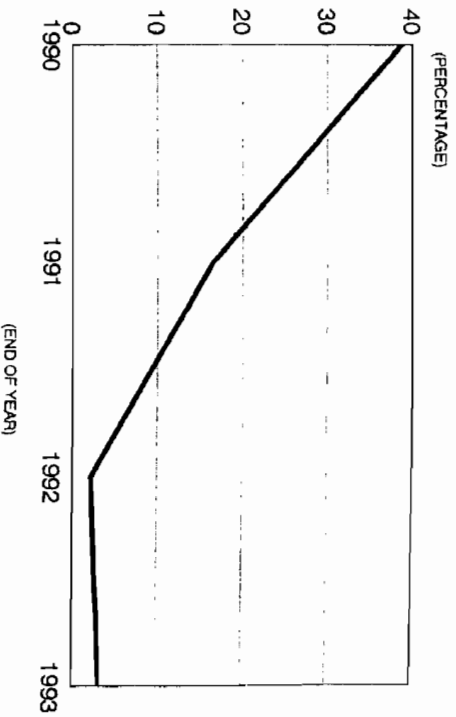
c. Entry restrictions allowing collusion after privatization

Although reduced agency costs explain part of the increase in operating and profit margins after privatization, we believe that the previously explained partial deregulation of the industry lies at the center of the increased profitability in this period. Therefore, in order to bring some structure to our previous claim we estimate a dominant-fringe firm model along the lines of Spiller and Favaro [1984] and Bresnahan [1983]. In our model we focus on the effects of the change in ownership. The observed firm level behavior in reaction to competitor's actions during the periods of political and private control of the firms allows us to make a statement about the effect of privatization on conduct. At the end of the section we analyze some of the main financial and operation ratios in support of the behavior predicted by the estimation of the model below.

The Model and its Estimation

Based on the previous analysis of the MCBS and its structure, we will empirically test if the conduct observed after privatization resembles that of a von Stackelberg model which assumes the existence of two groups of firms with different conjectures. The first group, or dominant firms (D), is formed by the three large national banks (type I), while the second group or fringe banks (F) is represented by the remaining 15 institutions. As in Spiller and Favaro [1994] we

assume a homogenous commodity L (loans in domestic currency) with a price l (interest rate) which faces a demand function at time t of the form $l_t = l(L_t)$, where L_t is the aggregate of each of the n banks lending at time t (L_n). Taking the first order condition for each firm i we obtain:

$$l + L_i \frac{\partial l}{\partial L_i} \left[1 + \sum_{k \neq i} \frac{\partial L_k}{\partial L_k} \frac{\partial L_i}{\partial L_i} \right] - \frac{\partial C(L_i)}{\partial L_i} = 0 \qquad (10)$$

where the cost of producing L_i is given by the function $C(L_i)$. Given the nature of our hypothesis, we need to test empirically the nature of the conjectures of the different firms. Assuming that these take the form of:

$$\frac{\partial L_k}{\partial L_i} \frac{L_i}{L_k} = \lambda_{ik} + \delta_{ik} \frac{L_i}{L} \qquad (11)$$

In our hypothesized specification of conduct after privatization, the two groups of firms (Dominant and Fringe), would thus retaliate versus another firm according to the group they belong to. Under the dominant-fringe firm model, dominant firms after privatization should be expected to retaliate strongly to the actions of other firms in the same category but with less force to an action taken by a bank in the fringe group, that is:

$$\lambda_{DD} + \delta_{DD} \frac{L_i}{L} >> 0 \quad ; \quad \lambda_{DF} + \delta_{DF} \frac{L_i}{L} \geq 0$$

Meanwhile, fringe banks should be expected to accommodate to the actions of a dominant bank, and have a small, if any, reaction to other fringe banks:

$$\lambda_{FD} + \delta_{FD} \frac{L_i}{L} < 0 \quad ; \quad \lambda_{FF} + \delta_{FF} \frac{L_i}{L} \approx 0$$

On the other hand, before privatization, it is not clear what the signs of these conjectures should be. The resulting structure of conjectures under government ownership is actually an interesting question in itself in order to gain some knowledge about the behavior of the industry under the roof of the state.

In order to evaluate the hypothesis of behavior change occurring with privatization, we need to estimate the difference in reactions for both groups of firms, amounting to the derivation of a form of the first order conditions outlined in (9). Assuming that firms of the same group share homogeneous expectations and that conjectures take the form outlined in (10), rearranging terms and averaging across all firms of the same group we can transform equation (9) for the dominant firms into:

$$\sum_{i\in F'} \frac{\partial C}{l\,\partial L_i}\frac{S_i}{S_F} = 1 + \frac{l}{\epsilon_{LI}}\left[S_F H_F + \lambda_{FF} S_F - \lambda_{FF} S_F H_F + \delta_{FF} S_F^2 H_F + \lambda_{DF}(1-S_F)\right.$$

$$\left. -\delta_{FF}\sum_{i\in F} \frac{S_i^3}{S_F} + \delta_{DF} H_F(1-S_F)S_F \right] \qquad (12)$$

where $S_i' = L_i/L$, $H_F = \sum_{i\in F}(S_i/S_F)^2$, and the elasticity of demand is ϵ_{LF}. There is a similar equation for the group of dominant firms and these two equations share ϵ_{LI} as a common parameter.[26] Each of these equations is perfectly identified. If we obtained the common ϵ_{LI} from independent calculations, we would obtain overidentification to test the model.

For our purposes we need to modify this set of equations to match the characteristics of the supply and demand structure of the banking system, as well as to incorporate the event of privatization into the estimation.[27] In order to allow for the possibility of different behavior pattern between the periods of public and private ownership we introduce a dummy variable Z which takes a value of 1 for the period after privatization and zero otherwise. This implies that we are estimating one equation for the dominant firms and another for the fringe banks as follows:

$$\sum_{i\in D} \frac{\partial C}{l\,\partial L_i}\frac{S_i}{S_D} = \alpha_D + \beta_D S_D H_D + \lambda_{DD}(S_D - S_D H_D) + \lambda_{DD2}(S_D - S_D H_D) + \delta_{DD}(S_D^2 H_D - H_D -\sum_{i\in D}\frac{S_i^3}{S_D})$$

$$+ \delta_{DD2}(S_D^2 H_D - \sum_{i\in D}\frac{S_i^3}{S_D}) + \lambda_{FD}(1-S_D) + \lambda_{FD2}(1-S_D)$$

$$+ \delta_{FD} H_D(1-S_D)S_D + \delta_{FD2} H_D(1-S_D)S_D + \mu_D \qquad (13)$$

$$\sum_{i\in F} \frac{\partial C}{l\,\partial L_i}\frac{S_i}{S_F} = \alpha_F + \beta_F S_F H_F + \lambda_{FF}(S_F - S_F H_F) + \lambda_{FF2}(S_F - S_F H_F) + \delta_{FF}(S_F^2 H_F - H_F -\sum_{i\in F}\frac{S_i^3}{S_F})$$

$$+ \delta_{FF2}(S_F^2 H_F - \sum_{i\in F}\frac{S_i^3}{S_F}) + \lambda_{DF}(1-S_F) + \lambda_{DF2}(1-S_F)$$

$$+ \delta_{DF} H_F(1-S_F)S_F + \delta_{DF2} H_F(1-S_F)S_F + \mu_F \qquad (14)$$

The period of analysis encompasses monthly data from January 1990 until December 1993 for each of the 18 banks privatized. We do not assume constant marginal cost for all firms, rather for each bank we calculate the monthly ratio of financial cost to funding portfolio. In the same fashion, the active interest rate for

each bank is calculated as the monthly ratio of financial income to loan portfolio. Finally, our measure of output are the outstanding loans at the end of each month. The dependent variable is therefore the groups's weighted average active to passive interest rate ratio. The market share of each institution (S) as well as H_D and H_F are also calculated monthly as the percentage of loans in the total loan portfolio of the MCBS and the respective indices as defined above. The average participation in the market of a dominant bank is 16.6% while that of fringe banks is only 3.2%. In order to obtain the price elasticity of demand for loans we undertook a demand analysis with the outcome of an elasticity of -1.01, which is used in the restricted version of the estimation only.

The independent variables in the right hand side of the above equations are endogenous. Therefore, the methodology for estimation of this nonlinear system requires the use of the method of moments with instrumental variables.[28] The instruments used include: U.S. and Mexican inflation, U.S. real interest rate, Mexican real activity levels, their powers, and privatization dummies (first announcement, privatization of the first bank, and privatization of the last bank).

We estimate two versions of this system. Table 12 shows the results of the restricted version with our previously calculated price elasticity, the lower pannel of this table uses the estimated parameters and calculates the implied conjectures. Several interesting results emerge from the analysis of these tables. First, firms in different groups seem to have heterogeneous expectations, but during the period of government ownership, the relations predicted by the dominant-fringe model do not seem to be sustained. Before privatization a dominant firm expected strong accommodation from the other dominant firms in the market, but strong retaliation from fringe banks. This behavior is the exact opposite of what a von Stackelberg type of model would predict. On the other hand, a fringe bank expects only a small positive reaction to increases in its loans from the rest of the fringe group, while it anticipates a somewhat larger response from the dominant banks. In fact, since the coefficients of the fringe equation are insignificant, we cannot reject other forms of expectations for this group.

In a market structure with perfect collusion and with firms of identical size, all firms should anticipate an identical retaliation as their output increases. In this framework, the calculated expected retaliation for the period before privatization seems excessive but the magnitude of a dominant bank's expected retaliation from dominant and follower firm are very similar but with different signs compensating each other. These results suggest some form of overall government control on output decisions across all banks.

Privatization brought about a turn-around in the banking industry's behavior. The estimates of the model support collusive conduct of the banking industry under private ownership. Once private, dominant banks actually anticipate a strong retaliation from comparable banks in their group instead of accommodation. The average bank with a 16% market share expects an increase in other dominant banks' loans of 6.53% for each percentage point of its own. This point of view is suggestive of an expectation of implicit cartel behavior among the dominant banks. Meanwhile, the expected retaliation from fringe firms while SOEs, is re-

vered and turned into large accommodation: follower banks are expected to re-duce their loans by 3.11% for each percentage point increase of the dominant firm. These results suggest that dominant banks expect small banks to behave as Stackelberg followers.

Against Stigler's model of oligopoly where small firms are likely to cheat without detection, our results suggest that if anything, detection increased after privatization with the dominant banks matching the last prediction of the dominant-fringe firm model. The previous results are basically replicated when we estimate the unrestricted version of the system of equations in which the price-elasticity is endogenously determined (Table 13).[29]

Finally, we also checked the results presented here by estimating alternative forms of behavior in a freer form model without imposing such a rigid structure. Results still show the same thrust pointing towards a potential role for collusive behavior after privatization.[30]

Post-privatization Performance across Groups of Banks

When compared to the pre-privatization period, the interest margin decreased only slightly from 7.4% to 6.99%. Interest margins basically remained constant since the period before deregulation, when nominal rates in the economy fell to an average of 18%. In fact, the interest margin for the dominant group increases almost two percentage points to reach 7.2%, which contrasts with the slight fall for the rest of the firms. It is therefore not surprising to find that, as in the period of deregulation, the financial margin to financial revenue ratio for the dominant banks increased almost by half to reach 32.3%, while that of fringe firms went from 23% to 27% only. This large financial margin during years of continuously declining interest rates explains part of the increased profitability levels.[31]

Other difference in post-performance between these two groups include the larger increases in profit and operating margins of dominant firms compared to the rest. Interestingly, overall employment levels have increased in the dominant group contrasting with a decline in the less significant banks. In terms of differences in internal efficiency measures across groups, we do not observe a larger fall in employees per branch or in administrative expenses across the dominant group.

It seems that although deregulation liberated interest rates, the existing entry-barriers to foreign banks remain responsible for the lack of competition. A closer look at the domestic structure of the industry shows that only 5 banks have a combined market share of 63% in 1993. A comparison between profit margins and net income over equity ratios with other banks in OECD countries still shows Mexican institutions enjoying higher levels above those before privatization. For example, the average net income over equity ratio for Mexican banks increased from 18% in 1990 to over 22% in 1993, and the net income over assets ratio went up 0.3% during to reach 1.4% in 1993. In this environment price leadership or dominant firm strategies allow a small group of large firms to control the

market and the rest to follow them. All results documented here seem to point towards a change in behavior after privatization with increased collusion among participants. The market structure after privatization resembles a model consisting of a core group of dominant banks with an increased ability to control not only each others output, but also that of smaller banks.

d. Persistency of favorable regulation of operations

Similarly, it is possible that other measures of deregulation different from entry rules have not penetrated enough and that structures which favored bank operations during the SOE period persisted after privatization. A detailed look at the regulatory framework of the past few years provides some elements support-ing this view. First, although privatization calls for a change in supervision, given the new private character of the firms, supervision systems did not change for over two years. Second, accounting information standards did not evolve or were not set to match international standards. Additional and better information make the job of regulators easier. Therefore, keeping practically the same accounting rules and information disclosure requirements does not facilitate the task of regu-lating a privatized industry. Third, until recently, there was no overall system of prudential regulation beyond the old capitalization rules. Furthermore, the meth-odology used for capitalization does not resemble that of Bassels. Fourth, a re-form of deposit insurance has been slow to take place. The continuation of the old system of total coverage does not take into account the risk taken by the new private institutions. This rule made some sense when commercial banks were SOEs with government backing, but it is hard to sustain after privatization. Finally, and probably most importantly, the implemented rules for asset classification have proved to give insufficient levels of provisions, as the recent experience of some banks has shown.

Overall, the persistency of favorable regulation after privatization can explain part of the increased profitability of commercial banking in Mexico. The lack of further deregulation in operations and entry rules has allowed extra maneuvering space for the privatized banks.

e. Business cycles

An alternative explanation to the four theories explored above suggests that the seemingly higher profitability rates of Mexican commercial banks, when com-pared to other OECD countries, is the result of a more pronounced business cycle in Mexico. This view would suggest that the years of deregulation and privatiza-tion coincided with the crest of the cycle in Mexico and that the recent crises in early 1995 represent the bottom. Therefore, when we compare Mexican banks and banks in OECD countries (as in Table 3), the average profit rates across all these years of the business cycle would not be significantly different. If this is the case, we have a problem since the data in this paper ends in December 1993, we do not pick up the bottom of the cycle.

In order to explore this possibility, we obtained some data for 1994 to make a calculation which included the failure of the banks that were intervened in the last months of 1994. We obtained net income and total shareholder's equity for all the banks at the end of 1994. With these numbers we calculated an "average rate of profitability for all the banks" during the period from 1987 until 1994. The number we calculated is the following:

$$\frac{\sum_{j \in J} \sum_{1987}^{1994} Net\ Income_j - \sum_{k \in K} ShhsEq_k^{1994}}{\sum_{j \in J} ShhsEq_{-j}^{1987}} \qquad (15)$$

where we aggregate the net income or profits (*Net Income*) of all banks in the system (*J*) over the years from 1987 until 1994 and we subtract the value of the capital (*Shhs Eq.*) of all banks that failed in 1994 (*K*), therefore adjusting for the losses of the system. We standardize this "system net income rate" by the value of the capital of the banking system in 1987.

This number gives us an average net income over capital rate for the Mexican banking system throughout the business cycle which we then compare to the similar rates obtained in the second row of Table 3 for other countries in 1990. The value of our calculated rate of return is 16.23% which is still the higher than that of other countries and only similar to that of Spain. Based on this calculation, we feel that although business cycles might have an influence in the profitability of the Mexican banking system, they do not account for the marked difference between Mexican banks and other banks around the world.

VI. Conclusion

This paper reviewed the deregulation and privatization of commercial banking services in Mexico. We have documented the positive market reaction to the deregulation measures, which reduced operational restrictions, increased the amount of resources available for lending, and eliminated interest rate ceilings. All of these changes had a significant impact on the operating efficiency of the industry and increased the attractiveness of the banks to privatization bidders. A large positive response was registered when news of the coming privatization hit the market, while the announcement of the actual winner had no significant impact on bank stock prices. This paper also unveiled the factors explaining private benefits of control and allowed us to estimate the impact of auction competition on prices. The lack of more competition in the auction is estimated to account for close to 20% of the calculated true value of control; participants underbid close to 24% of book value.

This paper also analyzed the effects of deregulation and privatization on performance levels of the industry. The main result of deregulation was an increased level of activity stemming from freer operation rules. Meanwhile, privatization meant a substantial restructuring of operations with an important increase in the loan portfolio growth rate and a reduction in the securities portfolio growth rate.

Banks, away from political governance, are turning into precisely that: banks. Other elements of reduced agency costs, such as the reduction in the growth rate of administrative expenses can explain part of the important increase in operating margins, but our evidence also allows room for partial deregulation as an explanation of increased profitability. Although the deregulation effort substantially decreased entry barriers for domestic competitors, by the beginning of 1994 only two domestic banks had entered the market. Until the financial crisis in early 1995, the market remained closed to foreign competition. Both of these factors provide the necessary ingredients for collusive behavior. Finally, delays in deregulation of operations, supervision and disclosure translated into persistency of favorable and protective rules enjoyed by banks while SOEs. Thus, the increase in profitability under private ownership is not only a result of efficiency gains due to privatization, but also the outcome of partial deregulation.

TABLE 1

FINANCIAL DATA OF THE MEXICAN BANKING SYSTEM AS OF DECEMBER 1990
(In millions of dollars)

Financial data of the banks privatized in Mexico between June 1991 and July 1992. "Assets" are the total assets in pesos at the end of 1990 divided by the year end exchange rate; "Loan P." is the total loan portfolio (including past due loans) in pesos at the end of 1990 divided by the year end exchange rate; "Sh. Eq." is the total shareholders equity in pesos at the end of 1990 divided by the year end exchange rate; "Net Inc." is the net income in pesos of 1990 divided by the average annual exchange rate; "B-Loan" is the theoretical amount of bad loans according to the regulation; "Branch" is the number of branches at the end of 1990; "Empl." is the number of employees at the end of 1990; "%" is the participation in the system; "Average I" category that corresponds to the large national banks; "Average II" category that corresponds to the national banks; "Average III" category that corresponds to the multiregional banks; "Average IV" category that corresponds to the regional banks; for all four categories the amounts and participations in the system for an average bank of the category are shown.

Bank	Assets	%	Loan P.	%	Sh. Eq.	%	Net Inc.	%	B-Loan	%	Branch	%	Empl.	%
MERCANTIL (III)	2,406	2.7	987	1.8	91	1.7	20	1.8	4	0.4	92	2.1	3,466	2.1
BANPAIS (III)	1,138	1.3	604	1.1	57	1.0	15	1.4	22	2.1	100	2.2	3,080	1.9
CREMI (III)	1,700	1.9	1,089	2.0	104	1.9	19	1.8	11	1.1	117	2.6	4,780	2.9
CONFIA (III)	1,804	2.0	948	1.7	82	1.5	25	2.3	9	0.9	121	2.7	3,808	2.3
BANORIE (IV)	303	0.3	264	0.5	25	0.4	5	0.5	7	0.6	38	0.9	857	0.5
BANCRESER (III)	1,978	2.2	689	1.3	47	0.9	1	0.1	18	1.7	68	1.5	2,389	1.4
BANAMEX (I)	22,472	25.0	13,183	24.0	1,645	29.8	356	33.2	296	27.9	726	16.3	31,315	18.9
BANCOMER (I)	18,559	20.7	12,135	22.1	1,498	27.1	225	20.9	116	11.0	762	17.1	37,041	22.4
B.C.H. (III)	1,812	2.0	937	1.7	111	2.0	21	1.9	53	5.0	130	2.9	4,503	2.7
SERFIN (I)	15,971	17.8	10,305	18.8	604	10.9	133	12.4	155	14.6	618	13.9	22,201	13.4
COMERMEX (II)	6,024	6.7	3,942	7.2	260	4.7	61	5.7	53	5.0	344	7.7	12,701	7.7
SOMEX (II)	4,027	4.5	2,235	4.1	160	2.9	(24)	-2.2	120	11.3	316	7.1	7,327	4.4
ATLANTICO (III)	2,347	2.6	1,472	2.7	110	2.0	21	1.9	20	1.9	204	4.6	7,370	4.4
PROMEX (IV)	1,051	1.2	752	1.4	104	1.9	36	3.3	14	1.3	154	3.5	4,061	2.5
BANORO (IV)	744	0.8	534	1.0	149	2.7	40	3.7	8	0.8	73	1.6	2,932	1.8
BANORTE (IV)	1,409	1.6	920	1.7	161	2.9	60	5.6	25	2.4	120	2.7	3,599	2.2
INTERNACIONAL (II)	5,233	5.8	3,238	5.9	211	3.8	34	3.1	109	10.3	365	8.2	11,337	6.8
BANCEN (IV)	847	0.9	601	1.1	108	1.9	29	2.7	20	1.9	104	2.3	2,884	1.7
Total System*	89,825	100.0	54,835	100.0	5,528	100.0	1,074	100.0	1,061	100.0	4,452	100.0	165,651	100.0
Average I	19,000	21.2	11,874	21.7	1,249	22.6	238	22.1	189	17.8	702	15.8	30,186	18.2
Average II	5,095	5.7	3,138	5.7	211	3.8	24	2.2	94	8.9	342	7.7	10,455	6.3
Average III	1,883	2.1	961	1.8	86	1.6	17	1.6	20	1.9	119	2.7	4,199	2.5
Average IV	871	1.0	614	1.1	109	2.0	34	3.2	15	1.4	98	2.2	2,867	1.7

* Total of the banks to be privatized. Not included Banco Obrero and Citibank, which represent only close 2% of all operation.
Source: National Banking Commission.

TABLE 2

RATIOS OF THE MEXICAN BANKING SYSTEM AS OF DECEMBER 1990

Financial data of the banks privatized in Mexico between June 1991 and July 1992. "F.R./T.R." is financial revenue to total revenue ratio, financial revenue includes interest revenue and total revenue also includes services, dividends, and other revenue; "Fin. Mg" is the financial revenue net of cost to financial revenue ratio; "O.E./T.R." is the total operating cost to total revenue ratio; "Leverage" is the shareholders equity (no revaluation included) to assets (no revaluation included) ratio; "Profit Mg" is the ratio net income to financial revenue; "B.L./L.P." is the bad loan reserve calculated according to the regulation divided by the total loan portfolio; "Emp./Br." is the number of employees per branch; "Average I" category that corresponds to the large national banks; "Average II" category that corresponds to the national banks; "Average III" category that corresponds to the multiregional banks; "Average IV" category that corresponds to the regional banks; for all four categories the ratios for an average bank of the category are shown.

Bank	F.R./T.R. %	Fin. Mg. %	O.E./T.R. %	Leverage %	Profit Mg. %	B.L./L.P. %	Emp./Br.
MERCANTIL (III)	93.80	11.65	12.65	2.33	2.74	0.41	37.67
BANPAIS (III)	86.21	23.91	21.60	3.26	4.75	3.61	29.68
CREMI (III)	50.34	19.15	10.44	3.12	3.74	1.04	40.85
CONFIA (III)	83.92	9.23	16.28	2.82	5.34	0.97	31.47
BANORIE (IV)	89.59	21.91	20.67	6.81	4.83	2.64	22.55
BANCRESER (III)	93.92	11.20	12.00	1.31	0.16	2.67	35.13
BANAMEX (I)	88.32	25.40	21.88	3.72	7.90	2.25	43.13
BANCOMER (I)	90.96	23.50	18.75	3.84	4.65	0.95	48.61
B.C.H. (III)	92.06	19.99	18.12	3.06	4.51	5.66	43.71
SERFIN (I)	91.17	19.73	14.45	2.21	3.26	1.50	35.92
COMERMEX (II)	90.66	20.37	18.41	2.76	4.11	1.35	35.37
SOMEX (II)	82.14	14.52	15.48	1.76	-2.54	5.37	23.18
ATLANTICO (III)	90.76	9.73	14.29	2.11	2.12	1.37	36.12
PROMEX (IV)	94.52	28.67	20.97	8.06	9.20	1.84	26.37
BANORO (IV)	89.83	43.61	27.96	15.87	20.81	1.53	40.16
BANORTE (IV)	91.86	34.85	24.57	9.37	14.05	2.75	29.99
INTERNACIONAL (II)	88.82	26.24	24.26	2.27	3.15	3.38	31.06
BANCEN (IV)	92.79	25.67	20.38	9.95	9.17	3.40	25.80
Mean System	87.87	21.63	18.51	4.70	5.66	2.37	34.27
Median System	90.71	21.14	18.58	3.09	4.58	2.05	35.25
Average I	90.15	22.88	18.36	3.26	5.27	1.57	42.55
Average II	87.21	20.38	19.38	2.26	1.57	3.37	29.87
Average III	84.43	14.98	15.05	2.57	3.34	2.25	36.38
Average IV	91.72	30.94	22.91	10.01	11.61	2.43	28.97

Source: National Banking Commission.

TABLE 3

INTERNATIONAL COMPARISON OF THE MEXICAN BANKING SYSTEM

Comparative analysis of performance and structure measures of representative banking systems. "NET INC./ASSETS" is the system's average net income to assets ratio for 1990; "NET INC./EQUITY" is the system's average net income to shareholders' equity ratio for 1990; "OPER. EXP./REV." is the system's average total operating cost to total revenue ratio for 1989; "PAYROLL EXP./TOT. EXP." is the system's average personnel expense to operating cost ratio for 1990; "EMPLOYEES/BRANCH" is the system's average number of employees per branch for 1989; "P./E." is the system's average market price to earnings per share ratio at the end of 1990; "P./B.V." is the system's average market price to book value per share ratio at the end of 1990; "NUMBER OF BANKS" is the total number of banks in each system; "MKT. SHARE OF 5 LARGEST" is the participation of the 5 most important banks in the system in 1989.

Bank	Mexico	U.S.	Spain	Germany	France	England	Italy
NET INC./ASSETS 1990	1.10%	0.60%	1.23%	0.50%	0.33%	0.25%	0.41%
NET INC./EQUITY 1990	18.40%	10.70%	16.20%	8.80%	13.60%	5.30%	10.50%
OPER. EXP./REV. 1989	67.90%	56.40%	N.A.	58.70%	65.90%	N.A.	N.A.
PAYROLL EXP./TOT. EXP. 1990	43.22%	N.A.	68.10%	54.60%	62.20%	58.40%	71.90%
EMPLOYEES/BRANCH 1989	35	N.A.	7	14	17	12	20
P./B.V. 1990	2.01	1.14	1.70	1.20	0.90	N.A.	N.A.
P./E. 1990	10.52	11.78	6.13	16.53	7.50	N.A.	N.A.
NUMBER OF BANKS 1989	18	12.712	146	308	418	449	232
MKT. SHARE OF 5 LARGEST (1989)	75%	18%	38%	26%	54%	29%	36%

Source: Valores Finamex, FDIC, Standard and Poors, and Competitive Strategies in European Banking.

TABLE 4

EVENT STUDY BANK DEREGULATION

(For the period from three days before to three days after the announcement)

Cumulative abnormal returns calculated with the market model re-estimated for each date for the privatized banks in Mexico between June 1991 and July 1992. "Banking Op." refers to the elimination of interest rate ceilings in March '89. "Fin. Laws" refers to the first major changes in banking laws in December '89. "New Laws" refers to the approval of the new Banking Law and the new Financial Groups Law in June '90. "Loan Class." refers to the publication of new rules to manage the bad loan reserves in March '91. "Liquid. Coeff." refers to the elimination of the liquidity coefficient in September '91. Standard deviations are presented below the abnormal returns and t-statistics below the means. The standard deviations are calculated for 60 days before each abnormal return period.

Bank	Banking Op.	Fin. Laws	New Laws	Loan Class.	Liquid. Coeff.
MERCANTIL (III)	N.A.	N.A.	N.A.	-1.89% (0.0217)	-4.91% (0.0195)
CREMI (III)	-3.80% (0.0252)	5.12% (0.0330)	-5.74% (0.0267)	-- *	2.45% (0.0258)
CONFIA (III)	-2.22% (0.0245)	-2.27% (0.0250)	-5.66% (0.0242)	-4.51% (0.0117)	-1.99% (0.0377)
BANORIE (IV)	-3.34% (0.0154)	0.59% (0.0236)	3.49% (0.0283)	-7.31% (0.0197)	0.28488% a (0.0179)
BANAMEX (I)	1.92% (0.0243)	5.48% (0.0117)	-8.36% (0.0331)	-9.99% b (0.0150)	-3.79% (0.0271)
BANCOMER (I)	-6.38% (0.0192)	4.73% (0.0137)	-0.94% (0.0308)	-7.67% (0.0271)	5.53% (0.0265)
SERFIN (I)	-8.42% (0.0236)	6.74% (0.0220)	-1.84% (0.0316)	-6.96% (0.0240)	8.52% (0.0311)
COMERMEX (II)	-6.06% (0.0218)	11.83% b (0.0195)	-7.10% (0.0375)	-10.34% (0.0233)	1.07% (0.0249)
SOMEX (II)	N.A.	N.A.	N.A.	-1.16% (0.0256)	6.98% (0.0320)
ATLANTICO (III)	0.25% (0.0205)	4.85% (0.0278)	3.31% (0.0388)	-8.25% c (0.0169)	-1.45% (0.0274)
PROMEX (IV)	-1.69% b (0.0031)	7.21% (0.0297)	-7.17% (0.0326)	-2.44% (0.0265)	-0.63% (0.0232)
BANORO (IV)	-3.33% (0.0087)	14.97% b (0.0278)	-6.13% (0.0311)	-5.57% (0.0224)	9.28% (0.0463)
BANORTE (IV)	-7.03% (0.0408)	3.98% (0.0225)	-6.53% c (0.0380)	-11.12% c (0.0233)	3.36% (0.0335)
INTERNACIONAL (II)	-1.69% (0.0163)	11.90% b (0.0211)	-1.98% (0.0262)	-10.58% (0.0248)	-3.62% (0.0289)
BANCEN (IV)	-4.98% (0.0206)	11.10% b (0.0208)	-3.98% (0.0330)	-9.20% (0.0265)	-11.18% (0.0278)
Mean	-3.60% a (4.38)	6.63% a (4.97)	-3.74% a (3.46)	-6.93% a (8.01)	2.54% (1.08)
Median	-3.34%	5.48%	-5.66%	-7.49%	1.07%

a 1% Significance Level.
b 5% Significance Level.
c 10% Significance Level.
* The abnormal return corresponding to this observation is not presented because of an overlap in the windows with one of the privatization announcements. The abnormal return calculated is 11.66% for Cremi. The inclusion of this observation does not change either the significance or the sign of the mean.
N.A.: Stock started to quote within the first three months of 1990.

TABLE 5

EVENT STUDY OF BANK PRIVATIZATION

(For the period from three days before to three days after the announcement)

Cumulative abnormal returns calculated with the market model re-estimated for each date for banks privatized in Mexico between June 1991 and July 1992. "Package Announc." is the date of publication of the rules in the Federation Official Journal; "Winner Announc." is the date that the auction winner was announced. Standard deviations are presented below the abnormal returns and t-statistics below the means. The standard deviations are calculated for 60 days before each abnormal return period.

Bank	Initial Announc.	Package Announc.	Auction Rules	Winner Announc.
MERCANTIL (III)	N.A.	5.00% (0.0141)	-2.14% (0.0222)	21.63%ᵃ (0.0193)
CREMI (III)	14.42%ᵇ (0.0235)	16.18%ᵃ (0.0050)	-2.26% (0.0199)	6.20% (0.0213)
CONFIA (III)	13.47%ᶜ (0.0261)	-2.77% (0.0159)	30.36%ᵃ (0.0131)	-1.40% (0.0377)
BANORIE (IV)	15.26%ᵇ (0.0255)	-1.80% (0.0149)	20.29%ᵃ (0.0135)	-8.90%ᶜ (0.0179)
BANAMEX (I)	13.79%ᶜ (0.0163)	-0.96% (0.0196)	-8.69% (0.0233)	10.69%ᶜ (0.0230)
BANCOMER (I)	5.27% (0.0245)	2.32% (0.0224)	-0.38% (0.0233)	6.90% (0.0245)
SERFIN (I)	15.07%ᶜ (0.0267)	24.77%ᵃ (0.0251)	2.74% (0.0245)	-13.16%ᵇ (0.0245)
COMERMEX (II)	10.14%ᶜ (0.0230)	23.70%ᵃ (0.0241)	-2.63% (0.0288)	0.52% (0.0215)
SOMEX (II)	N.A.	22.63%ᵃ (0.0293)	-2.22% (0.0294)	-1.44% (0.0280)
ATLANTICO (III)	18.68%ᵃ (0.0177)	-0.66% (0.0193)	-6.11% (0.0336)	20.65%ᵃ (0.0172)
PROMEX (IV)	14.35%ᶜ (0.0326)	-5.01% (0.0206)	0.69% (0.0203)	-3.00% (0.0151)
BANORO (IV)	29.76%ᵃ (0.0257)	-7.20% (0.0215)	-6.01% (0.0220)	-3.26% (0.0184)
BANORTE (IV)	23.87%ᵃ (0.0340)	10.29%ᶜ (0.0236)	-1.97% (0.0259)	-5.59% (0.0237)
INTERNACIONAL (II)	6.81% (0.0256)	16.27%ᵇ (0.0288)	3.19% (0.0300)	-14.40%ᵇ (0.0241)
BANCEN (IV)	21.75%ᵃ (0.0262)	15.01%ᵇ (0.0252)	-0.17% (0.0266)	-4.31%ᶜ (0.0319)
Mean	15.59% ᵃ (8.37)	7.85% ᵇ (2.73)	1.65% (0.62)	0.74% (0.27)
Median	14.42%	5.00%	-1.97%	-1.44%

ᵃ 1% Significance Level.
ᵇ 5% Significance Level.
ᶜ 10% Significance Level.
N.A.: Stock started to quote within three months prior to the announcement.

TABLE 6

SUMMARY OF THE BANK PRIVATIZATION SALE PRICES

Prices paid for the banks privatized in Mexico between June 1991 and July 1992. "Prices per Share" is the price per share paid by the bank acquirer (in new pesos); "P/BV ratio" is the price to book value ratio paid by the bank acquirer; "P/E ratio" is the price to earnings of the last twelve months paid by the bank acquirer; "% Sold" is the percentage of the bank's shares that was sold to the acquiring group.

Bank	Date Bid Due	Price per Share $	P/BV ratio*	P/E ratio*	% Sold
MERCANTIL (III)	7-Jun-91	9.150	2.66	12.73	77.19
BANPAIS (II)	14-Jun-91	16.855	3.03	17.73	100.00
CREMI (III)	21-Jun-91	18.032	3.40	21.87	66.70
CONFIA (III)	2-Aug-91	52.702	3.73	13.52	78.68
BANORIE (IV)	9-Aug-91	1.737	4.04	13.65	66.00
BANCRESER (III)	16-Aug-91	14.979	2.60	50.48	100.00
BANAMEX (I)	23-Aug-91	19.220	2.62	11.18	70.72
BANCOMER (I)	25-Oct-91	3.296	2.99	15.67	56.00
B.C.H. (III)	8-Nov-91	15.911	2.67	22.31	100.00
SERFIN (I)	24-Jan-92	8.065	2.69	14.77	51.00
COMERMEX (II)	7-Feb-92	1.029	3.73	20.61	66.54
SOMEX (II)	28-Feb-92	9.025	4.15	16.53	81.62
ATLANTICO (III)	27-Mar-92	26.235	5.33	17.95	68.48
PROMEX (IV)	3-Apr-92	4.284	4.25	16.53	66.00
BANORO (IV)	10-Apr-92	3.096	3.95	11.27	66.03
BANORTE (IV)	12-Jun-92	0.950	4.25	12.62	66.00
INTERNACIONAL (II)	26-Jun-92	0.295	2.95	N.M.	51.00
BANCEN (IV)	3-Jul-92	0.890	4.65	10.85	66.30
Mean			3.54	18.25	72.13
Median			3.57	16.53	66.62

*Calculated from the financial statements that served as reference for the sale.
N.M.: Not meaningful. The bank had a net loss in the last twelve months.
Source: Lessons from Bank Privatization in Mexico & Journals.

TABLE 7

SUMMARY OF THE VOTING PREMIUM

Voting premium paid for the banks privatized in Mexico between June 1991 and July 1992. "Mkt. Price per Share" is the closing market price per share three days after the announcement of the auction winner (in new pesos); "Market P/BV ratio" is the market price to book value ratio; "Market P/E ratio" is the market price to earnings of the last twelve months ratio; "Value of Control" is obtained as the difference between price of successful bidder and market price divided by the market price.

Bank	Mkt Price per Share $	Market P/BV ratio	Market P/E ratio	Value of Control
MERCANTIL (III)	7.650	2.22	10.63	19.61%
CREMI (III)	11.950	2.25	14.49	50.90%
CONFIA (III)	35.500	2.51	9.10	48.46%
BANORIE (III)	1.000	2.32	13.61	73.70%
BANAMEX (IV)	16.750	2.28	9.74	14.75%
BANCOMER (I)	2.570	2.33	12.31	28.25%
SERFIN (I)	5.250	1.74	9.61	53.62%
COMERMEX (II)	0.560	2.03	11.21	83.75%
SOMEX (II)	4.190	1.97	7.67	115.39%
ATLANTICO (III)	15.950	3.24	10.91	64.48%
PROMEX (IV)	2.770	2.74	10.68	54.66%
BANORO (IV)	2.500	3.19	9.09	23.84%
BANORTE (IV)	0.635	2.84	8.43	49.61%
INTERNACIONAL (II)	0.180	1.80	N.M.	63.89%
BANCEN (IV)	0.550	2.87	6.70	61.82%
Mean		2.42	10.30	53.78%
Median		2.32	10.19	53.62%

N.M.: Not meaningful. The bank had a net loss in the last twelve months.
Source: Bolsa Mexicana de Valores and Table 6.

TABLE 8

ESTIMATION OF THE VALUE OF CONTROL

Ordinary least squares regressions of the cross section of banks privatized in Mexico between June 1991 and July 1992. "Value of Control" is (Market Price t+3 Privatization Date - Bid)/Market Price t+3; "Dummy National" is a dummy variable that takes value 1 if bank is national and 0 otherwise; "Dummy Multireg." is a dummy variable that takes value 1 if bank is multiregional and 0 otherwise; "Dummy Regional" is a dummy variable that takes value 1 if bank is regional and 0 otherwise; "Order Auctioned" is the number of the order in which the bank was sold; "Employee/Branch" is the number of employees per branch as of t-1 month of privatization; "Bank Quality" is a dummy variable that takes value 1 if bank is above industry median and 0 otherwise; "Regional Directors" is a dummy variable that takes value 1 if bidding group had the intention to invite former directors to participate with them and 0 otherwise; "Buyer Org." is a dummy variable that takes value 1 if bidder was industry insider and 0 otherwise; "Bids Made" is the number of unsuccessful bids made before; "N/MP", "N^2/MP", "N^3/MP" and "N^4/MP" are the terms of the fourth degree polynomial approximation. "F-Test Size Effect" tests the significance of the inclusion of the size dummies. White (1980) corrected standard errors are given in brackets.

Indep. Variables	Dependent Variable: Value of Control		
	I	II	III
Dummy National	0.0695 (0.1578)	0.0585 (0.1582)	-0.0297 (0.1563)
Dummy Multireg.	-0.0501 (0.0831)	-0.0583 (0.0790)	-0.0770 (0.0793)
Dummy Regional	-0.2754 a (0.0887)	-0.2679 a (0.0949)	-0.2795 a (0.0843)
Order Auctioned	0.0841 b (0.0394)	0.0844 b (0.0397)	0.0340 (0.0328)
Employee/Branch	-0.0228 a (0.0057)	-0.0227 a (0.0057)	-0.0237 a (0.0055)
Bank Quality	—	-0.0180 (0.0614)	—
Regional Directors	—	—	0.1026 c (0.0619)
Buyer Org.	—	—	0.0388 (0.0700)
Bids Made	—	—	0.0284 (0.0299)
N/MP	1508.2350 c (888.1599)	1528.5277 c (881.1466)	1460.2290 c (779.9992)
N^2/MP	-1350.2500 (908.9429)	-1373.2447 (903.6477)	-1229.2813 (802.0924)
N^3/MP	389.1860 (291.9334)	397.0209 (290.6427)	335.6743 (259.0693)
N^4/MP	-35.8435 (29.1715)	-36.6536 (29.0698)	-29.5189 (26.0078)
Constant	1.0183 a (0.2488)	1.0274 a (0.2445)	1.0305 a (0.2367)
Observations	46	46	46
Adj. R-square	37.13%	35.38%	36.61%
F-Test Size Effect	3.36 b	1.62	1.71

a   1% Significance Level.
b   5% Significance Level.
c   10% Significance Level.

TABLE 9

ESTIMATION OF THE ADJUSTED VALUE OF CONTROL

Ordinary least squares regressions of the cross section of banks privatized in Mexico between June 1991 and July 1992. "Value of Control Adjusted by Percentage Sold" is the "Value of Control", as defined in Table 7, times the percentage of the bank's shares that were sold to the acquiring group as shown in Table 7; "Dummy National" is a dummy variable that takes value 1 if bank is national and 0 otherwise; "Dummy Multireg." is a dummy variable that takes value 1 if bank is multiregional and 0 otherwise; "Dummy Regional" is a dummy variable that takes value 1 if bank is regional and 0 otherwise; "Order Auctioned" is the natural log of the order in which the bank was sold; "Employee/ Branch" is the number of employees per branch as of t-1 month of privatization; "Bank Quality" is a dummy variable that takes value 1 if bank is above industry median and 0 otherwise; "Regional Directors" is a dummy variable that takes value 1 if bidding group had the intention to invite former directors to participate with them and 0 otherwise; "Buyer Org." is a dummy variable that takes value 1 if bidder was industry insider and 0 otherwise; "Bids Made" is the number of unsuccessful bids made before; "N/MP", "N^2/MP", "N^3/MP" and "N^4/MP" are the terms of the fourth degree polynomial approximation. "F-Test Size Effect" test the significance of the inclusion of the size dummies. White (1980) corrected standard errors are given in brackets.

Indep. Variables	Dependent Variable: Value of Control Adjusted by Percentage Sold		
	I	II	III
Dummy National	0.1670 (0.1143)	0.1921 c (0.1150)	0.1039 (0.1126)
Dummy Multireg.	-0.0125 (0.0527)	0.0061 (0.0517)	-0.0281 (0.0511)
Dummy Regional	-0.1382 a (0.0535)	-0.1539 a (0.0618)	-0.1394 a (0.0495)
Order Auctioned	0.0555 b (0.0276)	0.0550 b (0.0274)	0.0219 (0.0237)
Employee/Branch	-0.0172 b (0.0040)	-0.0173 a (0.0040)	-0.0178 a (0.0038)
Bank Quality	—	0.0397 (0.0419)	0.0696 c (0.0402)
Regional Directors	—	—	0.0306 (0.0491)
Buyer Org.	—	—	0.0161 (0.0491)
Bids Made	—	—	0.0161 (0.0202)
N/MP	1982.5599 b (928.9046)	1940.9820 b (953.4084)	1836.8720 b (807.9969)
N^2/MP	-1879.9230 b (958.7873)	-1831.1522 c (984.9910)	-1659.1551 b (839.7145)
N^3/MP	562.9191 c (309.0029)	546.0035 c (317.6582)	477.8376 c (272.3855)
N^4/MP	-53.3531 c (30.9441)	-51.5864 c (31.8206)	-43.9254 c (27.4154)
Constant	0.7401 a (0.1711)	0.7199 a (0.1678)	0.7502 a (0.1641)
Observations	46	46	46
Adj. R-square	45.81%	44.72%	45.21%
F-Test Size Effect	5.25 a	3.37 b	2.66 c

a 1% Significance Level.
b 5% Significance Level.
c 10% Significance Level.

TABLE 10

SUMMARY OF PERFORMANCE CHANGES

Summary statistics of the financial performance of the banks privatized in Mexico between June 1991 and July 1992. "P.-Pub." is the pre-publicly traded period of the banks; "Pub.-Reg." is the initial publicly traded period with the old regulation; "Pub.-Der." is the publicly traded period with the new regulation; "Der.-Priv." is the deregulated and privatized period for each bank; "Growth in the Number of Employees" is the annual percentage increase in the number of employees; "Growth in the Person- nel Exp. per Empl." is the real annual growth in the monthly personnel expense per employee; "Growth in Operating Expenses" is the real annual growth rate of the total operating expenses; "Growth in Administrative Expenses" is the real annual growth rate in the administrative expenses excluding personnel expenses; "Financial Margin/Financial Revenue" is the financial margin to financial revenue ratio; "Interest Margin" is the financial margin divided by the sum of loan portfolio plus securities portfolio; "Profit Margin" is the period net income to the period total revenue ratio; "Operating Margin" is the period operating income to the period total revenue ratio; "Growth in Loan Portfolio" is the real growth rate in the loan portfolio; "Growth in Securities Portfolio" is the real annual growth rate in the securities portfolio; "Growth in Direct Funding" is the real annual growth rate in the funding; "Growth in the Number of Branches" is the annual percentage increase in the number of branches; "Operating Income per Branch" is the period operating income divided by the end of period number of branches; "Diff in Means" are the difference in the means between "Pub.-Reg." and "P.-Pub.", "Pub.-Der." and Pub.- Reg.", and "Der.-Priv." and "Pub.-Der".

	Growth in the number of Employees				Growth in Personnel Exp. per Empl			
	P.-Pub.	Pub.-Reg.	Pub.-Der.	Der.-Priv.	P.-Pub.	Pub.-Reg.	Pub.-Der.	Der.-Priv.
Mean	-0.0275	-0.0034	0.0116	-0.0164	N.A.	N.A.	0.1489	0.3252
Diff. in means		0.0240 (1.33)	0.0150 (0.96)	-0.0279 (1.59)				0.1763 b (2.54)

	Growth in Operating Expenses				Growth in Administrative Expenses			
	P.-Pub.	Pub.-Reg.	Pub.-Der.	Der.-Priv.	P.-Pub.	Pub.-Reg.	Pub.-Der.	Der.-Priv.
Mean	-0.0318	0.1240	0.1347	0.1543	N.A.	N.A.	0.1772	0.1308
Diff. in means		0.1558 a (6.69)	0.0107 (0.37)	0.0196 (0.53)				-0.0464 (0.92)

	Financial Margin/Financial Revenue				Interest Margin			
	P.-Pub.	Pub.-Reg.	Pub.-Der.	Der.-Priv.	P.-Pub.	Pub.-Reg.	Pub.-Der.	Der.-Priv.
Mean	0.1070	0.1179	0.2278	0.2804	0.0555	0.0727	0.0745	0.0699
Diff. in means		0.0110 (1.66)	0.1098 a (8.93)	0.0527 a (3.72)		0.0172 a (4.49)	0.0017 (0.43)	-0.0045 (0.85)

	Profit Margin				Operating Margin			
	P.-Pub.	Pub.-Reg.	Pub.-Der.	Der.-Priv.	P.-Pub.	Pub.-Reg.	Pub.-Der.	Der.-Priv.
Mean	0.0198	0.0329	0.0537	0.0636	0.0306	0.0413	0.0896	0.1085
Diff. in means		0.0131 a (4.34)	0.0208 b (2.83)	0.0099 (1.63)		0.0107 a (3.31)	0.0482 a (7.81)	0.0188 b (2.35)