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Abstract:

What is the impact of foreign bank entry on the pricing and availability of credit in developing economies? The Mexican banking system provides a quasi-experiment to address this question because in 1997 the Mexican government radically changed the laws governing the foreign ownership of banks: the foreign market share therefore increased five-fold between 1997 and 2007. We construct and analyze a panel of Mexican bank financial data covering this period and find no evidence that foreign entry increases the availability of credit. We also find that switching from domestic to foreign ownership is associated with a decrease in non-performing loans and an increase in interest rate spreads, suggesting that foreign concerns bought domestic banks that had been making loans with low interest rates to parties that had a low probability of repayment.

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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 effects 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.[1] Nevertheless, as Clarke, Cull, Martínez Peria, and Sánchez (2004) note, much of what we know comes from cross-country studies that are heavily weighted toward developed economies. This is particularly crucial because the impact of foreign entry may vary with the level of economic development (Lensink and Hermes 2004; Claessens, Demirguç-Kunt, and Huizinga, 2001).

The literature to date on foreign bank entry in developing economies does not provide a consensus set of results. There is some evidence that foreign entry increases social welfare. Clarke, Cull, and Martínez Peria (2006) find that enterprises in countries with high levels of foreign bank participation tend to rank interest rates and access to long term loans as lesser constraints on their operations and growth than do enterprises in countries with low levels of foreign bank participation. Martínez Peria and Mody (2004), analyzing a group of Latin American cases in a pooled time-series cross-sectional framework, find that foreign banks charge lower interest rate spreads than domestically-owned banks. They also find that foreign bank entry is associated with an overall increase in administrative efficiency and a decrease in interest spreads, suggesting that foreign entry spurred competition. Denizer (1999), in a study

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[1] 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, Demirguç-Kunt, and Huizinga, 2001; Levine, 2002; Mian 2006; Clarke, Cull, Martinez Peria, and Sánchez 2003, 2004; Demirgüç-Kunt, Laeven, and Levine 2004; Sturm and Williams, 2004.

of Turkey, obtains similar results: foreign entry reduced domestic bank overhead expenses as well as bank profitability. Unite and Sullivan (2003) find that foreign entry was associated with declines in interest rate spreads, overhead expenses, and profits in the Philippines, but that the effect was confined to domestic banks that had been tied to business groups. Kasekende and Sebudde (2002) report that foreign banks in Uganda have better internal control mechanisms than domestic banks in terms of judging the quality of borrowers.

Not all the evidence points in the same direction, however. Havrylchyk (2006) finds that foreign banks in Poland are more efficient than domestic banks, but then shows that the efficiency gains are all located in "greenfield" banks: domestic banks that are acquired by foreign banks do not become more efficient. Cardim de Carvalho (2002) finds no differences between foreign and domestic banks in Brazil in terms of credit allocation or technical efficiency. Indeed, technical progress in online banking and automation in Brazil has been introduced more aggressively by domestically-owned banks. Claessens, Demirguç-Kunt and Huizinga (2001) find that foreign banks operating in developing economies have higher overhead expenses, charge higher interest margins, and earn higher rates of return than domestic banks.

Foreign banks may also be less willing to extend credit on the basis of "soft knowledge" about firms than domestically-owned banks. Studies of Argentina and Pakistan suggest that foreign entry may therefore give larger firms even greater advantages by exacerbating problems of differential access to capital (Clarke, Cull, D'Amato, and Molinari, 2000; Berger, Klapper, and Udell 2001; Mian 2006). The finding that foreign banks eschew "soft knowledge" lending is supported by multi-country studies that use panel data techniques. In a study by Detragiache, Tressel, and Gupta (2006), foreign entry in a panel of

poor economies was found to be associated with a net reduction in total lending to the private sector: foreign banks appear to have skimmed off the best credit risks, leaving domestic banks with a pool of weaker borrowers from which to select. A related body of research suggests that foreign banks represent a trade-off for a developing country. Galindo, Micco, and Powell (2004) develop a model and present evidence indicating that foreign banks may be less susceptible to funding shocks than domestic banks because they can tap capital from their home institutions, but at the same time foreign banks are more reactive to shocks that affect expected returns. That is, they may be more fickle than domestic lenders, leading to greater banking system instability.

We offer a contribution to the literature through a detailed study of the impact of foreign entry in Mexico from 1997 to 2007. Focusing on a single country over a long period allows us to improve identification by taking a quasi-experimental approach. First, regulatory restrictions in Mexico limited foreign bank entry before 1997, and were then dramatically liberalized, allowing foreign firms to purchase the country's largest banks. The foreign market share grew from 16 percent in September 1997, to 54 percent by December 2000, and to 76 percent by December 2002—a ratio that has held more or less constant since then. Second, we are able to disaggregate foreign-owned banks into those that were created by the acquisition of pre-existing, domestically-owned banks, and those that are de novo, greenfield operations.[2] This means that we can generate separate estimates of the impact of switching from domestic to foreign ownership and of greenfield foreign entry on bank strategies and performance. Third, the detailed nature of the Mexican data allows us to control for time-

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[2] Greenfield or Foreign De Novo banks in our database are both foreign banks that start new operations in Mexico and those that bought small domestic "boutique" banks to enter the country. These Greenfield or De Novo banks are different than the banks that bought medium and large commercial banks in Mexico to enter the market. We code those as Foreign MA banks (because they merged with or acquired a Mexican bank).

varying factors within banks over time, particularly the allocation of credit across different loan categories, thereby allowing us to reduce measurement error when we estimate regressions on the determinants of non-performing loans, net interest margins, loan interest rates, return on assets, return on equity, and administrative efficiency. The detailed nature of the Mexican data also allows us to examine the effect of ownership on the composition of bank loan portfolios, a subject that is usually not addressed in the literature.

Our analysis indicates that switching from domestic to foreign ownership is associated with both a sizable decline in the ratio of non-performing loans and a sizable increase in interest rate spreads. The most straightforward interpretation of these results is that foreign concerns bought domestic banks that had been making loans with low interest rates to parties that had a low probability of repayment. This interpretation receives support from another of our findings: foreign greenfield banks do not display the pattern that we find for foreign mergers and acquisitions. All other things being the same, foreign greenfield banks screen borrowers no more intensively than domestically-owned banks (including those that later became foreign-owned), but charge lower interest spreads. Our interpretation of the evidence is also consistent with La Porta et. al. (2003), who show that during 1995-98 Mexican bankers tunneled into their own banks.

Our analysis also indicates that switching from domestic to foreign ownership is not associated with an expansion of credit. In fact, to the degree that we detect statistically significant relationships, they suggest that the switch to foreign ownership is associated with a reduction in loan volume. We also find some weak evidence that foreign greenfield banks extend less credit than domestically-owned banks (including those that later transitioned to

foreign ownership). We speculate that the inverse relationship between foreign ownership

and the extension of credit might be a product of Mexico's weak property rights environment.

DATA

We obtained, and put into machine-readable form, balance sheets, income statements,

and loan portfolios on a quarterly basis for every retail bank in Mexico from September 1997

to December 2007.[3] This data was gathered by Mexico's Comisión 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.[4] 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 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

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[3] We exclude representation offices or small subsidiary operations of foreign banks that are not engaged in retail banking, where retail banking is defined as being in the deposit-loan business. This means that we exclude from our analysis a very small number of foreign-owned representation offices that make loans, but do not take deposits. These banks account for a trivial fraction of the total loan volume.

[4] WWW.CNBV.gob.mx.   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 data from the CNBV website will produce a truncated sample of surviving, merged banks.

(CONDUSEF), and posted to their website. We are therefore able to create a unique dataset that allows us to follow banks in time, regardless of changes in name or ownership.[5] We then code each bank-quarter as domestically-owned, a foreign merger and acquisition (hereafter, Foreign MA), or a foreign greenfield bank (hereafter Foreign de Novo).[6] Table 1 provides a guide to our coding of each bank operating in Mexico.

In an ideal world, we would begin our analysis prior to the entry of any foreign banks, which is to say in the early 1990s. Instead, we begin our analysis in September 1997. We do so because the macroeconomic instability of 1995-96 produced widespread debtor defaults, bank insolvencies, government interventions into the banks, and a bailout that ultimately cost Mexican taxpayers 15 percent of GDP (Haber 2005). There were two consequences of these interventions. The first was that in order to recapitalize the banks the government lifted the regulatory restrictions that had limited the ability of foreign banks to purchase Mexican retail banks. The second was that, in order to prevent a reoccurrence of the 1995-96 banking crisis, the government reformed bank accounting standards in 1997. This means that it is not possible to link data from before September 1997 with data from after September 1997 (Del Angel-Mobarak, Haber, and Musacchio 2006).

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), the vast majority of the foreign banks in Mexico were extremely small operations. In

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

[6] Foreign MA was coded as 1 if a foreign bank purchased a controlling interest in a domestic Mexican bank. This means that the Mexican bank continues to exist as a reporting unit, although its name is sometimes altered to reflect the change in ownership. For example, when the Banco de Bilbao y Vizcaya purchased a controlling interest in Bancomer, the merged bank was renamed BBV Bancomer.

point of fact, in September, 1997 there was only one Foreign MA bank operating in Mexico (the Banco de Santander, which had acquired a small Mexican bank in 1993), with a 7.7 percent market share. Fifteen foreign de novo accounted for an additional 8.3 percent of the loan market. At the end of the period under study there were six Foreign MA banks operating in Mexico (Banamex, BBVA Bancomer, Santander Serfin, GE Capital Bank, Bital, and Scotiabank Inverlat) with a combined market share of 74.2 percent. Foreign de Novo banks, of which there were seven, accounted for an additional 1.8 percent of the market. In short, the total foreign market share mushroomed from 16 percent in September 1997 to 76 percent by December 2007. Table 1 provides identifying information for each bank in our dataset.

METHODS

In order to explore the impact of foreign entry we build upon the methods employed by Martínez Peria and Mody (2004) to study interest rate spreads in foreign banks in Latin America. Their framework draws, in turn, on two bodies of literature: the dealership model of bank spreads developed by Ho and Saunders (1981), Allen (1988), and Angbazo (1997); and the firm-theoretic model of bank spreads developed by Zarruck (1989) and Wong (1997). We go beyond the Martínez Peria and Mody (2004) framework, however, in that we employ variants of their net interest margin model to study a broad range of bank performance and bank strategy variables.

We also depart from Martínez Peria and Mody (2004) in that we employ a difference in differences estimator in order to improve identification. One problem that bedevils studies of the impact of foreign bank entry is that it is difficult to separate out the effects of foreign entry from effects that can be attributed to changes in other regulatory, legal, or macroeconomic factors (Barajas, Steiner, and Salazar 2000). Unless those other time-varying

factors are accounted for, they may be picked up by the dummy variables for foreign ownership, because those dummies are becoming more numerous over time. The result would be biased estimates. Another problem that bedevils studies of foreign bank entry is that the ownership status of banks is not randomly assigned. If the characteristics that make certain banks attractive targets for foreign acquisition also make them more likely to display the outcomes of interest, there can be selection bias.

In order to mitigate these problems we take a quasi-experimental approach. First, we control for all time-invariant factors that are specific to banks by including bank dummies in the regressions. Second, we include quarter dummies, in order to control for factors that affect all banks at any particular time, such as changes in the macro-economic or institutional environment. Third, we control for time-varying heterogeneity within banks by the addition of variables that capture the factors that determine foreign acquisition. The Mexican banks that were acquired by foreign firms tended to be large, undercapitalized, illiquid, and distressed—which is precisely why the Mexican government allowed them to be purchased by foreigners in the first place. One might imagine that these characteristics might correlate with a number of bank performance outcomes. We therefore control for bank size by introducing a variable in all regressions for bank market share, for undercapitalization by the equity ratio, for lack of liquidity with the liquidity ratio, and for bank distress by the percentage of a bank's assets composed of bailout bonds issued by the government's deposit insurance agencies (FOBAPROA and IPAB). Finally, in order to control for serial correlation we cluster the (robust) standard errors by bank.

Our Foreign MA dummy variable therefore picks up the effect of switching from domestic ownership to foreign ownership. That is, we are not picking up differences between

foreign-owned and domestically-owned banks—differences that are potentially caused by unobserved heterogeneity across banks—but are picking up what happens to domestic banks after they are bought by foreigners.

We also estimate a separate set of regressions in order to detect differences between domestically-owned banks (including those that later switched to foreign ownership) and foreign greenfield banks. These new, foreign entrants may have characteristics that make them non-isomorphic with Mexican banks (e.g., smaller size, better capitalization, no history of distress). We therefore control for these potential differences with the same conditioning variables that we employ in the Foreign MA regressions. We do, however, make three changes to the regression specification: we drop the Foreign MA dummy variable; we introduce a dummy variable for foreign greenfield banks (called Foreign de Novo); and we drop the dummy variables for each bank. These regressions therefore capture differences in the strategy and performance of foreign entrants to the Mexican market, compared to the strategy and performance of their Mexican competitors.

EMPIRICAL RESULTS: FOREIGN MA BANKS

Non-Performing Loans

We begin with the analysis of non-performing loans, because the extant literature on foreign entry in developing economies suggests that foreign owned banks are either less willing to accept risk, or are more adept at screening for it. We estimate a regression with the following form:

$NPL_{i,t} = \alpha_0 + \alpha_1\ Foreign\ MA_{it} + \alpha_2\ Fobaproa\text{-}IPAB_{i,t} + \alpha_3\ Bank\ Market\ Share_{it} +$

$\quad \alpha_4\ Equity_{it} + \alpha_5\ Liquidity_{it,} + \alpha_6\ Housing\ Loans_{it} + \alpha_7\ Commercial\ Loans_{it} +$

$\quad \alpha_8\ Consumer\ Loans_{it} + \alpha_9\ Bank_{i,} + \alpha_{10}\ Quarter_{t,} + \alpha_{11}\ E_{it}$ (1)

where i is the bank id and t refers to the time period considered. In equation (1) the variable *NPL* is the ratio of non-performing to total loans. *Foreign MA* is a dummy variable that takes a value of 1 at each point in time that a bank is owned by a foreign bank. *Fobaproa-IPAB* is the ratio of Fobaproa or IPAB bailout bonds to total assets in each bank. *Bank Market Share* is the proportion of each bank's loans to total system loans.   *Equity* is the share of a bank's equity to its assets. In theory, higher equity ratios should discourage risky lending, because more stockholder wealth is at risk. *Liquidity* is the ratio of cash (including deposits in other banks or in the central bank) to assets. *Housing Loans*, *Commercial Loans*, and *Consumer Loans* are the ratios of each of these loan categories to total bank assets. We include them because each of these loan types carries different interest rates, reflecting differences in the probability of repayment, collateralization, and term structure. *Bank* is a bank-level fixed effect that controls for all time-invariant bank characteristics. *Quarter* is a dummy variable for each quarter. It allows us to control for changes in the macroeconomic or institutional environment that affects all banks. Descriptive statistics for each of these variables is found in Table 2.

The variable of interest in this estimation is the *Foreign MA* dummy. It allows us to determine whether the switch from domestic to foreign ownership is associated with a change in the ratio of non-performing loans—everything else held constant. Column 1 of Table 3 indicates that Foreign MA enters the regression with a negative sign, and is both statistically and economically significant. Switching from domestic to foreign ownership implies a nearly six percentage point *decrease* in the rate of non-performance. This implies that foreign owners are either unwilling to accept the same level of risk as the previous Mexican owners, or that they have better screening technologies to detect risky borrowers. We note that this

result is consistent with our interviews with Mexican entrepreneurs, 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 this information, preferring standardized credit scoring criteria. We also note that one of the control variables—the percentage of assets composed of housing loans—enters the regression with a high level of statistical and economic significance: each percentage point increase in the ratio of housing loans to total assets is associated with a nearly 14 percentage point increase in the ratio of non-performing to total loans. This suggests that housing loans represent a particularly risky bet—a subject to which we shall return.

One might be tempted to argue that the decrease in non-performing loans is a temporary phenomenon, associated with the initial period of foreign acquisition. We test this hypothesis by adding a dummy variable for the first year of foreign ownership. This actually increased the magnitude of both the Foreign MA and Housing Loan coefficients, and so we do not reproduce them here.

Interest Spreads

Foreign entry is typically associated with a decline in net interest margins—the difference between the implicit average interest charged on loans and the implicit average interest paid on deposits. This decline in interest spreads is usually attributed to increased competition, which drives loan interest rates down and deposit interest rates up. In order to see whether switching from domestic to foreign ownership is associated with a change in the price of credit in the Mexican case we estimate a variant of Equation 1, in which we substitute the Net Interest Margin for the Non-Performing Loan Ratio. We estimate a regression with the following form:

$Spread_{i,t} = \alpha_0 + \alpha_1 Foreign\ MA_{it} + \alpha_2 Fobaproa\text{-}IPAB_{i,t} + \alpha_3 Bank\ Market\ Share_{it} +$

$\alpha_4 Equity_{it} + \alpha_5 Liquidity_{it,} + \alpha_6 Housing\ Loans_{it} + \alpha_7 Commercial\ Loans_{it} +$

$\alpha_8 Consumer\ Loans_{it} + \alpha_9 NPL_{it} + \alpha_{10} Bank_{i,} + \alpha_{11} Quarter_{t,}$

$+ \alpha_{12} E_{it}$ (2)

where i is the bank id and t refers to the time period considered. In equation (2) the variable

Spread is the net interest margin (the interest spread), and all other variables are as described

in equation 1.[7]

The variable of interest in this estimation is the *Foreign MA* dummy. It allows us to

determine whether the switch from domestic to foreign ownership is associated with a change

in the interest rate spread—everything else held constant.   As Column 1 of Table 4 indicates,

the Foreign MA coefficient is both statistically and economically significant: Switching from

domestic to foreign ownership is associated with a 1.8 percentage point increase in interest

spreads per quarter. Given that the mean for all banks is also 1.8 percent (see Table 2), the

Foreign MA effect is economically significant. The other variables enter the regression with

the expected signs. Housing Loans, once again, emerge as both statistically and economically

significant: increases in housing lending are associated with increases in the spreads charged

by banks. This suggests that banks view housing loans as high risk—an inference that is

supported by the positive relationship between housing loans and the non-performing loan

ratio (Table 3).

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[7] We note that excluding the NPL variable does not have a material effect on the coefficient of
interest—the Foreign MA dummy—but, as one would expect, it does have an effect on the
magnitude and significance of the housing, commercial, and consumer loan variables. The
implication is that these variables capture the riskiness of the loan portfolio. Nevertheless, we
include the NPL ratio here because of conventions in the literature.

One might be tempted to argue that Foreign MA banks charge larger spreads because they make loans that are more costly to administer. While this notion is counter-intuitive— because most studies find that foreign entry is associated with a lowering of administrative costs—it is worth testing. We therefore modify equation 1 by adding a variable for the ratio of administrative costs to assets, and present the results in Column 2 of Table 4. The coefficient for administrative costs enters the regression with the expected sign and it reduces the magnitude of the coefficient on the Foreign MA variable. Nevertheless, Foreign MA remains both statistically and economically significant: switching from domestic to foreign ownership is associated with 1.3 percentage point increase in interest spreads.

One might also be tempted to argue that the increase in interest rate spreads is a temporary phenomenon, associated with the initial period of foreign acquisition. We test this hypothesis by adding a dummy variable for the first year of foreign ownership. This had no material impact on the results, and so we do not reproduce them here. One might also be tempted to argue that the increase in interest spreads is a product of the regression specification. We therefore dropped conditioning variables in various combinations. Our results were robust to these alterative specifications.

Are higher interest rate spreads the product of lower interest rates offered to depositors by Foreign MA banks? In order to answer this question we modify equation 2 by substituting the implicit interest rate paid on deposits (Interest Paid as a percent of Deposits) for *Spread* as the dependent variable. We report the results in Column 3 of Table 4. The Foreign MA dummy in this regression is not statistically significant, which indicates that, all other things being the same, switching from domestic to foreign ownership is not associated with a change in deposit interest rates.

Perhaps, then, the larger interest spreads charged by Foreign MA banks are the product of charging more for loans? In Column 4 of Table 4 we modify equation 1 by substituting the implicit interest rate charged on loans for net interest margins. This regression does yield a coefficient on Foreign MA that is statistically and economically significant: switching from domestic to foreign ownership is associated with an increase of nearly 1.4 percentage points per quarter in loan interest rates. Echoing our earlier findings on spreads, the degree to which a bank is invested in housing loans is strongly associated with the interest rate it charges for loans. As we did with the regression on interest spreads, we attempt to reduce the statistical and economic significance of the Foreign MA dummy by adding a variable for the ratio of administrative costs to assets (see Column 5 of Table 4). The coefficient on Foreign MA declines in magnitude, but it remains statistically and economically significant: switching from domestic to foreign ownership is associated with a 0.7 percentage point per quarter increase in the interest rate charged on loans. The addition of the administrative cost variable dramatically reduces the significance and magnitude of the coefficient on housing loans, suggesting that housing loans are more costly to administer than other types of loans. The results are robust to serially dropping control variables and to the addition of a dummy for the first year of foreign ownership.

Our results on non-performing loans and interest rate spreads present something of a puzzle. One would usually associate a decline in non-performing loans with a decline in loan interest rates—because a decline in NPL's suggests that banks are seeking out high quality borrowers. We observe, however, that Foreign MA banks are seeking out higher quality borrowers and are charging them more for loans. One might be tempted to argue that this is a product of including NPL's in the regressions on interest spreads, which we do following

conventions in the literature. If we drop the NPL variable, however, the magnitude and significance of the Foreign MA coefficient remains materially the same—so that is not the solution to the puzzle.

The most straightforward interpretation of a decline in non-performing loans and an increase in interest spreads is that foreign banks purchased Mexican banks that had been making loans with low interest rates to parties that had a high probability of default—a finding that suggests tunneling. This inference is consistent with La Porta et. al. (2003), who find that during 1995-1998 Mexican bank directors made loans to themselves that had lower interest rates, higher rates of default, and lower rates of collateral recovery than unrelated arm's-length loans.

Administrative Efficiency

Our regressions on interest rate spreads and loan interest rates imply that switching from domestic to foreign ownership was associated with an increase in administrative costs, because the addition of the administrative cost variable reduced the magnitude of the Foreign MA coefficients (see Columns 2 and 5 of Table 4). This is a somewhat surprising finding, because one would usually associate foreign ownership with increased administrative efficiency. We therefore test the hypothesis that the switch from domestic to foreign ownership is associated with a decrease in administrative efficiency in Table 5. We control for a range of bank characteristics by estimating a regression with the following form:

$AdminCost_{i,t} = \alpha_0 + \alpha_1\,Foreign\,MA_{it} + \alpha_2\,Fobaproa\text{-}IPAB_{i,t} + \alpha_3\,Bank\,Market\,Share_{it} + \alpha_4$

$\qquad Liquidity_{it} + \alpha_5\,Equity_{it} + \alpha_6\,Housing\,Loans_{it} + \alpha_7\,Commercial\,Loans_{it} + \alpha_8$

$\qquad Consumer\,Loans_{it} + \alpha_9\,Bank_i + \alpha_{10}\,Quarter_t + \alpha_{11}\,E_{it}$ (3)

where i is the bank id and t refers to the time period considered. In equation 3 the variable *AdminCost* is the ratio of administrative costs to assets, and all other variables are as described in equation 1.

The variable of interest in this estimation is the *Foreign MA* dummy. It allows us to determine whether the switch from domestic to foreign ownership is associated with an increase in administrative costs—everything else held constant.   As Column 1 of Table 5 indicates, the Foreign MA coefficient is positive and highly significant, suggesting that all other factors held the same, the switch from domestic to foreign ownership is associated with an 0.7 percentage point increase in the ratio of administrative costs to assets. Modifications of equation 3, in which we dropped conditioning variables in various combinations had no material effect on these results. We therefore do not reproduce them here. Similarly, the addition of a dummy variable for the first year of foreign ownership actually increased the magnitude of the Foreign MA coefficient, suggesting that the jump in administrative costs was not the product of one-time costs associated with transitioning to a new administrative system. The most straightforward interpretation of these results is that administrative costs increase with foreign ownership because foreign owners devote more resources to the analysis of risk ex ante and devote more resources to collection ex post.

Lending Strategies

If the switch from domestic to foreign ownership is associated with more intensive screening of loans, then we might expect that it is also associated with a decrease in lending— a finding that has been reported for other emerging markets (Clarke, Cull, D'Amato, and Molinari, 2000; Berger, Klapper, and Udell 2001; Mian 2006). In order to test this hypothesis we estimate a series of regressions on the volume of lending, as measured by the ratio of

various loan classes to assets. We begin by looking at the total of all lending to private firms

and households by estimating a regression with the following form:

Private Loans$_{i, t}$ = α_0 + α_1 *Foreign MA $_{it}$* + α_2 *Fobaproa-IPAB $_{i, t}$* + α_3 *Bank Market Share $_{it}$* +

α_4 *Equity $_{it}$* + α_5 *Liquidity $_{it}$* + α_6 *Bank $_i$* + α_7 *Quarter $_t$* + α_8 *E $_{it}$*   (4)

where i is the bank id and t refers to the time period considered. In equation 4 the variable

Private Loans is sum of all loans made to firms and households divided by assets, and all

other variables are as described in equation 1.[8]

The variable of interest in this estimation is the *Foreign MA* dummy. It allows us to

determine whether the switch from domestic to foreign ownership is associated with an

increase (or decrease) in lending for private purposes—everything else held constant.   The

Foreign MA coefficient enters the regression with a negative sign and is of large magnitude. It

implies that, all things being the same, the switch from domestic to foreign ownership is

associated with a 6.6 percentage point decrease in the ratio of private loans to assets (see

Column 1 of Table 6). One would not want to put too much stock in the point estimate,

however, because the coefficient is not significant at conventional levels of confidence. The

most we can say with any certainty is that the switch from domestic to foreign ownership is

not associated with an increase in credit to firms and households.[9]

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[8] Lending to private firms and households includes commercial loans, consumer loans,
housing loans, and loans to non-bank financial intermediaries, known by the Spanish acronym
SOFOL, which primarily extend mortgage and automobile credit to households.

[9] One might argue that the result is driven by the inclusion of the liquidity ratio, because, as
an accounting identity, as the stock of loans increases liquid assets decline. Dropping the
liquidity ratio does not, however, change the sign and magnitude of the Foreign MA
coefficient (though it does reduce its significance). Similarly, one might argue that the result
is driven by a temporary reduction in lending, as a result of switching ownership. The
addition of a dummy variable for the first year of foreign ownership does not, however,

One possibility is that lumping all loans to firms and households together into a single variable might be too blunt a measure to capture the effect of switching from domestic to foreign ownership. We therefore modify equation 4 in Columns 2, 3, 4, and 5 of Table 6 by substituting subcategories of private lending for the *Private Loans* variable, where each variable is the share of that loan type as a percent of assets. We obtain one striking result: the coefficient on Housing Loans (Column 5) enters the regression with a negative sign, is of large magnitude, and is significant at the 99 percent confidence level. It implies that switching from domestic to foreign ownership is associated with a 4.3 percentage point decrease in the share of assets allocated to housing credit. Given the fact that the sample mean is 3.9 percent (and is 8.1 percent for Foreign MA banks only), the implication is that switching from domestic to foreign ownership had an economically significant impact. This result is particularly noteworthy because it is consistent with our regression results on non-performing loans, administrative costs, and interest spreads, which indicate that housing loans are associated with an increased rate of default, higher administrative costs, and the need to charge higher interest rates to cover those risks and costs.[10]

Rates of Return

If the switch from domestic to foreign ownership is associated with an increase in net interest margins, but a decrease in lending, then the effect of switching ownership on rates of return is ambiguous. We therefore estimate a series of regressions on the rate of return on

change the sign of the coefficient on Foreign MA, though it does reduce its statistical significance.

[10] The addition of a dummy variable for the first year of foreign ownership does not have a material effect on the result.

equity in Table 7. We control for a range of bank characteristics by estimating a regression with the following form:

$ROE_{i,t} = \alpha_0 + \alpha_1\ Foreign\ MA_{it} + \alpha_2\ Fobaproa\text{-}IPAB_{it} + \alpha_3\ Bank\ Market\ Share_{it} + \alpha_4$

$\quad Liquidity_{it} + \alpha_5\ Housing\ Loans_{it} + \alpha_6\ Commercial\ Loans_{it} + \alpha_7\ Consumer\ Loans_{it}$

$\quad + \alpha_7\ NPL_{it} + \alpha_8\ Bank_{i,} + \alpha_9\ Quarter_{t,} + a_{10}\ E_{it}$ (5)

where i is the bank id and t refers to the time period considered. In equation (5) the variable *ROE* is the rate of return on equity, and all other variables are as described in equation 1. We exclude, for obvious reasons, the equity ratio control variable.

The variable of interest in this estimation is the *Foreign MA* dummy. It allows us to determine whether the switch from domestic to foreign ownership is associated with an increase (or decrease) in the risk-adjusted rate of return on equity. As Column 1 of Table 7 indicates, the Foreign MA coefficient is positive, but is not statistically significant. One might think that the inclusion of variables that control for risk (the allocation of assets across different loan classes, NPL's, and the liquidity ratio) might be soaking up the difference in rates of return. We therefore modify equation 5 in Column 2 of Table 7 by dropping these control variables. The Foreign MA coefficient remains positive but is still far from statistical significance. One might also think that the result is driven by the new, foreign owners taking one-time write-downs of assets when they first acquire a bank. We test this hypothesis by adding a dummy variable for the first year of foreign ownership. The results are materially the same, so we do not report them here.

Perhaps measurement error in *ROE* is driving the lack of results on Foreign MA. We therefore substitute return on assets (ROA) for return on equity in equation 5, and present the results in Table 7, column 3. *ROA* enters the regression with a negative sign and is

statistically significant: the switch from domestic to foreign ownership is associated with a 0.5 percentage point per quarter decline in the risk-adjusted rate of return. This result is, however, fragile: simply dropping the liquidity ratio and equity ratio variables pushes statistical significance below conventional levels. Dropping all of the conditioning variables, except for bank size and the level of distress (as proxied by the ratio of FOBAPROA-IPAB bonds to assets) produces similar results. The implication is that switching from domestic to foreign ownership has not, in and of itself, pushed up returns on equity or assets. This is not to say that foreign banks in Mexico are not profitable. Rather, it is to say that all banks in Mexico—domestically-owned, Foreign de Novo, and Foreign MA—have become more profitable over time, and thus the increase in ROA's is captured by the quarter dummies.

EMPIRICAL RESULTS: FOREIGN DE NOVO BANKS

Non-Performing Loans and Interest Spreads

Our difference in differences regressions indicate that the switch from domestic to foreign ownership is associated with lower levels of non-performing loans, higher interest spreads (a result of higher loan interest rates), higher administrative costs, and a sizeable drop in housing credit. We infer that these results are the product of the previous owners of the banks making low interest loans to parties with a high risk of default, which is an indication of tunneling via related lending. One way to subject this inference to additional scrutiny is to look at the performance of Foreign de Novo banks. If these greenfield banks perform differently from their domestic competitors (including banks that switched to Foreign MA ownership) in terms of NPL's, spreads, administrative costs, and housing lending, it suggests that our related lending inference is spurious. If, however, there is no difference between Foreign de Novo banks and their domestic competitors (including banks that later became

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Foreign MA), then it suggests that the results from the Foreign MA regressions are not a product of some unobserved characteristic that is proxied by "foreignness," but are rooted in some characteristic of the banks prior to their purchase by foreign concerns.

Obviously, there are differences between Foreign de Novo banks and their domestic competitors in terms of size, liquidity, capitalization, history of distress, and timing of market entry. We therefore estimate variants of Equations 1, 2, 3, and 4—on NPL's, interest spreads, administrative costs, and lending strategies—which include controls for these characteristics. We transform the equations, however, by substituting a dummy for Foreign de Novo for the Foreign MA variable. We also drop the bank dummy variables, because we are trying to pick up systematic differences across categories of banks, rather than within banks over time.

We report the results on NPL's, interest spreads, and administrative costs in Table 8. Column 1 indicates that Foreign de Novo banks do not screen and monitor loans more intensively than their Mexican competitors: the coefficient on Foreign de Novo is negative, but far from significant. Column 2 indicates that Foreign de Novo banks charge *lower* interest rate spreads than their Mexican competitors, controlling for the composition and risk of the loan portfolio. In fact, the regression indicates that Foreign de Novo banks charge spreads that are 1.8 percentage points per quarter lower than their competitors. Column 3 indicates that this result is robust to controlling for administrative costs. Column 4 indicates that there is no difference in administrative costs between Foreign de Novo banks and other banks: the coefficient on Foreign de Novo is negative, but far from statistical significance. Additional specifications that include dummies for Foreign MA (in order to control for potential differences between domestic banks that remained domestically-owned and those that became foreign-owned) yield similar results. We therefore do not reproduce them here.

Table 9 reports the results of the loan portfolio regressions. The results suggest some weak evidence that Foreign MA banks lend differently from their competitors. The coefficient on Foreign de Novo in Column 1, which reports results on total private lending, is negative and of large magnitude, but it is not significant at conventional levels of confidence. Columns 2, 3, 4, and 5 report the results on separate regressions by type of loan. None of these regressions yield results that even approach statistical significance.[11]

Taken as a group, the regressions do not suggest that we have drawn a spurious inference about Foreign MA banks. The mechanism that drives our Foreign MA regression results is likely not related to some unobserved characteristic that is associated with "foreignness," because in most dimensions Foreign de Novo banks do not behave much differently from domestically owned banks. Moreover, the one dimension in which Foreign de Novo banks differ from domestically-owned banks—the way they price credit—confirms supports our inferences about Foreign MA banks. Foreign de Novo banks charge *lower* interest rate spreads from domestically owned banks, even controlling for the quality of borrowers. When a foreign bank purchases a domestically-owned bank, however, it *raises* interest spreads. This result even holds when we drop the controls for NPL's, which capture the quality of borrowers.

CONCLUSIONS AND IMPLICATIONS:

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[11] Dropping the liquidity ratio variable from the regressions does, however, result in an increase in the statistical significance and magnitude of the Foreign de Novo coefficient. This suggests that Foreign de Novo banks do lend less than their Mexican competitors because they prefer to maintain a higher level of liquidity. Controlling for differences in liquidity preferences, however, there are not significant differences between Foreign de Novo and Mexican banks.

Taken together, our results suggest that foreign entry in Mexico is associated with greater banking system stability. Our regressions suggest that the Mexican banks that were sold to foreign multinationals were invested in housing loans with a high risk of default and a low rate of interest. Foreign purchasers appear to have shifted the loan portfolio away from these investments. This is not to say, however, that foreign entry has been a panacea. In particular, foreign entry, whether by mergers and acquisitions or by greenfield banks, has not been associated with an increase in financial intermediation. The ratio of private credit to GDP at the end of 1997 was 18 percent. Twelve years later, it has grown to only 23 percent. Moreover, this level is low by any comparative standard: Mexico has a low level of intermediation when compared to the rest of Latin America, to other countries with Mexico's level of income, and to other countries with a legal heritage of French civil law. This suggests that foreign entry is not a solution to a property rights environment that makes contract enforcement costly (Haber 2005).

Our results are consistent with some of the findings of the extant literature. Our results on the association between foreign ownership and lower levels of non-performing loans mirror the results that researchers have obtained in studies of Ugandan banks. (Kasekende and Sebudde 2002). They are also consistent with the findings of Claessens, Demirguç-Kunt and Huizinga (2001) on increasing interest rate spreads, and with the findings of Cardim de Carvahlo (2002 and Havrylych (2006) on administrative costs. Finally, our results are consistent with the finding that foreign banks may opt out of certain segments of credit markets (Clarke, Cull, D'Amato, Molinari, 2000; Mian, 2003, 2006).

Our results also have a methodological implication. Most studies of foreign entry in developing economies focus on capturing differences across banks by ownership type. One

potential limitation of this approach is that unobserved characteristics of banks may

potentially correlate with being foreign-owned and with the performance of those banks.

Taking a time-series approach to the data mitigates many of the concerns related to

unobserved heterogeneity, thereby improving the quality of causal inference.

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Table 1

Banks Operating in Mexico, By Ownership Type, September 1997 to December 2007

Mexican Banks	Dates of Operation	Foreign MA Banks	Dates of Operation
AFIRME	Sept 1997 - Dec 2007	BANAMEX*	Dec 2002 - Dec 2007
Ahorro Famsa	Jan 2007 - Dec 2007	BBVA BANCOMER*	Dec 2000 - Dec 2007
Amigo	Sept 2007 - Dec 2007	BITAL*	Dec 2002 - Dec 2007
AUTOFIN	Dec 2006 - Dec 2007	CITIBANK	Dec 1998 - Sept 2001
BANAMEX	Sept 1997 - Sept 2002	GE CAPITAL BANK	Dec 1997 - Dec 2007
BANCEN	Jan 2005 - Jun 2006	SANTANDER	Aug 1993-Dec 1997
BANCO AZTECA	Dec 2002 - Dec 2007	SANTANDER MEXICANO	Dec 1997 - Dec 2004
Bancoppel	Sept 2007 - Dec 2007	SCOTIABANK INVERLAT	Dec 2000 - Dec 2007
BANORTE	Sept 1997 - Dec 2007	SANTANDER-SERFIN*	Sept 2000 - Dec 2007
BANPAIS	Jan 1998 - Dec 1999	**Foreign De Novo**	**Dates of Operation**
BANREGIO	Sept 1997 - Dec 2007	A EXPRESS	Dec 1997 - Dec 2007
BANSI	Sept 1997 - Dec 2007	ABN AMRO	2002 - Dec 2004, Mar 2005 - Dec 2007
BBVA BANCOMER	Sept 1997 - Sept 2003	ABN AMRO BANK	Mar 2004 - Dec 2004
BITAL	Sept 1997 - Sept 2002	BANCO VE POR MAS/Dresdner Bank	Jun 2004 -Dec 2007
CENTRO	Sept 1997 - Dec 2004	BANK OF AMERICA	Sept 1997 - Dec 2007
COMPARTAMOS	Mar 2006 - Sept 2007	BANK ONE	Mar 1998- Sept 2004
DEL BAJIO	Sept 1997 - Dec 2007	BANKBOSTON	Sept 1997 - Dec 2004
Facil	Sept 2007 - Dec 2007	BBV BANCOMER SERVICIOS	Sept 1997 - Sept 2003
INBURSA	Sept 1997 - Dec 2007	BNP MEXICO	Sept 1997 - Dec 2000
INTERACCIONES	Sept 1997 - Dec 2007	CHASE MANHATTAN	Sept 1997 - Mar 2001
INVEX	Sept 1997 - Dec 2007	CITIBANK	Dec 1997 - Sept 1998
IXE	Sept 1997 - Dec 2007	COMERICA BANK	Sept 1997 - Dec 2007
MIFEL	Sept 1997 - Dec 2007	DEUSTCHE BANK	Dec 2000 - Dec 2001
Multiva	Mar 2007 - Dec 2007	DRESDNER BANK	Sept 1997 - Mar 2003
QUADRUM	Sept 1997 - Sept 2001	FUJI BANK	Sept 1997 - Jun 1999
SERFIN	Sept 1997 - Mar 2000	HSBC	Sept 1997 - Mar 2003
		ING BANK	Sept 1997 - Dec 2007
		J. P. MORGAN	Sept 1997 - Dec 2001, Dec 2004 - Dec 2007
		NATIONS BANK	Sept 1997 - Dec 1998
		SOCIETE GENERALE	Sept 1997 - Dec 2004
		TOKIO MITSUBISHI	Sept 1997 - Dec 2007

*We code Mexican banks as Foreign MA on the date that the merged bank began to operate.

Table 2
Summary Statistics

Variable	All Banks					Foreign MA Banks			Foreign De Novo Banks			Domestic Banks		
	Obs	Mean	S. D.	Min	Max	Obs	Mean	S. D.	Obs	Mean	S. D.	Obs	Mean	S. D.
Spread (net interest margin)	1226	0.018	0.061	-1.058	0.559	210	0.024	0.026	442	0.007	0.080	574	0.251	0.051
Market Share Loans	1270	0.033	0.064	0.000	0.298	213	0.100	0.086	466	0.003	0.010	591	0.033	0.607
Non-Performing Loan Ratio	1268	0.034	0.078	0.000	1.000	213	0.033	0.029	464	0.025	0.106	591	0.422	0.063
Equity Ratio	1270	0.184	0.158	-0.332	0.999	213	0.130	0.095	466	0.218	0.172	591	0.175	0.158
Return on Equity	1266	0.010	0.097	-1.557	1.414	212	0.028	0.082	463	-0.008	0.078	591	0.173	0.113
Private Lending as % Assets	1260	0.440	0.258	0.000	0.992	211	0.419	0.227	465	0.350	0.289	584	0.520	0.214
Commercial Lending as % Assets	1268	0.319	0.243	0.000	0.881	212	0.234	0.189	465	0.279	0.256	591	0.381	0.233
Consumer Lending as % Assets	1268	0.055	0.160	0.000	0.969	212	0.087	0.131	465	0.062	0.219	591	0.039	0.104
Housing Lending as % Assets	1268	0.039	0.099	0.000	0.943	212	0.081	0.114	465	0.009	0.084	591	0.047	0.097
Fobaproa-IPAB as % Assets	1268	0.059	0.144	0.000	0.909	212	0.114	0.143	465	0.016	0.066	591	0.073	0.175
Loans to SOFOLES as % Assets	1268	0.048	0.094	0.000	0.769	212	0.027	0.042	465	0.065	0.122	591	0.047	0.081
Liquidity Ratio	1270	0.178	0.139	0.000	1.090	213	0.162	0.050	466	0.223	0.187	591	0.149	0.101
Interest Income on Loans	1232	0.049	0.050	-0.178	0.603	210	0.043	0.035	448	0.048	0.050	574	0.052	0.053
Interest Paid on Deposits	1226	0.030	0.054	-0.156	1.138	210	0.019	0.014	442	0.041	0.086	574	0.027	0.017
Administrative Costs as % Assets	1269	0.020	0.027	-0.007	0.270	212	0.019	0.020	466	0.021	0.021	591	0.021	0.033

Table 3
Regressions on Non-Performing Loans
Difference in Differences Specification on the Impact of Switching to Foreign MA

	Non-Performing Loans as Percent Total Loans
Foreign MA	-0.0596**
	(0.0225)
Fobaproa-IPAB as % Assets	0.0977
	(0.216)
Market Share Loans	-0.393
	(0.276)
Equity Ratio	0.154
	(0.122)
Housing Loans as % Assets	0.138**
	(0.0592)
Commercial Loans as % Assets	-0.0436
	(0.0364)
Consumer Loans as % Assets	0.0605
	(0.0710)
Liquidity Ratio	0.0802
	(0.0663)
Bank Dummies	Yes
Quarter Dummies	Yes
Constant	0.121
	(0.0754)
Observations	1266
R-squared	0.371

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
The addition of dummies for the first year, or the first two years, of foreign ownership
do not have a material impact on these results.
Dropping control variables, in various combinations, does not have a material impact on the results.

Table 4
Interest Rate Regressions
Difference in Differences Specification on the Impact of Switching to Foreign MA

	(1) Spread (Net Interest Margin)	(2) Spread (Net Interest Margin)	(3) Interest Paid on Deposits	(4) Interest Earned on Loans	(5) Interest Earned on Loans
Foreign MA	0.0180**	0.0129**	-0.00430	0.0137***	0.00700**
	(0.00713)	(0.00623)	(0.00719)	(0.00484)	(0.00324)
Fobaproa-IPAB as % Assets	-0.0375	-0.0591**	0.0567*	0.0201	-0.0103
	(0.0225)	(0.0278)	(0.0311)	(0.0146)	(0.0168)
Market Share Loans	-0.0427	-0.0297	0.0292	-0.00787	0.00768
	(0.0734)	(0.0731)	(0.0678)	(0.0503)	(0.0334)
Equity Ratio	-0.0782*	-0.111**	0.0973*	0.0246	-0.0219
	(0.0397)	(0.0447)	(0.0501)	(0.0191)	(0.0262)
Housing Loans as % Assets	0.148**	0.0774	-0.0162	0.130***	0.0362
	(0.0584)	(0.0572)	(0.0559)	(0.0349)	(0.0455)
Commercial Loans as % Assets	0.0113	0.00961	-0.00875	-0.00194	-0.00479
	(0.0234)	(0.0234)	(0.0159)	(0.0194)	(0.0186)
Consumer Loans as % Assets	0.0505	0.0182	0.0157	0.0652	0.0215
	(0.0451)	(0.0530)	(0.0269)	(0.0485)	(0.0536)
Liquidity Ratio	0.0511	0.0506	-0.0252	0.0238	0.0209
	(0.0391)	(0.0394)	(0.0336)	(0.0227)	(0.0204)
Ratio of Administrative Costs to Assets		0.781			1.033***
		(0.510)			(0.339)
Non-Performing Loans as Percent Total Loans	-0.0192	-0.0296	0.0185	-0.00181	-0.0136
	(0.0341)	(0.0352)	(0.0474)	(0.0252)	(0.0213)
Bank Dummies	Yes	Yes	Yes	Yes	Yes
Quarter Dummies	Yes	Yes	Yes	Yes	Yes
Constant	0.0324	0.0381	-0.000614	0.0296**	0.0387***
	(0.0256)	(0.0247)	(0.0278)	(0.0135)	(0.0122)
Observations	1224	1224	1222	1230	1230
R-squared	0.405	0.422	0.285	0.664	0.710

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Dummies for first year of foreign ownership and first two years of foreign ownership do not have a material impact on the results.
Dropping control variables, in various combinations, does not have a material impact on the results.

Table 5
Administrative Cost Regressions
Difference in Differences Specification on the Impact of Switching to Foreign MA

	Administrative Costs as Percent of Assets
Foreign MA	0.00685***
	(0.00252)
Fobaproa-IPAB as % Assets	0.0300***
	(0.00861)
Market Share Loans	-0.0155
	(0.0308)
Housing Loans as % Assets	0.0907***
	(0.0284)
Commercial Loans as % Assets	0.00369
	(0.00510)
Consumer Loans as % Assets	0.0412**
	(0.0160)
Liquidity Ratio	0.00405
	(0.00743)
Equity Ratio	0.0457***
	(0.00939)
Non-Performing Loans as Percent Total Loans	0.0107*
	(0.00613)
Bank Dummies	Yes
Quarter Dummies	Yes
Constant	-0.0114
	(0.00803)
Observations	1265
R-squared	0.851

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Dummies for first year of foreign ownership and first two years of foreign ownership
do not have a material impact on the results.
Dropping control variables, in various combinations, does not have a material impact on the results.

Table 6
Private Lending Regressions
Difference in Differences Specification on the Impact of Switching to Foreign MA

	Private Loans as Percent of Assets	Commercial Loans as Percent of Assets	Consumer Loans as Percent of Assets	Loans to SOFOLES as Percent of Assets	Housing Loans as Percent of Assets
Foreign MA	-0.0660*	-0.0497	0.0126	0.0311	-0.0431***
	(0.0364)	(0.0329)	(0.0113)	(0.0208)	(0.0126)
Fobaproa-IPAB as % Assets	-0.342***	-0.229**	-0.0751***	-0.0427	-0.0117
	(0.0940)	(0.0930)	(0.0177)	(0.0474)	(0.0231)
Market Share Loans	0.456	0.174	0.00433	0.326	0.183
	(0.604)	(0.603)	(0.104)	(0.204)	(0.175)
Equity Ratio	0.0581	0.127	-0.0632	0.101*	-0.0261
	(0.129)	(0.126)	(0.0460)	(0.0569)	(0.0217)
Liquidity Ratio	-0.476***	-0.354***	-0.0384	-0.0423	-0.0263
	(0.0953)	(0.0971)	(0.0313)	(0.0419)	(0.0223)
Bank Dummies	Yes	Yes	Yes	Yes	Yes
Quarter Dummies	Yes	Yes	Yes	Yes	Yes
Constant	0.476***	0.314**	0.0748**	-0.0769	0.101***
	(0.141)	(0.141)	(0.0308)	(0.0572)	(0.0329)
Observations	1260	1268	1268	1268	1268
R-squared	0.796	0.786	0.705	0.402	0.480

Robust standard errors in pare
*** p<0.01, ** p<0.05, * p<0.1
Dummies for first year of foreign ownership and first two years of foreign ownership do not have a material impact on the results.
Dropping control variables, in various combinations, does not have a material impact on the results.

Table 7
Rate of Return Regressions
Difference in Differences Specification on the Impact of Switching to Foreign MA

	Rate of Return on Equity	Rate of Return on Equity	Rate of Return on Assets	Rate of Return on Assets
Foreign MA	0.0117	0.0244	-0.00505**	-0.00153
	(0.0303)	(0.0314)	(0.00240)	(0.00217)
Fobaproa-IPAB as % Assets	-0.0522	-0.0641	-0.0357***	-0.0312***
	(0.0522)	(0.0773)	(0.0108)	(0.00586)
Market Share Loans	-0.549	-0.508	-0.0804***	-0.0479*
	(0.421)	(0.428)	(0.0280)	(0.0246)
Housing Loans as % Assets	-0.0542		-0.0170	
	(0.0493)		(0.0106)	
Commercial Loans as % Assets	0.0136		-0.00692	
	(0.0267)		(0.00572)	
Consumer Loans as % Assets	-0.0240		-0.0171*	
	(0.0372)		(0.00878)	
Equity Ratio			-0.00167	
			(0.0225)	
Liquidity Ratio	0.0635		-0.0309	
	(0.0948)		(0.0318)	
Non-Performing Loans	-0.197**		-0.0299***	
as Percent Total Loans	(0.0777)		(0.00860)	
Bank Dummies	Yes	Yes	Yes	Yes
Quarter Dummies	Yes	Yes	Yes	Yes
Constant	0.156*	0.130	0.0376***	0.0208***
	(0.0826)	(0.0816)	(0.00831)	(0.00515)
Observations	1262	1264	1262	1264
R-squared	0.318	0.295	0.543	0.517

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Dummies for first year of foreign ownership and first two years of foreign ownership do not have a material impact on the results.
Dropping control variables, in various combinations, does not have a material impact on the results.

Table 8
Non-Performing Loan, Interest Spread, and Administrative Cost Regressions
OLS Regressions,

	(1) Non-Performing Loans as Percent Total Loans	(2) Spread (Net Interest Margin)	(3) Spread (Net Interest Margin)	(4) Administrative Costs as Percent of Assets
Foreign de Novo	-0.0142	-0.0175**	-0.0168**	-0.00121
	(0.0192)	(0.00799)	(0.00666)	(0.00392)
Fobaproa-IPAB as % Assets	0.115	-0.0210	-0.0227*	0.00255
	(0.0951)	(0.0138)	(0.0130)	(0.00590)
Market Share Loans	0.00623	-0.125**	-0.0758**	-0.0825***
	(0.0597)	(0.0526)	(0.0365)	(0.0216)
Equity Ratio	0.101	-0.0405*	-0.0665**	0.0455**
	(0.0804)	(0.0233)	(0.0300)	(0.0181)
NPL as % Loans		-0.0354	-0.0328	-0.00509
		(0.0388)	(0.0331)	(0.0259)
Housing Loans as % Assets	0.112*	0.213***	0.147**	0.112***
	(0.0604)	(0.0727)	(0.0584)	(0.0263)
Commercial Loans as % Assets	-0.0116	0.00687	0.0105	-0.00622
	(0.0387)	(0.0165)	(0.0149)	(0.00677)
Consumer Loans as % Assets	0.0297*	0.104***	0.0718***	0.0558***
	(0.0175)	(0.0257)	(0.0247)	(0.00676)
Liquidity Ratio	0.0793	0.0264	0.0267	0.000952
	(0.0480)	(0.0296)	(0.0291)	(0.00884)
Ratio of Administrative Costs to Assets	-0.0837		0.587	
	(0.411)		(0.382)	
Bank Dummies	No	No	No	No
Quarter Dummies	Yes	Yes	Yes	Yes
Constant	-0.00458	0.0320	0.0265	0.00818*
	(0.0361)	(0.0191)	(0.0175)	(0.00453)
Observations	1265	1224	1224	1265
R-squared	0.150	0.212	0.241	0.562

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Dropping control variables, in various combinations, does not have a material impact on the results.

Table 9
Private Lending Regressions
OLS Regressions

	Private Loans as Percent of Assets	Commercial Loans as Percent of Assets	Consumer Loans as Percent of Assets	Loans to SOFOLES as Percent of Assets	Housing Loans as Percent of Assets
Foreign de Novo	-0.171*	-0.134	0.0393	0.0140	-0.0176
	(0.0899)	(0.0816)	(0.0728)	(0.0232)	(0.0124)
Fobaproa-IPAB as % Assets	-0.608***	-0.536***	-0.0326	-0.116**	0.0683***
	(0.0987)	(0.0953)	(0.0199)	(0.0433)	(0.0172)
Market Share Loans	-0.484*	-0.706**	0.0427	-0.151**	0.377***
	(0.259)	(0.263)	(0.0988)	(0.0698)	(0.0403)
Equity Ratio	0.0638	0.0838	-0.0214	-0.0243	0.0696*
	(0.136)	(0.156)	(0.0395)	(0.0447)	(0.0346)
Liquidity Ratio	-0.643***	-0.313*	-0.268	-0.0770*	-0.0526
	(0.217)	(0.167)	(0.202)	(0.0441)	(0.0336)
Bank Dummies	No	No	No	No	No
Quarter Dummies	Yes	Yes	Yes	Yes	Yes
Constant	0.661***	0.550***	0.0226	0.0581**	0.0101
	(0.0738)	(0.0729)	(0.0195)	(0.0280)	(0.0106)
Observations	1260	1268	1268	1268	1268
R-squared	0.311	0.239	0.105	0.100	0.310

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1