

# Foreign and Domestic Bank Participation in Emerging Markets: Lessons from Mexico and Argentina

---

- The Argentine and Mexican experiences with foreign bank participation are broadly instructive for other emerging markets contemplating an expanded role for foreign banks in their local economies.
- A review of bank lending patterns from 1994 through mid-1999 reveals that foreign banks in Argentina and Mexico exhibited stronger and less volatile loan growth than domestic banks.
- The asset quality of bank portfolios, and not ownership per se, appears to be the decisive factor behind the growth and volatility of bank credit.
- In both Argentina and Mexico, diversity of ownership has contributed to greater stability of credit in periods of crisis or financial system weakness.

Over the past decade, numerous financial systems have opened up to direct foreign participation through the ownership of local financial institutions, frequently as a direct consequence of—and as a perceived solution to—financial crises. Significant increases in such foreign participation have characterized the transition experience of Eastern Europe and the post-Tequila Crisis period in Latin America. However, the crisis experience in Asia has been markedly different to date, and is more notable for the limited nature of majority investments by foreign banks, despite the need for large-scale recapitalization of the region's troubled financial systems.

Arguments supporting a policy of openness to foreign participation are far from universally accepted. The benefits to emerging markets of foreign participation in domestic financial systems are widely expounded and argued to be broad-based. These arguments are mirrored by a set of concerns over the potentially adverse effects of opening to foreign participation (or at least opening too quickly). There is a shortage of hard evidence to support either side.

This article contributes factually to the debate over the opening of emerging markets to foreign participation by exploring the experiences of Argentina and Mexico—two

---

B. Gerard Dages and Linda Goldberg are assistant vice presidents and Daniel Kinney an international officer at the Federal Reserve Bank of New York.

The authors thank Kevin Caves for careful and dedicated research assistance and Jennifer Crystal for excellent general assistance. They also acknowledge the useful comments of Giovanni Dell'Arricia, Jane Little, and two anonymous referees, as well as those of participants at the February 2000 IMF/World Bank/IADB Conference on Financial Contagion, members of the April 2000 Federal Reserve System Committee on International Economics, and participants at the April 2000 SUERF Colloquium on Adapting to Financial Globalization. The views expressed are those of the authors and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.

markets that exhibit a significant degree and duration of foreign bank activity.

We begin our analysis by presenting the opposing views on the role of foreign-owned banks in emerging markets.<sup>1</sup> Next, we argue that ownership per se is not a reason to expect differences in the lending patterns of domestic and foreign banks; instead, these would arise because lending objectives, funding patterns, market access, and balance-sheet health may vary. We then review liberalization efforts in Argentina and Mexico in the 1990s and examine local lending patterns by foreign- and domestically owned local banks, including state-

*Although a sizable body of research has explored the potential benefits of financial liberalization broadly defined, few studies have focused on the potential benefits of increased foreign participation in banking and finance.*

owned banks. Our goal is to document these banks' relative stability in lending to different client bases and to examine the cyclical properties of such lending. Throughout, we base our analysis on published quarterly loan data for individual banks in Mexico and in Argentina in the 1990s. We look at total lending, personal/consumer lending, mortgage lending, and the broad remaining group that includes commercial, government, and other lending.

Econometrically, we show that in these countries behavioral differences are apparent across certain types of banks. These are related to whether a bank is public or private, potentially reflecting the role of distinct lending motives across these institutions. In addition, bank behavior is significantly related to the asset quality of the bank portfolio. In response to some types of economic fluctuations, domestic privately owned banks with low levels of impaired loans can have more volatile lending than their foreign bank counterparts. We argue that these differences among foreign and domestic private banks are plausible and are to be expected, especially if the respective banks rely on alternative sources of funds.

Based on bank lending patterns from 1994 through mid-1999, overall we do not find any support for the view that foreign banks contribute to instability or are excessively volatile in their responses to market signals. In Argentina, extensive and rapid banking reforms have led to a system in which both foreign and domestic privately owned banks are responsive to

market signals, but where behavior is now consistent with more diversified sources of loanable funds. In Mexico, despite reform efforts in the second half of the 1990s, many domestic banks continue to face significant asset quality problems. These banks have had shrinking loan portfolios in the post-Tequila Crisis period. Healthy foreign banks have emerged as an important engine for funding local investment and growth opportunities without raising lending volatility vis-à-vis their healthy local counterparts.

## Foreign Ownership of Financial Institutions in Emerging Markets

### Arguments for Foreign Bank Participation

There are three main arguments in favor of opening emerging market financial sectors to foreign ownership. First, consistent with traditional arguments in support of capital account liberalization, some contend that a foreign bank presence increases the amount of funding available to domestic projects by facilitating capital inflows. Such a presence may also increase the stability of available lending to the emerging market by diversifying the capital and funding bases supporting the overall supply of domestic credit. This type of argument is especially persuasive when applied to small and/or volatile economies.<sup>2</sup>

Second, some contend that foreign banks improve the quality, pricing, and availability of financial services, both directly as providers of such enhanced services and indirectly through competition with domestic financial institutions (Levine 1996). Third, foreign bank presence is said to improve financial system infrastructure—including accounting, transparency, and financial regulation—and stimulate the increased presence of supporting agents such as ratings agencies, auditors, and credit bureaus (Glaessner and Oks 1994). A foreign bank presence might enhance the ability of financial institutions to measure and manage risk effectively. Additionally, foreign banks might import financial system supervision and supervisory skills from home country regulators. While many of these goals ultimately may be achievable without foreign financial institutions, an increased foreign presence may meaningfully accelerate the process.

Although a sizable body of research has explored the potential benefits of financial liberalization broadly defined, few studies have focused on the potential benefits of increased foreign participation in banking and finance.<sup>3</sup> For the most

part, these studies focus on bank efficiency spillovers but not on lending behavior. For example, a recent cross-country study shows that foreign bank presence is associated with reduced profitability and diminished overhead expenses for domestic banks, and hence with enhanced domestic bank efficiency (Claessens, Demirguc-Kunt, and Huizinga 1998).<sup>4</sup> Findings of increased domestic bank efficiency and heightened competition are also supported in the Argentine experience of the mid-1990s (Clarke, Cull, D'Amato, and Molinari 1999). Increased foreign competition in corporate loan markets reduced associated net margins and before-tax profits, and margins and profits remained higher in the consumer sector, which had not attracted comparable foreign entry.<sup>5</sup> Evidence on behavioral comparisons between foreign and domestically owned banks remains largely undocumented.

## Arguments against Foreign Bank Participation

Arguments against opening domestic financial systems to foreign ownership in part mirror the arguments presented above. One strand of concern contends that foreign-owned financial institutions will in fact *decrease* the stability of aggregate domestic bank credit by providing additional avenues for capital flight or by withdrawing more rapidly from local markets in the face of a crisis either in the host or home

*The need for an understanding of the implications of an increased foreign bank presence is especially compelling in the wake of financial crises.*

country. Others argue that foreign financial institutions “cherry pick” the most lucrative domestic markets or customers, leaving the less competitive domestic institutions to serve other, riskier customers and increasing the risk borne by domestic institutions. Moreover, independent of the effect on aggregate credit generally or during a crisis, the distribution of credit may be affected, resulting in redistribution and potential crowding out of some segments of local borrowers.

These concerns blur into similar arguments centered on the principle that financial services represent a strategic industry best controlled by domestic interests, especially in the context of a state-directed development model in which domestic

banks serve identified development interests. Such arguments are especially likely to be voiced by those domestic concerns that will be most negatively affected by financial sector opening, whereas any benefits are likely to accrue across broader segments of the economy.

Contrary to the argument that increased foreign ownership brings improved financial supervision, concerns are voiced over the multiple challenges to supervision raised by complex financial institutions active in a number of jurisdictions. These concerns are accentuated by asymmetries in information between home and host country supervisors.

Even many supporters of increased foreign ownership of banks argue that the sequencing of any such opening is critical, and that it should follow the consolidation and strengthening of the domestic financial system and/or the development of the necessary financial infrastructure, including supervision. Most of these concerns are generally unsupported by empirical evidence. However, recent research on the sources of financial crises has fueled an additional concern by establishing a pattern in which the crises tend to be preceded by financial liberalization (Kaminsky and Reinhart 1999; Rojas-Suarez 1998). Such studies, however, typically have not focused on or identified the role of foreign-owned financial institutions in contributing to or mitigating crises. The exception is Demirguc-Kunt, Levine, and Min (1998), who observe that over the 1988-95 period and for a large sample of countries, foreign bank entry generally was associated with a lower incidence of local banking crises.

The need for an understanding of the implications of an increased foreign bank presence is especially compelling in the wake of financial crises. In this context, foreign institutions may represent important sources of equity capital for domestic financial systems, particularly in postcrisis recapitalization efforts like those under way in Asia. In addition to helping to further the goal of an active and efficient private banking network, foreign institutions may bring important attributes that domestic financial institutions lack.

## Conceptualizing the Differences among Banks in Loan Supply and Volatility

The crux of some arguments for and against foreign bank participation could be better understood within the context of a conceptual framework of bank lending volatility and funding availability. Specifically, we expect that lending patterns will vary among state-owned, private domestically owned, and private foreign-owned banks to the extent that there are corresponding differences in bank motives or goals, in balance-sheet health, and in funding sources.<sup>6</sup> These differences would

influence the interest rate sensitivity of the loan supply by any bank and the extent to which a bank expands or contracts lending in response to various market signals.

Some of the points raised in the aforementioned debate on credit volatility hinge on the idea that interest rate sensitivity of lending is likely to be greatest for banks with closer ties to international capital markets, and wider access to a range of profitable investment opportunities. In emerging markets, banks with foreign affiliates are likely to have such ties, potentially affirming the feature of having a more interest-rate-elastic loan supply than private domestically owned banks. Moreover, if profitability is more of a motive for private domestic banks than for state-owned banks, the state-owned banks would be expected to have the lowest interest rate sensitivity among this group.

However, despite such presumed differences across banks, it is inappropriate to conclude that foreign banks will necessarily have more volatile lending patterns. Loan supply and demand may differ across banks for numerous reasons. One such reason is that banks may be distinct from one another in terms of *lending motives* with respect to their clients. Through “transaction-based” lending motives, improved economic conditions generate opportunities for expanding production and investment. Bank loans expand to accommodate part of this demand. Alternatively, through “relationship” lending motives, bank lending helps established customers smooth over the effects of cyclical fluctuations or consumption. Under adverse economic conditions, lending expands to offset some of the revenue shortfall of clients; under good economic conditions, net lending by banks declines as borrowers pay back outstanding loans. Under these stylized conditions, relationship lending is countercyclical, while transaction-based lending is procyclical.

The *quality of bank balance sheets* can also influence bank responsiveness to market signals. Banks focused on balance-sheet repair will concentrate less on expanding loan availability when aggregate demand conditions improve, leaving profitable local investment opportunities underfunded. Thus, the poor health of banks could be associated with reduced loan variability, decreased sensitivity to market signals, and missed opportunities for profitable and efficient investment. An alternative and potentially more dangerous scenario arises when less healthy banks, instead of undertaking balance-sheet repair, focus on lending expansion in a gamble for redemption. Overall, if the local banking system’s health is compromised, the presence of healthy foreign banks should reduce some of the negative current and future externalities attributable to unhealthy local lenders. In this scenario, foreign bank presence fills a domestic vacuum by providing finance for worthwhile local projects.

Lending sensitivity across banks will also depend on *the bank’s sources of loanable funds*. If domestically owned banks rely more heavily on local demand deposits and cyclically sensitive sources of funds,<sup>7</sup> local aggregate demand shocks should generally lead to more volatile lending by private domestic banks than by their foreign-owned counterparts. In the same vein, smaller domestic banks with more narrow funding bases are likely to demonstrate the greatest degree of credit cyclicity, all else equal.<sup>8</sup>

## Case Studies: Foreign versus Domestic Banks in Argentina and Mexico

As we turn to the specific experiences of Mexico and Argentina, our goal is to document some patterns in bank lending activity and provide factual evidence in response to two main questions. First, did foreign bank participation in local markets deepen or diversify local loan supply and improve the stability of bank lending? Second, did foreign bank participation increase the sensitivity of lending to market signals? Our conceptual discussion leads us to expect that healthy foreign banks will be more sensitive to market signals than unhealthy

*In Argentina, foreign banks now participate on an equal footing with domestic institutions and are active in all broad segments of the loan market. Until very recently, foreign banks in Mexico faced a competitive landscape dominated by large domestic banks.*

banks or state-owned banks with different lending goals. However, some types of aggregate fluctuations—such as those arising from local GDP cycles—may lead to more lending fluctuation by healthy local banks than by healthy foreign banks, especially if domestic banks have less internationally diversified funding bases.

Argentina and Mexico are both instructive case studies for examining the implications of broader foreign bank participation in domestic markets. Over the course of the last decade, both countries implemented reforms facilitating foreign bank entry and then experienced a substantive internationalization of domestic financial markets, with the

pace of foreign entry sharply accelerating in the wake of severe financial crises. However, the Mexican and Argentine experiences have also contrasted markedly with regard to the pace, depth, and nature of foreign bank penetration. In Argentina, foreign banks now participate on an equal footing with domestic institutions and are active in all broad segments of the loan market. Until very recently, foreign banks in Mexico faced a competitive landscape dominated by large domestic banks. Furthermore, the financial sector as a whole remains fragile, with real loan growth yet to recover from the 1994 Tequila Crisis. We briefly outline the experiences of each country, focusing on financial sector reforms and the evolution of the foreign bank presence before turning to the data analysis.

## Argentina: Financial Reforms and Foreign Entry

Introduction of the Convertibility Plan in 1991 marked a turning point in Argentine financial history. It heralded profound monetary and fiscal reform, broad deregulation of domestic markets, privatization of a majority of government-owned entities, trade liberalization, elimination of capital controls and, more generally, a macroeconomic environment conducive to foreign investment.

The Convertibility Plan succeeded in stemming hyperinflationary pressures and restoring economic growth relatively quickly. Within the financial sector, this contributed to enhanced intermediation: credit to the private sector almost doubled, reaching 19 percent of GDP by year-end 1994, up from close to 10 percent of GDP in 1990. Following the removal of restrictions on foreign direct investment and capital repatriation, the number of foreign banks operating in Argentina increased, but their assets remained below 20 percent of system assets through year-end 1994 (Table 1).

Beginning in early 1995, contagion from Mexico's Tequila Crisis severely tested the Argentine financial sector—sparking an outflow of almost 20 percent of system deposits. In the wake of the Tequila Crisis, the transformation of the Argentine financial sector accelerated. Efforts undertaken to reestablish confidence in the banking sector included the introduction of deposit insurance, a renewed commitment to privatizing inefficient public sector banks, the liquidation and/or consolidation of nonviable entities, and the dedication of substantial resources to strengthening supervisory oversight and the regulatory framework. Within this context, foreign banks were permitted to play an important role in recapitalizing the Argentine banking system.

Prior to the 1990s, very few foreign banks were present in Argentina, with U.S.-based institutions—primarily Citibank

and BankBoston—among the more active. Subsequent entry occurred mainly via the acquisition of existing operations, with foreign shareholders acquiring stakes in private institutions with a national or regional franchise—generally in better condition and with stronger distribution networks than privatized provincial and municipal banks. Such acquisitions accelerated dramatically beginning in 1996, with foreign banks acquiring controlling stakes in a majority of Argentina's largest private banks.<sup>9</sup> By 1999, roughly half of all banking sector assets were under foreign control, with foreign shareholders holding significant minority stakes in a number of other financial institutions.

The growing foreign bank presence dramatically altered the competitive landscape of Argentina's banking sector and catalyzed aggressive competition for market share, primarily via retail expansion. As shown in Table 1, foreign-controlled banks have been particularly successful in penetrating commercial, government, interbank, and personal loan markets. Although they still appear to lag their domestic counterparts in mortgage lending, this may change in the wake of the January 1999 privatization of a controlling stake in the national mortgage bank.

Overall, foreign and domestic banks in Argentina appear to compete aggressively in all segments of the local loan market. Details of foreign and domestic bank loan portfolios are provided in Table 2.<sup>10</sup> It is striking that foreign banks generally engage in the same types of broad lending activities as domestic banks, but are more heavily weighted toward relatively lower risk commercial, government, and other lending.<sup>11</sup> Overall, the recent growth in foreign bank presence and in commercial and government lending share implies that foreign banks are playing an increasingly important role in these segments of local financing. In addition, lending patterns by private

Table 1  
Penetration of Foreign Banks into Argentine Lending Markets  
Foreign Bank Loans as a Percentage of Total Outstanding Loans in Each Category

Type of Loan	1994	1997	1999
Personal	25.4	48.5	45.8
Mortgage	10.3	20.4	31.9
Commercial, government, and other	19.0	37.4	53.2
Total loans	18.0	35.0	48.1

Source: Authors' calculations, based on data from various issues of *Información de Entidades Financieras* (formerly *Estados Contables de las Entidades Financieras*), published by Banco Central de la República Argentina.

Table 2  
Composition of Bank Loan Portfolios by Owner Type  
As a Percentage of Total Bank Loans

Type of Loan	Domestically Owned Banks						Foreign-Owned Banks		
	State-Owned			Privately Owned			1994	1997	1999
	1994	1997	1999	1994	1997	1999			
Personal	5.2	5.8	5.9	13.2	10.4	6.1	14.1	13.3	5.5
Mortgage	32.1	32.2	35.1	9.4	13.2	15.0	11.0	11.7	14.7
Commercial, government, and other	62.7	62.0	59.0	77.4	76.4	78.9	74.8	75.0	79.8

Source: Authors' calculations, based on data from various issues of *Información de Entidades Financieras* (formerly *Estados Contables de las Entidades Financieras*), published by Banco Central de la República Argentina.

domestic banks appear to be much more similar to those of foreign banks than to those of state-owned banks. Like foreign bank portfolios, Argentine private bank portfolios tend to have lower mortgage shares and higher shares of commercial, government, and other lending.

### Foreign Banks and Loan Supply Patterns in Argentina

A key issue in the ongoing policy debate is whether patterns in loan issuance by banks have become more stable over time as foreign banks have become more entrenched. Using lending data from individual banks operating in Argentina, we compute weighted and unweighted averages of quarterly bank loan growth rates. We report the mean of these growth rates over time. We also compute the standard deviations of the loan growth rates, normalized by mean levels of loan growth. These normalized standard deviations are an indicator of average volatility per unit of loan growth. The unweighted numbers reflect averages across banks, regardless of the individual banks' importance in various lending markets. The weighted numbers reflect overall availability of loans by the respective classes of lenders (state-owned banks, domestic private banks, and foreign private banks).<sup>12</sup>

Among domestically owned banks, the state-owned banks exhibit relatively low average growth in loan portfolios.<sup>13</sup> The loan growth and volatility figures for these banks are quite striking in the crisis period, with average loan expansion close to zero and average normalized volatility at a very high level. In all periods, private foreign banks had both the highest quarterly loan growth and the lowest normalized variability of this growth. In the crisis and postcrisis periods, domestic private and foreign private banks had higher loan growth and lower normalized volatility than did domestic state-owned banks.

When lending volumes are weighted by bank size (Table 3, panel B), the crisis and postcrisis periods register generally higher loan growth for all types of banks. These findings, compared with those in panel A, imply that among all banks, the larger banks had more loan growth than the smaller banks.

Table 3  
Average Bank Loan Growth: Argentina  
Quarterly Percentage Changes

Time Period	All Banks	State-Owned Banks	Private Domestic Banks	Private Foreign Banks
Panel A: Unweighted Average across Individual Banks				
Precrisis	3.6	3.8	2.4	5.0
Crisis	2.0 (0.7)	0.3 (14.3)	2.1 (1.9)	3.0 (1.1)
Postcrisis	3.2 (0.9)	1.5 (2.4)	3.2 (1.0)	4.3 (0.8)
Panel B: Weighted Average across Individual Banks				
Precrisis	2.2	1.4	1.4	5.9
Crisis	2.5 (0.7)	2.4 (2.0)	2.6 (1.9)	2.8 (1.3)
Postcrisis	4.0 (0.7)	1.9 (1.2)	4.6 (0.8)	5.6 (0.8)

Source: Authors' calculations, based on data from various issues of *Información de Entidades Financieras* (formerly *Estados Contables de las Entidades Financieras*), published by Banco Central de la República Argentina.

Notes: For single missing observations, we use data averaged across prior and subsequent periods. Calculations use real balances of outstanding loans of individual banks. The precrisis period for which data are available is second-quarter to third-quarter 1994, too short a period for standard deviations on the average loan growth rates. The Tequila Crisis period for Argentina is fourth-quarter 1994 to fourth-quarter 1995. The postcrisis period ends in second-quarter 1999. Normalized standard deviations are reported in parentheses.

Larger foreign banks have greater average loan growth and equal or lower average volatility per unit of loan growth than their public and private domestic counterparts.

As we noted earlier, another metric of lending stability controls for whether changes in loan volumes arise because of differing responses to market signals; alternatively, changing loan volumes can be more random and unrelated to macro-economic fundamentals. Using time-series data from individual bank balance sheets, we perform pooled time-series regressions to test for differences across domestic, foreign, and state-owned banks in loan responsiveness with respect to real GDP and real interest rates.<sup>14</sup> This responsiveness is estimated using both unweighted and weighted regressions: unweighted regressions measure the responsiveness of an average bank, regardless of its size, while weighted regressions measure the

responsiveness of total lending by a class of banks. The difference across these types of regressions can be interpreted as suggesting differences across larger versus smaller banks (or across total lending volumes versus average bank behavior) in the respective specific lending areas—that is, in total lending, mortgage lending, personal lending, and commercial and other lending. The results for second-quarter 1996 through second-quarter 1999 are summarized in Table 4.<sup>15</sup>

In the post-Tequila Crisis period, total lending by Argentine state-owned banks was largely insensitive to GDP and interest rate fluctuations, a pattern that is attributable to a lack of sensitivity of both mortgage lending and commercial and related lending.<sup>16</sup> Personal lending, which accounts for only about 6 percent of the portfolio of state-owned banks, has been countercyclical. A 1.0 percent rise in GDP is associated with a

Table 4  
Bank Loan Sensitivity to GDP: Argentina  
Second-Quarter 1996 to Second-Quarter 1999

Type of Bank	Total Loans	Personal Loans	Mortgage Loans	Commercial, Government, and Other Loans
<b>Panel A: Unweighted Elasticities</b>				
State-owned	0.37 (0.58)	-7.73*** (1.66)	-5.56 (7.83)	0.08 (0.77)
Number of observations	90	73	73	73
Domestic privately owned	1.44** (0.61)	-4.56*** (1.53)	-0.04 (7.17)	1.71** (0.70)
Number of observations	104	101	101	101
Foreign privately owned	0.90* (0.46)	-6.28*** (1.32)	2.87 (5.52)	1.31** (0.54)
Number of observations	143	140	140	140
Domestic private equal to foreign private?	Yes	Yes	Yes	Yes
<b>Panel B: Elasticities Weighted by Bank Size</b>				
State-owned	0.15 (0.47)	-8.25*** (1.66)	0.28 (1.72)	0.15 (0.60)
Domestic privately owned	1.26* (0.66)	-4.59*** (1.75)	1.06 (3.64)	1.12 (0.74)
Foreign privately owned	1.00** (0.46)	-7.44*** (1.44)	0.52 (2.73)	1.63*** (0.52)
Domestic private equal to foreign private?	Yes	Yes	Yes	Yes

Notes: Standard errors are reported beneath the average elasticities drawn from ordinary least squares regressions over the percentage change in real loans against bank fixed effects, the percentage change in real GDP, and local real interest rate differentials vis-à-vis the United States. The equality test rows ask whether statistically the coefficients on private domestic and private foreign banks are equal to each other. Some outlier observations were omitted from the regression analysis.

- \* Statistically significant at the 10 percent level.
- \*\* Statistically significant at the 5 percent level.
- \*\*\* Statistically significant at the 1 percent level.

7.7 percent contraction in personal lending by the average state-owned bank, with a slightly higher contraction by larger banks.

In stark contrast to state-owned banks, private banks in Argentina—both domestically owned and foreign-owned—have been significantly more responsive to economic signals in the post-Tequila Crisis period. Total lending tends to be procyclical for both domestic and foreign banks, driven by the highly procyclical nature of lending to “commercial, government, and other” clients. This type of lending is consistent with transaction-based, or arms-length, activity. The point estimate of the cyclical response by domestic private banks (at 1.44) is stronger than the response by foreign banks (at 0.90), as one would expect with domestic private banks

*In stark contrast to state-owned banks, private banks in Argentina—both domestically owned and foreign-owned—have been significantly more responsive to economic signals in the post-Tequila Crisis period.*

more heavily reliant on local sources of funds. Yet, despite consistent patterns in the size of point estimates, statistically we cannot reject that both private domestic banks and private foreign banks have identical proportionate lending responses to cyclical forces in Argentina.

Both types of privately owned banks also have strong countercyclical patterns of personal lending. When GDP expands by 1.0 percent, personal lending contracts by 4.6 percent for the average domestic privately owned banks and by 6.3 percent for their average foreign-owned counterparts. Finally, a comparison of elasticities from the unweighted and weighted regressions suggests that smaller domestic banks have greater credit cyclicalities than the larger domestic banks, which may lend additional support to the funding composition hypothesis.

Overall, the evidence on loan activity in Argentina supports a claim of differences in behavior across state-owned banks and private banks. However, domestic and foreign private banks exhibit comparable loan behavior, coexist in the distribution of larger and smaller banks within the top twenty-five banks nationally, and have loan portfolios of similar compositions. The banks respond similarly to market signals, including real GDP growth and real interest rates. Overall, foreign-owned banks appear to have provided greater loan growth than what was observed among domestic-owned banks, while reducing the volatility of loan growth for the financial system as a whole.

Foreign banks also exhibited notable loan growth during the crisis period, suggesting that they may be important stabilizers of credit during such episodes. It is also noteworthy that state-owned banks had higher variability of lending as well as a smaller portion of this variability explained by macroeconomic fundamentals.

## Mexico: Financial Reforms and Foreign Entry

In Mexico, recent efforts toward financial liberalization began in the early 1990s with the reprivatization of the financial sector, following a decade of nationalization and government-orchestrated bank consolidation.<sup>17</sup> After several years of rapid expansion by the newly privatized banks, however, Mexico’s financial crisis—triggered by the 1994 peso devaluation—both revealed and exacerbated significant weaknesses in a large number of institutions. Since the crisis, authorities have responded with an array of support programs for financial institutions and their borrowers, intended to bolster the health of the financial sector; they have also opened the sector to foreign investment beyond the schedules originally negotiated under the North American Free Trade Agreement (NAFTA).<sup>18</sup> Pressures on bank condition, however, remain significant and widespread and continue to be an important driver of Mexican bank behavior.

In the early 1990s, only one foreign bank, Citibank, was permitted to conduct local banking operations, accounting for less than 1 percent of total loans. With the initiation of NAFTA in 1994, restrictions on foreign bank participation Mexico were gradually eased. Initial entrants generally established very small de novo subsidiaries engaged in wholesale, nonloan banking activities. On average, each of these foreign bank operations consisted of a single branch office with less than 100 employees and captured about 0.1 percent of loan market share. As Table 5 shows, foreign banks in 1995 cumulatively represented

Table 5  
Penetration of Foreign Banks into Mexican Lending Markets  
Foreign Bank Loans as a Percentage of Current Loans in Each Category

Type of Lending Activity	1992	1995	1998
Consumer	0.0	0.9	11.1
Mortgage	0.0	0.0	6.4
Commercial, government, and interbank	0.2	1.0	19.7
Total loans	0.2	0.7	17.8

Source: Authors’ calculations, based on data from Comisión Nacional Bancaria y de Valores.

about 1 percent of the consumer and commercial, government, and interbank loans.

As in the Argentine experience, in the aftermath of the 1994-95 Tequila Crisis, foreign banks in Mexico began establishing a significant local retail presence (Table A4). Despite a variety of support programs, twelve Mexican banks (accounting for roughly 20 percent of total loans) failed outright, prompting the authorities to intervene. The subsequent sale of these franchises (or portions thereof) provided an avenue for foreign bank entry into, and partial recapitalization of, the Mexican retail banking sector. As outlined in Table A4, there were six foreign bank acquisitions of domestic retail operations through the end of 1998, with Spanish banks among the most active buyers. In addition, there have been six mergers of domestic banks with other domestic banks.

By 1998, foreign bank participation in the local loan market had grown from less than 1 percent prior to the crisis to 18 percent (Table 5). Foreign banks controlled two of the six largest banks (Santander Mexicano and BBV), held minority stakes in three more, and operated nineteen fully owned local subsidiaries (Table A5). However, restrictions on foreign ownership remained in place until December 1998, prohibiting foreign control of Mexico's three largest banks (in aggregate, almost 60 percent of the loan market share). In the aftermath of this liberalization, two of the three largest Mexican banks have come under foreign control.<sup>19</sup>

As shown in Table 5, foreign bank lending has been concentrated in the commercial, government, and interbank sectors, with much lower penetration of the consumer and mortgage markets. This concentration may be a function less of strategic considerations than of pervasive weaknesses in Mexico's credit environment, which has been characterized by high real interest rates, a reduced pool of creditworthy borrowers, a breakdown in borrower discipline, and a legal environment that provides little creditor protection. This pattern is supported by a noticeable shift in domestic bank loan portfolios from consumer and mortgage lending over this same period—a shift that is due in part to the government acquisition of a large portion of these loans in the wake of the crisis.

Precrisis domestic lending to the consumer and mortgage sectors represented about 30 percent of the lending portfolios of banks, a ratio very similar to that observed in Argentina (Table 6).<sup>20</sup> However, by 1998, consumer and mortgage loans accounted for less than 18 percent of domestic bank loan portfolios and only 6 percent of foreign lending. Foreign bank activity remained concentrated (93.6 percent) in the consumer, government, and interbank market.

The condition of Mexico's banks over this period has also played a significant role in influencing loan behavior. Although

Table 6  
Mexican Bank Loan Portfolio Composition  
As a Percentage of Total Current Loans

Type of Loan	Domestically Owned Banks			Foreign-Owned Banks		
	1992	1995	1998	1992	1995	1998
Consumer	12.0	5.6	3.3	0.3	6.9	1.9
Mortgage	16.0	22.4	14.3	2.0	0.3	4.5
Commercial, government, and interbank	72.0	72.0	82.4	97.7	92.8	93.6

Source: Authors' calculations, based on data from Comisión Nacional Bancaria y de Valores.

objective measurement of Mexican bank condition is impeded by a lack of full transparency (for example, not all banks publicly release financial statements) and by changes in accounting standards over the sample period, a measure of impaired loans as a proportion of total loans can be used as a relative indicator of the depth of asset quality problems on bank balance sheets. Impaired loans are defined here as the sum of reported nonperforming loans, restructured loans, and the full amount of loans sold to the government.

The vast majority of domestic banks (88 percent), which represent the bulk of domestic bank lending in Mexico, had impaired loan ratios (ILRs) under 10 percent at the beginning of 1994 (Table 7). By 1998, in part because of improved accounting and reporting conditions, 41 percent of the banks (representing 93 percent of total lending by domestic banks) had ILRs exceeding 30 percent. While the bulk of foreign-owned banks (90 percent) remained relatively healthy, the larger foreign-owned retail franchises (accounting for 76 percent of foreign bank lending) also had ILRs in excess of 30 percent at year-end 1998, largely reflecting postcrisis acquisitions of troubled domestic banks by foreign banks.

## The Foreign Bank Effect on Loan Supply Patterns in Mexico

The data presented thus far show that foreign banks operating in Mexico have focused their efforts mainly on commercial, government, and interbank lending. Given the condition of the Mexican banking sector, the potential for a broad and positive role for healthy foreign banks therefore seems substantial. Foreign banks could be an important absolute and diversified source of credit to firms, especially in an economy in which government-operated and domestic banks are heavily focused on balance-sheet repair instead of new lending. In this

Table 7  
Impaired Loan Ratios (ILRs) of Banks in Mexico

Nationality of Banks	Date	ILR: 0-10 Percent		ILR: 10-30 Percent		ILR: 30 Percent or Greater	
		Percentage of Banks	Percentage of Current Loans	Percentage of Banks	Percentage of Current Loans	Percentage of Banks	Percentage of Current Loans
Domestic	1994:1	86.4	94.4	13.6	5.5	0.0	0.0
	1998:4	58.8	7.2	0.0	0.0	41.2	92.8
Foreign	1994:1	100.0	100.0	0.0	0.0	0.0	0.0
	1998:4	90.0	24.1	0.0	0.0	10.0	75.9

Source: Authors' calculations, based on data from Comisión Nacional Bancaria y de Valores.

Note: Impaired loans are the sum of reported nonperforming loans, restructured loans, and the full amount of loans sold to the government.

environment, funds provided by foreign banks can be a source of much needed capital for local profitable growth opportunities.

Our conceptualization of differences across banks that can lead to distinct lending behaviors emphasized bank health as a potentially important issue. Given the preponderance of impaired loans among Mexican banks in the second half of the 1990s, we consider the extent to which distinctions among banks in lending behavior are evident according to broad indicators of bank health. We use the previously defined ILR as an indicator of financial condition, whereby banks with an ILR in excess of 10 percent are considered to be in relatively poor financial health.

The loan growth and associated volatility of banks operating in Mexico appear in Table 8. By sorting banks in each period according to whether their ILR falls below or exceeds 10 percent, we observe significant differences in loan growth and in the volatility of this growth between healthier and less healthy banks. These differences pertain both to domestically owned and foreign-owned banks. In general, banks with higher impaired loan ratios had more volatile loan growth rates and lower (or negative) rates of loan portfolio expansion than banks with less problematic portfolios. In terms of average quarterly growth, both domestic and foreign banks with low ILRs continued to extend credit fairly steadily in the postcrisis period. In this healthier group, smaller foreign and domestic banks grew at a quicker pace than their larger counterparts, without increasing measured volatility per unit of loan growth.

Lending by banks with low ILRs grew at high rates, leaving these banks to play an expanding role mainly in commercial finance, even as they remained a small part of the Mexican banking system (accounting for about 30 percent of the total current loans at the end of 1998). Although the full financial system continues to show small average contraction in the

postcrisis period, it is evident that the extent of this loan contraction has been reduced by the presence of foreign banks, and by healthy banks in general. As we observed in Argentina, the more extensive role played by foreign banks in Mexico does not appear to have come at the expense of greater lending volatility.

Table 8  
Average Quarterly Loan Growth Rates: Mexico  
Percent

Time Period	All Banks	ILR Less Than 10 Percent		ILR Greater Than 10 Percent	
		Domestic	Foreign	Domestic	Foreign
Panel A: Unweighted Average across Banks					
Precrisis	9.6	9.5	26.9	1.3	—
	(0.5)	(0.6)	(1.8)	(8.7)	—
Crisis	16.0	20.1	15.5	1.7	—
	(1.1)	(0.8)	(0.3)	(9.9)	—
Postcrisis	9.6	11.7	18.2	-1.1	7.4
	(1.1)	(1.5)	(1.2)	(5.7)	(3.1)
Panel B: Weighted Average across Banks					
Precrisis	4.5	4.4	26.9	2.0	—
	(0.8)	(0.8)	(1.8)	(6.1)	—
Crisis	8.1	8.5	15.5	5.9	—
	(1.7)	(1.6)	(0.3)	(2.2)	—
Postcrisis	-0.3	9.1	12.6	-1.5	7.4
	(21.6)	(1.7)	(1.3)	(4.5)	(3.1)

Source: Authors' calculations, based on data from Comisión Nacional Bancaria y de Valores.

Notes: ILR is impaired loan ratio. For these calculations, we drop from our data sample the observations for individual new banks that represent their initial periods of entry and expansion. Inclusion of these initial data points would otherwise artificially show a sharp increase in the loan growth of foreign banks especially, along with higher variability of growth. Normalized standard deviations are reported in parentheses.

Table 9  
Bank Loan Sensitivity to GDP: Mexico  
Second-Quarter 1995 to Fourth-Quarter 1998

	Total Loans	Consumer Loans	Mortgage Loans	Commercial, Government, and Interbank Loans
<b>Panel A: Unweighted Elasticities</b>				
Banks with impaired loan ratios under 10 percent				
Domestic banks	1.67*** (0.56)	-0.62 (0.69)	-2.02** (0.97)	1.67*** (0.57)
Number of observations	153	78	50	153
Foreign banks	0.93* (0.51)	-0.04 (1.11)	0.29 (1.40)	1.02** (0.53)
Number of observations	190	28	20	182
Domestic private equal to foreign private?	Yes	Yes	Yes	Yes
Banks with impaired loan ratios above 10 percent				
Domestic banks	0.85* (0.49)	0.09 (0.44)	0.26 (0.48)	1.35*** (0.50)
Number of observations	178	165	159	178
Foreign banks	-1.51 (1.81)	2.94* (1.55)	-0.08 (1.72)	-1.58 (1.85)
Number of observations	16	16	15	16
<b>Panel B: Elasticities Weighted by Bank Size</b>				
Banks with impaired loan ratios under 10 percent				
Domestic banks	1.55*** (0.49)	-0.43 (4.14)	-1.11 (2.26)	1.52** (0.65)
Number of observations	153	72	46	152
Foreign banks	0.92 (0.71)	0.40 (1.42)	0.31 (17.70)	0.93 (0.94)
Number of observations	190	26	20	181
Domestic private equal to foreign private?	Yes	Yes	Yes	Yes
Banks with impaired loan ratios above 10 percent				
Domestic banks	0.97*** (0.10)	0.15 (0.22)	-0.73*** (0.23)	1.76*** (0.15)
Number of observations	178	165	158	178
Foreign banks	-1.26*** (0.44)	2.81 (1.73)	0.26 (1.67)	-1.37** (0.59)
Number of observations	16	16	15	16

Notes: Standard errors are reported beneath the average elasticities drawn from ordinary least squares regressions over the percentage change in real loans against bank fixed effects, the percentage change in real GDP, and local real interest rate differentials vis-à-vis the United States. The equality test rows ask whether statistically the coefficients on private domestic and private foreign banks are equal to each other. For these calculations, we drop from our data sample the observations for individual new banks that represent their initial periods of entry and expansion.

\* Statistically significant at the 10 percent level.

\*\* Statistically significant at the 5 percent level.

\*\*\* Statistically significant at the 1 percent level.

Next, we consider these lending fluctuations in the context of Mexican real demand growth and real interest rate differentials vis-à-vis the United States.<sup>21</sup> Since a small number of very large banks have dominated lending activity in Mexico, we anticipate large distinctions between our results presented as averages across individual banks and averages across all lending, even when bank condition is considered. In general, however, the domestic banks with sounder reported asset-quality ratios are smaller banks engaged in limited retail lending.

For the post-Tequila Crisis period for which we have data—second-quarter 1995 through fourth-quarter 1998—our sorting of banks according to domestic versus foreign ownership and according to ILRs is highly revealing (Table 9).<sup>22</sup> In Mexico, on an unweighted basis, the banks most responsive to cyclical fluctuations were the domestically owned ones with low nonperforming loan shares (particularly smaller banks). Indeed, behavior by these banks is strikingly similar to the behavior reported for the private banks in Argentina. Lending to commercial and other clients is strongly procyclical, consistent with transaction-based, or arms-length, lending, as was observed in Argentina. Lending to consumer and mortgage clients is in general statistically insignificantly correlated with real GDP growth in Mexico. Our conceptual framework presented earlier anticipated the finding here that the banks with lower impaired loan ratios are more responsive to fluctuations and market signals than are banks with more problematic loan portfolios.

Regarding the foreign banks operating in Mexico, there appears to be a strong behavioral distinction among banks with lower ILRs versus the few banks observed with higher ILRs. The foreign banks with low ILRs appear to behave similarly to domestically owned banks with low ILRs. As anticipated, and as observed in the Argentine case, the point estimates on responses are higher for the domestic banks in this group with low impaired loan ratios. Their larger response elasticities to GDP stimuli are consistent with domestic banks having heavier reliance on domestic sources of funds. Still, as we observed in the case of Argentine private banks, we cannot reject similar behavior by these banks with low ILRs but different nationalities of owners. The foreign banks with high ILRs behave differently from all other categories of banks in our sample, with procyclical consumer lending and countercyclical commercial and other lending.

Several findings stand out in this empirical analysis. First, bank health appears to be a key factor distinguishing the responsiveness to market signals among both domestically owned and foreign-owned banks in Mexico. Second, point estimates show more volatile lending with respect to GDP by

domestically owned banks, a finding consistent with our earlier conceptualization. Specifically, if healthy domestically owned banks (all else equal) rely more heavily on domestic sources of funding (particularly smaller banks), lending by these banks will be more sensitive to local cyclical conditions than lending by their foreign-owned counterparts. In Mexico, we observe that foreign banks with low ILRs facilitated more overall responsiveness of the financial system to market forces and were important providers of credit during the crisis period and in the subsequent period of financial system weakness. These results appear to confirm that foreign banks thus far have had a stabilizing impact on domestic financial system credit in Mexico and Argentina.

## Conclusion

The Asia crisis amply demonstrated a range of deficiencies in local financial systems and precipitated calls for reform in accounting and disclosure practices, bank corporate governance, and home country supervision and regulation. It is often argued that opening domestic financial sectors to increased foreign ownership can meaningfully accelerate improvements in all three areas, and that it should be (and historically has been) a key element of reform efforts in the aftermath of a financial crisis. At the same time, various arguments emphasize the potential adverse effects of foreign ownership. To date, the postcrisis financial landscape in Asia has been characterized only by limited examples of majority foreign ownership of domestic financial institutions.

This article has sought to contribute to the debate on financial sector openness in emerging markets by reviewing the experiences of Mexico and Argentina with regard to foreign bank local lending. We conclude that in both countries, foreign banks exhibited stronger loan growth than all domestically owned banks and had lower associated volatility, contributing to greater stability in overall financial system credit. Additionally, in both countries, foreign banks showed notable credit growth during recent crisis periods and thereafter. In Argentina, there are striking similarities in the portfolio composition of lending and the volatility of lending by private foreign and private domestic banks. In Mexico, there are behavioral similarities in terms of cyclical fluctuations and loan portfolios among banks with comparable, low impaired loan ratios but different ownership. We found that domestically owned and foreign-owned banks with low problem loan ratios behave similarly, and we found no evidence that the foreign

---

banks were more volatile lenders than their domestic counterparts. The ranking of banks according to their responses to cyclical fluctuations is consistent with an outcome that arises when foreign banks bring to the emerging market a broader, more diversified supply of funds.

Overall, these findings suggest that bank health, and not ownership per se, has been the critical element in the growth,

volatility, and cyclicity of bank credit. Diversity in ownership has contributed to greater stability of credit in recent periods of crisis and financial system weakness. The positive Argentine and Mexican experiences could be broadly instructive for other emerging markets as they contemplate more extensive foreign bank participation in their local economies.

## Appendix Tables

Table A1  
Argentine Financial System: Total Lending by the Top Twenty-Five Institutions  
December 1998

Ranking	Institution	Total Loans (Millions of U.S. Dollars)	Market Share (Percent)	Foreign Owner	Foreign Voting Share (Percent)/Date
1	Banco de la Nación Argentina <sup>a</sup>	10,113	12		
2	Banco de la Provincia de Buenos Aires <sup>a,b</sup>	8,932	11		
3	Banco de Galicia y Buenos Aires	6,744	8	O'Higgins Central Hispanoamericano	10.0/1998:4
4	Banco Río de la Plata	5,530	7	Banco Santander Central Hispano	64.3/1997:2
5	BankBoston National Association	5,259	6	BankBoston	100.0/Before 1994:2
6	Banco Francés	5,151	6	Banco Bilbao Vizcaya	58.8/1996:4
7	Citibank	4,524	5	Citibank	100.0/Before 1994:2
8	Banco Hipotecario <sup>a</sup>	4,122	5		
9	HSBC Banco Roberts	2,706	3	HSBC	100.0/1998:1
10	Banca Nazionale del Lavoro	2,326	3	Banca Nazionale del Lavoro	100.0/Before 1994:2
11	Banco Bansud	2,077	3	Banamex	60.0/1995:4
12	Banco Quilmes	1,506	2	Bank of Nova Scotia	70.0/1995:1
13	Banco de la Ciudad de Buenos Aires <sup>a</sup>	1,470	2		
14	Banco Credicoop Cooperativo Limitado	1,264	2		
15	Banco del Suquia	1,122	1		
16	Banco de la Provincia de Córdoba <sup>a</sup>	948	1		
17	Banco Bisel	842	1	Caisse Nationale de Crédito Agricole	30.0/1996:1
18	Banco Tornquist	794	1	O'Higgins Central Hispanoamericano	100.0/1995:4
19	Banco Sudameris Argentina	757	1	Banque Sudameris	99.9/Before 1994:2
20	Banco de la Pampa <sup>a</sup>	700	1		
21	ABN Amro Bank	674	1	ABN Amro	100.0/1995:2
22	Lloyds Bank	666	1	Lloyds Bank	100.0/Before 1994:2
23	Banco de Inversión y Comercio Exterior	649	1		
24	Banco Mercantil Argentino	636	1		
25	Banco Supervielle Société Générale	616	1	Société Générale	75.4/Before 1994:2
	Loan subtotal of top twenty-five institutions	70,128	85	Foreign share of top twenty-five institutions	46.4
	Total system loans	82,544	100		

Source: *Estados Contables de las Entidades Financieras*, Banco Central de la República Argentina.

<sup>a</sup> Indicates a state-owned bank through the end of 1998.

<sup>b</sup> Data are as of November 1998.

## Appendix Tables (Continued)

Table A2  
Summary of Argentine Bank Mergers  
December 1998

Acquired Bank	Acquiring Bank	Date of Acquisition
Foreign banks acquiring domestic banks		
Banesto Shaw	Banamex, via Bansud	1995:4
Del Sud	Banamex, via Bansud	1995:4
Crédito Argentino	Bilbao Vizcaya	1997:3
Quilmes <sup>a</sup>	Bank of Nova Scotia	1997:4
Roberts	HSBC	1998:1
Río de la Plata	Santander	1997:2
Francés	Bilbao Vizcaya	1996:4
Foreign banks acquiring foreign banks		
Crédit Lyonnais <sup>b</sup>	O'Higgins Central Hispanoamericano	1996:1
Deutsche Bank	BankBoston	1997:1

<sup>a</sup>Quilmes was effectively controlled by Bank of Nova Scotia by first-quarter 1995, although a majority stake was not acquired until third-quarter 1997.

<sup>b</sup>Formerly Tornquist.

Table A3  
Bank Loan Sensitivity to GDP: Argentina  
Second-Quarter 1994 to First-Quarter 1996

Type of Bank	Total Loans	Personal Loans	Mortgage Loans	Commercial, Government, and Interbank Loans
<b>Panel A: Unweighted Elasticities</b>				
State-owned	0.10 (0.53)	1.30 (1.63)	2.17 (3.23)	-0.19 (0.58)
Number of observations	52	45	45	45
Domestic privately owned	0.00 (0.38)	-2.50** (1.08)	-3.41 (2.14)	0.52 (0.39)
Number of observations	99	99	98	99
Foreign privately owned	0.37 (0.46)	0.74 (1.30)	0.57 (2.74)	0.33 (0.47)
Number of observations	65	65	59	65
Domestic private equal to foreign private?	Yes	No*	Yes	Yes
<b>Panel B: Elasticities Weighted by Bank Size</b>				
State-owned	0.06 (0.30)	0.87 (1.78)	0.39 (0.32)	-0.24 (0.37)
Domestic privately owned	0.16 (0.30)	-2.90*** (1.09)	-0.28 (0.59)	0.31 (0.32)
Foreign privately owned	0.56 (0.40)	0.63 (1.32)	0.79 (0.76)	0.49 (0.44)
Domestic private equal to foreign private on GDP?	Yes	No**	Yes	Yes

Notes: Standard errors are reported beneath the average elasticities. These results are drawn from ordinary least squares regressions over the percentage change in real loans against individual bank fixed effects, the percentage change in real GDP, and local real interest rate differentials vis-à-vis the United States. The equality test rows ask whether statistically the coefficients on private domestic and private foreign banks are equal to each other. Some outlier observations were omitted from the regression analysis.

\* Statistically significant at the 10 percent level.

\*\* Statistically significant at the 5 percent level.

\*\*\* Statistically significant at the 1 percent level.

## Appendix Tables (Continued)

Table A4  
Summary of Mexican Bank Mergers  
December 1998

Acquired Bank	Acquiring Bank	Date of Intervention	Date of Acquisition
Foreign banks acquiring domestic banks			
Merprob	Bilbao Vizcaya	—	1996:1
Oriente	Bilbao Vizcaya	1995:1	1996:3
Cremita	Bilbao Vizcaya	1994:3	1996:3
Mexicano	Santander Mexicano	—	1997:2
Confía	Citibank	1997:3	1998:3
Alianza	GE Capital	—	1997:4
Domestic banks acquiring domestic banks			
Unión	Bancomer	1994:3	1995:2
Obrero	Afirme	1995:2	1997:1
Sureste	Internacional (BITAL)	1996:2	1998:1
Atlántico	Internacional (BITAL)	1997:4	1998:1
Centro	Mercantil del Norte	1995:3	1997:2
Banpaís	Mercantil del Norte	1995:1	1997:3
Foreign banks acquiring foreign banks			
Chemical	Chase	—	1996:2
Santander de Negocios	Santander Mexicano	—	1997:4

Source: Effective dates of acquisitions, mergers, and interventions were compiled by the authors from press reports and data provided by Comisión Nacional Bancaria y de Valores.

## Appendix Tables (Continued)

Table A5  
Mexican Financial System: Total Lending by Institution  
December 1998

Mexican Institution	Total Loans (Millions of Pesos)	Share (Percent)	Foreign Ownership/ Country	Stake (Percent)/ Entry Date
Banamex	186,245	21.3	None	
Bancomer	191,407	21.9	Bank of Montreal/Canada	17/March 1996
Serfin	115,680	13.3	HSBC, J.P. Morgan/United States	29/December 1997
Bital	56,897	6.5	Santander, BCP/Spain	16/September 1993
Santander Mexicano	49,618	5.7	Santander/Spain	52/September 1997 <sup>a</sup>
Bilbao Vizcaya	52,899	6.1	BBV/Spain	67/March 1996 <sup>a</sup>
Centro	21,305	2.4	None	
Mercantil del Norte	25,003	2.9	None	
Banpaís	27,132	3.1	None	
Citibank	16,900	1.9	Citibank/United States	100/December 1991 <sup>a</sup>
Interacciones	3,145	0.4	None	
Inbursa	21,999	2.5	None	
Mifel	2,202	0.3	None	
Invex	1,702	0.2	None	
Banregio	1,358	0.2	None	
Del Bajío	2,912	0.3	Sabadell/Spain	10/December 1998
Quadrum	1,411	0.2	None	
Ixe	2,482	0.3	None	
J. P. Morgan	1,327	0.2	J. P. Morgan/United States	100/September 1996 <sup>a</sup>
Chase Manhattan	9	0.0	Chase Manhattan/United States	100/June 1996 <sup>a</sup>
Afirme	4,991	0.6	None	
Fuji Bank	831	0.1	Fuji Bank/Japan	100/June 1995 <sup>a</sup>
Bank of Tokyo - Mitsubishi	907	0.1	Bank of Tokyo - Mitsubishi/Japan	100/March 1995 <sup>a</sup>
Bank of America	989	0.1	Bank of America/United States	100/June 1995 <sup>a</sup>
ABN Amro Bank	537	0.1	ABN Amro Bank/Netherlands	100/September 1995 <sup>a</sup>
Republic National Bank	605	0.1	Republic National/United States	100/September 1995 <sup>a</sup>
Banco de Boston	518	0.1	Bank of Boston/United States	100/December 1995 <sup>a</sup>
B. N. P.	1,002	0.1	B. N. P./France	100/December 1995 <sup>a</sup>
Bansí	663	0.1	None	
Dresdner Bank	2,414	0.3	Dresdner/Germany	100/March 1996 <sup>a</sup>
Société Générale	445	0.1	Société Générale/France	100/March 1996 <sup>a</sup>
I. N. G. Bank	1,460	0.2	I. N. G. Bank/Netherlands	100/June 1996 <sup>a</sup>
First Chicago	66	0.0	First Chicago/United States	100/September 1996 <sup>a</sup>
GE Capital (Alianza)	1,005	0.1	GE Capital/United States	100/December 1997 <sup>a</sup>
American Express	391	0.0	American Express/United States	100/June 1996 <sup>a</sup>
Nations Bank	64	0.0	Nations Bank/United States	100/December 1996 <sup>a</sup>
Comerica Bank	2,410	0.3	Comerica Bank/United States	100/September 1997 <sup>a</sup>
Total	872,485	100.0		

Source: *Boletín Estadístico de Banco Multiple*, Comisión Nacional Bancaria y de Valores.

<sup>a</sup>Foreign controlled.

## Endnotes

1. We define foreign-owned as reflecting majority control; this definition does not necessarily imply majority share ownership.

2. Some of these arguments parallel those supporting the repeal in the United States of the McFadden Act, which restricted interstate bank branching and limited diversification of U.S. bank loan portfolios. Meltzer (1998), for example, emphasizes the importance of risk diversification as an argument for removing legal and regulatory obstacles to bank branching internationally.

3. Other research considers the postliberalization dynamics of deposit taking and its responsiveness to bank riskiness in Mexico, Argentina, Chile, and Canada (Martinez Peria and Schmukler 1999; Gruben, Koo, and Moore 1999).

4. Demircug-Kunt, Levine, and Min (1998) present similar results.

5. Burdisso, D'Amato, and Molinari (1998) also show that bank privatization increased Argentine bank efficiency, and that the consolidation of retail banking led to scale-efficiency gains. Privatization led to reduced portfolio risk and more efficient allocation of credit.

6. This section closely follows Goldberg (2000). In a domestic banking system, arguments about lending sensitivity to fluctuations follow the tradition of Peek and Rosengren (1997, 2000) and Hancock and Wilcox (1998).

7. As argued by Peek and Rosengren (1997) and Hancock and Wilcox (1998), local demand deposits are positively correlated with the local business cycle.

8. Of course, increased use of foreign sources of funds can also make lending in emerging markets more sensitive to foreign cyclical fluctuations.

9. This distribution is documented in Table A1; the timing of acquisitions of domestic banks is documented in Table A2.

10. Our sample of Argentine bank data was constructed by identifying and including all data for all banks that were among the twenty-five largest in any sample year. This resulted in a total sample of thirty-seven institutions, with as few as twenty-five and as many as thirty-two in any given quarter. All loan data discussed are measured in real terms, constructed using consumer price index (CPI) deflators. Loan data are from various issues of *Información de Entidades Financieras*

(formerly *Estados Contables de las Entidades Financieras*), a publication of Banco Central de la República Argentina. In addition, Argentine real GDP data are from the Board of Governors of the Federal Reserve System (in thousands of 1986 pesos); the real interest rate was calculated using the nominal interest rate (period average); the CPI series is from *International Financial Statistics*.

11. These findings are consistent with the observations of Burdisso, D'Amato, and Molinari (1999).

12. To compute the reported statistics, we first calculate the percentage change in current loan volumes for each individual bank within each period. Unweighted and weighted averages of these loan growth rates are then constructed by period. The mean and normalized standard deviations of these series over respective periods of time and for respective samples of banks are reported in Table 3 for Argentina and in Table 8 for Mexico.

13. State-owned banks include Banco de la Provincia de Buenos Aires, Banco de la Nación Argentina, Banco Hipotecario, Banco de la Ciudad de Buenos Aires, Banco de las Provincia de Córdoba, Banco de la Pampa, Bice, Caja Ahorro, and Banco Social de Córdoba.

14. Specifically, we perform ordinary least squares regressions over the time-series panels of individual bank data. The percentage change in real loans (nominal loans deflated by the CPI) is regressed against the percentage change in real GDP, levels of real interest differentials vis-à-vis the United States, and bank-specific fixed effects. Regressions test for differences in estimated responses across banks in relation to public, private domestic, or foreign ownership. "Gaps" in loan series—defined as missing observations with nonmissing observations for the time periods immediately before and after them—are filled in by taking the mean of the surrounding observations.

We also have generated results (available from the authors) based on an alternative methodology, using clustering of errors by quarter across all banks. This approach specifies that the observations are independent over time (clusters) but are not necessarily independent within a period. The error-correction algorithm affects the estimated standard errors and variance-covariance matrix of the estimators, but not the estimated coefficients. In general, as implemented, this approach provides a more conservative view of the statistical significance of the estimated elasticities with respect to GDP and other time-series variables. The terms that are marginally significant at the 10 percent level sometimes lose statistical significance at this level.

## Endnotes (Continued)

15. In the regression results presented for Argentina and Mexico, we do not report coefficients on interest rate terms. In all regressions, the estimated coefficients are small, so a 1-percentage-point increase in the interest rate differential is associated with a 0.01 to 0.03 percent change in loan volumes. These estimated effects often are not statistically significant. Generally, we cannot reject equality of interest rate coefficients on lending by domestic and foreign banks.

16. This general insensitivity to market signals also characterized the loan volumes of public banks in the precrisis and crisis periods for which we have data: second-quarter 1994 to first-quarter 1996 (Table A3, panels A and B).

17. During the nationalization of the Mexican banking system, only two banks remained independent: Citibank, which had been active in Mexico since 1929, and domestically owned Banco Obrero.

18. See Graf (1999), among others, for an extensive discussion of these reforms.

19. These foreign acquisitions are not reflected in the available data, which ended with 1998.

20. Our sample of Mexican banks includes all banks active in Mexico each year, where data are provided by the Comisión Nacional Bancaria y de Valores. This sample comprises a universe of fifty-nine banks over

the 1990s, although the number of banks active in any given quarter varies because of bank closures, mergers, and acquisitions, as well as the establishment of de novo operations. The number of banks included in the analysis ranges from a low of twenty in 1991 and 1992 to a high of fifty-three in 1996; there were thirty-seven at year-end 1998.

21. Raw Mexican loan data exhibit many extreme observations related to new bank entry, government intervention, mergers, and acquisitions. We eliminate extreme single-quarter changes from our sample.

22. We present results using ILRs above 10 percent. Broadly similar results also arose using higher ratios (20, 30, 50 percent). The main difference is that the higher the ILRs of domestic banks, the lower their estimated responsiveness to cyclical fluctuations. Our regression results for domestic unhealthy banks are potentially biased by the fact that once a bank is intervened by the Mexican government, data for that bank generally become unavailable. We have a total of seventeen intervened banks in our sample; if we had data for all intervened banks through the end of the sample period, we would have an additional 100 observations of unhealthy banks to use in the regressions. If we assume that intervened banks would on average be less responsive to market signals than nonintervened banks, then we would expect to see less responsiveness for this bank class as a whole if we had access to a more complete data set for Mexico.

## References

- Burdisso, Tamaro, Laura D'Amato, and Andrea Molinari.* 1998. "The Bank Privatization Process in Argentina: Toward a More Efficient Banking System?" Unpublished paper, Banco Central de la República Argentina, October.
- Claessens, Stijn, Asli Demirguc-Kunt, and Harry Huizinga.* 1998. "How Does Foreign Entry Affect the Domestic Banking Market?" World Bank Policy Research Working Paper no. 1918, June.
- Clarke, George, Robert Cull, Laura D'Amato, and Andrea Molinari.* 1999. "On the Kindness of Strangers? The Impact of Foreign Entry on Domestic Banks in Argentina." Unpublished paper, World Bank, August.
- Demirguc-Kunt, Asli, Ross Levine, and Hong-Ghi Min.* 1998. "Opening to Foreign Banks: Issues of Stability, Efficiency, and Growth." In Seongtae Lee, ed., *The Implications of Globalization of World Financial Markets*. Seoul: Bank of Korea.
- Glaessner, T., and D. Oks.* 1994. "NAFTA, Capital Mobility, and Mexico's Financial System." Unpublished paper, World Bank, July.
- Goldberg, Linda.* 2000. "When Is Foreign Bank Lending to Emerging Markets Volatile?" Unpublished paper, Federal Reserve Bank of New York, July.
- Graf, Pablo.* 1999. "Policy Responses to the Banking Crisis in Mexico." *Bank Restructuring in Practice*. BIS Policy Papers, no. 6 (August).
- Gruben, William, Jahyeong Koo, and Robert Moore.* 1999. "When Does Financial Liberalization Make Banks Risky? An Empirical Examination of Argentina, Canada, and Mexico." Federal Reserve Bank of Dallas Center for Latin American Economics Working Paper no. 0399, July.
- Hancock, Diana, and James Wilcox.* 1998. "The Credit Crunch and the Availability of Credit to Small Business." *Journal of Banking and Finance* 22 (August): 983-1014.
- Kaminsky, Graciela, and Carmen Reinhart.* 1999. "The Twin Crises: The Causes of Banking and Balance-of-Payments Problems." *American Economic Review* 89, no. 3 (June): 473-500.
- Levine, Ross.* 1996. "Foreign Banks, Financial Development, and Economic Growth." In Claude E. Barfield, ed., *International Financial Markets: Harmonization versus Competition*. Washington, D.C.: AEI Press.
- Martinez Peria, Maria Soledad, and Sergio Schmukler.* 1999. "Do Depositors Punish Banks for 'Bad' Behavior? Market Discipline in Argentina, Chile, and Mexico." World Bank Policy Research Working Paper no. 2058, February.
- Meltzer, Alan.* 1998. "Financial Structure, Saving, and Growth: Safety Nets, Regulation, and Risk Reduction in Global Financial Markets." In Seongtae Lee, ed., *The Implications of Globalization of World Financial Markets*. Seoul: Bank of Korea.
- Peek, Joe, and Eric Rosengren.* 1997. "The International Transmission of Financial Shocks: The Case of Japan." *American Economic Review* 87, no. 4 (September): 495-505.
- . 2000. "Collateral Damage: Effects of the Japanese Bank Crisis on Real Activity in the United States." *American Economic Review* 90, no. 1 (March): 30-45.
- Rojas-Suarez, Liliana.* 1998. "Early Warning Indicators of Banking Crises: What Works for Emerging Markets? With Applications to Latin America." Deutsche Bank Securities working paper.

*The views expressed in this article are those of the authors and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System. The Federal Reserve Bank of New York provides no warranty, express or implied, as to the accuracy, timeliness, completeness, merchantability, or fitness for any particular purpose of any information contained in documents produced and provided by the Federal Reserve Bank of New York in any form or manner whatsoever.*