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**Foreign Banks and the Mexican Economy, 1997-2004**

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# **Foreign Banks and the Mexican Economy, 1997-2004**

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## **Abstract:**

In 1997 Mexico allowed foreign banks unrestricted entry to the market, allowing multinational banks to acquire almost all of Mexico's large banks. At the same time, the Mexican banking system began to limit private credit, in both absolute and relative terms. We investigate the hypothesis that these phenomena are related, and find for the null hypothesis: the contraction in credit is not related to foreign entry. The evidence does suggest, however, that foreign banks are better able to screen borrowers and charge lower interest margins than domestic banks. The evidence also suggests that foreign entry is associated with increased bank administrative efficiency. The implication is that foreign entry has produced welfare gains to consumers.

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In recent years, governments around the world have been opening up their banking systems to foreign competition. Academics and policymakers have therefore been exploring the impact of foreign bank entry. Most studies conclude that foreign entry increases the contestability of markets, thereby reducing administrative costs, lowering net interest margins, and driving down bank rates of return.<sup>1</sup> Nevertheless, as Clarke, Cull, Martinez Peria, and Sánchez (2003) note, much of what we know comes from cross-country studies that are heavily weighted toward developed economies. As yet, there are very few detailed case studies of developing countries. This is particularly crucial, because the extant literature suggests that the impact of foreign entry varies with the level of economic development (Lensink and Hermes 2004).

We therefore offer a detailed study of the impact of foreign entry in Mexico. Focusing on a single country allows us to reduce the problems of identification and omitted variables that affect multi-country studies. Moreover, the Mexican case is particularly interesting for two reasons. First, there is no other case in which foreign banks came to dominate the market as quickly and completely. After they were allowed unrestricted access to the market, foreign firms purchased Mexico's largest banks, increasing the foreign market share from 11 percent in December 1997 to 83 percent in December 2004. (See Table 1).<sup>2</sup>

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<sup>1</sup> For representative works see: Berger and Humphrey 1997; Berger, Klapper, and Udell 2001; Demirgüç-Kunt and Huizinga 1998; Denizer 1999; Clarke, Cull, D'Amato, Molinari 1999; Barth, Caprio, and Levine 2000; Berger, DeYoung, Genay and Udell 2000; Barajas, Steiner and Salazar 2000; Claessens, Demirgüç-Kunt, and Huizinga, 2001; Levine, 2002; Mian 2003; Clarke, Cull, Martinez Peria, and Sánchez 2003, 2004; Lenisk and Hermes 2004; Demirgüç-Kunt, Laeven, and Levine 2004; Martinez Peria and Mody 2004; Sturm and Williams, 2004.

<sup>2</sup> Until the 1997 reform, foreign ownership had either been entirely prohibited or had been subject to strict limits (Maurer 2002; Del Angel Mobarak 2002; Murillo 2002).

Second, at the same time that foreign firms were acquiring Mexico's largest banks, the banking system was dramatically curtailing private credit. From 1997 to 2004, private sector bank lending fell from 25 percent to 14 percent of GDP. This did not occur because bank assets shrank. It happened because banks redirected assets away from loans to households and business enterprises: the ratio of private credit to assets fell from 50 percent in December 1997 to 34 percent in December 2004. Bank lending to firms and households declined in absolute terms over this period: real lending in December 2004 was eight percent below what it had been in December 1997. (See Table 1). As a consequence, surveys by Mexico's central bank indicate a monotonic decline between 1998 and 2004 in the use of the banking system as a source of business finance—regardless of firm size. (See Table 2). The surveys also reveal that this decline cannot be explained as a consequence of direct foreign borrowing. Not surprisingly, the decline in credit is often attributed to the acquisition of Mexico's banks by foreign multinationals.

We wish to know whether there is a connection between foreign entry and the contraction of credit. We also wish to know what effects the purchase of Mexico's largest banks by foreign firms had on administrative efficiency, credit pricing, and financial performance. In order to answer these questions we construct a panel data set and compare the banks that were acquired or merged with foreign banks (which we denote as Foreign MA banks) to their domestically-owned competitors in two dimensions: those same banks before they switched to foreign ownership; and the set of banks that were domestically owned throughout the entire period under study.

The analysis we present contains some surprising answers to these questions. The evidence does not indicate that switching from domestic to foreign ownership changed bank

lending strategies. Rather, the evidence suggests that those banks that were acquired by foreign firms had already begun to reduce private sector lending prior to their sale. The evidence also suggests that the behavior of these banks, both before and after their acquisition by foreign firms, was not dramatically different from banks that remained domestically owned.

The evidence does suggest, however, that there were some benefits to Mexican consumers from foreign bank entry. Foreign-owned banks appear to have been better at screening borrowers. The cost savings from lower default rates in foreign-owned banks appear to have been passed along to consumers in the form of lower net interest margins.

Coterminous with foreign entry, Mexico's banks have seen a sizable decline in administrative costs. The evidence indicates, however, that administrative costs have fallen for all banks, not just those that are foreign-owned. This result suggests that foreign entry produced competitive pressures that forced all banks to become more efficient.

Mexico's banks have also become more profitable. In 1997, when the rules governing foreign entry were reformed, the banking system was emerging from a taxpayer financed bailout. Our regression results indicate that Mexico's banks have returned to profitability, but that foreign owned banks are no more profitable, on average, than their domestically-owned competitors.

## Methods

This paper builds upon a broad literature on the relationship between banking market structure, foreign bank entry, and bank performance.<sup>3</sup> We draw, in particular, on the methods developed by Saunders and Shumacher (2000) and Martinez Peria and Mody (2004).<sup>4</sup>

We build upon and go beyond the extant literature in three ways. First, most studies of the impact of foreign bank entry lump all foreign banks together.<sup>5</sup> This is problematic, because there are actually two different types of foreign banks operating in most countries: representation offices or small subsidiary operations of foreign banks that specialize in making large loans to blue chip corporations or providing investment banking services; and foreign-owned commercial banks that provide a broad range of consumer, small business, and housing loans, as well as engage in investment banking. We therefore truncate our data set, removing those foreign banks that did not purchase an already existing Mexican bank, but instead opened a representation office or subsidiary. We note that these boutique banks accounted, on average, for only four percent of Mexico's bank assets during the period under study.<sup>6</sup>

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<sup>3</sup> For representative works on the impact of foreign bank entry, see footnote 1.

<sup>4</sup> One criticism that is made of these methods is that they assume that the price of financial services is dictated solely by the supply of credit. (Demand for credit enters into the regressions only as control variables for inflation, GDP growth, or the money market interest rate). We note that this criticism loses much of its force when the case under study is unambiguously in the midst of a credit crunch. The existence of a credit crunch in Mexico has been econometrically demonstrated by González Anaya 2003.

<sup>5</sup> Martinez Peria and Mody 2004 is a notable exception.

<sup>6</sup> Inasmuch as Foreign de Novo banks disappear as reporting units from our data set when their parent firms purchase a Mexican bank (which are then coded as Foreign MA), leaving the Foreign de Novo banks in the panel decreases its balance. We note that our results are not

Second, the detailed nature of our data set means that we can estimate regressions with more precision than is generally the case in the literature. We can, in particular, control for the allocation of assets among different types of loans, as well as between loans and investments in securities.

Third, the detailed nature of the data allows us to address a range of questions that are usually not examined in the literature. Most studies focus on two issues: the impact of foreign entry on administrative efficiency and interest rate spreads (net interest margins). Some studies also address bank rates of return. We are able to explore these issues, and, in addition, explore the impact of foreign entry on borrower screening and portfolio allocation.

#### Phases of Foreign Bank Entry: Methodological Implications

There were three phases of foreign entry into the Mexican market, and these have implications for how we construct and code the data set. In the first phase, which took place from 1991 to 1995, foreign banks set up representation offices or subsidiaries in Mexico. These operations tended to be very small, specialized in investment banking or corporate lending, and had client lists that typically were composed of a few dozen very large firms. Following Martinez Peria and Mody (2004) we code these banks as “Foreign de Novo.” We exclude them from our analysis because they produced different products and competed in different markets from domestic banks.

In the second phase of foreign bank entry, which largely took place during 1996, some Foreign de Novo banks purchased small domestic banks and established themselves as retail lenders. The impact of these mergers was fairly limited: as late as December 1996, the

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materially affected, however, by separately coding the Foreign de Novo banks and including them in the regressions.

combined market share of these Foreign MA banks was only four percent. Nevertheless, these Foreign MA banks operated in the same markets as domestically owned banks. We include these Foreign MA banks in our analysis.

The third phase of foreign entry took place from 1997 to 2004, when changes in regulations allowed Mexico's largest banks to be acquired by foreign banks. These mergers and acquisitions include the purchase of Banco Confia by Citibank in 1998, the purchase of Inverlat by Scotiabank in 2000, the purchase of Banca Serfin by the Banco de Santander in 2000, the purchase of Bancomer by the Banco de Bilbao y Vizcaya in 2000, the purchase of Banamex by Citibank in 2002, and the purchase of Banco Bital by HSBC in 2002.

In an ideal world, we would begin our analysis prior to the entry of any Foreign MA bank—which is to say 1996 or before. Instead, we begin our analysis in September 1997, and do so for two reasons. First, the macroeconomic instability of 1995-96, coupled to widespread debtor defaults and ensuing bank interventions by the government, means that we would not expect stable relationships among variables across the periods 1995-96 and 1997-2004. Second, as a consequence of the insolvency of many banks in 1995-96, the government carried out a reform of bank accounting standards that was not fully implemented until the last two quarters of 1997. It is therefore difficult to link 1995-96 accounting categories with those from 1997-2004. (Del Angel-Mobarak, Haber, and Musacchio 2004).<sup>7</sup>

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<sup>7</sup> The most difficult problem in linking accounting categories across the two periods has to do with the treatment of non-performing loans. Prior to 1997, Mexico's banks had been allowed to roll over the principal of non-performing loans. In 1997, the CNBV required banks to either allocate these evergreen loans to their performing loan portfolios or declare them as non-performing. The process of reallocating these loans was not complete until December, 1997.



Nevertheless, our data set captures the period in which the greatest changes in Mexican bank ownership occurred. At the beginning of the period under study (September 1997), only three of Mexico's 19 reporting banks were Foreign MA (GE Capital Bank, Banco Bilbao Vizcaya, and Santander Mexicano). These three banks accounted for only 13.9 percent of bank assets (Foreign de Novo banks accounted for an additional 1.7 percent). At the end of the period under study, seven of Mexico's 19 reporting banks were Foreign MA (GE Capital Bank, Santander Mexicano, Santander Serfin, Bital, Banamex, BBV Bancomer, ScotiaBank Inverlat). These seven banks controlled 78 percent of bank assets. Foreign de Novo banks accounted for an additional 4.8 percent of assets. (See Table 1).

**Variables:**

Capturing the marginal impact of changes in ownership from domestic to Foreign MA requires that we employ a series of dummy variables and interactions of those dummies with time. We capture changes in ownership of banks with a Foreign MA dummy variable, which takes a value of 0 if a bank is domestically-owned, and a value of 1 if that bank is acquired or merged with a foreign bank.<sup>8</sup> We then interact the Foreign MA dummy with a variable for time through three different regression specifications. In the first specification, we include year dummies and interactions of Foreign MA with year. In the second specification, we include a time trend (on the assumption that there is a linear trend in the dependent variables), a dummy for Foreign MA, and an interaction of Foreign MA with time (measured as the

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<sup>8</sup>Our coding rule was as follows. Foreign MA was coded as 1 if a foreign bank purchased a controlling interest in a domestic Mexican bank. This usually meant the merger of a small Foreign de Novo bank with a larger domestic bank. At this point, the foreign de novo bank almost always ceases to exist as an independent reporting unit. The domestic bank continues to exist as a reporting unit, and we code it as Foreign MA.

number of quarters since the bank was acquired). In the third specification, we include year dummies, a dummy for Foreign MA, and an interaction of Foreign MA with time (measured as the number of quarters since the bank was acquired). We note that all three specifications yield qualitatively similar results. We therefore only reproduce our results using the first specification (year dummies and interactions of year and Foreign MA).

One might argue that the *Foreign MA* dummy might be picking up changes in the competitive structure of the banking market caused by consolidation. We therefore control for market consolidation by introducing a variable for *Market Share* (the share of the loan market controlled by each bank).

One might also argue that changes in the macroeconomy might be driving our results. We therefore include three macroeconomic variables. *Industrial Output Growth* measures quarterly changes in industrial production, capturing changes in the business cycle.<sup>9</sup> *Money Market Rate* (the short term money market interest rate) is included to control for the impact of the cost of funds faced by banks. It also controls for “crowding out” effects caused by potential increases in demand for finance by government. *Inflation* is included because changes in the inflation rate potentially affect bank strategies (particularly the term structure of loans) and bank profit margins (particularly if deposit interest rates and loan interest rates do not adjust to changes in inflation at identical speeds).

Depending on the left hand side variable of interest, we also introduce variables that control for the characteristics of banks that are independent of their ownership. For example, banks with higher equity ratios tend to be more risk averse, because stockholders have more

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<sup>9</sup> Ideally, we would employ the growth in GDP rather than industrial output. The IMF, however, reports quarterly GDP figures one quarter after it reports industrial output. Using GDP would therefore force us to drop our observations for December 2004. We note that the substitution of industrial output for GDP does not materially affect our results.

capital at risk. We therefore add a control for bank equity ratios (*Equity*—the share of owner’s equity to total assets). Similarly, banks with higher liquidity ratios will grant fewer loans, because more of their assets are tied up in cash. We therefore add a control for *Liquidity* (the ratio cash and deposit balances in other banks to total assets). *Administrative Cost* is the ratio of administrative expenses (including payrolls) to total assets.

Depending on the left hand side variable of interest, we include variables to control for the term structure and riskiness of a bank’s portfolio. We control for the composition of bank assets with five variables: *Housing Loans*, *Commercial Loans*, *Consumer Loans*, *SOFOL Loans*, and *FOBAPROA*. The first four variables are the ratios of each of those types of loans to a bank’s total assets.<sup>10</sup> *Fobaproa* is the percent of a bank’s assets that is comprised of promissory notes issued by the government’s deposit insurance agencies (FOBAPROA and IPAB). These promissory notes were swapped for non-performing (or otherwise weak) loans during the bailout of Mexico’s banks. The omitted categories are securities held by banks and direct loans to government entities. Thus, our portfolio variables simultaneously control for the distribution of assets between loans and investments in securities, and for the distribution of loans by type. One might argue that these variables measure risk ex ante (they capture how banks chose to invest their assets, given what the bank perceives to be the relative risks and

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<sup>10</sup> Mexican banking law allows the operation of non-bank banks, a Sociedad Financiera de Objeto Limitado (known by their Spanish acronym, SOFOL). A SOFOL is prohibited from providing the full set of services offered by banks (such as accepting deposits, clearing checks, carrying out foreign exchange transactions, or investing in securities or derivatives). Its operations are restricted to lending in prescribed market niches, most particularly home mortgages and automobile loans. SOFOLES overwhelmingly fund their loan books with borrowed funds. Some of these loans come from government development banks. Some also comes from commercial banks. Our *SOFOL Loans* variable captures these types of loans made by commercial banks to SOFOLES. Given that the SOFOLES then re-lend these funds, we treat bank loans to SOFOLES as credit for private purposes.

returns associated with those investments). We therefore add a measure of ex post default risk: the ratio of non-performing loans to total loans (*NPL*).

In order to control for the possibility that outliers might drive our regression results we cull those cases in which the value of the dependent variable falls in either the top or bottom one percent of the distribution. Finally, in order to control for serial correlation, we follow standard practice in the literature and cluster the (robust) standard errors by bank.

Table 3 contains a description of the variables used in our analysis. Table 4 presents the means and standard deviations of each variable.

## SOURCES

We obtained, and put into machine readable form, balance sheets, income statements, and loan portfolios on a quarterly basis for every bank from September 1997 to December 2004. This data was gathered by Mexico's Comision Nacional Bancaria y de Valores (CNBV) for the purpose of regulating the banks, and was then published in the CNBV's Boletín Estadístico de Banca Múltiple. The most recent quarters of data were available from the CNBV's website.<sup>11</sup> For some reporting periods, some of the data was published by the CNBV in cumulative form (each quarter's data was the sum of that quarter's activity, plus the activity of the previous quarter). Undoing these cumulative totals was, after identifying the cases, a straightforward process. Some of the data for some reporting periods was also published by the CNBV in deflated form (where the data had been first run through a price

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<sup>11</sup> [WWW.CNBV.gob.mx](http://WWW.CNBV.gob.mx). The CNBV website includes data from 1998 to 2004. Readers who may wish to replicate or extend our results should be cautioned not to rely on the website alone, because the CNBV deletes historical data for banks that later merged with other banks or otherwise exited the market. Simply downloading the 1998-2004 data from the CNBV website will produce a truncated sample of surviving, merged banks.

index). After identifying the cases, un-deflating the data was a straightforward process. We identified those banks that had been subject to mergers and acquisitions (both by other domestic banks and by foreign banks) from information compiled by Mexico's Comisión Nacional para la Protección y Defensa de los Usuarios de Servicios Financieros (CONDUSEF), and posted to their website.<sup>12</sup>

## **EMPIRICAL RESULTS:**

### **Bank Strategies:**

There is no doubt that Mexican banks have constrained credit since the financial system collapse of 1995-96. As Table 1 demonstrates, the proportion of assets that banks have allocated to credit for households and private business enterprises steadily declined from 50 percent in the fourth quarter of 1997 to 34 percent in the first quarter of 2004. This decrease is not just relative to the stock of bank assets, it is an absolute decrease of eight percent in real terms. As a percentage of GDP, the total claims by banks on the private sector in 2004 is only 14 percent, compared to 25 percent in 1997. The only other time in the past five decades that Mexico has had a credit ratio this low was the 1980s, when the banks were expropriated by the government and were used to finance its massive budget deficits (Haber 2005).

Is the retreat from private credit markets the product of foreign bank entry, or is it caused by some other factor? One might argue that the decline in the ratio of private loans to assets in Mexico is a consequence of changes in the macroeconomy that might have made credit extension more risky. One might also argue that the decline in private lending is the

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<sup>12</sup> The URL for this site has changed over time. Its current location is: <http://sipres.condusef.gob.mx/home/SQLsectoresSHCP.asp?ID=40> .

consequence of the fact that until 1999 Mexico's largest banks (which later became Foreign MA banks) were able to transfer many of their weakest loans to the government's deposit insurance agencies (FOBAPROA, and its successor IPAB). Finally, one might argue that all banks in Mexico have undertaken more prudent lending strategies since the collapse of the banking system in 1995-96.

In order to know whether Foreign MA banks really are different from domestic banks in terms of credit allocation we estimate an OLS regression on loans to firms and households as a percentage of assets.<sup>13</sup> Because the stock of private loans will be directly affected by the stock of loans that were transferred to FOBAPROA and IPAB, we control for the proportion of bank assets that are FOBAPROA or IPAB bonds. We also control for changes in the macroeconomy (with the aforementioned *Inflation*, *Money Market Interest Rate*, and *Industrial Output* variables). One might imagine that there are large economies of scale in lending. We therefore control for the fact that Foreign MA banks tend to be much larger than average with the *Market Share* variable. One might also imagine that banks have different tastes for risk, as a consequence of differences in their equity ratios. (When bank stockholders have more of their capital at risk, they prefer to make less risky loans). We therefore add our *Equity Ratio* variable.

We report the results in Column 1 of Table 5. The regression indicates that there is no difference between Foreign MA and domestic banks in terms of the proportion of their assets that they lend to firms and households. None of the interactions of Foreign MA and the year dummies are statistically significant.

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<sup>13</sup> We define private loans as the sum of consumer credit, mortgage lending, commercial lending, and lending to Sofoles. For a discussion of Sofoles, see footnote 10.

One might imagine that there is substantial variation in lending across loan types. Perhaps Foreign MA banks specialize in particular types of loans. We therefore estimate a series of OLS regressions in which we substitute each of the three major loan sub-types (Consumer, Commercial, and Housing) for the *Private Lending* variable. (Other variables and specifications remain exactly the same).

### Consumer Lending

Column 2 of Table 5 reports the results of our regressions on *Consumer Loans*. The results are inconsistent with the hypothesis that Foreign MA banks grant less consumer credit than domestically owned banks. If anything, the results indicate a slight preference of Foreign MA banks to allocate their assets toward consumer debt: the interaction of Foreign MA and year is statistically significant, positive, and of large magnitude in 2003. We note that a regression without the Foreign MA-year interactions (not reproduced here) indicate large, positive, and statistically significant coefficients on the 2003 and 2004 year dummies, suggesting an increase in consumer lending equal to a five percentage point increase from 1997 to 2004.

The reason why we only pick up one statistically significant coefficient on the interaction of Foreign MA and year can be seen in Graph 1, where we plot the ratio of consumer loans over assets for the four largest banks that switched ownership during the period under study (Banamex, Bancomer, Bital, and Serfin, which collectively control more than 70 percent of total bank assets), and compare them to the largest bank that remained domestically-owned (Banorte) as well as to the (unweighted) mean of all banks in the data set. Two of the banks that switched to foreign ownership (Banamex and Bital) began to increase consumer lending while they were still domestically owned; the largest domestically owned

bank (Banorte) also began to increase consumer lending at roughly the same time; and the (unweighted) mean of all banks increased at the same rate and levels as the Foreign MA banks. In short, both the regressions and the graphed data indicate both Foreign MA and domestic banks have expanded consumer credit since 1997. This increase in consumer credit might reflect improvements in credit reporting that took place in 2000. (Gil Hubert 2004). We hasten to point out, however, that this increase has started from a very low base: even as late as 2004 the total stock of consumer credit from banks was equivalent to less than two percent of GDP.

### Commercial Lending

Column 3 reports the results of a regression on *Commercial Loans*. The results indicate that Foreign MA banks lend neither more nor less to business enterprises (as a percent of their assets) than domestically-owned banks. None of the coefficients on the interaction of Foreign MA and Year are statistically significant. A glance at Graph 2 indicates why: all four of the large banks that switched to foreign ownership during the period under study were already reducing commercial lending while they were domestically owned. Moreover, the pattern displayed by Mexico's largest domestically-owned bank (Banorte) tracks closely with those of the large banks that switched to being Foreign MA. The graph also indicates, however, that the commercial lending practices of these large banks diverged significantly from the unweighted mean of all banks. The implication is that there is a group of small banks (both Foreign MA and domestic) that appear to be specializing in commercial lending. The regressions support this interpretation: the coefficient on market share is negative, of very large magnitude, and is statistically significant at the five percent level.



## Housing Lending

Column 4 presents the results of a regression on *Housing Loan*. The results suggest that Foreign MA banks may be slightly more averse to making housing loans than domestic banks, but not dramatically so. The interactions of Foreign MA and Year produce one statistically significant result (with a negative sign), 1999—a year in which the foreign market share was only 19 percent. The reason for this result can be understood by looking at Graph 3. All four of the large banks that switched to foreign ownership had already begun to retreat from mortgage lending before they were sold. One of the four (Bital) then increased its mortgage lending, while the other three continued to retreat from the mortgage market. Finally, the graph strongly indicates that small banks (both Foreign MA and domestically-owned) tend not to compete in the mortgage market at all: the unweighted mean for all banks is flat, at approximately five percent of assets.

## **Bank Performance:**

### Borrower Screening:

If Foreign MA banks do not allocate credit in a dramatically different fashion from domestically owned banks, do they screen borrowers differently? We cannot observe the process of borrower screening directly, but we can observe its outcome: a bank that screens borrowers more intensely will have a lower ratio of non-performing loans.

As was the case with the data on bank portfolio allocation, we need to separate out the decline in non-performing loans that came from swapping some of them for FOBAPROA-IPAB promissory notes from the effect of being purchased by a foreign bank. We therefore estimate an OLS regression on the ratio of non-performing loans in which we control for the ratio of assets comprised of FOBAPROA-IPAB bonds. We also control for the distribution of

loans among different categories (because different types of loans have different default rates). One might argue that changes in the intensity of borrower screening are the result of changes in equity ratios (better capitalized banks tend to be more risk averse), or that whatever technological improvements in screening have occurred are peculiar not to Foreign MA banks, but to large banks (because there are scale economies in risk assessment technologies, and because banks with large branch networks can redirect credit from regions with locally high default rates to regions that have healthier local economies). One might also argue that our results are driven by differences in liquidity ratios: banks that hold large amounts of cash, by definition, have lower ratios of non-performing loans. We therefore add our *Equity Ratio*, *Market Share*, and *Liquidity* variables. Finally, we control for changes in the macroeconomy, because increases in non-performing loans might simply be driven by increases in inflation (many loans are variable rate), downturns in the business cycle, or decisions by the central bank to raise interest rates. We therefore introduce our three macroeconomic variables (*Inflation*, *Money Market Interest Rate*, *Industrial Output Growth*).

The results, presented in Table 6, Column 1, indicate that Foreign MA banks screen loans more intensively than domestically owned banks. The interaction of Foreign MA and Year produces three coefficients in which the result is negative and statistically significant at the five percent level (1998, 2000, 2001) and two years in which the result is negative and statistically significant at the ten percent level (1999 and 2002). The results also indicate that domestically owned banks have, in the past two years, adopted the same screening technologies or standards as Foreign MA banks. The regressions indicate that in 2003 and 2004 the coefficient of Foreign MA interacted with year was no longer statistically

significant, but the coefficient on the year dummies is negative, significant, and of large magnitude.

One might be tempted to argue that these results are not the product of changes in technology or standards that were implemented by Foreign MA banks, but were the product of the fact that foreign banks purchased domestic banks with low levels of non-performing loans. If that were the case, however, we would expect negative coefficients on some of the year dummies early in the sample period. Instead, the year dummies are only significant at the very end of the sample period.

We also note that our interpretation of the data—that Foreign MA banks screen loans more intensively—is consistent with the results from Berger, Klapper, and Udell's (2001) study of Argentina. They find that large banks and foreign banks tend to be less likely to lend to informationally opaque small businesses. Our results are also consistent with our interviews with Mexican bankers, who indicate that local loan committees tend to be willing to grant business loans on the basis of soft information, but that the central offices of Foreign MA banks tend to reject these soft-information loans.

### Interest Rate Spreads

The literature tends to find that foreign entry is associated with lower interest rate spreads. We therefore estimate an OLS regression on net interest margins. Following Saunders and Schumacher (2000) and Martinez Peria and Mody (2004), our specifications include the factors that banks take into account when they choose the interest rate spread. Thus, we control for basic macroeconomic conditions (*inflation, industrial output growth*), and the cost of funds (short-term *money market rate*), . We control for bank equity ratios, because the more highly leveraged a bank the weaker are its incentives to make loans that are

low risk (and that therefore have lower interest rates). We also control for bank liquidity ratios, because banks that hold more cash charge higher interest rates in order to compensate for the fact that the portfolio allocated to cash earns little or no income. In addition, we control for bank market shares, because larger banks may be able to exercise market power. (Inasmuch as Foreign MA banks tend to be large, we want to isolate the independent effect of who owns and operates them from the fact that they may be able to influence prices). We control as well for administrative costs, because banks price these costs into the spread they charge borrowers. Finally, we control for default risk by introducing our loan portfolio variables (*Housing Loans*, *Commercial Loans*, *Consumer Loans*, *SOFOL Loans*, and *FOBAPROA*) and the ratio of non-performing loans (*NPL*). In short, the net interest margins we present in column 2 of Table 6 are risk-adjusted.

The regression supports the hypothesis that Foreign MA banks tend to charge lower interest rate margins. Four of the Foreign MA-Year interactions are negative and statistically significant at the five percent level (1997, 1998, 1999, and 2004). Even though the magnitude of the coefficients decreases over time, the difference between Foreign MA banks and the industry average in 2004 was still .69 percentage points.

#### Administrative Efficiency:

The literature tends to find that foreign bank entry is associated with lower administrative costs. We therefore estimate a regression on administrative costs over assets. We control for variables that influence administrative costs other than ownership. We therefore add our three macroeconomic variables, liquidity ratios (on the assumption that banks that hold more of their assets as cash or bank deposits have lower administrative costs), bank market shares (on the assumption that larger banks can capture scale economies), and

the allocation of bank assets among different loan classes (on the assumption that different types of loans are more costly to administer than others, and that it is more costly to administer a loan portfolio than a securities portfolio).

We present the results in Table 6, Column 3. The control variables enter the regression with the expected signs. In particular, we find that larger banks have lower administrative costs, and that consumer loans are particularly costly to administer. We do not find, however, that Foreign MA banks are more administratively efficient than domestically owned banks. None of the coefficients on the Foreign MA-Year interactions are significant. Nevertheless, our findings are consistent with the hypothesis that foreign entry increases competitive pressures, forcing all banks to drive down their costs of operation. The year dummies for 2000 and 2001 are negative and significant at the ten percent level. The year dummies for 2002, 2003, and 2004 are negative, of much larger magnitude, and are significant at the five percent level. These results strongly suggest that Mexican banks, on average, have become progressively more efficient over time: the ratio of administrative costs to assets in 2002-04 was more than .9 of a percentage point lower than in 1997. Inasmuch as the sample mean is 1.4 percent, the coefficients for 2004, 2003, and 2004 indicate a very large increase in administrative efficiency.

#### Rate of Return on Equity

The literature tends to find that the decline in net interest margins that is associated with foreign entry produces concomitant declines in rates of return. We would not expect to find declining rates of return in Mexico during 1997-2004, because Mexico's banking system had been driven to insolvency in 1995 and 1996, and was still struggling in 1997. We would, however, expect to find that Foreign MA banks earn lower rates of return than domestically

owned banks because they have the same administrative costs but charge lower interest margins.

Column 4 of Table 6 presents a regression on the rate of return on equity. We control only for changes in the macro-economy, but note that an additional specification (not reproduced here) that also included bank market share produced the same qualitative results. The regressions indicate that Mexico's banks as a group have been returned to profitability. The coefficients on the 2003 and 2004 time dummies are significant at the five percent level and indicate quarterly rates of return of 8 to 9 percentage points above their level in 1997. We do not, however, detect any difference between Foreign MA and domestically owned banks. Only one of the interactions of Foreign MA and Year is statistically significant. Inasmuch as this year was 1997, when foreign banks only controlled 11 percent of the market, we do not attach much significance to this result.

#### **CONCLUSIONS AND *IMPLICATIONS*:**

Our results have three implications. The first concerns the fit between our findings on Mexico and the findings of the broader literature on foreign bank entry. The literature tends to find that foreign bank entry is associated with declines in administrative costs, interest margins, non-performing loans, and rates of return. Our results on Mexico are broadly consistent with these findings, with the exception of our findings on rates of return, and imply an increase in consumer welfare as a result of foreign entry. We do not detect declines in bank profitability, however. Rather, our results clearly indicate a dramatic increase in bank profitability that accompanied foreign entry. We note, however, that we obtain this result because banks were losing money in our base year (1997).

The second concerns the problems that face Mexico because of the lack of bank credit. As a number of analysts have pointed out (González 2003; Tornell, Westermann, and Martínez 2004), Mexico's economic performance over the past decade has been sluggish because of the unavailability of credit, particularly for the non-tradables sector of the economy. Our analysis supports these arguments. Indeed, the lack of statistically significant results on the year dummies in our regressions on housing and commercial lending is striking, inasmuch as our base year (1997) was characterized by a financial collapse and a dramatic credit contraction.

The third concerns the role of foreign bank entry in Mexico's credit crunch. Our analysis indicates that that Foreign MA banks do not allocate less of their assets to private lending than domestic banks. If anything, the regressions suggest that, on average, Foreign MA banks are somewhat more likely to extend credit to consumers than domestic banks. The regressions also suggest that Foreign MA banks charge lower interest margins than domestic banks. Thus, Mexico's credit crunch appears to be unrelated to foreign bank entry, but appears to be driven by a factor that affects all banks, both foreign and domestic.

One factor that affects all Mexican banks, regardless of ownership, is the difficulty that lenders have in enforcing contracts. Indeed, a number of researchers have pointed to Mexico's inefficient judiciary, police, and bankruptcy laws as explanations for the country's credit crunch. (Mackey 1999; Joint Center for Housing Studies 2004; Tornell, Westermann and Martinez 2004). Assessing the contract rights hypothesis is beyond the scope of the data at our disposal. Nevertheless, the fact that we detect an upward trend in (easy to enforce) consumer loans, while we detect no trend for (more difficult to enforce) housing and commercial loans lends some support to the contract rights argument.

## References

- Barth, James R., Gerard Caprio Jr., and Ross Levine (2000). "Banking Systems Around the Globe: Do Regulation and Ownership Affect Performance and Stability?" In Frederic Mishkin ed. Prudential Supervision.
- Barajas, Adolfo, Roberto Steiner and Natalia Salazar (2000). "The Impact of Liberalization and Foreign Investment in Colombia's Financial Sector." Journal of Development Economics 63: 157-196.
- Berger, Allen N. and David B. Humphrey (1997). "Efficiency of Financial Institutions: International Survey and Directions for Future Research." European Journal of Operational Research 98: 175-212.
- Berger, Allen N., Robert DeYoung, Hesna Ganay and Gregory F. Udell (2000). "Globalization of Financial Institutions: Evidence from Cross-Border Banking Performance." Brookings-Wharton Papers on Financial Services, Vol. 3.
- Berger, Allen N., Leora Klapper, and Gregory F. Udell. 2001. "The Ability of Banks to Lend to Informationally Opaque Small Businesses." Journal of Banking and Finance 25: 2127-2167.
- Claessens, Stijn, Asli Demirgüç-Kunt and Harry Huizinga (2001). "How Does Foreign Entry Affect Domestic Banking Markets?" Journal of Banking and Finance 25: 891-911.
- Clark, George, Robert Cull, Laura D'Amato, Andrea Molinari (1999). "The Effect of Foreign Entry on Argentina's Domestic Banking Sector." Unpublished paper.



Clark, George, Robert Cull, Maria Soledad Martinez, Peria, and Susana M. Sanchez (2003).

“Foreign Bank Entry: Experience, Implications for Developing Economies, and Agenda for Further Research.” World Bank Research Observer 18 (1): 25-59.

Clark, George, Robert Cull, Maria Soledad Martinez, Peria, and Susana M. Sanchez (2004).

“Bank Lending to Small Businesses in Latin America: Does Bank Origin Matter.”  
Unpublished paper.

Del Angel-Morarak, Gustavo (2002). “Paradoxes of Financial Development: The

Construction of the Mexican Banking System, 1941-1982.” Ph.D. Dissertation,  
Stanford University.

Del Angel-Mobarak, Gustavo, Stephen Haber and Aldo Musacchio (2003). “Bank Accounting

Standards in Mexico. A Layman’s Guide to Recent Changes and their English  
Equivalence.” Centro de Investigación y Docencia Económicas, Working Paper DE-  
286 .

Demirgüç-Kunt, Asli, and Harry Huizinga (1998). “Determinants of Commercial Bank

Interest Margins and Profitability: Some International Evidence.” Unpublished paper.

Demirgüç-Kunt, Luc Laeven, and Ross Levine (2004). “Regulations, Market Structure,

Institutions, and the Cost of Financial Intermediation.” Journal of Money, Credit, and  
Banking.

Denizer, Cevdet (1999). “Foreign Entry in Turkey’s Banking Sector, 1980-97.” World  
Bank Working Paper, Washington D.C.

Gil Hubert, Johanna. 2004. “The Mexican Credit Reporting Industry Reform: A Case Study.”

Mimeo.

- González Anaya, José Antonio (2003). "Why Have Banks Stopped Lending in Mexico Since the Pesos Crisis of 1995?" Stanford Center for International Development Working Paper 118.
- Gruben, William C., and McComb, Robert (1997). "Liberalization, privatization, and crash: Mexico's banking system in the 1990s," Federal Reserve Bank of Dallas Economic Review, 21-30.
- Gruben, William C., and McComb, Robert (2003). "Privatization, Competition, and Supercompetition in the Mexican Commercial Banking System," Journal of Banking and Finance 27: 229-49.
- Haber, Stephen. 2005. "Banking with and without Deposit Insurance: Mexico's Banking Experiments, 1884-2004." Mimeo. Stanford University.
- Joint Center for Housing Studies of Harvard University (2004). "The State of Mexico's Housing 2004." Joint Center for Housing Studies, Harvard University.
- Lensink, Robert and Niels Hermes (2004). "The Short-Term Effects of Foreign Bank Entry on Domestic Bank Behaviour: Does Economic Development Matter?" Journal of Banking and Finance 28: 553-568.
- Levine, Ross (2002). "Denying Foreign Bank Entry: Implications for Bank Interest Margins." In: L. Ahumada and R. Fuentes eds., Bank Competition (Banco Central de Chile).
- Mackey, Michael W. 1999. "Report of Michael W. Mackey on the Comprehensive Evaluation of the Operations and Functions of the Fund for the Protection of Bank Savings 'FOBAPROA' and the Quality of Supervision of the FOBAPROA Program 1995-1998." No publisher.

- Martinez Peria, Maria Soledad and Ashoka Mody (2004). "How Foreign Participation and Market Concentration Impact Bank Spreads: Evidence from Latin America." Journal of Money, Credit and Banking 36-3 (June): 511-537.
- Maurer, Noel (2002). The Power and the Money: The Mexican Financial System, 1876-1932. Stanford, CA: Stanford University Press.
- Mian, Atif (2003). "Foreign, Private Domestic, and Government Banks: New Evidence from Emerging Markets." Mimeo, Graduate School of Business, University of Chicago.
- Murillo, José Antonio (2002). "La banca en México: Privatización, crisis, y reordenamiento." Working paper, Banco de México.
- Saunders, A., and L. Schumacher, (2000). "The Determinants of Bank Interest Rate Margins: An International Study." Journal of International Money and Finance 19, 813-32
- Sturm, Jan-Egbert and Barry Williams (2004). "Foreign Bank Entry, Deregulation and Bank Efficiency: Lessons from the Australian Experience." Journal of Banking and Finance 28: 1775-1799.
- Tornell, Aaron, Frank Westermann, and Lorenza Martínez. (2004). "NAFTA and Mexico's Less than Stellar Performance." NBER Working Paper 10289.

Table 1

Bank Credit in Mexico, 1997-2004  
(At Year End)

	Market Share of Foreign <u>Banks</u>	Bank Credit to Firms and Households <u>Billions 2004 Pesos<sup>1</sup></u>	Bank Credit to Firms and Households as <u>Percent of Bank Assets</u>	Total Bank Claims on Private Sector <u>as % GDP</u>
1997	11%	761	50%	25%
1998	20%	750	44%	23%
1999	19%	607	37%	19%
2000	57%	590	36%	17%
2001	54%	555	33%	15%
2002	82%	560	33%	17%
2003	82%	586	31%	15%
2004	83%	699	34%	14%

1. Deflated to 2004, quarter 2 pesos, using CPI in IMF, IFS database.

Sum of housing, consumer, commercial, and SOFOL loans. For a discussion of SOFOLES see footnote 10 in the text.

Sources: Bank claims on private sector calculated from IMF, International Financial Statistics database; Bank credit to firms and households, bank assets, and foreign market share, calculated from data in Comision Nacional Bancaria y de Valores, Boletín Estadístico de Banca Múltiple, 1997-2004.

Table 2

Percent of Firms that use Commercial Bank Credit, 1998-2004  
(At Year End)

	<u>Small Firms</u> <sup>1</sup>	<u>Medium Firms</u> <sup>2</sup>	<u>Large Firms</u> <sup>3</sup>	<u>AAA Firms</u> <sup>4</sup>
1998	29.1	40.2	48.0	70.6
1999	28.1	38.3	52.3	61.3
2000	23.9	37.3	38.9	72.4
2001	26.4	36.1	34.2	62.1
2002	25.6	30.1	36.2	54.8
2003	25.2	30.8	37.2	59.1
2004	21.6	29.4	27.1	40.9

1. Sales in 1997 of less than \$12.5 million.
2. Sales in 1997 from \$12.5 million to \$65 million.
3. Sales in 1997 between \$65 and \$650 million.
4. Sales in 1997 over \$650 million.

Source: Data from Banco de Mexico website.

**Table 3**  
**Variable Definitions**

<b>Macro Controls</b>	
Money Market Rate	Money Market Rate from IMF International Financial Statistics (IFS).
Inflation	Rate of Growth of CPI calculated year over year. CPI from IFS
Industrial Output Growth	Rate of growth of Industrial Output calculated year over year. [(Industrial Production in qtr X, year Y – Industrial Production in qtr X, Year Y-1)/ Industrial Production in qtr X, Year Y-1]. Industrial production from IFS.
<b>Bank Variables</b>	
Mktshare Loans	Loans of reporting bank divided by total loans of all banks.
Cash over Assets	Cash plus deposits in other banks, divided by assets.
Equity Ratio	Stockholder's equity divided by assets.
NPL	Declared value of non-performing loans, divided by total loans.
Fobaproa	Value of FOBAPROA-IPAB promissory notes divided by assets.
Housing Loans	Housing loans divided by assets.
Commercial Loans	Commercial loans divided by assets.
Consumer Loans	Consumer loans divided by assets.
SOFOL Loans	Loans to Financial Intermediaries (SOFOL) divided by assets.
Private Loans	(Housing Loans + Commercial Loans + Consumer Loans + SOFOL Loans)/ Assets.
Government Loans	Loans to government entities/Assets. Does not include treasury bonds.
Deposits	Short & long term deposits, including interbank deposits
Interest over Loans	(Interest Income on Loans + Commissions and fee charges to get loans), divided by total loans.
Interest over Deposits	(Interest Paid on Deposits + Commissions paid by a bank to get a deposit from another bank), divided by deposits.
NIM (Net Interest Margins)	Interest rate spread, calculated as Interest over loans minus interest over deposits.
Admncost	Operational costs (administrative costs plus payroll) divided by assets.
ROE (Return on Equity )	Net Earnings divided by equity.
Foreign MA	Dummy for Foreign Merger and Acquisition Banks (a domestically owned bank that has been purchased by a foreign bank. Dummy is coded as 1 in the quarter when the merger goes through, not the quarter when the merger is announced.
Foreign de Novo	A representation office, subsidiary, or branch of a large foreign bank in Mexico. We cull Foreign de Novo banks from the data set.

**Table 4**  
**Summary Statistics for Mexican Bank Data Set, 1997-2004**

Variable	Obs	Mean	Std. Dev	Min	Max
<b>Macro Controls</b>					
Money Market Rate	582	15.40	8.31	5.11	36.37
Inflation	582	0.0975	0.0537	0.0397	0.1921
Industrial Output Growth	582	0.0294	0.0422	-0.0471	0.1059
<b>Bank Variables</b>					
Market Share Loans	582	0.0506	0.0742	0.0000	0.2981
Cash over Assets	582	0.1466	0.0771	0.0001	0.5273
Equity Ratio	582	0.1540	0.1312	0.0320	0.8717
NPL	582	0.0463	0.0638	0.0000	0.4894
Private Loans	571	0.4739	0.2310	0.0057	0.9852
Commercial Loans	571	0.3647	0.2433	0.0000	0.8814
Consumer Loans	571	0.0300	0.0703	0.0000	0.6982
Housing Loans	571	0.0381	0.0478	0.0000	0.2064
Fobaproa	571	0.1233	0.1922	0.0000	0.9090
Government Loans	571	0.0682	0.1063	0.0000	0.5900
SOFOL Loans	571	0.0410	0.0818	0.0000	0.5351
NIM	559	0.0165	0.0296	-0.1070	0.4886
Admncost	581	0.0141	0.0100	0.0017	0.0885
ROE	581	0.0125	0.0892	-1.5567	0.2540

Quarterly data from September 1997 to Dec 2004 and the sample is restricted to domestic and Foreign MA banks, Foreign de Novo banks are culled.

Data for all dependent variables and controls are missing for Quadrum 2001

Loan portfolio variables are missing for Citibank(2000, 2001-Q1,Q2,Q3) and Quadrum (2000)

NIM missing for 1997-Q4, Citibank 2001-Q1, Q2,Q3, Scotiabank Inverlat 2000-Q4. Quadrum 1997-Q3

Admncost over Assets and ROE missing for Scotiabank Inverlat 2000-Q4

**Table 5 Lending Regressions**

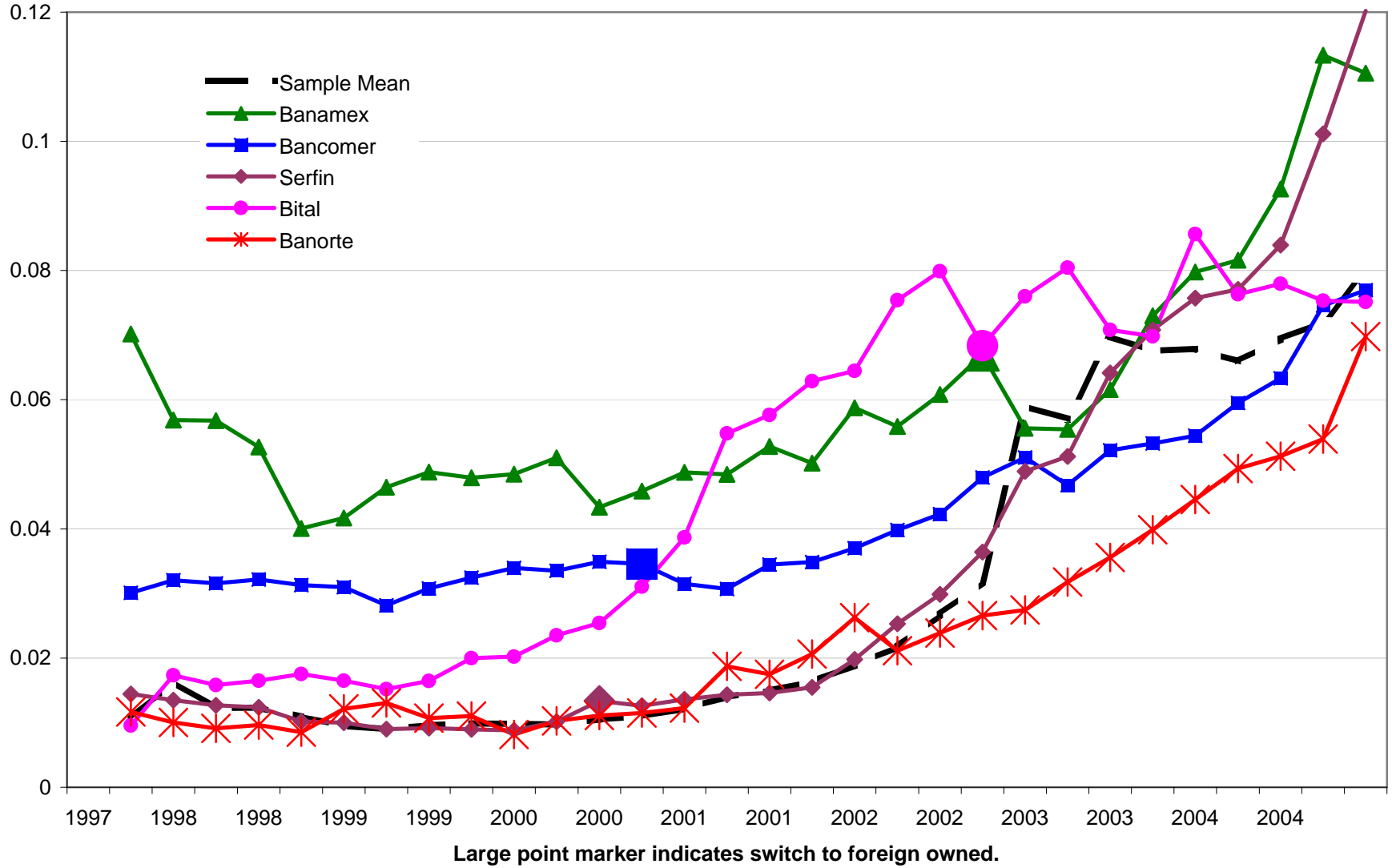
	Private Loans	Consumer Loans	Commercial Loans	Housing Loans
Money_Market_Rate	-0.0003 (0.20)	-0.0001 (0.65)	-0.0005 (0.44)	0.0002 (0.87)
Inflation	0.3123 (0.66)	-0.0297 (0.74)	0.8046 (1.81)*	0.0369 (0.35)
Industrial_Output_Growth	0.1145 (0.60)	0.0349 (1.19)	-0.1811 (0.75)	-0.0087 (0.27)
Fobaproa	-0.6587 (5.50)***	-0.0153 (1.50)	-0.5712 (4.39)***	0.0637 (3.08)***
Mktshare_Loans	-0.2811 (0.98)	0.0787 (1.37)	-0.6428 (2.09)**	0.4240 (10.93)***
Equity_Ratio	0.1617 (0.39)	-0.0305 (0.95)	0.2891 (0.62)	0.0468 (0.77)
Dummy for Year == 1998	0.0289 (1.24)	-0.0012 (0.71)	0.0261 (1.00)	-0.0038 (0.78)
Dummy for Year == 1999	0.0123 (0.31)	-0.0025 (0.60)	-0.0222 (0.70)	0.0005 (0.10)
Dummy for Year == 2000	0.0102 (0.22)	-0.0042 (0.66)	0.0110 (0.22)	0.0000 (0.00)
Dummy for Year == 2001	-0.0032 (0.06)	0.0028 (0.32)	0.0113 (0.19)	0.0039 (0.65)
Dummy for Year == 2002	-0.0268 (0.54)	0.0074 (0.90)	0.0152 (0.24)	0.0025 (0.39)
Dummy for Year == 2003	-0.0278 (0.55)	0.0069 (0.77)	-0.0032 (0.05)	0.0048 (0.66)
Dummy for Year == 2004	-0.0684 (1.38)	0.0367 (1.11)	-0.0533 (0.74)	0.0114 (1.27)
<b>Foreign_MA_Year1997</b>	<b>-0.0493</b> <b>(0.94)</b>	<b>0.0065</b> <b>(0.53)</b>	<b>-0.1047</b> <b>(1.47)</b>	<b>-0.0198</b> <b>(1.13)</b>
<b>Foreign_MA_Year1998</b>	<b>-0.0506</b> <b>(1.16)</b>	<b>0.0018</b> <b>(0.38)</b>	<b>-0.0224</b> <b>(0.50)</b>	<b>-0.0131</b> <b>(1.44)</b>
<b>Foreign_MA_Year1999</b>	<b>-0.0841</b> <b>(1.09)</b>	<b>0.0046</b> <b>(1.21)</b>	<b>-0.0181</b> <b>(0.26)</b>	<b>-0.0206</b> <b>(2.82)***</b>
<b>Foreign_MA_Year2000</b>	<b>-0.0473</b> <b>(0.85)</b>	<b>0.0005</b> <b>(0.13)</b>	<b>0.0146</b> <b>(0.27)</b>	<b>-0.0091</b> <b>(0.80)</b>
<b>Foreign_MA_Year2001</b>	<b>-0.0152</b> <b>(0.19)</b>	<b>-0.0018</b> <b>(0.27)</b>	<b>0.0078</b> <b>(0.09)</b>	<b>0.0022</b> <b>(0.10)</b>
<b>Foreign_MA_Year2002</b>	<b>-0.0215</b> <b>(0.25)</b>	<b>0.0153</b> <b>(1.31)</b>	<b>-0.0271</b> <b>(0.31)</b>	<b>0.0061</b> <b>(0.33)</b>
<b>Foreign_MA_Year2003</b>	<b>-0.0430</b> <b>(0.47)</b>	<b>0.0349</b> <b>(2.42)**</b>	<b>-0.0477</b> <b>(0.49)</b>	<b>0.0039</b> <b>(0.21)</b>
<b>Foreign_MA_Year2004</b>	<b>-0.0656</b> <b>(0.89)</b>	<b>0.0455</b> <b>(0.95)</b>	<b>-0.0284</b> <b>(0.30)</b>	<b>-0.0062</b> <b>(0.29)</b>
Constant	0.5335 (5.46)***	0.0201 (1.61)	0.3674 (3.54)***	-0.0074 (0.70)
Observations	561	561	561	561
R-squared	0.40	0.27	0.43	0.61

Functional form is OLS. Observations are quarterly, Sep. 1997-Dec. 2004. The five highest and lowest values of the dependent variable are dropped. Robust t statistics in parentheses.

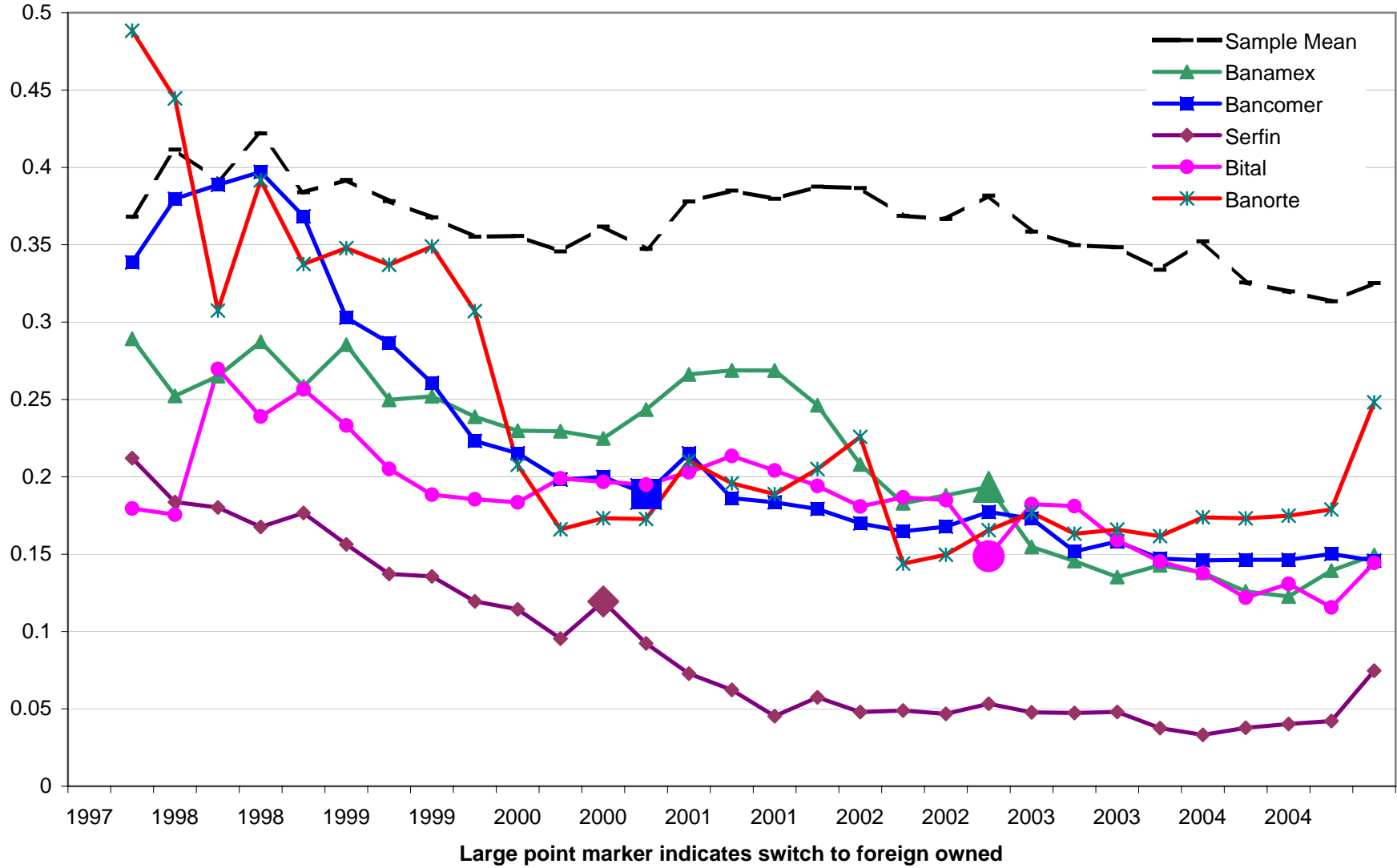
\* significant at 10%; \*\* significant at 5%, \*\*\* significant at 1%. Standard errors clustered at the bank level.



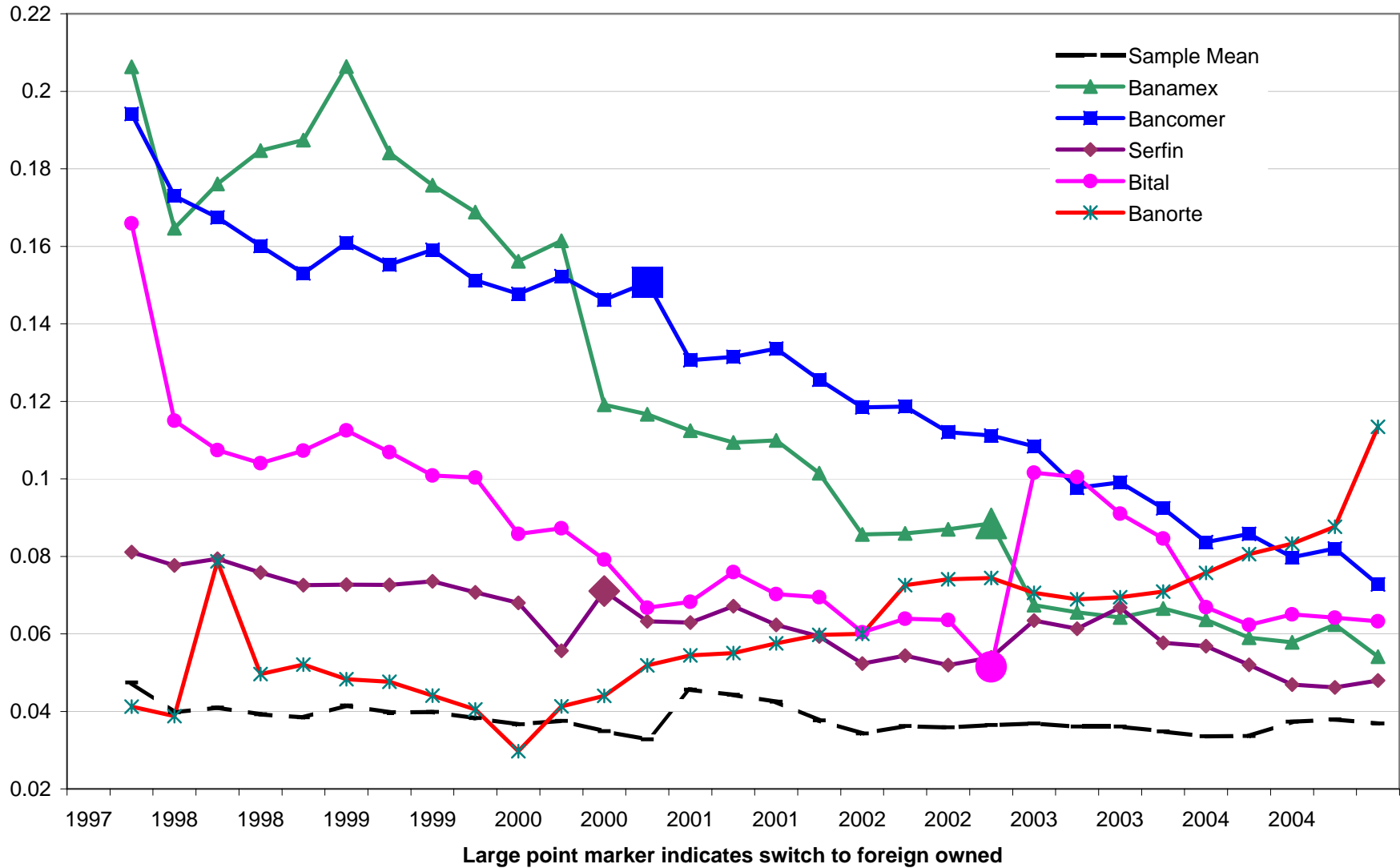
**Graph 1:  
Consumer Loans over Assets, Mexico 1997-2004**



**Graph 2:  
Commercial Loans over Assets, Mexico 1997-2004**



**Graph 3:  
Housing Loans over Assets, Mexico 1997-2004**



**Table 6 Bank Performance Regressions**

	<b>NPL</b>	<b>NIM</b>	<b>Admincost</b>	<b>ROE</b>
Money_Market_Rate	0.0003 (1.26)	0.0002 (0.98)	0.0000 (0.34)	0.0004 (0.40)
Inflation	-0.2246 (1.77)*	0.0277 (0.42)	-0.0303 (1.33)	0.4496 (1.48)
Industrial_Output_Growth	0.0010 (0.03)	0.0226 (1.70)	0.0013 (0.16)	-0.0454 (0.53)
Consumer Loans	-0.0112 (0.23)	0.0605 (2.59)**	0.1022 (22.38)***	
Housing Loans	1.0148 (4.76)***	-0.0652 (2.54)**	0.0081 (0.50)	
Commercial Loans	-0.0520 (1.39)	-0.0067 (1.90)*	0.0045 (1.40)	
SOFOL	-0.0478 (1.54)	-0.0203 (0.98)	0.0141 (2.10)**	
Fobaproa	-0.0351 (1.01)	-0.0090 (2.13)**	0.0038 (1.04)	
Cash_over_Assets	0.0380 (1.11)	-0.0083 (0.65)	0.0151 (2.17)**	
Equity_Ratio	0.1344 (1.57)	-0.0076 (0.97)		
Mktshare_Loans	-0.2763 (2.41)**	0.0137 (1.18)	-0.0160 (2.29)**	
Dummy for Year == 1998	0.0036 (0.54)	0.0102 (1.34)	-0.0031 (1.32)	0.0148 (0.78)
Dummy for Year == 1999	0.0088 (1.17)	0.0088 (1.75)*	-0.0019 (0.96)	0.0243 (1.44)
Dummy for Year == 2000	-0.0125 (1.10)	0.0077 (1.04)	-0.0048 (1.77)*	0.0441 (1.47)
Dummy for Year == 2001	-0.0183 (1.44)	0.0112 (1.29)	-0.0069 (1.92)*	0.0656 (1.64)
Dummy for Year == 2002	-0.0222 (1.70)	0.0121 (1.48)	-0.0091 (2.47)**	0.0698 (1.67)
Dummy for Year == 2003	-0.0285 (1.74)*	0.0134 (1.59)	-0.0095 (2.69)**	0.0844 (2.08)**
Dummy for Year == 2004	-0.0383 (2.18)**	0.0166 (1.85)*	-0.0091 (2.45)**	0.0917 (2.27)**
<b>Foreign_MA_Year1997</b>	<b>-0.0478</b> (1.47)	<b>-0.0233</b> (2.58)**	<b>0.0087</b> (1.25)	<b>-0.0594</b> (2.24)**
<b>Foreign_MA_Year1998</b>	<b>-0.0335</b> (2.76)**	<b>-0.0136</b> (2.80)**	<b>0.006</b> -1.12	<b>-0.0267</b> (1.58)
<b>Foreign_MA_Year1999</b>	<b>-0.0235</b> (1.74)*	<b>-0.0052</b> (2.10)**	<b>0.0002</b> -0.13	<b>-0.0042</b> (0.30)
<b>Foreign_MA_Year2000</b>	<b>-0.0282</b> (2.59)**	<b>-0.0015</b> (0.58)	<b>-0.0003</b> -0.22	<b>0.0026</b> (0.18)
<b>Foreign_MA_Year2001</b>	<b>-0.0264</b> (2.54)**	<b>-0.0006</b> (0.30)	<b>0</b> -0.02	<b>0.0166</b> (0.87)
<b>Foreign_MA_Year2002</b>	<b>-0.0249</b> (1.82)*	<b>-0.0026</b> (1.21)	<b>0.0024</b> -1	<b>0.0201</b> (0.98)
<b>Foreign_MA_Year2003</b>	<b>-0.0173</b> (0.94)	<b>-0.0032</b> (1.36)	<b>0.0009</b> -0.36	<b>0.0061</b> (0.35)
<b>Foreign_MA_Year2004</b>	<b>-0.0085</b> (0.35)	<b>-0.0069</b> (2.21)**	<b>-0.0031</b> -1.55	<b>-0.0013</b> (0.08)
Admincost_over_Assets		1.0745 (3.91)***		
NPL_over_Loans		-0.0235 (1.22)		
Constant	0.0554 (2.32)**	-0.0078 (0.73)	0.0144 (2.78)**	-0.0840 (1.70)
Observations	561	541	560	571
R-squared	0.60	0.61	0.44	0.09

See Table 5 for notes on regression specification.