

# The direct and indirect impact of bank privatization and foreign entry on access to credit in Argentina's provinces

George R.G. Clarke \*, Juan Miguel Crivelli, Robert Cull \*

*Development Research Group, The World Bank,  
Mail Code MSN MC3-300, 1818 H Street, NW, Washington, DC 20433, USA*

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## Abstract

Privatization and increased foreign ownership transformed the Argentine banking sector during the 1990s. While both improved sector efficiency, there was concern that they might reduce access to credit outside of Buenos Aires. The results in this paper suggest that these fears were exaggerated. Provinces that privatized their banks suffered only temporary reductions in credit associated with cleaning the portfolio of the privatized banks. Typically, growth in lending by the privatized entity and by other banks restored credit to pre-privatization levels within a few years. In addition, increased foreign ownership coincided with more, not less, lending outside of Buenos Aires.

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\* Corresponding authors. Tel.: +1 202 473 7454; fax: +1 202 522 1155.

E-mail addresses: [gclarke@worldbank.org](mailto:gclarke@worldbank.org) (G.R.G. Clarke), [rcull@worldbank.org](mailto:rcull@worldbank.org) (R. Cull).

## 1. Introduction

During the 1990s, privatization of public banks and entry by foreign banks transformed banking systems in many developing countries. Although it was thought that these processes might be useful in terms of improved stability and efficiency, there was some concern that they might affect the availability of credit to some sectors of the economy.<sup>1</sup> For example, since governments often claim that public banks can direct credit towards markets that are ignored by private banks, it was thought that privatization might result in some of these markets being ignored once again. This paper looks at one dimension of this question – the effect of privatization and foreign entry on lending in regional credit markets and to the agricultural sector. The study uses data from Argentina in the mid to late 1990s – a country where there was substantial privatization and foreign entry over this period.

This study is closest in spirit to [Crystal et al. \(2001\)](#) and [Dages et al. \(2000\)](#), who find that foreign banks in Argentina exhibited stronger and less volatile loan growth than domestically owned banks between 1994 and 1999. More generally, they found that it was the quality of a bank's asset portfolio, and not its ownership per se, that was the most important factor for the growth and volatility of bank credit. Because many of the state-owned banks in Argentina had high levels of impaired credit, their lending was weaker and less responsive to market signals than was that of foreign banks and private domestic banks with strong portfolios. Thus, their results also suggest that privatization might be beneficial for expanding access to credit. Although those authors did analyze some specific types of lending (namely consumer, mortgage, government, interbank, and commercial), they did not test directly whether foreign ownership and bank privatization led to less lending for specific geographic areas and economic sectors. While their results suggest that total lending did not decline, its composition might have changed dramatically, largely because borrowers in some regions and sectors might have found it more difficult than others to overcome the informational asymmetries inherent in private lending.

In theory, the primary purpose of public banks is to serve market segments neglected by the private sector, for example those where private returns are insufficient to make lending viable but where social returns justify it (see, for example, [Stiglitz, 1994](#)). One area of lending where the costs and benefits of government-directed credit has been discussed in detail is credit to the agricultural sector (see, for example, [Calomiris and Himmelberg, 1994](#)). Because of the high cost of serving rural markets, and problems associated with asymmetric information in this sector, governments have often become involved in providing credit to farmers, either directly or indirectly, in both developed and developing countries. Although public banks in Argentina were relatively inefficient before privatization, and [Clarke et al. \(forthcoming\)](#) casts doubt on the assertion that they lent more to small businesses than other

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<sup>1</sup> For brevity, and since the readership of this journal is likely to be familiar with much of the research in this area, we do not provide an exhaustive list of citations on the effects of foreign bank entry. Interested readers should consult [Clarke et al. \(2003\)](#) and [Dages et al. \(2000\)](#).

domestic banks, there was still no guarantee that private owners would be able to resolve any market failures associated with providing credit to underserved markets.

This concern was especially pronounced in Argentina since the public banks that were privatized were provincial, not national, banks. In many provinces, these banks were the dominant institutions providing credit and other financial services, leading to more general concerns about the effect of privatization on the availability of credit at the provincial level. These concerns were amplified by the fact that many of the new private owners, mostly small wholesale banks based in Buenos Aires, had little experience lending in the provinces. Therefore, it seemed possible that the privatized banks might continue to collect deposits in the provinces, but would re-direct the funds towards Buenos Aires where their new owners had greater experience.

Similarly, there are a number of reasons why foreign ownership could also affect access to credit. Foreign banks' strategies could be focused on following their clients abroad thus serving a very limited and profitable market. Additionally, the information problems associated with lending to some sectors of the economy may preclude foreign banks from certain activities. Lastly, even if foreign banks serve local customers, they might concentrate on specific markets leaving other sectors unattended. For all these reasons, increased foreign ownership might reduce access to credit in some sectors. Once again, these concerns were especially pronounced in Argentina, since foreign banks had traditionally focused their lending in Buenos Aires.<sup>2</sup>

Even if privatization and foreign mergers and acquisitions reduce the amount of credit that the banks involved in the transactions provide to some sectors, this does not necessarily mean that total credit to these sectors will be reduced. Other banks might respond to the opportunities that foreign entry and privatization afford them, by expanding their operations in sectors that foreign-owned and privatized banks withdraw from. For example, if the privatized banks reduce their lending in their home provinces, other private banks might respond by increasing their lending there. Even if the direct effect of privatization and foreign entry is to reduce credit to some sectors, the net effect might be considerably smaller, or even zero, if other banks change their lending in response to the new opportunities that privatization and foreign entry give them.

In this paper, we estimate both the direct effects of foreign entry and bank privatization on access to credit (i.e., how the lending behavior of the foreign entrants and privatized banks themselves evolves after foreign entry or privatization) and the indirect effects associated with their competitors' responses to these actions. The main conclusion is that, despite theoretical concerns about the effects of privatization and foreign entry on access to credit, they do not appear to have reduced the availability of credit in the provinces outside of Buenos Aires. However, they appear to be associated with reduced credit to the agriculture and mining sector.

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<sup>2</sup> See Footnote 4.

## 2. Foreign entry and privatization in Argentina's banking sector

After 1994, foreign banks became increasingly important in Argentina, a phenomenon observed contemporaneously in many other developing countries. As can be seen in Table 1, foreign bank participation increased greatly after 1994, with a major jump in 1997 when two Spanish banks (*Banco Bilbao Vizcaya Argentaria* and *Banco Santander Central Hispano*) bought two major domestic banks (Banco Frances and Banco Río). As in other developing countries, foreign banks in Argentina tended to have better quality portfolios, higher net worth and higher ratios of operating income to cost than domestic banks (Clarke et al., 2000).<sup>3</sup> However, they also tended to lend more to some sectors, such as manufacturing, than they did to other sectors and their lending was highly concentrated in Buenos Aires.<sup>4</sup> This raised concerns about their willingness and ability to lend in other provinces.<sup>5</sup>

Most foreign entry took place through foreign acquisition of existing domestic banks rather than through de novo entry. The domestic banks that the foreign banks purchased tended to be larger and more profitable and to have better quality loan portfolios than the average domestic bank operating in Argentina.<sup>6</sup>

At the same time as foreign bank participation was increasing, many public banks were being privatized. At the beginning of the 1990s, each province owned at least one bank, which often dominated the local financial system. In 1995, the beginning of the period in this study, assets in public provincial banks accounted for over 40% of total banking assets in thirteen of the nineteen provinces that had not yet privatized their banks. In nine of those provinces that would later privatize, the public provincial banks accounted for 50–70% of banking assets. The provincial banks were poorly performing and had large non-performing loan portfolios, reflecting that they were used to finance provincial deficits and often engaged

<sup>3</sup> In a sample of 80 countries, Demirgüç-Kunt and Huizinga (1999) and Claessens et al. (2000, 2001) find that profitability was higher for foreign banks operating in developing economies than for their domestic counterparts. For Argentina, see Raffin (1999).

<sup>4</sup> See Clarke et al. (2000). For example, in early 1995, about 94% of loans by foreign banks were in Buenos Aires, compared to 70% of loans by private domestic banks. Similarly, foreign banks also lent little to agriculture. Whereas 7% of private domestic banks' loans and 15% of public provincial banks' loans were to agriculture, only 5% of foreign banks' loans were.

<sup>5</sup> More generally, these results likely reflect the information problems that make it difficult for large foreign banks to lend to small businesses. Between 1996 and 1998, a period of increased foreign bank participation in Argentina, lending to small businesses fell from 20% to 16% of total lending (Bleger and Rozenwurcel, 2000). Similarly, using a large database of Argentina's business debtors as of 1998, Berger et al. (2001) find that large banks and foreign owned banks are less likely than other banks to lend to small businesses. However, other studies find more encouraging results. Escudé et al. (2001) show that although foreign banks lent less to small businesses than domestic banks, they increased their propensity to lend and their market share to that sector between 1998 and 2000. Clarke et al. (2004) found that although foreign banks of all sizes lent less to SMEs than domestic banks of comparable size, lending to SMEs increased more quickly for large foreign banks during the late 1990s than it did for large domestic banks.

<sup>6</sup> See Clarke et al. (2000, Table 1).

Table 1  
Market share by bank type

Bank type	1993	1994	1995	1996	1997	1998	1999
<i>Domestic banks</i>							
Market share	39%	43%	40%	41%	26%	21%	22%
Number	105	107	70	70	54	49	40
<i>Foreign banks</i>							
Market share	15.6%	15.4%	19.9%	24.4%	43.6%	47.8%	50.3%
Number	31	31	30	31	38	39	37
<i>Provincial banks</i>							
Market share	21.6%	20.6%	18.5%	14.4%	13.2%	13.1%	13.0%
Number	25	24	22	13	12	10	10
<i>National and municipal banks</i>							
Market share	23.3%	21.4%	21.8%	20.3%	17.5%	18.2%	14.8%
Number	9	8	7	7	7	6	5
<i>Assets top ten banks</i>	<i>50.4%</i>	<i>51.0%</i>	<i>54.1%</i>	<i>55.4%</i>	<i>58.3%</i>	<i>64.6%</i>	<i>68.3%</i>

Source: Central Bank of Argentina.

in lending for political rather than economic reasons.<sup>7</sup> One area of lending that was particularly problematic was lending to primary production (agriculture and mining). Whereas about 32% of the provincial banks' portfolios were non-performing in the first quarter of 1995, about 50% of their lending to agriculture and mining was non-performing.

Despite their poor commercial performance, the provincial banks managed to survive by discounting their loans to the Central Bank, which was able to act as the lender of last resort before the passage of the Convertibility Law in 1991. After the law was passed, the Central Bank lost its ability to do this and, in fact, was explicitly precluded from holding the assets of other banks. Consequently, the provincial banks started to have to rely upon their own performance, rather on than discounting and bail-outs, to maintain their business (Dillinger and Webb, 1999, pp. 6–16).

Because provincial politicians could no longer use the provincial banks to finance their provinces' deficits or make politically motivated loans that had little prospect of being repaid, and because the banks' operating losses actually contributed to the provinces' fiscal problems, the provinces were given strong reasons to privatize the poorly performing provincial banks. The first province to do so was Corrientes in November 1991. The process accelerated in 1995 when the Tequila Crisis resulted

<sup>7</sup> See Clarke and Cull (1999). Although regulations precluded excessive borrowing from provincial banks, these limits were often ignored or sidestepped. In 1990, more than 60% of the provincial government's deficits were financed through loans from provincial banks and 20% from other public banks.

in massive deposit outflows, as depositors fled the provincial banks towards higher quality banks, thus increasing the cost of public ownership.<sup>8</sup>

To attract buyers, most provincial governments split their banks in two, creating a potentially viable bank and a residual entity. In turn, loans from a federal program run by the *Fondo Fiduciario* (Fiduciary Fund) provided the provinces with a way to meet the short-term obligations residing in the residual entity, many of them owed to other banks that had provided liquidity support during the Tequila Crisis (Clarke and Cull, 1999).<sup>9</sup>

Because many of the public provincial banks' loans were non-performing, the new owners took only a small percentage of the public banks' assets and liabilities.<sup>10</sup> This had implications for access to credit. The privatized banks started their operations with far fewer assets than their public predecessors had. Although it was quite likely that they would grow, it was unclear how rapidly they would do so. The inexperience of the new owners, many of whom were wholesale banks based in Buenos Aires, in the provincial markets threatened to reduce the speed at which the privatized banks would start lending again after privatization.<sup>11</sup>

As the process of bank privatization and foreign entry was taking place, there were also a number of purely domestic mergers. These mergers differed from the foreign mergers in several ways. First, the domestic mergers generally involved small, poorly performing banks, especially when compared to the large domestic banks that the foreign banks acquired.<sup>12</sup> In fact, many of the mergers took place after the banks had become insolvent and were supported by a federal program run through the *Fondo Fiduciario*. Under the program, non-performing loans were exchanged for securities. Second, these banks tended to lend significant amounts outside of Buenos Aires, especially when compared to foreign-owned banks. For example, in the first quarter of 1995, banks that were later involved in domestic M&As held about

<sup>8</sup> Clarke and Cull (2002) find that poor bank performance made privatization much more likely. Additionally, the evidence suggests that political factors also played a role as, for example, greater bargaining power of labor decreased the likelihood of privatization.

<sup>9</sup> The *Fondo Fiduciario* was partially supported with the help of the World Bank and the Inter-American Development Bank.

<sup>10</sup> Except for Entre Rios, San Luis, San Juan and Santa Cruz, all of the 15 provinces for which data are available transferred less than half of their banks' assets to the new bank. Note that Entre Rios and Chaco had finalized their privatizations before the *Fondo Fiduciario* began, although they were allowed to receive some ex-post support from the *Fondo*.

<sup>11</sup> In addition, the privatization contracts contained many clauses that could affect the future behavior of privatized banks. Many contained clauses restricting lay-offs and obligations to maintain the branch network. In return, the new owners received contracts for the provision of financial services to the provincial governments, which comprised a substantial share of the privatized banks' revenues. In many cases the provinces guaranteed some of the assets transferred to the privatized bank. On the one hand, the financial services contracts provided banks with a good source of income at the outset, thus relaxing the pressure to build a profitable lending institution. Similarly, asset guarantees likely reduced pressures to grow through increased lending. On the other hand, contract provisions regarding the maintenance of branches and employees might have forced the new owners to find new sources of revenue to cover the associated costs. While pinpointing why privatized banks behaved as they did is difficult with the data available, we assess what the net effects of the privatizations were on credit to the respective provinces.

<sup>12</sup> See Clarke et al. (2000, Table 1).

38% of their loans outside of Buenos Aires, compared to 25% for private domestic banks not involved in mergers and 6% for foreign-owned banks.

### 3. The effect of privatization and foreign M&As on provincial credit

#### 3.1. Data

This study uses data on individual banks in Argentina provided by staff in the *Banco Central de la República Argentina*. In addition to detailed information from the banks' balance sheets and income statements, the *Banco Central de la República Argentina* also provided information on the banks' regional lending. At the regional level, they provided quarterly bank-level data on lending in each province for almost all banks in Argentina between the beginning of 1995 and the end of 1999.<sup>13</sup> Unfortunately, no other data was available at the provincial level. In particular, we do not have provincial breakdowns of deposits.

In addition to the bank-level data on lending in each province, we also use bank-level data on sectoral lending, focusing on lending to agriculture and mining. In contrast to the provincial breakdowns, which were available for almost all banks, some banks did not provide sectoral breakdowns. However, almost all large banks provided this information, meaning that we have information on sectoral lending for most banks when weighted by portfolio size.<sup>14</sup> For banks that provided sectoral data, it could be further disaggregated to the provincial level. To conduct the empirical analysis, we use this raw data to construct two data sets – a bank-level data set, which we use to look at the banks' portfolio distributions and lending levels and a provincial level data set, which we use to look at the indirect effect of provincial bank privatization on overall lending in the respective provinces. The provincial data also enable us to examine the indirect effect of foreign entry on credit levels in the provinces.

#### 3.2. Direct effect of foreign M&As and privatization on the banks involved in the transactions

##### 3.2.1. Methodology

A first question is how the privatizations and foreign M&As that took place in Argentina affected locational and sectoral lending for the banks involved in the transactions (i.e., what was the direct effect of the transaction on the lending of the banks involved in the transaction). To answer this, we construct a bank-level

<sup>13</sup> For example, in the first quarter of 1995, we have provincial-level breakdowns for 166 of 167 banks, accounting for 99.9% of total loans. In the last quarter of 1999, we have provincial-level breakdowns for 88 of 92 banks, accounting for 99.9% of total loans.

<sup>14</sup> For example, in the first quarter of 1995, although we have sectoral-level breakdowns for only 97 of 167 banks, those 97 banks accounted for 91% of total loans. In the last quarter of 1999, we had sectoral breakdowns for only 46 of 92 banks, which accounted for 94% of total loans.

data set that contains information on each bank's lending to various groups of provinces and to the agriculture and mining sector. We divide the provinces into three groups (based upon size in terms of both population and GDP): (i) the largest province (Buenos Aires including the Federal Capital District); (ii) mid-sized provinces (Cordoba, Mendoza, and Santa Fe); and (iii) smaller provinces (all others).

Because we focus on individual banks' portfolios in this data set, we have to deal with problems associated with comparing portfolios for the groups of banks that merged their operations before and after the mergers took place. If we compared the portfolio of the lead bank in the period before the privatization with the portfolio of the merged bank in the period after privatization, we could get misleading results. For example, suppose that a foreign bank that only lent in Buenos Aires bought a domestic bank with operations in other provinces and then merged that bank into its existing operations. Following the merger, the share of the foreign bank's lending outside of Buenos Aires would increase (from zero to some positive number) even if it sharply curtailed lending in the provinces (i.e., in the branches that it took over from the domestic bank). To control for this, we construct a series of 'virtual' banks in the bank-level data set, based upon the ownership patterns in the fourth quarter of 1999. That is, we combine the balance sheets of banks that were merged between 1995 and 1999 into single entities for the entire period.<sup>15</sup> This allows us to compare the balance sheet of the merged bank in the post-merger period with the combined balance sheets of all banks that formed the merged bank for the pre-merger period, rather than comparing the balance sheet of only the purchasing bank in the pre-privatization period with the balance sheet of the merged bank in the post-privatization period.

To estimate the impact of M&As and privatizations on portfolio shares and lending levels we estimate the following equation:

$$\begin{aligned}
 & \alpha_i + \gamma_i + \beta_1 \text{Foreign MA}_{it} + \beta_2 \text{Quarters since Foreign MA}_{it} \\
 & + \beta_3 \text{Privatization}_{it} + \text{Loans}_{it}^j \\
 & = \beta_4 \text{Quarters since Privatization}_{it} + \beta_5 \text{Domestic MA}_{it} \\
 & + \beta_6 \text{Quarters since Domestic MA}_{it} + \beta_4 \text{State Restructuring}_{it} \\
 & + \beta_4 \text{Quarters since State Restructuring}_{it} + \delta X_{it} + \varepsilon_{it}.
 \end{aligned} \tag{1}$$

The two dependent variables are the natural log of loans by bank  $i$  in period  $t$ , and the share of bank  $i$ 's lending in period  $t$  to some group of provinces  $j$ .<sup>16</sup> Following

<sup>15</sup> For example, suppose that bank  $i$  purchases bank  $j$  and merges their operation in the third quarter of 1997. To compare the group's lending before the third quarter of 1997 with the group's lending after the third quarter of 1997, we combine the balance sheets of the two institutions for the pre-merger period (following the merger the balance sheets are already combined) and compare it with the merged bank's portfolio for the post-merger period.

<sup>16</sup> Loans are converted to real values using the CPI.



earlier work on portfolio shares, the share model is estimated in log-odds Logit format.<sup>17</sup>

The main variables of interest are: (i) a dummy variable that takes the value “1” for bank  $i$  in all periods after that majority foreign-owned bank (i.e., bank  $i$ ) entered Argentina or increased the size of its existing operations by merging with or acquiring an existing bank (*Foreign M&A<sub>it</sub>*) and (ii) a dummy variable that takes the value “1” for bank  $i$  for all periods after that bank was privatized (*Privatization<sub>it</sub>*).<sup>18</sup> Because the regressions include fixed effects, the coefficient represents the difference between lending after the merger or privatization compared to that bank’s lending before the merger or privatization. That is, if the coefficients on these variables are positive, bank  $i$ ’s lending to the sector or province was higher on average in the periods following the merger or privatization than that it was before. The dummy variable representing privatization should also capture the transfer of assets to the residual entity.

In addition to the dummy variables, for each governance change (e.g., privatization or foreign M&A) we also include trend variables indicating the number of quarters since bank  $i$  was involved in a merger or a privatization (*Quarters since Foreign M&A<sub>it</sub>* and *Quarters since Privatization<sub>it</sub>*). This is to allow the bank to adjust its portfolio slowly over time following the foreign merger or privatization. Although in principle we would expect this variable to capture the dynamic effects of mergers and privatizations, if the banks readjust their portfolios quickly (i.e., within a few quarters) or the adjustment follows a non-linear process, the dummy variable, rather than the trend, may catch most of the adjustment.

In addition to these variables, the analysis also includes a series of additional control variables: (i)  $\gamma_t$ , a series of year dummies and seasonal controls; (ii)  $\alpha_i$ , a series of bank-level fixed effects; (iii) *Domestic M&A<sub>it</sub>*, a dummy for bank  $i$  that takes the value “1” for all periods following a merger or acquisition that does not involve any foreign banks and a trend variable indicating the number of quarters since the domestic M&A; (iv) *state restructuring<sub>it</sub>*, a dummy variable for state-owned bank  $i$  that takes the value “1” for all periods following any restructuring of that state-owned bank (excluding privatization) and a trend variable indicating the quarters since the restructuring; and (v)  $X_{it}$ , additional bank-level control variables.<sup>19</sup>

<sup>17</sup> Many papers use the log-odds ratio when looking at portfolio distribution (see, for example, Berger et al., 1998).

<sup>18</sup> Although in principle an acquisition can occur in the absence of a merger or a merger can occur in the absence of an acquisition, this does not appear to have occurred for any of the foreign banks in our sample. After consulting the bank superintendency in Argentina, it seems that our sample only includes cases where a foreign bank: (i) entered Argentina by acquiring an existing bank; or (ii) expanded by acquiring an existing bank and then merging its operations with those of the acquired bank.

<sup>19</sup> In the portfolio share regressions, two additional variables are included, size (lagged bank assets) and market share. For the regressions with the amount of loans as a dependent variable, the size variable is omitted since loans make up the majority of bank assets and hence including it would result in serious endogeneity problems.

Some banks were involved in more than one type of transaction (e.g., a domestic M&A and a privatization). For example, some (but not all) privatized banks merged with their (mostly domestic) purchasers either at the time of privatization or in some period after the privatization had been completed. In these cases, the privatization dummy would become one after the privatization and the domestic (or foreign) M&A dummy variable would take the value one after the merger.

### 3.2.2. Results

**3.2.2.1. Foreign M&As.** Tables 2 and 3 present results from bank-level regressions for the level and share of lending to each group of provinces respectively. All regressions include fixed bank effects to control for fixed factors that might affect portfolio size and distribution. In the regression for total loans, the coefficient on the dummy variable indicating that the bank group was involved in a foreign M&A is negative but statistically insignificant, while the coefficient on the trend variable representing the number of periods since the foreign M&A is positive and statistically significant. Since the coefficient on the dummy is small, this suggests that portfolio size increased on average following foreign M&As. The parameter estimates suggest that the average bank's portfolio was about 14% larger 2 years after the M&A. The increase is consistent with foreign M&As being expansionary – that is, foreign banks buying domestic banks to expand their presence in Argentina.

In the regression for lending to Buenos Aires, the coefficients on the foreign M&A dummy and trend variables are statistically insignificant and have opposite signs, indicating that on average the banks did not expand lending in Buenos Aires following merger activity. In contrast, the coefficients on the dummy variables are statistically significant and positive in the regressions for loans in provinces outside of Buenos Aires, while the coefficients on the trend variables are smaller and statistically insignificant.<sup>20</sup> This suggests that although the foreign banks expanded lending in these provinces, the process was not well approximated by a simple trend. The point estimates suggest that these banks had increased their lending in small and mid-sized provinces by about 70% and 56% respectively after 2 years. The results from the share regressions are consistent with the results from the level regressions (see Table 3).

The coefficient on the dummy variable indicating a foreign M&A is statistically insignificant in the regression with loans to agriculture and mining as the dependent variable, while the coefficient on the trend variable is negative and statistically significant. This suggests that bank groups involved in foreign M&As reduced their loans to agriculture and mining following the transaction. On average bank groups involved in foreign M&A activity reduced their lending to agriculture and mining by about 25% after 2 years.

<sup>20</sup> We also ran specifications with loans to all provinces other than Buenos Aires as the dependent variable. Qualitative results are very similar to those discussed in the text.

Table 2

Effect of foreign M&amp;As and privatization on regional lending portfolio (bank-level regressions in levels)

	Fixed effects regressions				
	Total loans (Log)	Loans in Buenos Aires (Log)	Loans in small provinces (Log)	Loans in mid-sized provinces (Log)	Loans to agriculture and mining (Log)
Observations	1759	1759	1759	1759	817
Fixed bank effects	Yes	Yes	Yes	Yes	Yes
Fixed year effects	Yes	Yes	Yes	Yes	Yes
Foreign M&A	–0.0337 (0.39)	–0.0672 (0.35)	0.8062*** (4.74)	0.6994*** (3.98)	0.3110 (1.56)
Quarters since Foreign M&A	0.0222** (2.16)	0.0156 (0.69)	–0.0138 (0.69)	–0.0174 (0.84)	–0.0693** (2.36)
Privatized	–0.9388*** (11.21)	–1.8275*** (9.91)	–0.8090*** (4.94)	–0.0070 (0.04)	–1.8684*** (7.94)
Quarters since Privatization	0.0232*** (2.63)	–0.1012*** (5.21)	0.0330* (1.91)	–0.0033 (0.19)	–0.1473*** (3.80)
Domestic M&A	–0.2693** (2.31)	–0.2252 (0.88)	–0.1569 (0.69)	–0.3577 (1.52)	–0.0690 (0.29)
Quarters since Domestic M&A	–0.0179*** (2.60)	–0.0199 (1.31)	0.0269** (2.00)	–0.0408*** (2.93)	0.0083 (0.60)
State Restructuring	–0.4962*** (4.16)	–1.1553*** (4.40)	0.1705 (0.73)	–0.2959 (1.23)	–0.4534* (1.80)
Quarters since State Restructuring	0.0146 (1.11)	0.0460 (1.59)	–0.1639*** (6.37)	0.0131 (0.49)	–0.0213 (0.82)
Lagged Market Share	29.6436*** (8.99)	33.4540*** (4.61)	5.3545 (0.83)	13.1813** (1.98)	29.2062*** (4.24)
R-squared	0.19	0.17	0.08	0.04	0.24

Absolute values of *t*-statistics are in parentheses. All regressions are two-way fixed effect models (with bank group and year dummies) using quarterly data between 1995 and 1999.

\* Significant at 10%.

\*\* Significant at 5%.

\*\*\* Significant at 1%.

**3.2.2.2. Privatization.** The coefficient on the dummy indicating a privatization is negative and statistically significant in the regression for total loans (Column 1, Table 2). The negative coefficient is due to the transfer of assets to the residual entity at the time of privatization – the banks' portfolios shrunk considerably when the loans were transferred off their books to the residual entity. On average, less than 40% of the banks' loans were transferred to the privatized bank. The positive coefficient on the trend variable shows that the privatized banks expanded quickly

Table 3

Effect of foreign M&amp;As and privatization on portfolio distribution (bank-level regressions in shares)

	Fixed effects regressions			
	Portfolio share in Buenos Aires	Portfolio share in small provinces	Portfolio share in mid-sized provinces	Portfolio share to agriculture and mining
Observations	1759	1759	1759	817
Fixed bank effects	Yes	Yes	Yes	Yes
Fixed year effects	Yes	Yes	Yes	Yes
Foreign M&A	−0.5816*** (3.93)	0.3978*** (3.29)	0.4331*** (4.30)	0.0256 (0.17)
Quarters since Foreign M&A	−0.0048 (0.28)	0.0037 (0.26)	0.0042 (0.35)	−0.0588*** (2.62)
Privatized	−0.4282*** (2.90)	0.3189*** (2.65)	0.1003 (1.00)	−1.2329*** (6.69)
Quarters since Privatization	−0.0062 (0.41)	0.0073 (0.60)	0.0003 (0.03)	−0.1402*** (4.73)
Domestic M&A	0.6161*** (3.10)	−0.2485 (1.53)	−0.4032*** (2.98)	−0.0967 (0.54)
Quarters since Domestic M&A	0.0099 (0.84)	0.0078 (0.81)	−0.0236*** (2.94)	0.0227** (2.13)
State Restructuring	−0.9214*** (4.44)	0.3011* (1.78)	0.6202*** (4.39)	0.4585** (2.26)
Quarters since State Restructuring	0.0959*** (4.22)	−0.0814*** (4.38)	−0.0147 (0.95)	−0.0544*** (2.69)
Lagged Market Share	−15.8400** (2.48)	16.4807*** (3.16)	5.4709 (1.26)	−3.2708 (0.55)
Lagged Assets (log)	0.2612*** (4.80)	−0.2546*** (5.73)	−0.0546 (1.47)	0.3899*** (4.62)
R-squared	0.07	0.06	0.05	0.28

Absolute values of *t*-statistics are in parentheses. All regressions are two-way fixed effect models (with bank group and year dummies) using quarterly data between 1995 and 1999.

\* Significant at 10%.

\*\* Significant at 5%.

\*\*\* Significant at 1%.

following privatization. The point estimates in the regression for total loans suggest that it would have taken about 40 quarters (10 years) on average for the banks to reach their pre-privatization size.

The provincial banks lent almost exclusively in either their own home province or in Buenos Aires both before and after privatization. Since most privatized banks were located in smaller provinces – two were located in mid-sized provinces while 13 were located in small provinces – the main impact is seen in the regressions for

loans to small provinces and loans to Buenos Aires. At the time of privatization, on average, the banks reduced the loans they had to Buenos Aires and the small provinces (i.e., their home province) to about 16% and 44% of their pre-privatization levels. The negative coefficient on the trend variable indicates that the banks continued to reduce lending in Buenos Aires after the initial transfer of assets. In contrast, they expanded quickly in the small provinces (i.e., in their home provinces). Based upon the point estimates in Column 3, on average, it would take them 6 years (24 quarters) to attain their pre-privatization size in the small provinces.

The privatized banks transferred relatively more of their loans to agriculture and mining to the residual entities than of their total loan portfolio, emphasizing the poor quality of loans to this sector. On average, only 15% of these loans were transferred to the privatized bank. Further, the negative coefficient on the trend variable indicates that the privatized banks continued to withdraw from the sector after the privatization transaction. The point estimates of the parameters indicate that on average the privatized banks had loan portfolios to this sector that were only about 5% of the size they had been before privatization.

*3.2.2.3. Domestic M&As.* In contrast to foreign M&As, domestic M&As (i.e., M&As not involving foreign-owned banks) were associated with decreased lending – the coefficients on both the level and the trend are negative. The difference between domestic and foreign M&As might reflect that many domestic mergers, as noted in Section 2, were forced mergers of small weak banks. The coefficients on the dummy and trend variables in the regressions for loans to the three groups of provinces (Buenos Aires, mid-sized, and small) suggest that on average these banks reduced their lending in the mid-sized provinces outside of Buenos Aires and increased their lending to the smaller provinces, while keeping their loans in Buenos Aires roughly constant (see Table 2). This resulted in them decreasing the share of their portfolio in the mid-sized provinces and increasing the share in Buenos Aires (see Table 3). The increased lending to small provinces in the levels regression is not strongly reflected in the share regression: the coefficient on the trend variable is positive but statistically insignificant (Table 3, Column 2).

### *3.3. Indirect effect of privatization and foreign entry on lending by other banks*

The previous section focused on the effect of privatization and foreign acquisitions on lending by the banks involved in the transaction (i.e., the privatized banks and the banks acquired by foreign banks). A second issue is the indirect effect of privatization and foreign entry on other banks operating in the same markets. Because the provincial banks dominated provincial credit markets – as noted earlier they accounted for over 40% of loans in most provinces – privatization might impact other banks operating in the provinces. For example, based upon the results in the last section, it appears that after the transfer of assets to the residual entity the provincial banks would have taken about 6 years to reach their previous size in the provincial markets after privatization. However, if other banks responded to the new market opportunities created by this by expanding their lending, total credit to the province

might have reached pre-privatization levels more quickly. In contrast, if the provincial banks grew by taking market share from other private banks, the overall adjustment might take longer than the adjustment for the privatized bank.

Similarly, as noted earlier, foreign-owned banks appear to be more efficient than many private domestic banks. Consequently, the expansion in lending following foreign mergers and acquisitions might merely displace lending by private domestic banks rather than increase total lending. In this section, we therefore also look at the indirect effect of foreign entry.

### 3.3.1. Methodology

To look at how privatization affected loans in provinces that privatized, we estimate Eq. (1) using provincial level data, excluding Buenos Aires from the analysis:<sup>21</sup>

$$\begin{aligned} \text{Log}(\text{Per Capita Loans}_{jt}^k) = & \beta_1 \text{Privatization}_{jt} + \beta_2 \text{Years Since Privatization}_{jt} \\ & + \gamma X_{jt} + \alpha_j + \lambda_t + \varepsilon_{ijt}. \end{aligned}$$

The dependent variable is the natural log of *Per Capita Loans* by a group of banks  $k$  in province  $j$  at time  $t$ .<sup>22</sup> That is, we are interested in the indirect effect of the privatization of the provincial bank on banks other than the provincial bank. The groups of banks that we look at are: total loans by all banks, loans by private banks (excluding the privatized bank), loans by foreign banks, loans by public banks (excluding the public provincial bank) and total loans in the province to agriculture and mining. For comparison, we also present results for lending by the provincial bank itself. The main variables of interest are *privatization*, a dummy variable indicating that the provincial bank has been privatized (i.e., that a private owner has control of the provincial bank), and *periods since privatization*, a time trend indicating the number of quarters since the private owners took control. Because most provinces had only a single provincial bank, it is possible to control for this discrete event in provincial level regressions.<sup>23</sup>

As discussed previously, large parts of the provincial banks' portfolios were transferred to a residual entity at the time of privatization. In the regression for lending by the provincial bank, the privatization dummy, *Privatization*, should capture the immediate impact of the transfer of assets to the residual entity. In contrast to the

<sup>21</sup> We do this for several reasons. First, we are primarily interested in the effect of privatization on smaller provinces. Second, the Banco de la Provincia de Buenos Aires was smaller relative to the Buenos Aires market than the typical provincial bank was relative to the typical provincial market. Finally, the Banco de la Provincia de Buenos Aires was different from other provincial banks – in particular, it appeared to outperform most of the others (see Clarke and Cull, 1999, p. 867). In practice the results are virtually identical when Buenos Aires is included.

<sup>22</sup> Loans are converted into real terms by deflating by the CPI.

<sup>23</sup> Three provinces owned two banks. In two, Cordoba and Mendoza, the provincial government treated the separate banks identically. In the third, Santa Fe, only one was privatized. However, the bank that was privatized was considerably larger than the second, accounting for over 97% of provincial bank assets. The second bank, which remained very small, was closed in 2000. Consequently, we treat the 1998 privatization as if it was the same as the other privatizations. The main results are similar when Santa Fe is dropped.

*Privatization dummy, periods since privatization* is intended to capture the dynamic effect of privatization. Following privatization, and the transfer of assets to the residual entity, the provincial banks readjusted their portfolios. Given that these banks were large on a provincial scale, this adjustment took a reasonable amount of time. The trend, therefore, allows the banks to slowly adjust their lending to its equilibrium level. To a lesser extent, these effects will also be reflected in the regressions that use total lending to the province as the dependent variable (because the provincial bank comprised a large share of total lending in almost all provinces that privatized).

In general, the immediate impact of privatization should be smaller for other banks than it was for the provincial banks – it should take some time for other banks to adjust their portfolios following the privatization and, therefore, the coefficient on *Privatization* is less likely to be significant in the regressions for other types of bank than it is in the regression for the provincial banks. In contrast, the coefficients on the trend variables (representing the evolution of lending over time) reflect the long-term adjustment, and therefore might be more likely to be significant. However, it is important to note that if the evolution of lending is non-linear or banks manage to adjust their portfolios relatively quickly, the dummy variable might partially capture the long-term effect of privatization.

In addition to these variables, the analysis includes a series of control variables. First, the regressions include fixed province ( $\alpha_j$ ) and time effects ( $\gamma_t$ ). The provincial fixed effects control for provincial characteristics that might affect lending in the province but that do not vary significantly over the period being studied (e.g., the size of the province, the relative importance of agriculture and industry in provincial production, or per capita wealth in the province). In contrast, the time dummies are meant to control for factors that affected lending in the country as a whole (e.g., the *Tequila Crisis*). Second, the regression includes real provincial per capita GDP. Since the specification also includes provincial and time fixed effects, this variable should capture the provincial business cycle (relative to the national business cycle).<sup>24</sup> Because the time dummies will remove most variation and adequately capture most cyclical effects, results regarding this variable should be treated with caution.

Keeping in mind the limitations of GDP as a measure of the business cycle, our basic hypothesis is that private banks' lending would be pro-cyclical. Because public banks do not face the same constraints and commercial pressures as private banks, their lending might be less cyclical than that of private banks. Consistent with this, Dages et al. (2000) find that lending by public banks in Argentina is far less responsive to market signals (i.e. economic growth) than lending by healthy private banks. It is also possible that if the public banks try to offset the pro-cyclical lending by private banks their lending might even be counter-cyclical. We do not have strong priors about the relative tendencies of foreign and private domestic banks to lend pro-cyclically, although results in Dages et al. (2000) indicate that foreign banks'

<sup>24</sup> Because of concerns about the endogeneity of this variable – and because the time dummies might adequately control for any business cycle effects – we also tested whether the results were robust to excluding this variable. Results from these regressions, which are available upon request, are virtually identical to the results in Table 4.

loan growth was less responsive to market signals than that of domestic banks, especially those with low levels of impaired assets. Because the measure of loans by foreign banks is based upon the banks' current ownership, loans by domestic and foreign banks will be affected when foreign banks acquire existing domestic banks. Consequently, the measures of total loans by foreign and domestic banks will be affected both by existing banks expanding or contracting lending and by foreign banks buying existing domestic banks. If purchases are more or less likely during upturns or downturns, this might affect whether total loans by foreign and domestic banks appear pro- or counter-cyclical.

The regressions also include a series of variables to capture other events that might affect lending in the province. First, the regression includes two variables to control for mergers involving the provincial banks – a dummy variable indicating that a merger took place and a trend variable indicating the number of periods since the merger.<sup>25</sup> Second, two of the privatized provincial banks, both of which were privatized prior to the beginning of our sample, were re-nationalized.<sup>26</sup> To control for this, the regression also includes a dummy variable and a trend (periods since re-nationalization) to control for the effect of re-nationalization. Finally, after being privatized, the parent bank of the provincial banks in Mendoza developed serious problems.<sup>27</sup> These problems spilled over into the provincial bank and resulted in the Central Bank closing the privatized provincial bank. Since the closure could affect provincial credit markets, we include a dummy variable and a trend variable (periods since closure) to control for this. Although the coefficients on these additional variables are of interest, it is important to note that they are based upon a small number of events. Consequently, they might be best thought of as controlling for the temporary disequilibria following these events and their coefficients should be interpreted with caution.

In contrast to privatization, which was a distinct event that occurred at a single point in time, foreign entry occurred slowly over the entire period. This makes it much harder to assess the impact of foreign entry on the behavior of other banks than it is to assess the impact of privatization. That is, since it is impossible to define a single point in time when foreign entry occurred, it is impossible to include a dummy variable to assess the immediate impact and a time trend to assess the dynamic effects of foreign entry. Therefore, we adopt an alternate approach.

The approach that we use is re-estimating the provincial level regressions adding a variable that represents the level of foreign lending in the province. Although there are some concerns regarding the endogeneity of foreign lending in the province and

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<sup>25</sup> Provincial banks in eight provinces were involved in mergers during the period under study. Four of the mergers were between the privatized provincial bank and its new private owner. In two provinces with multiple provincial banks (Cordoba and Mendoza) the provincial banks were merged to form single banks. The remaining mergers involved the privatized provincial banks and small private banks.

<sup>26</sup> These banks (Banco de Corrientes and Nuevo Banco de La Rioja) were privatized prior to the start of our sample and prior to the Tequila Crisis and the founding of the Fondo Fiduciario.

<sup>27</sup> The purchasing bank was closed by the Central Bank of the Republic of Argentina in the beginning of 2000. Prior to this, the merged provincial bank in Mendoza was closed in the first quarter of 1999.



the direction of causation (e.g., foreign banks might increase their lending in response to decreased lending by other private banks), this provides some information on the correlation between foreign lending and other types of lending. To try to reduce the potential for endogeneity, we lag foreign lending. We also perform the regressions without this variable when looking at the impact of privatization on lending by other banks, to try to reduce the possibility that this potentially endogenous variable affects conclusions regarding privatization. In general, the other results are similar whether we include or exclude the foreign lending variable.

### 3.3.2. Results

*3.3.2.1. Indirect effects of provincial bank privatization.* The effect of privatization on lending by the provincial bank is shown in Column 1 of Table 4. The dependent variable is loans by the public provincial bank prior to privatization and loans by the privatized provincial bank after privatization. The results from these regressions are consistent with the results from the bank-level regressions (see Section 3.2.2). The negative coefficient on the dummy variable represents the transfer of assets to the residual entity, while the positive coefficient on the trend variable represents the rapid growth in the period following privatization. Based upon the point estimates of the coefficients, it would take the provincial banks about 7 years (i.e., about 28 quarters) on average to regain their former size.<sup>28</sup>

Since loans transferred to the residual entity are also dropped from total loans in the province, the transfers mean total loans also fell at the time of privatization. This is reflected in the negative and statistically significant coefficient on the dummy variable representing privatization in the regression for total loans (see Column 2 of Table 4). The coefficient on trend variable representing quarters since privatization is positive, suggesting that total loans in the province also grew in the post-privatization period. This suggests that the new lending by the privatized bank did not simply displace lending by other banks.

Also consistent with the notion that new lending by the privatized bank did not simply displace lending by other private banks, the coefficients on the dummy and trend variables are statistically insignificant in the regression for loans by private banks excluding the privatized bank (see Column 3 of Table 4). This suggests that privatization did not have either an immediate or delayed impact on lending by other private banks.

However, the result for private banks as a group obscures the different responses of foreign and domestic private banks. The positive coefficient on the trend variable in the regression for loans by foreign-owned private banks (see Column 4 of Table 4) suggests that foreign banks increased their lending in provinces that privatized following privatization (relative to their lending in provinces that didn't privatize). In contrast, domestically owned private banks appear to have reduced their lending in the provinces that privatized (see Column 5 of Table 4). The negative coefficient

<sup>28</sup> The coefficient on the trend variable (0.0449) is about 1/28th of the coefficient on the dummy variable (−1.2521). This is slightly longer than the 6 years estimated in the bank-level regressions.

Table 4  
Effect of privatization of provincial banks on lending in the province (natural log of per capita loans, provincial level regressions)

(All dependent variables are natural logs of per capita measures)	Fixed effects regressions						
	Loans by provincial banks	Total loans	Loans by private banks (excludes priva- tized banks)	Loans by foreign banks (excludes priva- tized banks)	Loans by private domestic banks (excludes priva- tized banks)	Loans by public banks (excludespro- vincial banks)	Loans to agriculture and mining
Observations	433	440	440	405	430	440	329
Provincial dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial bank privatized (Dummy)	<i>−1.2521<sup>***</sup></i> (−14.15)	<i>−0.3694<sup>***</sup></i> (−13.23)	<i>−0.0060</i> (−0.16)	<i>0.0167</i> (0.26)	<i>0.1419</i> (1.61)	<i>0.0178</i> (0.92)	<i>−0.5698<sup>***</sup></i> (−8.85)
Periods since privatization	<i>0.0449<sup>***</sup></i> (4.80)	<i>0.0085<sup>***</sup></i> (2.89)	<i>0.0046</i> (1.18)	<i>0.0355<sup>***</sup></i> (5.13)	<i>−0.0185<sup>**</sup></i> (−1.99)	<i>0.0060<sup>***</sup></i> (2.91)	<i>−0.0007</i> (−0.09)
GDP per Capita (Natural Log)	<i>−1.0295<sup>**</sup></i> (−2.33)	<i>−0.3658<sup>***</sup></i> (−2.63)	<i>0.3355<sup>*</sup></i> (1.84)	0.1536 (0.49)	<i>−1.3316<sup>***</sup></i> (−2.75)	<i>−0.1451</i> (−1.49)	0.2770 (1.13)
Provincial bank involved in merger (Dummy)	<i>−0.3271<sup>***</sup></i> (−2.90)	<i>−0.0485</i> (−1.42)	0.0350 (0.78)	<i>0.3188<sup>***</sup></i> (4.34)	<i>−0.0263</i> (−0.25)	0.0080 (0.33)	0.0705 (1.05)
Periods since merger	<i>−0.0080</i> (−0.55)	0.0013 (0.28)	0.0050 (0.84)	<i>−0.0064</i> (−0.65)	<i>0.0311<sup>**</sup></i> (2.18)	<i>0.0087<sup>***</sup></i> (2.72)	<i>0.0162<sup>**</sup></i> (1.99)

Provincial bank re-nationalized (Dummy)	−0.5564 <sup>*</sup> (−1.72)	−0.1749 <sup>*</sup> (−1.73)	0.2123 (1.60)	1.1777 <sup>***</sup> (5.28)	−0.0623 (−0.20)	0.1583 <sup>**</sup> (2.24)	−0.4077 <sup>**</sup> (−2.33)
Periods since re-nationalization	−0.0389 (−1.09)	−0.0030 (−0.27)	0.0274 <sup>*</sup> (1.86)	0.0149 (0.62)	−0.0639 <sup>*</sup> (−1.83)	−0.0005 (−0.06)	−0.0032 (−0.17)
Provincial bank closed (Dummy)		−0.2163 (−0.97)	−0.0834 (−0.29)	−0.1159 (−0.24)	−0.0441 (−0.06)	0.0349 (0.22)	−0.1515 (−0.40)
Periods since closing		0.0195 (0.19)	0.0088 (0.07)	0.0331 (0.15)	−0.0425 (−0.13)	0.0176 (0.25)	−0.1363 (−0.80)
<i>R</i> -squared	0.45	0.45	0.26	0.55	0.39	0.19	0.50

*t*-Statistics in parentheses. All regressions are two-way fixed effect models (with province and period dummies) using quarterly data on bank lending at the provincial level for banks of the type between 1995 and 1999.

Regressions for loans to agriculture exclude observations where sectoral lending is not available for the provincial bank.

<sup>\*</sup> Significant at 10%.

<sup>\*\*</sup> Significant at 5%.

<sup>\*\*\*</sup> Significant at 1%.

on the trend variable for lending by domestically owned private banks could reflect either greater competition from the provincial bank following privatization or greater competition from the foreign-owned banks that appear to have expanded following privatization. Because these variables will be affected by foreign purchases of domestic banks, the drop in domestic bank loans could partially reflect this transfer of assets. In summary, this might reflect the fact that foreign banks were expanding aggressively in Argentina over this period, while many domestic banks were not. This is also reflected in the previous bank-level regression results that suggested that foreign banks increased their lending to small and mid-sized provinces after undertaking a merger or acquisition.

The positive and statistically significant coefficient on the trend variable in the regression for loans by other public banks (i.e., nationally and municipally owned public banks) suggests that those banks increased their lending in response to provincial bank privatization (see Column 6). This could be because other public banks had functions that overlapped with the functions of the public provincial banks. If the privatized provincial banks behaved more like other private domestic banks following privatization – something that is consistent with the observation that lending by other private domestic banks fell following privatization – this might have created an opportunity for other public banks to expand their lending. Although the increased lending by other public banks might reduce the benefits associated with privatization, because of its political rather than economic motivation, it is important to note that the effect is small – loans by other public banks grew only about 0.6 percentage points faster per quarter following privatization than they grew prior to privatization.

Finally, the coefficient on the dummy variable, privatization, is negative and statistically significant in the regression for loans to agriculture and mining. Since *loans to agriculture and mining* include lending by the provincial banks, the negative coefficient probably primarily reflects the transfer of assets to the residual entity (i.e., it is similar to the negative coefficient in the regression for total loans). However, in contrast to *total loans*, the coefficient on the trend variable is statistically insignificant. This suggests that loans to agriculture and mining did not recover following privatization. Since the privatized banks reduced the share of their portfolio devoted to agriculture and mining after privatization (see Table 2), this suggests that other banks did not step in to fill this gap. Hence, privatization appears to be associated with a permanent reduction in loans to agriculture and mining.

**3.3.2.2. Per capita GDP.** Per capita GDP is primarily intended as a control for the provincial business cycle. The fixed time effects should capture the national business cycle, while the fixed province effects should capture differences in wealth between provinces. Therefore, this might capture some aspect of the provincial business cycle relative to the national cycle. However, given that the fixed effects remove most of the variation in this variable, these results should be treated with caution. The main results discussed above are robust to either excluding this variable or allowing for a more flexible form where individual provinces have different coefficients on this variable (i.e., interacting the province fixed effects with per capita GDP and including

both the fixed effects and the interaction terms to allow the business cycle to affect different provinces to different degrees).<sup>29</sup>

The negative coefficients on per capita GDP in the regressions for total loans and loans by provincial banks suggests that this lending is counter-cyclical (see Columns 1 and 2). Although this might seem counterintuitive, this appears to primarily be due to the provincial banks and the national public banks – in contrast, lending by private banks appears to have been pro-cyclical (see Column 3).<sup>30</sup>

Another interesting result is that the negative coefficient on per capita GDP in the regression for domestic private banks suggests that lending by private domestic banks is also counter-cyclical. This might be due to the acquisition strategies of foreign-owned banks. If foreign banks are more likely to purchase domestically owned banks during cyclical upturns – which would result in lending by domestic banks falling during these periods – we would see a pattern of pro-cyclical lending by foreign banks and counter-cyclical lending by domestic banks. The positive coefficient on total private lending (and the statistically insignificant positive coefficient for foreign banks) combined with the negative coefficient for private domestic banks appear consistent with this interpretation.

**3.3.2.3. Foreign entry.** Results from the regressions including loans by foreign banks (lagged) to proxy for foreign entry are presented in Table 5. The coefficient on foreign lending is positive and statistically significant in the regression for lending by private banks, suggesting that reduced domestic lending does not completely offset increased foreign lending. However, the coefficient on foreign lending is statistically insignificant in the regression for total lending, as well as in the regressions for lending by public banks and provincial banks.

For the most part, the privatization results are not affected by the inclusion of lagged foreign lending. One exception is that the coefficient on the provincial bank privatization dummy variable becomes negative and statistically significant in the regression for loans by private banks. This suggests that lending by private banks might have actually fallen following privatization (although the drop did not appear to follow a simple linear trend) after controlling for changes in lending by foreign-owned banks.<sup>31</sup>

<sup>29</sup> The only change is that the coefficient on the trend variable indicating periods since privatization became statistically significant (and remained positive and of similar magnitude) in the regression for loans by private banks (i.e., Column 3 of Table 4). Results are available upon request.

<sup>30</sup> Also consistent with this, when the privatization dummy is interacted with GDP, the coefficient on the variable is positive and statistically significant in the regression for lending by the provincial banks. This suggests that lending by the privatized provincial banks was less counter-cyclical than lending by public provincial banks had been. The sum of the coefficients, however, remains negative (although not statistically different from zero), suggesting that lending by the privatized banks was not pro-cyclical.

<sup>31</sup> As discussed previously, due to the small number of observations for the other control variables, it is difficult to draw strong conclusions based upon these coefficients. However, mergers involving provincial banks and re-nationalizations appear to be associated with a reduction in loans by the provincial banks. This could be because the owners take advantage of these events to move non-performing assets off the balance sheet or to dispose of some part of their loan portfolios.

Table 5

Effect of privatization of provincial banks and foreign participation on lending in the province (natural log of per capita loans, provincial level regressions)

(All dependent variables are natural logs of per capita measures)	Fixed effects regressions				
	Loans by provincial banks	Total loans	Loans by private banks (excludes privatized banks)	Loans by public banks (excludes provincial banks)	Loans to agriculture and mining
Observations	376	383	383	383	294
Provincial dummies	Yes	Yes	Yes	Yes	Yes
Period dummies	Yes	Yes	Yes	Yes	Yes
Loans by foreign banks (Natural log, per capita, lagged)	0.0927 (1.13)	0.0030 (0.13)	0.1426*** (5.33)	0.0190 (1.04)	0.0125 (0.24)
Provincial bank privatized (Dummy)	−1.0847*** (−11.76)	−0.3345*** (−12.31)	−0.1144*** (−3.63)	0.0309 (1.44)	−0.5920*** (−8.45)
Periods since privatization	0.0234** (2.25)	0.0062** (2.03)	0.0054 (1.53)	0.0063** (2.60)	−0.0024 (−0.30)
GDP per Capita (Natural Log)	−0.9412* (−1.94)	−0.3671** (−2.57)	0.2646 (1.60)	−0.1554 (−1.38)	0.4825* (1.67)
Multiple provincial banks merged (Dummy)	−0.4130*** (−3.55)	−0.0604* (−1.81)	−0.0061 (−0.16)	0.0074 (0.28)	0.0620 (0.80)
Periods since merger	−0.0067 (−0.48)	0.0003 (0.08)	−0.0010 (−0.20)	0.0100*** (3.07)	0.0136 (1.56)
Provincial bank re-nationalized (Dummy)	−0.9845*** (−2.91)	−0.2463** (−2.47)	0.0494 (0.43)	0.1373* (1.74)	−0.4737** (−2.29)
Periods since re-nationalization	−0.0376 (−1.11)	−0.0013 (−0.13)	0.0166 (1.43)	0.0042 (0.53)	−0.0094 (−0.47)
Provincial bank closed (Dummy)		−0.2137 (−1.09)	−0.0831 (−0.37)	0.0273 (0.18)	−0.1626 (−0.42)
Periods since closing		0.0191 (0.21)	0.0032 (0.03)	0.0151 (0.21)	−0.1357 (−0.77)
R-squared	0.41	0.38	0.30	0.20	0.47

*t*-Statistics in parentheses. All regressions are two-way fixed effect models (with province and period dummies) using quarterly data on bank lending at the provincial level for banks of the type between 1995 and 1999.

Regressions for loans to agriculture exclude observations where sectoral lending is not available for the provincial bank.

\* Significant at 10%.

\*\* Significant at 5%.

\*\*\* Significant at 1%.

#### 4. Conclusions

Although both bank privatization and foreign bank entry improved banking sector efficiency in Argentina in the 1990s, there were legitimate concerns that they might also have reduced access to credit to sectors such as agriculture and to geographically remote provinces. Our analysis suggests that, although there were some temporary disruptions in credit provision in the provinces that privatized, overall credit levels soon approached pre-privatization levels in the provincial markets. In particular, the transfer of assets to the residual entity meant that provincial bank privatization was associated with a drop in loans by the provincial banks, but the privatized banks appear to have grown quickly following privatization. Provincial bank privatization did not appear to affect total loans by other private banks. However, this disguises the fact that foreign-owned banks appeared to enter provinces that privatized more aggressively than they entered provinces that did not privatize. In contrast, lending by other private domestic banks appeared to drop following privatization. This suggests that the privatized banks might have competed in niche markets where private domestic (but not private foreign) banks focused their lending activities. One concern is that other public (i.e., national and municipal) banks appeared to increase their lending following privatization, potentially offsetting some of its benefits. However, the increase was relatively modest.

Foreign mergers and acquisitions (i.e., cases in which a foreign bank acquired another bank) were associated with increased lending by those groups outside of Buenos Aires. The increased lending by foreign banks in the provincial markets over this period does not appear to be fully offset by reduced lending by domestic banks. In that sense, foreign entry coincided with more, not less, lending to Argentina's less urbanized provinces. More research is needed to determine how foreign banks delivered financial services to the provinces, and if those delivery methods meant that those services were different from those provided in the past.

One area where privatization and foreign entry might have reduced lending is in the agriculture and mining sector. Banks involved in foreign M&As and banks that were privatized both appear to have reduced lending to this sector following the transactions that they were involved in. Furthermore, there is no evidence that other banks stepped in as the provincial banks withdrew from this type of lending. Although this might seem problematic, especially given concerns about private lending to agriculture, it is important to note that the provincial banks' agricultural portfolios were especially poorly performing before privatization. In the first quarter of 1995, after the onset of the Tequila crisis, about 50% of the public provincial banks' loans to agriculture and mining were non-performing, compared to 32% of their overall portfolios.

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