Public Banks in Latin America

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Background paper prepared for the conference on
Public Banks in Latin America: Myth and Reality
Inter-American Development Bank
February 25, 2005.

*Review paper prepared for the conference on "Public Banks in Latin America: Myths and Realities," February 25, 2005, Inter-American Development Bank, Washington DC. This review paper draws heavily on work by Levy-Yeyati, Micco and Panizza (2004), Micco, Panizza and Yañez. (2004), and Inter-American Development Bank (2004). The views expressed in this paper are the authors' and do not necessarily reflect those of the Inter-American Development Bank. The usual caveats apply.

1. Introduction

Government ownership of banks is a major phenomenon worldwide. In 1995 the average percentage of state ownership in the banking industry around the world was about 41.6 percent (Figure 1). This share was even larger during the 1970s, when more than 50 percent of worldwide bank assets were controlled by the public sector. Ideological changes regarding the state's role in the economy, as well as financial crises, led governments to privatize financial institutions. Megginson (2004) documents that worldwide, from 1987 to 2003 more than 250 banks were privatized, raising US$143 billion.[1]

This wave of privatization occurred in developed as well as developing countries. Public ownership fell 15 percentage points in both groups of countries, although developing countries started with a much higher level of government ownership—65 percent—in the 1970s.

As a region, Latin American has displayed the same behavior as the average developing country. During the 1970s public institutions in the region represented 65 percent of banks' assets, and in 1995 this percentage was only 40 percent, more than five points lower than the average level for a developing country. The region's privatization process maintained its momentum during the second half of the 1990s. In Argentina, for example, due to financial turmoil, assets in commercial banks controlled by public institutions fell from 40 in 1995 to 20 percent in 2000. In the case of Brazil, the public share public participation fell from 51 to 40 percent during the same period. [2]

The privatization wave in Latin America and the Caribbean (LAC from hereon) was driven by fiscal problems, in particular during financial crises, and by efficiency considerations.[3] Related with this efficiency factor, recent theories on the politics of government ownership suggest that state-owned enterprises in general, and banks in particular, are a mechanism for pursuing the individual goals of politicians, such as maximizing employment or financing favored enterprises (Shleifer and Vishny, 1994). According to this "political" view of government participation in financial markets, public banks are inefficient because of politicians' deliberate policy of transferring resources to their supporters (La Porta et al., 2002).

The recent empirical literature shows that, although there is evidence that private banks outperform public institutions in terms of profitability and operating efficiency, the effect of bank privatization on bank performance is mixed in developing countries. In particular, works that

[1] See Megginson (2004).
[2] While the data for the second half of the 1990s are drawn from Micco et al. (2004) and cover the whole banking system, the data for 1970 and 1995 are drawn from La Porta et al. (2002) and refer to the assets of the ten largest banks in each country. Given the typically large size of state-owned banks, the latter approach biases public banks' share upwards.
[3] See Boehmer et al. (2005), Harber (2004) and Brock (2000).

compare bank performance before and after the privatization process find mixed results depending on the country under consideration.[4]

The lack of strong evidence on efficiency gains by privatization in Latin America, along with low economic growth and a decline in bank credit to the private sector after 1998, have raised concerns about the reforms introduced to the banking sector in the last decade. Critics of privatization argue that domestic financial systems have gained in neither depth nor stability with the closure or sale of public banks in the 1990s. Moreover, following the "development" view of government participation in financial markets,[5] critics argue that segments of the market previously covered by public institutions now do not have access to financial services because private banks are mainly oriented to wealthier segments and are not interested in small clients.[6]

Due to the prevalence of government-owned banks in the region and the increasing debate about the policies that countries should follow in terms of public ownership in this market, there has been an increasing interest among economists in providing both evidence about the effects of government ownership on financial markets and a conceptual framework for evaluating the performance of these institutions. This paper tries to contribute to this literature in four different aspects.

First, it provides a description of public ownership in the region. The ownership analysis focuses on the time dimension of public participation as well as on the distribution of public institutions between commercial banks and second-tier institutions. The latter distinction is important because public commercial banks compete, in some segments of the market, with private banks. Public commercial banks may have either explicit or implicit subsidies, and therefore they could inhibit the development of private institutions even in cases where public banks are less efficient than private ones.[7]

Second, the paper studies the performance of public commercial banks vis-à-vis their private counterparts. To study the effect of privatization on banks' behavior, the paper also studies the performance of commercial banks before and after privatization takes place. Although the "development" view argues that public banks should behave differently than private institutions, because they maximize social welfare instead of private profits,[8] in this paper ownership comparison focuses on standard profitability (e.g., ROE) and efficiency measures (e.g., overhead costs) because, as mentioned above, one of the main aims of the privatization

[4] See Micco et al. (2004) and references.
[5] See Levy-Yeyati et al (2005) for a description of the social, political and agency view of government participation in the financial sector.
[6] See Young and Vogel (2005).
[7] Examples of implicit subsidies are non-remunerated state deposits and implicit full deposit insurance.

process was to improve the "private efficiency" of commercial banks in the region and therefore increase the amount of credit in the economy.

Third, and to test the latter point in the previous paragraph, the paper shows evidence related to the effect of government participation on the level of credit to the private sector.

Fourth, in order to assess the claims of the critics of the privatization wave of the 1990s, the paper presents evidence on whether the presence of public banks increases credit-access to "socially" desirable sectors such as small and medium sized enterprises (SME) and sectors that require more external financing for their operation and/or that due to reduced access to collateral face tighter financial constraints.[9] In addition, the paper also studies whether credit from public banks reacts less to economic cycles than credit from private institutions. This evidence is related to the debate on whether the lack of credit during the last downturn in the region (1998-2002) could be explained (in part) by the large presence of private banks during this period.

2. Public Banks in Latin America

The share of bank assets controlled by the public sector varies widely across countries. The industrial countries and Sub-Saharan Africa are the regions with the lowest prevalence of state ownership of banks (around 20 and 30 percent, respectively, in 1995, as shown in Figure 1).[10] South Asia and the Middle East, on the other hand, are the regions with the largest share of state ownership of banks (close to 90 percent in the former group of countries and above 50 percent in the latter). The transition economies of East and Central Europe, after the massive privatization programs of the 1990s, moved from almost full state ownership of banks (90 percent in 1985) to intermediate levels of state ownership in 1995 (data for 2001 indicate an even lower level of state ownership).[11]

Latin America has a level of state ownership of banks similar to the developing country average. There are, however, large differences across countries in the region. Costa Rica has the largest share of government ownership (90 percent in 1995, down from 100 percent in 1970, as shown in Figure 2), and Trinidad and Tobago has the smallest share of state ownership, at 1.5 percent. Most countries in the region privatized aggressively both in the 1970s (during the 1970-1985 period average state ownership of banks dropped from 64 to 55 percent) and the 1990s

[8] A different objective function may force public banks to invest in different segments with lower profitability and higher costs.
[9] Given the technologies that are available, Cabrera et al. (2002) argue that SMEs in Chile have the efficient level of credit access.
[10] The data described here include both commercial and development banks.
[11] For details of bank privatization in transition countries see Bonin, Hasan, and Watchel (2003).

(during the 1985-1995 period average state ownership of banks dropped from 55 to 40 percent).[12] Ecuador, Chile and Peru are the countries that privatized the most, moving from levels of state ownership that were above (or near, in the case of Peru) 90 percent, to state ownership below 40 percent (below 30 and 20 percent in the cases of Peru and Chile). Uruguay is the only country that increased state ownership of banks, moving from 42 percent in 1970 to 69 percent in 1995. Other countries experienced large swings in the bank privatization and nationalization process. Mexico, for instance, moved from 82 percent of state ownership in 1970 to 100 percent in 1985 and back to 35 percent in 1995. A similar pattern holds for several other countries in the region. In Nicaragua, state ownership went from 90 (1970), to 100 (1985) to 63 percent (1995?). In Colombia, state ownership went from 57 (1970) to 75 (1985) percent and then back to 53 percent (1995). In El Salvador, state ownership went from 53 (1970) to 100 (1985) to 26 percent (1995). In Bolivia, state ownership went from 53 to 69 and then back to 18 percent (1995). More recent data show that the pattern of bank privatization has continued in most countries. The next section provides more details on the process of bank privatization in Latin America.

2.1. Public Banks: Retail Commercial and Development Banks

Levy-Yeyati et al. (2003) point out that, while most of the literature on state ownership of banks either focuses exclusively on commercial banks or mixes commercial banks with development banks, these are very different types of institutions. Latin America has a large number of institutions that define themselves as development banks and are part of ALIDE (Asociación Latinoamericana de Instituciones Financieras para el Desarrollo).[13] Of the 121 members of ALIDE, 75 are first-tier banks and 21 second-tier banks, while the remainder are mixed in nature. The majority of these development banks are either state-owned or have mixed public-private ownership. In 2002 there were only 11 development banks with fully private ownership, accounting for less than 2 percent of total assets of Latin American development banks (See Figure 3).[14]

The Dominican Republic, Argentina, and Brazil have the largest number of development institutions (more than 10), and development banks are particularly important in Uruguay, Brazil, Panama, the Dominican Republic, and Costa Rica (where in 2001 loans totaled more than 15

[12] Studies of bank privatization in Latin America include Beck, Crivelli, and Summerhill (2003), Clarke and Cull (2002) and Haber and Kantor (2003).
[13] The self-definition is adopted because it is difficult to define whether an institution is a development bank or not.
[14] These were Banco Industrial S.A. (operating in Bolivia and Guatemala), Banco del Desarrollo (Chile), Banco BHD S.A., Banco Dominicano del Progreso S.A., Banco de Desarrollo Citicorp (the Dominican Republic) , Banco

percent of GDP) and relatively less important in Ecuador, Venezuela, Honduras, Peru, and El Salvador. BNDES in Brazil is the largest development bank, with total net loans in 2002 of US$ 28.3 billion and annual disbursements of approximately US$ 11 billion (Figure 4). The second and third largest development banks are also Brazilian (Banco do Brasil and Caixa Economica Federal), followed by two Mexican banks (NAFIN and BANOBRAS) and an Argentine institution (Banco de la Nación Argentina). It should be clear from this classification that the list of institutions that are members of ALIDE also includes firms that mostly engage in commercial banking activities. If these banks are dropped from the sample the importance of public banks on financial activities (measured as public assets over GDP) drops substantially. Brazil then becomes the country with the largest presence of development banks, followed by Mexico, Colombia and Chile.

Development banks tend to have low profitability, and their return on assets tends to be lower than that of private banks in the region (Figure 5).[15] This is particularly true for Guatemala, Chile, Mexico and Colombia.[16] In the cases of Brazil and Peru, however, no major difference exists between the profitability of development banks and that of private commercial banks (this could be due to the fact that development banks have a lower cost of funds), and in El Salvador and Bolivia, development banks seem to be more profitable than private commercial banks.

There are some aspects in which Latin American development banks adhere to their mandate of focusing on certain disadvantaged sectors. For instance, a recent survey by ALIDE found that more than 20 percent of total credit allocated by its member institutions is directed towards agriculture and rural development, and that 80 percent of credit allocated by second-tier ALIDE members is either medium or long term. The same survey found that 50 percent of the surveyed institutions allocate more than 80 percent of their credit to SMEs (ALIDE, 2003).[17]

Empresarial S.A., Financiera Guatemalteca S.A., Financiera Industrial S.A. (Guatemala) , FEDECREDITO (El Salvador)

[15] The figure compares average return on assets (weighted by bank assets) for development banks (excluding first-tier banks) and private commercial banks.

[16] It should be pointed out, however, that the figure for Guatemala is influenced by the disastrous returns of one institution that had an ROA of –26 percent! If this institution is dropped from the sample the return on assets of development banks increases to 0.6 percent. In the case of Chile the negative results are due to the crisis at CORFO (Corporación de Fomento de la Producción), which in 2001 had an ROA of –4.8 percent (ROA were mostly positive in the previous years).

[17] It should be pointed out that evaluating the impact of development banks is not an easy task. Take, for instance, the provision of long-term financing. In Brazil, BNDES is basically the only provider of long-term financing. This could be interpreted in two different ways. On the one hand, it could be claimed that BNDES provides a much-needed form of credit that is not offered by private providers. On the other hand, it may be claimed that the presence of BNDES crowds out the activity of private providers of long-term financing (that cannot compete with BNDES because, lacking government guarantees and subsidies, have higher cost of funding) and hence the presence of BNDES stunts financial development in Brazil.

However, there are also cases in which some development banks forget their mandate and just replicate the activity of private commercial banks.[18]

3. Bank Privatization, The Experience of the 1990s

While no data are exactly comparable with those of Figure 2, homogenous data can be used to compare the evolution of state-owned banks in 10 Latin American countries over the 1995-2002 period (Table 1).[19] According to the data shown in Table 1, Nicaragua is the country with the deepest privatization process (from 50 to 0 percent public ownership over the 1995-2000 period). Privatization was also very important in Argentina, where the share of state-owned commercial banks dropped by 20 percentage points over the 1995-2000 period. The other two important privatizers were Costa Rica and Brazil. In the former, the share of state ownership dropped by approximately 16 percentage points over the 1995-2003 period (although, at 65 percent, Costa Rica is still the country with the largest share of state-owned banks). In Brazil, state ownership of banks dropped by approximately 12 percentage points over the 1995-2001 period. Given the size of the country, the privatization process in Brazil is the one that raised the largest amount of fund (Megginson, 2003, estimates that over the 1995-2001 period, large bank privatizations raised US$ 5.5 billion in Brazil, with the privatization of BANESPA raising US$ 3.6 billion).

After this privatization process, the way in which governments participate in the financial sector has varied across countries in LAC. At one extreme is Argentina, where all public participation is through commercial banks. At the other extreme is Mexico where after the privatization process, the government's participation in the financial sector goes through second-tier institutions. In the middle are countries like Brazil and Chile where around 30 and 70 percent of total public assets in the banking industry are in commercial banks, respectively.[20]

3.1 Privatization: Cross-Country Experience

[18] One example is the Mexican Banco Nacional de Crédito Rural (BANRURAL) which has a mandate to finance agricultural activities but has a large share of its branches in urban areas.

[19] The data are not directly comparable with those of Figure 2 because the data in Table 1 include only commercial banks, while the data in Figure 2 also include development banks. Furthermore, the data in Figure 2 include only the assets of the 10 largest banks, while Table 1 includes all the banks operating in the country. These considerations lead to different share of state ownership of banks. Consider, for instance, Bolivia where according to the La Porta et al. (2002) data in Figure 2, the public sector owned 18 percent of assets of the 10 largest banks, while the data in Table 1 suggest no public ownership of banks.

[20] In Brazil most public banks take deposits; this calculation considers second tier institutions for which demand and total deposits are small relative to total assets (e.g., Bco do Nordeste do Brasil SA. and BNDES).

Although there is some evidence that private banks outperform public banks in terms of profitability and operating efficiency (see Section 4), which suggests that privatization could lead to fiscal benefits and increase microeconomic efficiency, the evidence on bank privatization in developing countries has been mixed. While Clarke and Cull (2002) find that bank privatization in Argentina involved very large fiscal savings (up to half of a typical province's total expenditure), Haber (2004) finds that Mexico's bank privatization of the early 1990s produced disastrous results. Chile in the early 1980s is another example where a fast privatization led to a major financial crisis. This section attempts to evaluate the effect of privatization by looking at how privatization affects bank performance and credit availability. It also looks at what determines the probability of bank privatization.

a. Privatization and Performance. Clark, Cull and Shirley (2003) survey several countries and cross country studies aimed at measuring the effect of privatization on bank performance (mostly measured by bank profitability). The country studies surveyed by these authors cover 18 privatization episodes (in some cases, such as Mexico, there was more than one privatization episode per country). They find that in seven cases privatization did not lead to an improvement in bank performance, in six cases privatization led to a small improvement in bank performance, and in five cases privatization led to a substantial improvement in bank performance. Another survey conducted by Megginson (2003) concludes that in developed countries bank privatization leads to improvement in terms of profitability and stock performance, but that these improvements are smaller than what is typically found in the case of privatization of non-financial companies. Analyses of non-transition developing countries generally find that privatization has a positive impact on bank competition but no significant impact on profitability or operating efficiency, and that poorly done privatizations can carry very large costs.[21]

To gauge the dynamic effects of Bank privatization, we study the correlation between bank ownership and bank performance by distinguishing static (i.e., the average difference between performance of public and private banks), dynamic (i.e., the effects of change in ownership due to privatization), and selection effects (the effects at work if there is a correlation between bank performance and the likelihood of an ownership change—for instance, poor performing banks may be more likely to be privatized) of bank privatization.[22] The interest here are the dynamic effects that measure the impact of bank privatization. Adopting the strategy

[21] Studies focusing on transition countries find more beneficial effects of privatizations.
[22] This is based on Micco et al; (2004); see that paper for further details.

described in appendix 1, we analyze the impact of privatization on bank performance. Table 2 reports how performance measures such as ROA (return on assets), ROE (return on equity), overhead costs and non-performing loans are affected by privatization, both in a static and a dynamic fashion. In the sample of developing countries, the dynamic effect of privatization by domestic banks is negative for both ROA and ROE, although not statistically significant at standard levels. This finding indicates that acquisition of public banks by domestic investors may reduce bank profitability.[23] Focusing on industrial countries, the dynamic effect of privatization has a negative effect on profitability, although not statistically significant at standard levels, and a negative and statistically significant effect on overhead costs.[24] Taken together, these results indicate that in developing countries privatization has no effect on bank performance, while in industrial countries privatization leads to cost reduction but no improvement in profitability. These results are in line with the findings of Otchere (2003), who studies the effect of privatization in nine low and middle- income countries and finds no significant improvement in the performance of privatized banks.

b. Privatization and Credit Availability. La Porta et al. (2003) study the correlation between state ownership of banks and credit to the private sector for a sample of 82 developing and industrial countries. Their main finding is that a larger share of state-owned banks is associated with lower subsequent financial development. Levy-Yeyati et al. (2004) repeat their experiment using slightly different data and obtain similar results. Table 3 shows that, by including all countries for which data are available, the share of public banks is negatively correlated with subsequent financial development over the 1970-2002 period (column 1). However, this seems to be due to what was happening during the 1985-2002 period (column 3), because there is no significant correlation between the share of public banks in 1970 and financial development over the 1970-1985 period (column 2). The last six columns of the table, which focus on a sample of developing and Latin American countries, find no significant correlation between the initial share of state ownership and subsequent financial development. It is also possible to use panel data to test whether changes in state ownership of banks are associated with changes in the growth rate of financial development. In particular, Table 4 estimates the specification described in appendix 2, which is used to investigate how changes in the ownership of public banks are associated with changes in the growth rate of private credit over GDP.

[23] At least this is the case for the post-privatization average, Berger et al. (2003) find some difference between short-run and long run effects. Unfortunately, the panel is not long enough to distinguish between the two types of effects.

[24] Therefore, the results are somewhat in contrast with Verbrugge et al. (2000), who find that bank privatization in OECD countries led to higher profitability ratios.

The table finds that the coefficient is always negative but statistically significant (at the 10 percent confidence level) only in the case of Latin America. This provides *prima facie* evidence for the fact that privatization was associated with growth in private credit. However, it is worth mentioning that this is a very simple regression that does not control for any other variable and may be plagued by endogeneity problems.

Clarke, Cull and Martínez Peira (2002) provide another study of bank privatization in Latin America and the Caribbean. Their results are also mixed. On the one hand, they find no significant correlation between private credit growth and change in state ownership over the 1997-2002 period (if anything, they find that less state ownership led to lower credit growth, but the correlation is not statistically significant). On the other hand, they find that, in the case of Latin America, there is a marginally significant positive correlation between World Bank loans aimed at bank privatization and growth of financial development but no significant correlation between World Bank loans aimed at bank privatization and growth of financial development in other developing countries.

c. The Drivers of Privatization. Cross-country evidence on the main drivers of the privatization process is fairly limited. However, a recent paper by Boehmer et al. (2005) examines the determinants of privatization in a sample that covers 101 countries over the 1982-2002 period. The authors divide the determinants of bank privatization into political and economic factors. The economic factors include fiscal problems, efficiency and size of the banking sector and capital markets, and the occurrence of banking crises. The political factors include government stability, political risk, political accountability, and political orientation (right versus left) of the government. Their main findings are that the drivers of privatization in industrial countries are very different from those of developing countries. In particular, they find that in industrial countries privatization is uniquely driven by high budget deficits, but that budget deficits do not seem to matter in developing countries. In the latter set of countries, privatization tends to be driven by the quality of the banking sector (countries with low banking sector quality are more likely to privatize), by political accountability (politically accountable government are more likely to privatize), and by the political orientation of the government (right-wing governments are more likely to privatize). Clearly, these cross-country results mask wide heterogeneity, and in fact the case studies discussed below indicate that fiscal considerations were a key determinant of the privatization decisions of the three largest Latin American economies.

3.2 Bank Privatization in Argentina[25]

The 1990s witnessed dramatic changes in the ownership structure of Argentinean banks. Most of the privatization process involved banks owned by provincial governments. Before the beginning privatization process every Argentinean province owned at least one bank. Of the 34 public banks operating in Argentina, 25 were owned by the provincial governments, and about 22 percent of the country's bank assets were owned by the various provincial governments. In 1999, there were only 10 provincial banks left, holding about 13 percent of the total assets of the Argentinean banking system. During the same period, the number of national and municipal banks went from 9 in 1993 (representing 23 percent of bank assets) to 5 in 1999 (representing 15 percent of total bank assets).

The privatization process was mostly driven by the various crises faced by the country. At the beginning of the 1990s, the main problem was hyperinflation. To fight inflation the government established a currency board and fixed the peso to the US dollar. The new monetary arrangement was also linked to a process of structural reforms that included privatization, trade liberalization, and legislation that prevented the Central Bank of Argentina from guaranteeing the deposits of commercial banks and limited its ability to lend to commercial banks.

This new regulatory framework reduced provincial banks' access to cheap credit from the Central Bank and diminished their ability to fulfill a social mandate that included providing unremunerated services to the provincial governments, buying provincial government bonds, and maintaining a large branch network. In practice, the new regulatory framework eliminated a subsidy from the Central Government (via the Central Bank and *Banco de la Nación*, a large commercial banks owned by the Federal Government) to the provincial governments (via the provincial banks).

The second shockwave was the Tequila crisis of 1994/1995. The various provincial banks were severely hit by this crisis and required assistance from the Central Bank and *Banco de la Nación*. As a crisis of the banking system could threaten the currency board, the Argentinean government acted quickly to strengthen bank regulation and supervision and implemented measures aimed at promoting the entry of foreign banks and at pushing the provinces to privatize their banks.[26] The privatization process was helped by the creation of an institution (*Fundo Fiduciario*) which allowed the provinces to divide their banks' assets into two components: (i) new "good" banks endowed with the healthy assets of the old provincial banks and ready for

[25] This section draws heavily on Berger et al. (2003), Clarke and Cull (1999, 2001), and Clarke, Crivelli and Cull (2005).

[26] Clarke and Cull (1999) Provincial Bank Privatization in Argentina: The Why, How, and So What? World Bank Policy Research Working Paper No. 2159

privatization; and (ii) residual institutions endowed with the "bad" assets of the provincial banks. The *Fundo Fiduciario* would help financing the recovery and liquidation of the assets in these residual institutions.

This process led to the privatization of 19 publicly owned banks (15 provincial banks and four federal and municipal banks).[27] In a study of the main drivers of the privatization process, Clarke and Cull (2001) find that the decision to privatize was driven by both political economy and fiscal reasons. In particular, they find that larger banks (both in terms of their staff and in terms of the size of the local economy) were less likely to be privatized than smaller banks, but they also find that poorly performing banks and banks located in provinces with serious fiscal problems were more likely to be privatized.

Whether the outcome of the privatization process was positive or negative is mostly in the eye of the beholder. Berger et al. (2003) find a net reduction of the share of non-performing loans in privatized banks but argue that that this is likely due to the cleaning process at the time of privatization. They find a much weaker effect on increased profitability (the coefficient in their regressions is often not significant) and no effect on cost reduction (they argue that this might be due to the fact that some of the new banks were prevented from reducing personnel). Furthermore, they find that the newly privatized banks reduced the amount of loans (again this may be due to the cleaning process) and also allocated fewer loans to the agriculture sector. At the same time, they find no significant difference in loans to the public sector, consumer loans, and manufacturing loans. Clarke et al. (2005) argue that the drop in loans by privatized banks was temporary, and that the mixed findings described above are due to the short period of observation. In fact, they suggest that after an adjustment period loans returned to pre-privatization levels.

3.2 Bank Privatization in Brazil[28]

As in the case of Argentina, the Brazilian banking system has been traditionally characterized by a widespread presence of banks owned by local governments. As a consequence, the privatization process focused on these types of institutions. At the beginning of the 1990s only two of the 26 Brazilian states (plus the Federal District) did not have a state bank, and several states had multiple state banks (for a total of 35 institutions).[29] Another similarity with the case of Argentina is that the bank privatization process went hand-in-hand with the process of macroeconomic stabilization.

[27] For more details see Clarke, Crivelli and Cull (2005)
[28] This section draws heavily on Beck et al. (2003) and Baer and Namzi (2000).

During the early 1990s most Brazilian banks (both public and private) derived a large share of their income from the fact that short-term deposits were imperfectly protected from inflation; in an environment characterized by high inflation, banks could use these deposits to purchase securities that yielded a rate of interest fully indexed to inflation. This source of profit disappeared with the stabilization program (Plano Real) implemented in 1994. Banks reacted to this new environment by increasing their lending activity, often without proper risk analysis and bank supervision. Together with high real interest rates, this lead to an increase of bank fragility and to a deterioration of the portfolio of both public and private Brazilian banks. By the mid-1990s several Brazilian banks were technically bankrupt. Brazilian authorities' first step was to deal with the emergency and avoid a collapse of the banking system. This involved liquidating 26 banks (one public and 25 private), putting four state banks under special administration, and taking over 13 other banks (three public and 10 private).[30]

The next step was to devise a system to provide incentives for privatizing and restructuring various state banks. This objective was advanced under the Program of Incentives for the Reduction of States' Participation in Banking Activities (*Programa de Incentivo á Redução do Setor Público Estadual na Atividade Bancária-PROES*) introduced in 1995. Under PROES the various state governments faced five possible options: (i) liquidation of their state banks; (ii) sale of the state banks to the federal government, with the understating that the federal government will either liquidate or privatize the bank; (iii) privatization of the bank; (iv) restructuring of the state bank with a limited contribution (up to 50 percent of the cost) by the federal government and continuing to operate it as a state bank under new management; or (v) transforming the state bank into a non-financial institution or development agency. Excluding the two states that did not have public banks, only two local governments opted out of PROES (Paraiba and the Federal District), while the other 23 states participated in the program, with the following outcomes: 10 banks were liquidated, five restructured by the state and maintained as public banks, 15 privatized or being prepared for privatization, and two banks converted into development agencies. Beck et al. (2003) study what drove the decisions of the various states and find that state deficits are not significantly correlated with the decision to privatize state banks. They do find, however, that states receiving more transfers from the Federal government were more likely to privatize their state banks. The authors also find that privatization led to higher profitability and a lower share of non-performing loans. These results are corroborated by the

[29] The two states with no public banks were Mato Grosso du Sul, and Tocantins.
[30] The largest recapitalization (approximately USD 8 billion) was that of Banco do Brasil in 1996 (Baer and Namzi, 2000).

findings of Nakane and Wintraub (2005), who find that Brazilian state banks are less productive that Brazilian private banks.

In addition to the five small state banks that were not privatized, the Brazilian public sector still owns three very large banks: Banco do Brasil (BB), Caixa Economica Federal (CEF), and Banco Nacional de Desenvolvimento Econômico e Social (BNDES). BB is a retail commercial bank. CEF is a mixed institution that has both retail and second-tier activities, handles the government's social payments, and is very active in the mortgage market. BNDES is a development bank that acts mostly as a second-tier institution. Until 2001, both BB and CEF's balance sheets were characterized by a large percentage of non-performing loans, which were then absorbed by the federal government at a net cost of approximately 6 percent of GDP (three quarters of this cost were due to the restructuring of CEF). BNDES had a sound balance sheet and did not need any restructuring.

While all three institutions rely on highly subsidized sources of funds (less so for the case of BB, funded mostly by deposits), most observers are convinced that the three institutions operate and comply with their mandates with very different degrees of efficiency. CEF is often considered the least efficient of the three. Due to its multiple roles (commercial bank, mortgage bank, lottery manager, scholarship administrator) it does not have a clear strategy, has very high operating costs, and is probably overstaffed. In addition, it has a very poor loan recovery record (especially in the case of mortgages, which represented two thirds of its loan portfolio) and booked record default rates that led to the 2001 recapitalization whereby the government swapped the non-performing portfolio with government securities. CRF's problem may be due to its multiple mandates and objectives; breaking up the institution into smaller parts with narrower and better defined objectives could improve its efficiency.

BB is in an intermediate position. While it is not a model of efficiency and also suffers from high costs and non-performing loan ratios, it is often thought to be better managed than CEF.

BNDES is considered to be the best of these three banks. While it is difficult to estimate the opportunity cost of BNDES projects (i.e., if the implicit subsidy provided by BNDES lending would have a higher return if employed differently), there is agreement that the institution is fairly well-managed, has low default rates (partly because most of its lending is second-tier and therefore channeled through intermediary banks) and contributes to Brazil's economic development.[31] There is also some consensus that BNDES managed well its transition from an

[31] As already mentioned, BNDES is the only provider of long-term financing in Brazil. There is also some evidence that BNDES is playing a positive role in reducing regional disparities (Pimetal Puga, 2003).

institution created to support Brazil's import substitution policies to cooperating with the private sector in projects aimed at increasing the competitiveness of the country.

3.3 Bank Privatization in Mexico[32]

The recent history of the Mexican banking system starts in 1982. This was the year in which Mexico announced that it was unable to rollover its short-term external debt, marking the official start of the debt crisis that sparked Latin America's lost decade. In the same year, the administration of President Lopez Portillo, faced with increasing pressure against the peso, blamed the banks for the economic crisis and nationalized the entire banking system (the nationalization was incorporated into the constitution).[33] The nationalization was followed by a process of bank recapitalization and consolidation; of the 58 banks nationalized in 1982, only 18 were still operating in 1990.

In 1990, the Mexican Congress amended the constitution to allow the privatization of the banks nationalized in 1982. The privatization of the banking system was part of a broad program to sell off state-owned enterprises, mostly for fiscal reasons. Hence, the design of the privatization process was formulated so as to maximize the sales price of the privatized banks. In order to achieve this objective, the Mexican Government signaled to potential bidders that they could earn a high return because the newly privatized banks would be operating in a system with little competitive pressure and lenient regulatory and accounting standards. One of the key characteristics of the privatization process was that foreign bidders could not participate in the privatization process. Protection from foreign competition was even stipulated in the NAFTA agreement, which stated that foreign banks could not own more than 30 percent of the capital of Mexican banks and could not have controlling shares in large Mexican banks. Furthermore, the new bankers were allowed to pay for their purchase with borrowed money guaranteed by the shares of the bank that they were purchasing. Very often the loan would come from the banks themselves.

The privatization process was indeed a success in maximizing privatization revenues. The average bid to book ratio was well over 3 (bank mergers in the US yield an average bid to book ratio of around 2) and the Mexican government raised more than $12 billion from the privatization process. However, the details of the process were among the main causes for the disastrous outcome of the mid-1990s. The new bankers had very little capital invested in the

[32] This section draws heavily on Haber and Musacchio (2004).
[33] This was the second nationalization of the Mexican banking system; the first occurred in 1915-1916.

institutions they purchased and in an environment characterized by poor regulation and supervision, they engaged in particularly risky (and in some cases fraudulent) behavior. Over the 1991-1994 period, credit grew very fast but so did non-performing loans (Figure 6). Interestingly, deposits did not grow as fast as lending and the difference was financed with dollar borrowing from foreign banks. These dollars were then lent to private firms, generating wide balance sheet mismatches in the economy.

In this environment characterized by very fragile banks, the Tequila crisis of 1994-95 dealt the mortal blow to the Mexican banking system. The ratio of non-performing loans grew to 36 percent at the end of 1995 and 53 percent at the end of 1996. The bailout of the banking system was particularly messy and costly, and allowed bank directors to loot the bank assets by engaging in related lending activities (La Porta et al., 2003). In response to the crisis, the Mexican government implemented new regulations that limited the risk of related lending activities and allowed the entry of foreign banks. Foreign ownership of banks went from 5% of total assets in 1995 to 82% of total assets in 2003. The new regulatory and ownership framework improved the banks' balance sheet. Non-performing loans, although still very high, have been monotonically decreasing since 1999 (Figure 6).

While the balance sheets of Mexican banks are now safer, privatization and foreign entry did not have the expected impact on credit expansion. Estimations by Haber and Musacchio (2004) find that banks have reduced credit extended to the private sector by more than 2 percent a year and found that foreign-owned banks have decreased their private sector lending even more than domestic banks. Consequently, bank lending as a share of GDP dropped substantially and at the end of 1993 amounted to approximately 14 percent. Credit to the private sector dropped even more substantially to about 8 percent which is less than one third of the Latin American average in the 1990s.

4. Another Look at Bank Ownership and Bank Performance: Cross Country Evidence

The previous section focused on the dynamic effects of bank privatization (i.e., how changes in ownership affect bank performance) and revealed that privatization had either no effect or very limited effect on bank performance. A possible criticism of this strategy is that privatization is a recent phenomenon and newly privatized banks are still adjusting towards a steady state of higher profitability. For these reasons, it is interesting to compare the performance of public and private banks without focusing on the specific dynamics of the privatization process. To this end, using a bank-level dataset assembled by Micco et al. (2004) that covers more than 6,000 banks in 119

countries over the 1995-2002 period provides a new perspective for a closer look at Latin America.

4.1 Bank Ownership and Performance in Industrial and Developing Countries[34]

Appendix 3 describes a simple method for estimating the relationship between the performance of banks and their ownership. The basic results are reported in Table 5. There are four dependent variables, two measuring profitability (ROA and ROE) and two measuring interest margin (the first defined as a share of total assets and the second defined as a share of loans plus deposits). The estimations described in the appendix are done using a sample of data that includes both developed and developing countries and are also done focusing on developing or industrial countries separately[35]. Before discussing the results it is worth noting that when looking at the entire sample, the results are similar to those of developing countries. This is not surprising, because the estimation method gives the same weight to each country (no matter how many banks are included in the sample) and since the sample includes 92 developing countries and only 27 industrial countries, the results for the aggregate sample tend to be similar to those of the developing country sub sample. Hence, the focus is on the two sub samples with little attention to the regressions that include both developing and industrial countries.

The first two columns show that in the sample of developing countries, state-owned banks tend to have much lower returns on assets (ROA) than comparable domestic privately-owned banks. Besides being statistically significant, the effect is also quantitatively important, indicating that the average state-owned bank has a return on assets which is 0.7 percentage points lower than that of the average private domestic bank. Considering that the average value of ROA in developing countries (using the same weights used in the regression) is 1.7 percent, this is a sizable difference (more than one third of average ROA in developing countries). At the same time, in industrial countries there is no statistically significant difference between the ROA of public banks and that of similar private banks (at 0.06 the coefficient is small and not even close to being statistically significant).

These results are interesting because they show that it is not necessarily true that state-owned banks have lower profitability and confirm the results by Altunbas et al. (2001) who find that, in the case of Germany, there is no evidence that privately-owned banks are more efficient than public and mutual banks. At the same time, the results support the idea that, in developing

[34] This section is based on Micco et al. (2004). That paper provides further details on the data and estimation procedure.

countries public banks are less profitable than private banks. La Porta et al. (2002) analyze the impact of public banks on growth and find that in developing countries the presence of public banks has a detrimental effect on growth but in industrial countries there is no correlation between state-ownership of banks and growth. They argue that this result may be due to the fact that high income countries are better equipped to deal with the distortions that arise from government ownership of banks. It would be possible to apply the same line of reasoning and claim that the results are driven by the fact that governance issues are less serious in industrial countries (which tend to have better institutions and a better public sector) and hence public banks in these countries tend to be better managed than public banks in developing countries. An alternative interpretation is that in industrial countries, public banks ceased to play a development role and hence just mimic the behavior of private banks, whereas in developing countries public banks still play a development role and their low profitability is due to the fact that, rather than maximizing profits, they respond to a social mandate.[36]

The last six columns of the table focus on net interest margin.[37] When measuring the margin as a share of total assets (columns 7-9), public banks in developing countries display a slightly lower net interest margin (the coefficient is statistically significant but, at 5 percent of the developing country average, not very large) and the coefficient is not statistically significant in the sample of industrial countries. When net interest income is measured as a share of loans plus deposits (columns 10-12), public banks are never significantly different from private banks. These results are driven by the fact that loans represent a lower share of total assets for public banks located in developing countries.[38]

The first six columns of Table 6 focus on two indicators of efficiency (overhead costs over total assets and employment over total assets); Columns 7 to 9 look at the size of the branch network and the last three columns focus on credit to the public sector.[39] The first row of columns 1-3 show that in both industrial and developing countries state-owned banks tend to have higher overhead costs (relative to total assets) than similar domestic private banks. The coefficients imply that in industrial countries public banks have overhead costs that are between 8 and 10 percent higher than the group average (which is about 2 percent in industrial countries and 4 percent in developing countries); the corresponding value for developing countries is 5 percent.

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[35] Here we focus on the coefficient of PUB in the regression in appendix 3 (Micco et al, 2004 present a full analysis of regression results).

[36] Of course, this interpretation would be in contrast with La Porta et al. (2002) finding that public banks have a negative effect on growth and financial development. For a discussion of these issues see Levy-Yeyati et al. (2004).

[37] In order to improve the readability of the coefficients, two margin variables are multiplied by 100.

[38] Regressions results are available upon request.

[39] As in the case of net interest margin, overhead costs over total assets and share of government loans are multiplied by 100 to improve the readability of the coefficients.

Hence, the lower profitability of public banks reported in Table 5 seems to be due to higher costs and not lower margins. Again, there are two possible interpretations for these results. The first is that public banks are less efficient than their private counterparts and that this difference in efficiency is reflected in higher overhead costs. The second is that public banks provide services that generate externalities and hence have higher operating costs.

Columns 4-6 show that in developing countries public banks tend to have a higher employment ratio than domestic private banks (the difference is about 9 percent of the average for developing countries). To test whether differences in overhead costs are explained by a high level of employment, the regression of column 2 is augmented with a measure of employment over total assets (results available upon request). This latter variable is statistically significant and, once employment is controlled for, the dummy for public ownership drops in both magnitude and is no longer significant. In industrial countries, no strong correlation exists between bank ownership and employment.

As before, the finding that public banks in developing countries have higher employment ratios can be interpreted in terms of efficiency or in terms of services provided. For instance, it has been argued that one of the roles of public banks is to provide banking service to isolated rural areas (Levy-Yeyati et al., 2004). Such activity, would lead to higher overhead costs and a higher employment ratio. While there is no information on whether public banks provide banking services to rural areas, some information exists on the size of the branch network. It is reasonable to assume that if public banks accomplish their role of providing service to isolated areas, they should have a relatively high number of small branches and hence a high ratio of branches relative to total assets. Columns 7-9 test this hypothesis and find that public banks in developing countries in fact have more branches (expressed as a ratio of total assets) than their domestic counterparts but the coefficient is not statistically significant. While the results of columns 7-9 should be taken with some caution because they are based on a much smaller number of banks (less than one quarter of the observations have information on the size of the branch network), they seem to support the idea that the higher overhead costs, higher employment ratios and lower profitability of public banks in developing countries are partly due to a more extensive branch network.

Public banks are often thought of as an instrument to direct credit to the public sector. The last three columns test whether there is a correlation between ownership and credit to the public sector and find no evidence of such a correlation (again, the results should be interpreted with caution because the sample for which there is data on credit allocation is extremely small).

The last set of exercises focuses on loan provisions and non-performing loans. Ownership may be correlated with non-performing loans (NPL) because public banks could have lower credit scoring or loan recovery ability (in this case higher NPL would be associated with less efficient banks) or because public banks may be willing to finance risky projects that generate positive externalities (in this case higher NPL would just reflect the development mandate of state-owned banks). Column 2 of Table 7 shows that in developing countries the share of NPL of public banks is higher than that of private domestic banks. The effect of public ownership on NPL is very large, the coefficient of 6.5 corresponds to 50 percent of the developing country average (which is 12 percent). There is no correlation between ownership status and NPL in industrial countries.

This high level of NPL could be either due to incompetence and inefficiencies or to the development mandate of public banks. In the former case, if all managers follow the same policy in terms of provisions, the level of provisions of public banks should not be different from that of private banks (unless public bank managers internalize their incompetence and acknowledge it by setting higher provisions). In the latter case, managers of public banks expect more NPL and hence keep higher provisions. Column 5 shows that, in developing countries, provisions are higher for public banks (the coefficient implies that the difference between provisions in public banks and private banks is close to 30 percent of the developing country average). In industrial countries provisions of public banks are slightly lower that those of private banks.

4.2 A Focus on Latin America

It is important to note that the above results are to be interpreted as averages for the developing and industrial countries and that there might be heterogeneity across countries. Table 8 splits the sample of developing countries into six groups and shows that there is substantial heterogeneity across them. In particular, the difference between the performance of private and public banks is not particularly strong in the Middle East, North Africa, Eastern Europe and Central Asia regions but it is large in South Asia and very large in Latin America. This section looks at the experience of Latin America in greater detail using data from bank supervisors.[40]

[40] These data tend to be of higher quality but not directly comparable with the BankScope data used in the previous exercises.

Figure 7 describes public bank performance indicators relative to that of private domestically-owned banks.[41] It shows that public banks charge lower interest rates than their private counterparts (this result is consistent with Sapienza's 2003 findings for Italy) and also pay lower interest rates on their deposits (90 basis points less than private banks). It is also the case that public banks tend to lend more to the public sector (the difference between the share of public sector loans of private and public banks is 8 percentage points) and have a higher share of non-performing loans (about 8 percentage points). Finally, public banks have a lower profitability than their private counterparts (the difference in returns on assets is 0.4 percentage points). Table 9 illustrates the results country by country (it reports both the public and foreign coefficients) and shows that the relative profitability of public banks is particularly low in Colombia and Honduras. (Costa Rica is the only case in which public banks are more profitable then their private counterparts). Brazil and Honduras are the countries where public banks pay and charge the lowest interest rates (again relative to domestically-owned private sector banks), with a rate differential close to two percentage points in the case of loans in Brazil. Non-performing loans are particularly high for public banks in Costa Rica (this seems in contrast with their relatively high profitability), Guatemala and Honduras and public sector loans are particularly high in Chile and Costa Rica.

Table 10 traces the evolution of public sector loans in public, private and foreign banks. There are three countries (Argentina, Brazil and Colombia) in which the share of public sector loans increased considerably over the 1995-2000 period, but only in Colombia and Argentina do public sector banks seem to have absorbed a disproportionately large share of public sector debt.

While these results should be taken with some caution because they are simple correlations that control only for bank size, they suggest that while public banks tend to be less efficient than their private counterparts (with higher non-performing loans, more loans to the public sector, higher overheads, and lower returns) they are also perceived to be safer and hence able to pay lower rates on their deposits and extend credit at a lower rate. An alternative explanation for this last result is that state-owned banks may benefit from indirect subsides coming from government deposits paying no or low interest rates.[42]

5. Public Banks: Access to Credit and Credit Volatility

[41] All the values were obtained by running a bank level regression, controlling for size (expressed as log of total assets) and including a dummy taking value one for public banks and a dummy taking value one for foreign-owned banks. The values plotted in Figure 4 are the coefficients of the public bank dummy.

[42] This is the case of Chile, where the Banco del Estado de Chile manages the central government checking account.

The "development" view indicates that public banks should have a different objective function than private financial institutions. In particular, public banks should be more active in sectors where market imperfections are likely to be more prevalent.[43] Natural candidates are sectors associated with informational asymmetries and externalities. In cases where these market imperfections lead to larger social than private benefits, private provision of credit would be lower than socially desired and public institutions, if they maximize social welfare, would have economic losses.

Critics of the privatization and the closure of public banks argue that in some cases these decisions were made only using private criteria and without sufficient attention paid to what would fill the void. Young and Vogel (2005), for example, argue that this was the case of "Banco Agrario del Perú" where the closure was rapid and left a gap in rural finance for millions of Peruvians.[44]

Even though in some cases public institutions may improve the credit-access of sectors/firms that otherwise would remain outside the financial sector, empirical studies do not find evidence that public institutions improve financial access for sectors that seem to be associated with more informational asymmetries. The results presented by Galindo and Micco (2004), suggest that state-owned banks do not promote the growth rates of manufacturing industries that rely on external sources of funding for their operation and/or that due to reduced access to collateral (because they are intensive in intangible assets) face tighter financial constraints. On the contrary, the development of a private banking industry appears to have significant effects over such types of industries.

Focusing on the effect of public institutions on bank credit-access by small and medium enterprises (SME), the scarce empirical literature does not support the idea that public banks devote a larger share of their total lending to small businesses than their private counterpart. In a study of 4 Latin American countries, of which three have public institutions, Clarke et al (2005) show that the share of total lending devoted to SME by public banks is smaller than the one devoted by private institutions in Argentina, Chile and Colombia. The evidence is mixed when these authors analyze the real lending growth rate to SME during the second half of the 1990s. Using the World Business Environment Survey, which covers around 50 countries in 2001, Galindo and Micco (2005) study the leverage of firms of different sizes. As expected, their results show that the firms' leverage increases with firm size, but the gap between large and small firms decreases with creditor rights protection. Regarding the role of public banks, after

[43] See Levy-Yeyati et al (2004) for a complete discussion of the social "view" of public banks.

controlling for institutional variables (creditor protections), these authors find weak evidence that public institutions contribute to reduce the credit-access gap between large firms and SME.[45] Using a slightly different approach, the Inter-American Development Bank (2004) also does not find strong evidence in favor of the idea that public banks surpass private banks in the extent to which they lend to small businesses.

Critics of privatizations also argue that private bank lending could overreact to recession and amplify the business cycle. The lack of credit during the last economic downturn in Latin America (1998-2002) has raised this issue in the region (see the case of Mexico in section 3.3).[46] There are two reasons behind this idea. The first has to do with the fact that public banks internalize the role of a stable macroeconomic environment and hence credit stabilization is part of the objective function of state-owned banks. The second has to do with the fact that during turmoil, depositors fly to public banks that are perceive as safer than private banks (because of either implicit or explicit full deposit insurance). As Levy-Yeyati et al (2004) report, the evidence on the stabilizing role of public banks is still scarce and not conclusive. Micco and Panizza (2004) show that, in developing countries, credit extended by public banks is less procyclical than private credit. Appendix 4 builds on this work focusing only on Latin American countries. As for the group of developing countries, public institutions in Latin America seem to react less to external shocks and their credit appears to be less procyclical. Somewhat contrary to these previous results, Cecchetti and Krause (2001) show that the effectiveness of monetary policy is reduced (rather than enhanced) by the presence of public banks.[47]

6. Conclusions

As in the two previous decades, the 1990s were characterized by a reduction of public intervention on the financial sector. As a region Latin America was not an exception. Despite the increasing importance of private players in the banking industry, public banks still control a large fraction of banking assets in the region (40 percent in 1995). Their presence is mainly through commercial banks or second tier institutions depending on the country. For example, in Argentina all government participation is through commercial banks; the complete opposite is true in

[44] In other cases, like Banades in Nicaragua, in order for some regions or sectors to maintain access to financial service subsidies, private institutions were introduced to avoid the void left by the closure of the public bank.
[45] Results suggest that public banks mainly increase credit access of medium-sized firms (50-500 employees).
[46] See Levy-Yeyati et al (2004) and Micco and Panizza (2004) for further discussion.
[47] In principle, the central bank and public banks should try to smooth output and therefore their action should complement each other.

Mexico. For the case of Brazil and Chile, government participation is through both commercial and second tier institutions.

Apart from fiscal considerations, Boehmer et al (2005) argue that one of the main aims of this privatization process in developing countries has been to improve the economic efficiency of banking activities. This idea is based on the "political" view of government participation in finance. Under this "view," governments acquire control of banks in order to provide employment, subsidies, and other benefits to supporters. This view implies state-owned banks should have lower profitability and efficiency levels and higher levels of nonperforming loans. As a result of this inefficiency and cautious behavior by public banks, large government intervention in the banking industry should be related to lower levels of credit in the economy.

Cross sectional evidence shows that public banks in developing countries in general, and in Latin America in particular, have lower profitability, high levels of overhead costs and higher levels of nonperforming loans relative to their private counterparts. Although this cross-sectional evidence supports the efficiency goal behind privatizations in the region, a dynamic analysis of banks' performance before and after the privatization process shows mixed results in terms of privatizations increasing economic efficiency. In Latin America in the last nine years, privatized banks do not appear to have increased systematically their profitability and efficiency.

Focusing on the level of credit to the private sector, similar to previous studies, the paper finds weak evidence that the falling presence of public banks has been related with higher levels of credit to the private sector.

This lack of strong evidence of a positive effect on credit availability and the large contraction of credit during the 1998-2002 downturn have raised concerns about the privatization process in some Latin American countries. In particular, following the "development" view, critics of the privatization process argue that private banks do not cover segments of the markets with positive social returns but negative profits (e.g. SME, some rural areas, etc). The evidence collected in the paper does not support this idea. The empirical evidence shows that a large presence of public banks is not related to higher credit-access for either SME or sectors that require more external finance and therefore should be more affected by financial imperfections.

Finally, in terms of the role played by privatization in the drastic contraction of credit during the last downturn in Latin America, the paper presents evidence that public banks in Latin American countries tend to be less procyclical than their private counterparts.

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Table 1: Share of Public Bank Assets (only includes commercial banks)

Year	ARG	BOL	BRA	CHL	CRI	DOM	GTM	HND	MEX	NIC	SLV
1993			51.6%								
1994			52.7%	13.3%							
1995	40.9%		53.4%	12.8%	81.0%		6.7%			49.9%	8.8%
1996	35.6%	0.0%	51.4%	11.4%	81.6%	29.6%	6.5%	4.9%	4.6%	29.9%	8.1%
1997	29.9%	0.0%	53.3%	10.9%	78.2%	26.2%	5.1%	3.8%	0.0%	14.3%	7.2%
1998	30.0%	0.0%	50.0%	11.1%	74.9%	21.7%	3.6%	3.1%	0.0%	13.3%	7.0%
1999	26.6%	0.0%	49.1%	10.0%	75.8%	20.8%	3.7%	2.4%	0.0%	1.0%	6.0%
2000	25.6%	0.0%	43.6%	9.0%	71.7%	19.3%	4.0%	2.3%	0.0%	0.4%	5.6%
2001	20.1%	0.0%	39.4%	9.5%	68.9%	20.1%	4.0%	2.0%	0.0%	0.0%	4.3%
2002		0.0%			67.6%		3.3%	1.8%	0.0%	0.0%	4.4%
2003		0.0%			65.3%		3.9%	1.7%			

Source: own calculations based on Balance sheet data

Table 2: Bank Privatization and Profitability, Overheads, Non-Performing Loans

	ROA			ROE			OH/TA			NPL/L		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Static Pub	-0.601	-0.778	-0.130	-5.214	-6.997	-0.397	0.248	0.261	0.120	6.193	7.424	0.114
	(0.087)***	(0.114)***	(0.055)**	(0.818)***	(1.053)***	(0.682)	(0.072)***	(0.087)***	(0.075)	(1.039)***	(1.299)***	(0.302)
Static For	0.285	0.343	0.035	2.305	2.851	-0.262	-0.516	-0.626	-0.192	1.153	1.537	-0.039
	(0.075)***	(0.100)***	(0.036)	(0.655)***	(0.854)***	(0.521)	(0.075)***	(0.095)***	(0.064)***	(0.578)**	(0.733)**	(0.241)
Selection Pub	0.027	0.005		4.046	3.710		-0.139	-0.162		6.319	6.499	
	(0.141)	(0.150)		(2.527)	(2.646)		(0.103)	(0.105)		(3.733)*	(3.869)*	
Selection Priv	-0.036	-0.017	0.001	-1.555	-1.825	-0.390	0.123	-0.033	0.256	1.209	0.023	1.458
	(0.174)	(0.296)	(0.064)	(1.459)	(2.433)	(1.017)	(0.190)	(0.322)	(0.088)***	(0.903)	(1.128)	(0.870)*
Selection For	-0.314	-0.529	0.137	-3.117	-5.161	1.595	-0.073	-0.107	-0.071	-0.210	-0.132	0.166
	(0.120)***	(0.162)***	(0.064)**	(1.215)**	(1.608)***	(1.000)	(0.084)	(0.114)	(0.088)	(1.372)	(1.774)	(0.263)
Dyn. Pub	-1.339	-1.379		-13.306	-13.720		-0.125	-0.077		0.085	-0.027	
	(0.349)***	(0.358)***		(4.925)***	(5.066)***		(0.331)	(0.327)		(5.101)	(5.258)	
Dyn. Priv	-0.120	-0.184	-0.088	-1.899	-2.546	-1.628	-0.217	-0.071	-0.281	1.976	2.825	3.991
	(0.223)	(0.351)	(0.100)	(1.922)	(2.969)	(1.364)	(0.239)	(0.381)	(0.109)**	(1.284)	(1.619)*	(2.030)**
Dyn. For.	0.107	0.308	-0.367	-1.284	0.264	-4.701	-0.294	-0.337	-0.072	1.044	1.068	1.096
	(0.161)	(0.206)	(0.103)***	(1.656)	(2.073)	(1.393)***	(0.166)*	(0.205)	(0.164)	(1.604)	(2.095)	(0.468)**
Non Int Inc/TA	0.008	-0.001	0.127	-0.047	-0.111	0.817	0.448	0.416	0.718	1.520	1.662	0.014
	(0.034)	(0.038)	(0.010)***	(0.211)	(0.234)	(0.091)***	(0.048)***	(0.051)***	(0.046)***	(0.362)***	(0.377)***	(0.067)
Dda Dep/TDep	0.006	0.010	0.000	0.022	0.043	-0.011	0.013	0.014	0.013	0.001	0.006	0.003
	(0.002)***	(0.003)***	(0.001)	(0.013)*	(0.019)**	(0.010)	(0.002)***	(0.003)***	(0.001)***	(0.028)	(0.039)	(0.006)
Lag TA (ln)	0.035	0.091	-0.023	1.220	2.032	0.554	-0.102	-0.134	-0.096	-0.037	0.395	-0.270
	(0.019)*	(0.044)**	(0.008)***	(0.161)***	(0.357)***	(0.124)***	(0.020)***	(0.043)***	(0.015)***	(0.136)	(0.316)	(0.055)***
Lag Share	-0.187	-0.526	0.101	0.364	-3.693	2.289	-0.786	-0.902	0.117	-5.053	-9.643	2.681
	(0.304)	(0.459)	(0.181)	(2.226)	(3.354)	(2.354)	(0.244)***	(0.365)**	(0.209)	(2.473)**	(3.377)***	(1.132)**
Observations	18583	5379	13204	18467	5302	13165	18732	5381	13351	8394	2688	5706
R-squared	0.4937	0.4842	0.5682	0.5158	0.5200	0.5184	0.7996	0.7742	0.7831	0.5979	0.5653	0.6288
Group	All	Developing	Developed	All	Developing	Developed	All	Developing	Developed	All	Developing	Developed

Robust standard errors in parentheses. All regressions are weighted by asset share.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3: The Effect of State Ownership of Banks on Financial Development

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable: Average annual growth rate of private credit / GDP									
Period	1970-02	1970-85	1986-02	1970-02	1970-85	1986-02	1970-02	1970-85	1986-02
GDPPC (initial)	-0.176	-0.030	-0.345	27.249	1.25	0.481	66.018	5.27	-2.957
	(0.135)	(0.270)	(0.212)	(21.921)	(0.962)	(0.757)	(33.326)*	(1.849)**	(1.447)*
Priv. Cred. (initial)	-0.036***	-0.083***	-0.051***	-3.941	-0.21	-0.037	-8.714	-0.43	-0.039
	(0.009)	(0.025)	(0.015)	(1.452)**	(0.069)***	(0.034)	(1.959)***	(0.111)***	(0.054)
Public share (initial)	-0.019**	-0.015	-0.039**	-0.355	-0.036	0.02	0.316	-0.044	-0.005
	(0.009)	(0.015)	(0.017)	(0.496)	(0.021)	(0.021)	(0.324)	(0.026)	(0.026)
Constant	6.257***	7.040***	9.411***	0.604	1.456	-1.003	-226.136	-21.126	25.718
	(1.305)	(2.601)	(2.276)	(141.350)	(6.003)	(6.292)	(230.462)	(10.527)*	(11.022)**
Observations	70	66	77	27	37	33	14	17	15
R-squared	0.20	0.17	0.21	0.267	0.275	0.104	0.531	0.665	0.315
Countries	All Countries			Developing Countries			LAC		

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Bank ownership and financial development, Panel data for 1995-2002
Dependent Variable: Average annual growth rate of private credit / GDP

	(1)	(2)	(2)	(16)
SOB	-0.038	-0.091	-0.004	-0.252
	(0.103)	(0.086)	(0.132)	(0.145)*
LAG FINDEV	-0.315	-0.224	-0.335	-0.454
	(0.096)***	(0.122)*	(0.113)***	(0.104)***
Constant	1.153	1.027	1.1	1.531
	(0.352)***	(0.539)*	(0.371)***	(0.349)***
Observations	731	207	524	143
R-squared	0.301	0.276	0.317	0.463
Countries	All Sample	IND	Developed	LAC
Sample	1995-2002	1995-2002	1995-2002	1995-2002

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: Bank Ownership, Profitability and Interest Margin

	ROA			ROE			Marg/TA			Marg/L+D		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Public	-0.571	-0.731	-0.060	-4.870	-6.282	-0.187	-0.232	-0.277	-0.079	-0.018	-0.026	-0.055
	(0.079)***	(0.102)***	(0.050)	(0.741)***	(0.942)***	(0.587)	(0.072)***	(0.093)***	(0.052)	(0.187)	(0.236)	(0.074)
Foreign	0.246	0.305	0.007	1.687	2.227	-0.545	0.011	0.074	-0.217	0.004	0.048	-0.213
	(0.069)***	(0.091)***	(0.035)	(0.614)***	(0.796)***	(0.484)	(0.061)	(0.080)	(0.049)***	(0.139)	(0.186)	(0.064)***
Non Int Inc/TA	0.007	-0.001	0.128	-0.047	-0.113	0.828	-0.017	-0.023	0.047	0.019	0.001	0.176
	(0.034)	(0.038)	(0.010)***	(0.211)	(0.234)	(0.094)***	(0.016)	(0.020)	(0.018)***	(0.037)	(0.043)	(0.021)***
Dda Dep/TDep	0.006	0.009	0.000	0.021	0.039	-0.012	0.015	0.016	0.013	0.027	0.033	0.016
	(0.002)***	(0.003)***	(0.001)	(0.013)*	(0.020)**	(0.009)	(0.002)***	(0.003)***	(0.001)***	(0.004)***	(0.006)***	(0.001)***
Lag TA (ln)	0.027	0.069	-0.026	1.092	1.744	0.506	-0.176	-0.175	-0.174	-0.265	-0.389	-0.202
	(0.019)	(0.044)	(0.008)***	(0.157)***	(0.349)***	(0.121)***	(0.019)***	(0.042)***	(0.014)***	(0.046)***	(0.116)***	(0.017)***
Lag Share	-0.158	-0.451	0.098	0.832	-2.964	2.705	1.046	1.145	0.489	0.981	1.641	0.316
	(0.304)	(0.463)	(0.179)	(2.236)	(3.362)	(2.345)	(0.276)***	(0.423)***	(0.195)**	(0.617)	(1.015)	(0.319)
Observations	18583	5379	13204	18467	5302	13165	18723	5363	13360	18583	5332	13251
R-squared	0.4914	0.4814	0.5607	0.5109	0.5134	0.5139	0.7879	0.7453	0.6205	0.7357	0.6955	0.5999
Group	All	Developing	Developed	All	Developing	Developed	All	Developing	Developed	All	Developing	Developed

Robust standard errors in parentheses. All regressions are weighted by asset share.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6: Bank Ownership versus Overheads, Employment, Branches and Credit to the Public Sector

	OH/TA			Emp/TA			Branch/TA			Gov L/TA		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Public	0.236	0.238	0.166	0.114	0.153	-0.039	0.075	0.112	-0.071	-0.411	-0.166	
	(0.067)***	(0.081)***	(0.062)***	(0.038)***	(0.055)***	(0.052)	(0.074)	(0.088)	(0.094)	(0.825)	(1.182)	
Foreign	-0.498	-0.598	-0.185	-0.249	-0.369	-0.061	-0.301	-0.377	0.120	0.377	1.258	-0.852
	(0.070)***	(0.089)***	(0.061)***	(0.038)***	(0.056)***	(0.051)	(0.085)***	(0.096)***	(0.087)	(0.978)	(2.292)	(0.370)**
Non Int Inc/TA	0.448	0.415	0.717	0.020	0.014	0.087	0.016	0.019	0.005	-0.531	-0.816	-0.063
	(0.048)***	(0.051)***	(0.046)***	(0.009)**	(0.007)**	(0.014)***	(0.012)	(0.014)	(0.020)	(0.361)	(0.639)	(0.082)
Dda Dep/TDep	0.013	0.014	0.013	0.010	0.005	0.013	0.011	0.010	0.006	0.013	0.020	0.008
	(0.002)***	(0.003)***	(0.001)***	(0.001)***	(0.002)**	(0.001)***	(0.003)***	(0.003)***	(0.002)***	(0.033)	(0.055)	(0.011)
Lag TA (ln)	-0.102	-0.133	-0.094	-0.096	-0.020	-0.109	-0.078	0.009	-0.164	0.293	0.728	-0.007
	(0.020)***	(0.042)***	(0.015)***	(0.011)***	(0.026)	(0.012)***	(0.025)***	(0.044)	(0.016)***	(0.217)	(0.809)	(0.075)
Lag Share	-0.822	-0.950	0.088	0.333	-0.091	0.569	-0.091	-0.445	-0.461	-0.773	-6.335	2.481
	(0.249)***	(0.369)**	(0.212)	(0.163)**	(0.302)	(0.187)***	(0.461)	(0.615)	(0.393)	(5.632)	(10.212)	(1.671)
Observations	18732	5381	13351	11611	1856	9755	3781	1423	2358	938	193	745
R-squared	0.7997	0.7742	0.7829	0.9127	0.8680	0.7217	0.8289	0.7907	0.8425	0.8691	0.8568	0.7690
Group	All	Developing	Developed	All	Developing	Developed	All	Developing	Developed	All	Developing	Developed

Robust standard errors in parentheses. All regressions are weighted by asset share.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7: Bank Ownership versus Loan Provisions and Non Performing Loans

	NPL/L			Prov/L			NPL/Prov		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Public	5.381	6.454	0.313	0.833	1.111	-0.126	92.219	81.782	69.659
	(0.834)***	(1.061)***	(0.298)	(0.184)***	(0.236)***	(0.072)*	(62.483)	(75.300)	(86.444)
Foreign	0.934	1.274	0.207	-0.150	-0.221	0.022	85.977	-21.752	453.453
	(0.504)*	(0.648)**	(0.209)	(0.119)	(0.159)	(0.064)	(56.072)	(43.994)	(179.270)**
Non Int Inc/TA	1.523	1.669	-0.007	0.438	0.483	0.067	-7.688	-1.296	-41.997
	(0.361)***	(0.375)***	(0.068)	(0.098)***	(0.110)***	(0.015)***	(6.227)	(6.169)	(28.902)
Dda Dep/TDep	0.002	0.006	0.003	-0.009	-0.009	-0.004	-1.722	-3.735	3.844
	(0.028)	(0.040)	(0.006)	(0.004)**	(0.007)	(0.001)***	(2.802)	(3.909)	(2.462)
Lag TA (ln)	-0.004	0.461	-0.161	-0.256	-0.521	-0.066	7.995	73.828	-42.262
	(0.137)	(0.320)	(0.069)**	(0.057)***	(0.138)***	(0.017)***	(15.939)	(33.593)**	(19.790)**
Lag Share	-5.100	-9.647	2.173	1.827	3.598	0.404	-188.739	-694.425	1,160.559
	(2.474)**	(3.408)***	(1.158)*	(0.788)**	(1.278)***	(0.460)	(222.099)	(296.358)**	(458.748)**
Observations	8394	2688	5706	14318	3905	10413	7086	2233	4853
R-squared	0.5947	0.5613	0.6011	0.5844	0.5636	0.4052	0.5137	0.5368	0.4697
Group	All	Developing	Developed	All	Developing	Developed	All	Developing	Developed

Robust standard errors in parentheses. All regressions are weighted by asset share.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 8: Region Specific Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	ROA	ROE	ROA	ROE	ROA	ROE	ROA	ROE	ROA	ROE
Public	-0.479	-4.493	-0.559	-3.288	-1.214	-6.447	0.089	-1.976	-0.211	-6.604
	(0.170)***	(3.754)	(0.307)*	(2.324)	(0.253)***	(1.901)***	(0.107)	(1.176)*	(0.072)***	(1.270)***
Foreign	0.271	1.235	0.594	5.280	-0.226	-0.905	0.084	0.789	0.027	-4.155
	(0.149)*	(1.795)	(0.261)**	(2.186)**	(0.127)*	(1.135)	(0.085)	(1.009)	(0.163)	(2.454)*
Non Int Inc/TA	-0.130	-1.920	-0.020	-0.351	-0.013	-0.106	0.099	0.062	0.151	2.361
	(0.148)	(1.284)	(0.069)	(0.521)	(0.044)	(0.272)	(0.079)	(0.706)	(0.058)***	(0.893)***
Dda Dep/TDep	0.005	0.026	0.018	0.066	0.011	0.128	0.002	0.000	-0.003	-0.163
	(0.003)	(0.041)	(0.006)***	(0.040)	(0.007)*	(0.050)***	(0.004)	(0.037)	(0.005)	(0.070)**
Lag TA (ln)	0.152	2.015	0.021	0.536	0.129	2.112	-0.191	1.132	-0.123	-0.212
	(0.070)**	(0.893)**	(0.144)	(1.130)	(0.086)	(0.707)***	(0.040)***	(0.434)***	(0.040)***	(0.680)
Lag Share	-1.756	-10.642	-1.770	-3.893	1.187	3.487	1.320	3.241	0.148	3.099
	(0.686)**	(9.260)	(1.499)	(9.001)	(0.968)	(7.850)	(0.298)***	(3.291)	(0.540)	(8.096)
Observations	912	913	737	726	1958	1912	732	723	702	696
R-squared	0.3693	0.3301	0.3331	0.4173	0.4166	0.4819	0.5356	0.4292	0.6059	0.5601
Group	East Asia & Pacific		East Europe & Central Asia		Latin America		Middle East & North Africa		South Asia	

Robust standard errors in parentheses. All regressions are weighted by asset share.
* significant at 10%; ** significant at 5%; *** significant at 1%

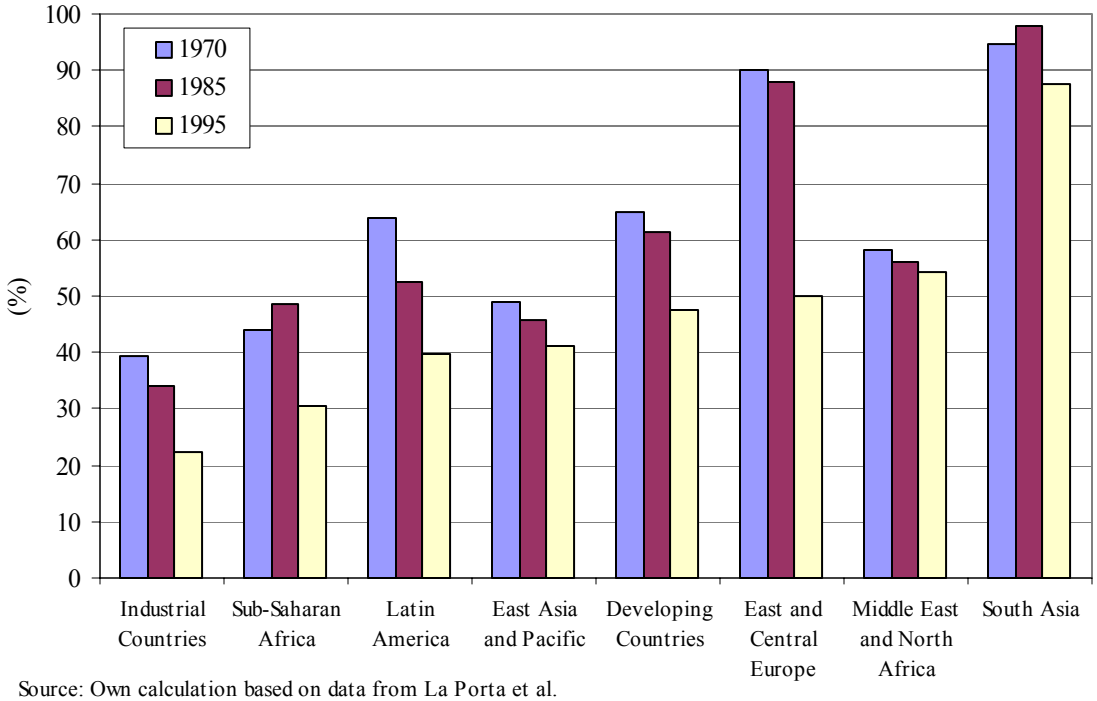
Table 9: Public and Foreign Bank Performance Indicators Relative to Private Domestic Banks

Country	ROA		Interest Rate (Loans)		Interest Rate (Deposits)		NPL		Loans to Public Sector	
	Public	Foreign	Public	Foreign	Public	Foreign	Public	Foreign	Public	Foreign
Argentina	-0.0037	-0.0006	-0.0045	0.0000	-0.0023	-0.0002			0.0876	-0.0060
Bolivia		-0.0026		-0.0109		-0.0060		0.0927		0.0806
Brazil	-0.0026	-0.0002	-0.0194	-0.0228	-0.0176	0.0073	0.0644	-0.0108	0.0009	-0.0013
Chile	-0.0001	-0.0005	-0.0034	-0.0004	-0.0094	-0.0001	0.0090	-0.0002	0.1725	-0.0205
Colombia	-0.0098	-0.0016	0.0078	0.0094	0.0001	-0.0016	0.0703	-0.0156	0.0734	0.0318
Costa Rica	0.0014	-0.0023	0.0039	-0.0101	-0.0013	-0.0117	0.2337	0.0590	0.1661	0.0100
Guatemala	-0.0010	0.0058	-0.0042	-0.0098	-0.0021	-0.0052	0.2465	-0.1051	-0.0031	0.1030
Honduras	-0.0058	0.0049	-0.0162	-0.0096	-0.0147	-0.0176	0.2620	-0.1216	0.0428	0.0296
Mexico	-0.0035	0.0010	0.0013	0.0014	0.0312	0.0035	0.0158	-0.0360	-0.0150	0.0218
Nicaragua	-0.0111		0.0185		0.0056		0.1163			
Peru		-0.0003		-0.0054		-0.0013		0.0003		
El Salvador	-0.0052	-0.0013	-0.0070	-0.0033	-0.0041	-0.0005	0.1219	0.0106	0.0636	0.0104

Table 10: Public Sector Loans

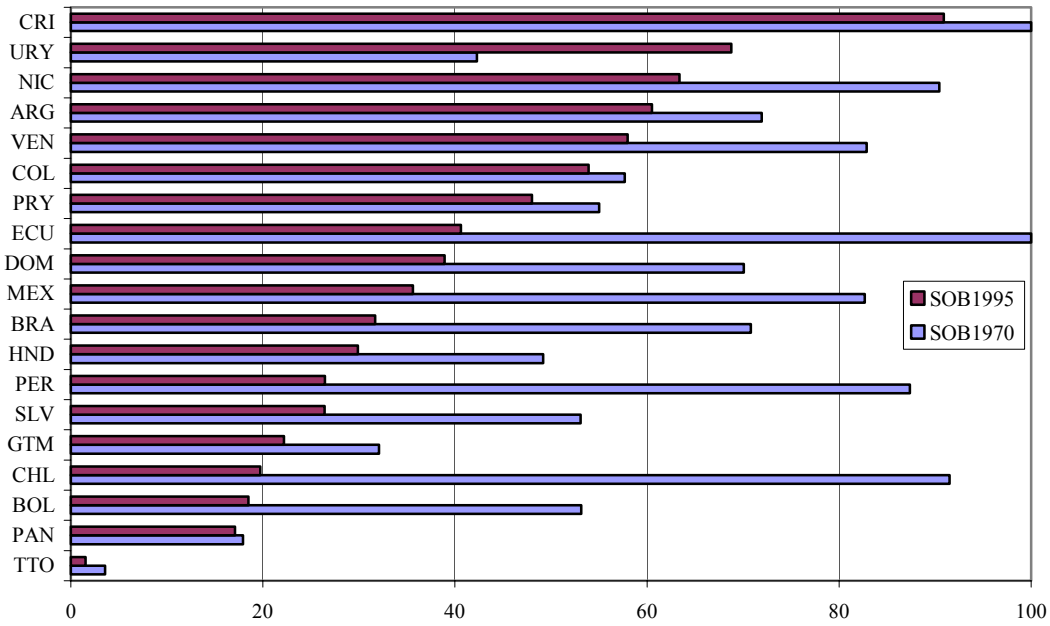
Country	Private	Public	Foreign	Private	Public	Foreign	Private	Public	Foreign
		1995			1998			2000	
Argentina	5.28%	16.65%	7.95%	8.16%	14.42%	8.11%	12.88%	21.64%	12.09%
Bolivia	0.97%	NA	10.09%	6.46%	NA	9.80%	6.30%	NA	6.70%
Brazil	21.53%	13.33%	18.96%	33.05%	21.26%	33.68%	31.24%	24.83%	33.13%
Chile	0.14%	1.14%	0.80%	0.11%	1.30%	0.56%	0.15%	1.52%	0.89%
Colombia	2.61%	5.16%	2.02%	3.73%	5.79%	4.06%	8.85%	23.06%	13.11%
Costa Rica	6.25%	7.09%	7.44%	3.29%	13.64%	2.70%	4.36%	11.01%	2.17%
Guatemala	31.99%	19.75%	27.40%	21.24%	18.06%	34.51%	24.51%	6.21%	36.76%
El Salvador	16.48%	33.77%	9.13%	25.05%	20.87%	17.40%	30.26%	23.26%	20.39%

Fig 1: Share of State Owned Banks



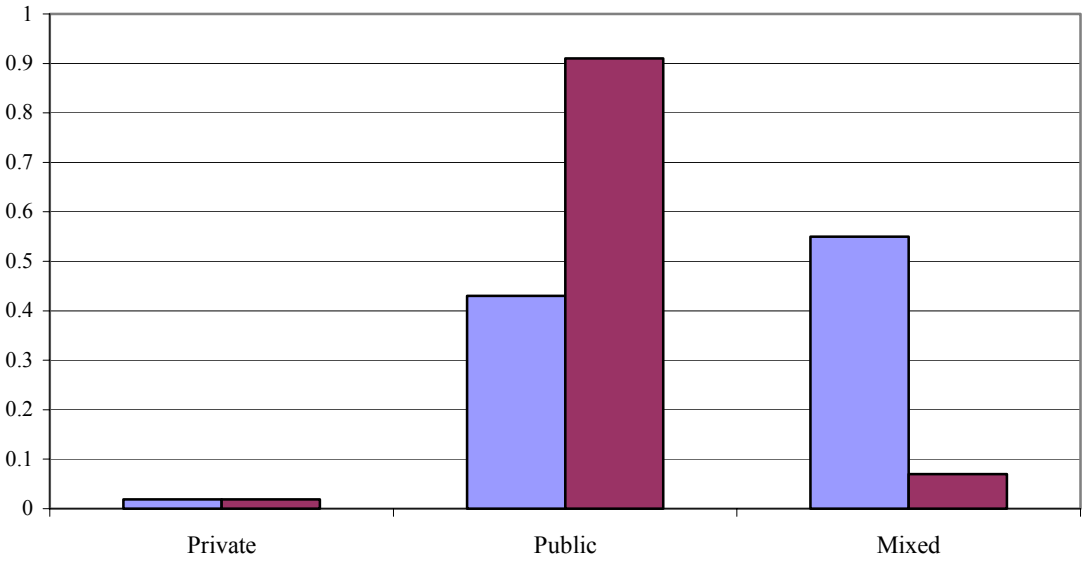
Source: Own calculation based on data from La Porta et al.

Figure 2: State Owned Banks in Latin America



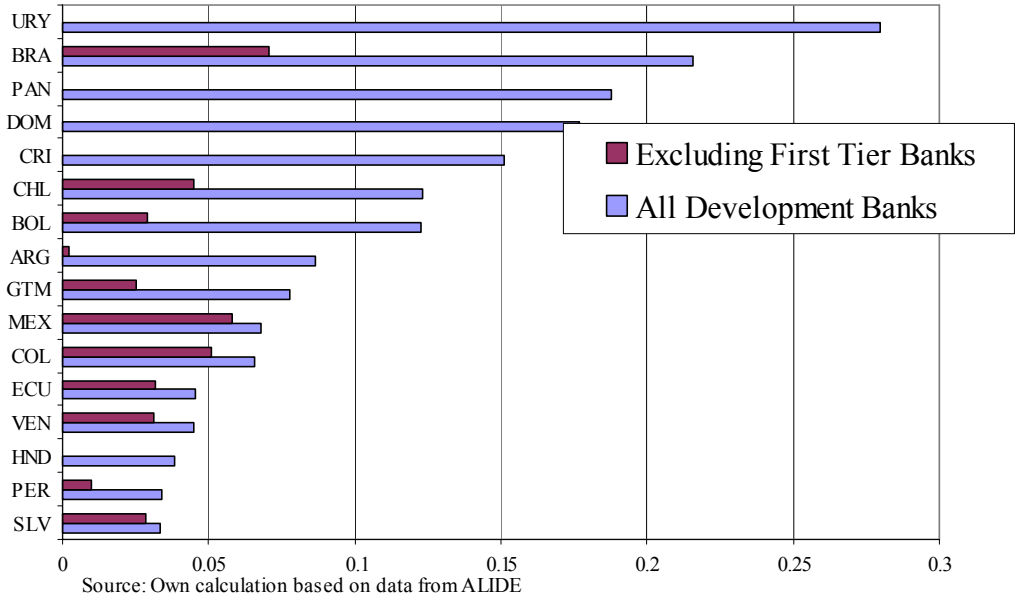
Source: La Porta et al. (2001)

Figure 3: Share of Development Bank Assets in Latin America



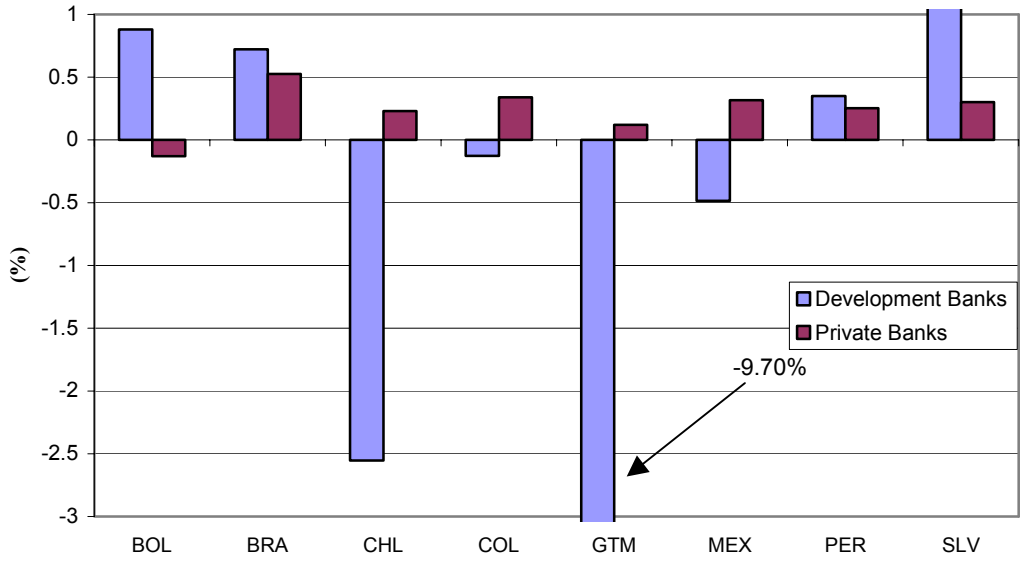
Source: Own calculation based on data from ALIDE

Figure 4: Share of Development Bank Loans as a percentage of GDP



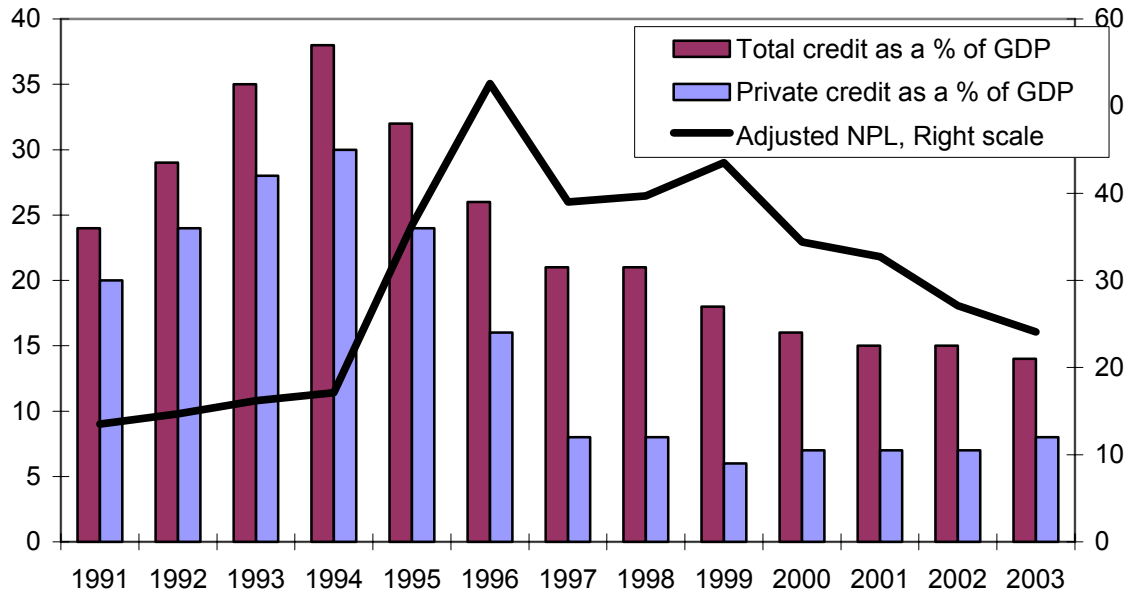
Source: Own calculation based on data from ALIDE

Figure 5: Average Return on Assets of Development and Private Banks



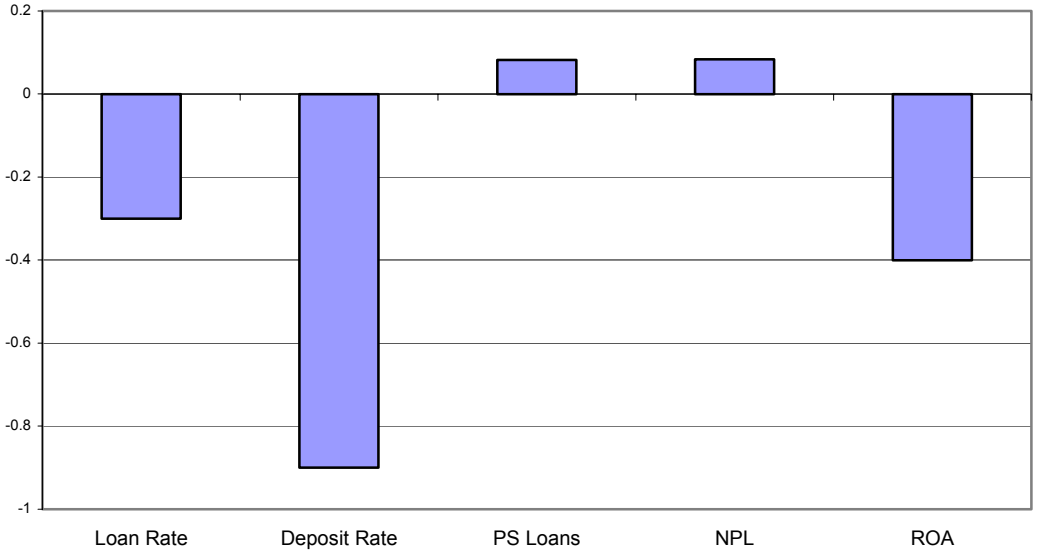
Source: Own calculation based on data from ALIDE.
The figure for development banks excludes first tier development banks

Figure 6: NPL and Bank Credit in Mexico



Source: Haber (2004)
Adjusted NPL include declared NPL, rediscunt, restructured and FOBAPROA.
Private credit does not include FOBAPROA.

Figure 7: Relative Perfomance indicators of State-Owned Banks



Source: Own calculation based on balance sheet data for the XXX
period. Includes banks from ARG, BRA, CHL,COL, CRI,MEX,PER and

APPENDIX

Appendix 1

This appendix follows a strategy similar to the one suggested by Berger et al. (2003), this study estimates the following model:

$$\begin{aligned} PERF_{i,j,t} &= \eta_{j,t} + X_{i,j,t}\gamma' + \alpha_1 STAT\_PUB_{i,j,t} + \alpha_2 STAT\_FOR_{i,j,t} + \\ &\beta_1 SEL\_PUB_{i,j,t} + \beta_2 SEL\_PRIV_{i,j,t} + + \beta_3 SEL\_FOR_{i,j,t} + \\ &\phi_1 DYN\_PUB_{i,j,t} + \phi_2 DYN\_PRIV_{i,j,t} + \phi_3 DYN\_FOR_{i,j,t} + \varepsilon_{i,j,t} \end{aligned} \quad (1)$$

$DYN\_PUB_{i,j,t}$ is a dummy variable that takes the value 1 after a bank changes ownership and becomes public and zero before. $DYN\_PRIV_{i,j,t}$ and $DYN\_FOR_{i,j,t}$ are defined similarly for banks that are privatized or acquired by foreigners (Micco et al., 2004, discuss in greater detail the other independent variables). Therefore, ϕ_1, ϕ_2, and ϕ_3 measure the dynamic effect of ownership change. For instance, ϕ_2 measures post-privatization performance relative to pre-privatization performance among banks that were selected for privatization privatized. This is the variable of interest.

Appendix 2

Table 4 reports the results of estimating the following specification:

$$\ln\left(\frac{PR\_CR_{i,t} / GDP_{i,t}}{PR\_CR_{i,t} / GDP_{i,t-1}}\right) = \alpha \ln\left(PR\_CR_{i,t} / GDP_{i,t-1}\right) + \beta PB_{i,t-1} + \eta_t + \mu_i + \varepsilon_{i,t} \quad (2)$$

where η is a time fixed effect and μ is a country fixed effect. In this setting, β captures how changes in ownership of public banks are associated with changes in the growth rate of private credit over GDP.

Appendix 3

To study the relationship between ownership and performance, bank-level data is used to estimate the following model:

$$PERF_{i,j,t} = \eta_{j,t} + \alpha PUB_{i,j,t} + \beta FOR_{i,j,t} + X_{i,j,t}\gamma' + \varepsilon_{i,j,t} \quad (3)$$

Where $PERF_{i,j,t}$ is a performance indicator for bank i in country j at time t, $\eta_{j,t}$ is a country-year fixed effect that controls for all factors that are country (like the level of development, geography, institutions, etc) and country-year specific (macroeconomic shocks, political instability, changes in regulations, etc.), $PUB_{i,j,t}$ is a dummy variable that takes value one if in year t bank i is state-owned (ownership is defined using the 50 percent threshold), $FOR_{i,j,t}$ is a dummy variable that takes value one if in year t bank i is foreign-owned (private domestically-owned is the excluded dummy), $X_{i,j,t}$ is a matrix of bank-specific controls. The set of controls include two variables aimed at measuring the main sector of activity of the bank and two variables aimed at measuring bank size (see Micco et al. , 2004 for a discussion of the various controls).

All regressions exclude all observations for which there is no data for ROA, ROE and Overhead costs, as well as all country-years that do not have at least 5 banks. To make sure that the results are not driven by the transition from one ownership structure to another, the regressions drop all the bank-year observations in which there is a change in ownership. (So if bank i was public in year 1999 and becomes private in 2000, the observation for 2000 is dropped.) Outliers are also excluded by dropping the top and bottom 2 percent of observations for each dependent variable. Finally, since some countries have many more observations than others (for instance, the 27 industrial countries included in the sample contain more that 70 percent of observations and the 92 developing countries the remaining 30 percent), the results would end up being driven by the countries with a large number of observations unless these observations are weighted. Claessens et al (2001) address this issue by weighting each observation by $1/N_{j,t}$ (where $N_{j,t}$ is the number of observations in country j, year t). This study follows a similar strategy but weights each observation by the bank's share in total assets. This weighting scheme has the same properties of $1/N_{j,t}$ because the weights add up to one and give each country-year the same

weight in the regression. However, Levy-Yeyati and Micco (2003) point out that weighting by bank asset share has some advantages over the simple $1/N_{j,t}$ weighting scheme. In particular, they suggest that estimations that are weighted by asset share better reflect the behavior of the banking industry and point out that if measurement errors are decreasing in bank size, weighting by bank size will produce more precise estimates.

Appendix 4

The appendix studies the effect of ownership on bank lending volatility. See Micco and Panizza (2004) for a description of the empirical methodology and data.

Table A1: Credit Cyclicality

The dependent variable is bank credit growth. YGR is real GDP growth. PUB and FOR are dummies variables that take the value of one if banks are public or foreign, respectively. Size is the average bank share at the country level.

	(1)	(2)	(3)	(4)	(5)	(6)
	Loans Growth					
YGR	1.464	1.440	2.167			
	(0.101)***	(0.223)***	(0.405)***			
YGR*PUB	-1.352	-1.404	-1.631	-0.835	-0.804	-1.441
	(0.147)***	(0.311)***	(0.694)**	(0.142)***	(0.307)***	(0.745)***
YGR*FOR	-0.003	0.122	0. 728	-0.011	0.036	0.391
	(0.134)	(0.294)	(0.505)	(0.136)	(0.297)	(0.499)
YGR*SIZE	-1.580	-0.958	0.089	-1.559	-1.271	-2.604
	(0.459)***	(1.037)	(2.408)	(0.513)***	(1.119)	(2.813)
Fixed Effect	Bank Fixed Effect			Bank and Country-year Fixed Effect		
Observations	25325	5496	1669	25325	5496	1669
R-squared	0.4937	0.5079	0.4823	0.7299	0.7449	0.6450
Group	All	Developing	LAC	All	Developing	LAC

All regression are weighted by bank share at the country level.
All regressions include bank fixed effect and country-year fixed effects.
significant at 10 percent confidence level; ** 5 percent confidence level;
*** 1 percent confidence level.
Source: Micco and Panizza (2004) and own calculation for LAC sample.