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## **A Reappraisal of State-Owned Banks**

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### **Abstract**

We revisit the public banks debate, survey the theoretical arguments and test the robustness (and expand) the existing empirical evidence. While we find some support for the view that public banks do not allocate credit optimally, we also report indicative evidence that they exert a positive influence on private bank efficiency, and may contribute to reduce credit procyclicality. Ultimately, we find that the recent criticism to public banks has generally been based on inconclusive cross-country evidence. More specific bank-level research is still needed to substantiate a case for or against public banks in developing economies.

**Keywords:** Banking; Privatization; Public banks; Financial development; Latin America

**JEL Codes:** G21; H11; O16

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*The scarcity of capital in Russia was such that no banking system could conceivably succeed in attracting funds... Supply of capital for the needs of industrialization required the compulsory machinery of the government.* Gerschenkron (1962) pp 19-22

*...whatever its original objectives, state ownership tends to stunt financial sector development, thereby contributing to slower growth.* The World Bank (2001) p. 123

## **1. Introduction**

Arthur Lewis, Alexander Gerschenkron, Gunnar Myrdal and several other prominent development economists writing in the 1950s and 1960s tended to agree that the state should play a key role in the banking sector. Governments appeared to concur: by the 1970s, the state owned 40 percent of assets of the largest banks in industrial countries and 65 percent of assets of the largest banks in developing countries.

However, the 1980s and 1990s witnessed a sea change in the view of the state's role in the economy, and privatization was at the very center of the economic policies codified in the Washington Consensus. Consequently, from 1987 to 2003 more than 250 banks were privatized, raising US\$ 143 billion (Meggison, 2004). But, even after this big privatization wave, the presence of the state in the banking sector remained widespread and pervasive. In the mid 1990s, about one quarter of the assets of the largest banks in industrial countries, and 50 percent of the assets of the largest banks in developing countries were still under state control.

The key question explored in this paper is whether the public presence in the banking sector is justified. Advocates argue that state presence in banking is justified by market failures and development goals. They point out that financial markets in general, and the banking sector in particular, are different from other markets and that government intervention can improve the working of the financial sector and the overall functioning of the economy. In particular, the *social view* emphasizes the role of the public sector to make up for market imperfections that leave socially profitable investments underfinanced (See Atkinson and Stiglitz, 1980, and Stiglitz, 1993, among others.). Also supportive of public participation in the banking sector is the *development view* (often identified with Gerscherkron, 1962) that stresses the need for public intervention in economies where the scarcity of capital, the general distrust of the public, and endemic fraudulent practices among debtors may fail to generate the sizable financial sector required to facilitate economic development (Stiglitz, 1994).

Critics argue that it is not necessarily true that banks are different from other businesses, and that the case for financial market imperfection is often overstated (Stigler, 1967). Furthermore, they suggest that market failures can be better addressed through regulation and subsidies rather than through direct state ownership. This *political view* contends that politicians create and maintain state-owned (henceforth, public) banks not to channel funds to socially efficient uses but rather as a political tool aimed at maximizing the politicians' personal objectives (La Porta et al., 2002). Specifically, state ownership of banks would be dictated by redistributive politics and by the politicians' interest in appropriating the rents that may be derived from the control of bank funds. Somewhere in between the benign assessment of the social and development views and the skepticism of the political view, the *agency view* highlights the trade-off between allocative efficiency and internal efficiency (namely, the ability of public enterprises to carry out their mandate), asking whether agency costs within government bureaucracies offset the social gains of public participation in the presence of market imperfections.

This paper is divided into three parts. The first part describes the evolution of state-ownership banks in Latin America and the rest of the world. The second part discusses the theoretical justification for the existence of public banks. The third part surveys the existing empirical evidence and presents some new results.

## **2. Evolution of Public Ownership of Banks**

Obtaining consistent time series describing the evolution of public banks around the world is not easy because different authors use different methodologies and sources. Data going back to 1970 are available from La Porta et al. (2002) (who collected data for 1970, 1985 and 1995), while more recent data covering the 1995-2002 period are available from Micco et al. (2007).<sup>1</sup> There are at least two differences between these two datasets. First, whereas Micco et al. (2007) look at the whole banking system, La Porta et al. (2002) focus on the assets of the ten largest banks in each country, which, given the typically large size of public banks, would tend to overstate the public share. Second, while Micco et al. (2007) focus on commercial banks, La Porta et al. (2002) also include development banks. In some cases, these methodological differences lead to finding very different levels of state ownership. Consider, for instance, the cases of Bolivia and Mexico. According to La Porta et al. (2002), in 1995 the public sector owned 18 percent of assets of the 10 largest banks in Bolivia, and 35 percent of the assets of the ten largest banks in Mexico. However, the data from Micco et al. (2007) suggest that in 1995 there were no public

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<sup>1</sup> Barth et al. (2003) also report recent data on Bank ownership.

commercial banks in Bolivia and the state controlled only 5 percent of the assets of Mexican commercial banks.<sup>2</sup>

Figure 1, which uses the data in La Porta et al. (2022) to characterize the evolution of public participation prior to 1995, shows that the public share of bank assets varies widely across countries. Industrial and Sub-Saharan African countries exhibit the lowest prevalence of public banks (around 20 and 30 percent, respectively, in 1995). South Asia and the Middle East are instead the regions with the largest public share (close to 90 percent in the former group of countries and above 50 percent in the latter). 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 in 1995.<sup>3</sup>

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 (Figure 2), with Costa Rica being the country with the largest share of government ownership of banks (90 percent in 1995, down from 100 percent in 1970) and Trinidad and Tobago the country with the smallest share of state ownership of banks (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 early 1990s (during the 1985-1995 period average state ownership of banks dropped from 55 to 40 percent). Ecuador, Chile and Peru are the countries that privatized the most, moving from levels of state ownership that were above (or, in the case of Peru, close to) 90 percent, to public shares below 40 percent (below 30 and 20 percent for 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. 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).

## **2.1 Privatization in the second half of the 1990s**

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<sup>2</sup> These differences are much smaller if we focus on commercial banks in both datasets. According to La Porta et al. (2002), in 1995 the public sector owned 7 percent of assets of commercial banks in Bolivia, and 14 percent of commercial bank in Mexico.

<sup>3</sup> For details of bank privatization in transition countries see Bonin, Hasan, and Watchel (2003).

The data of La Porta et al (2002) used in the previous section stop just before the big privatization wave of the second half of the 1990s. Although we do not have data that are exactly comparable with those of Figure 2, we can use homogenous data to compare the evolution of commercial public banks in 10 Latin American countries over the 1995-2002 period (Table 1). According to these data, Costa Rica is the country with the largest share of assets in the hand of the public sector (well above 60 percent, down from 80 percent in 1995) and Nicaragua is the country that had the deepest privatization process (state ownership went from 50 percent of total commercial bank assets in 1995 to nil in 2002). The three largest privatization processes of the 1990s, however, took place in Argentina, Brazil, and Mexico.

### *Argentina*

In Argentina, most of the privatization process involved banks owned by provincial governments. Out of the 34 public banks operating in Argentina before the privatization process, 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 total assets of the Argentinean banking system. 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 first impulse to privatization was related to the process of structural reforms implemented by president Menem which included provisions that prevented the Central Bank of Argentina from guaranteeing the deposits of commercial banks and limited its ability to lend to commercial banks. This limited provincial banks' access to cheap credit from the Central Bank and hampered their ability of providing unremunerated services to the provincial governments, buying provincial government bonds, and maintaining a large branch network. In practice, the new regulatory framework removed of 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 Tequila crisis of 1994/1995 severely hit the already weakened provincial banks and induced the Argentinean government to strengthen bank regulation and supervision and implement measures aimed at promoting the entry of foreign banks and at pushing the provinces to privatize their banks (Clarke and Cull 1999). The privatization process was helped by the creation of an institution (*Fundo Fiduciario*) which allowed splitting the assets of the old provincial banks into two components: (i) new "good" banks endowed with the healthy assets of the old provincial banks and ready for 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.

## *Brazil*

As in the case of Argentina, in the early 1990s, the Brazilian banking system was characterized by a widespread presence of banks owned by local governments.<sup>4</sup> At the beginning of the 1990s only 2 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). Also in this case, bank privatization process went hand in hand with the process of macroeconomic stabilization. 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. This led to an increase in bank fragility and to a deterioration of the portfolio of Brazilian banks and by the mid 1990s several Brazilian banks were technically bankrupt. The first step of the Brazilian authorities 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 4 state banks under special administration, and intervening in other 13 banks (3 public and 10 private).<sup>5</sup>

The next step was to devise a system to provide incentives to privatize and restructure the various state banks. This objective was advanced under the Program of Incentives for the Reduction of States' Participation in Banking Activities (PROES) introduced in 1995. Under this program, 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) privatize the bank; (iv) restructure the state bank with a limited contribution (up to 50 percent of the cost) of the federal government and continue to operate it as a state bank under new management; (v) transform the state bank in a non-financial institution or development agency. If we exclude the two states that did not have public banks only two local governments opted out of the program (Paraiba and the Federal District), the other 23 states participated in the program with the following outcomes: 10 banks were liquidated, 5 restructured by the state and kept as public banks, 15 banks were privatized or are being prepared to be privatized, 2 banks were converted into development agencies.

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<sup>4</sup> The description of the privatization of the Brazilian banking system draws on Beck et al. (2004) and Baer and Namzi (2000).

<sup>5</sup> The largest recapitalization (approximately USD 8 billion) was the one of Banco do Brasil in 1996 (Baer and Namzi, 2000).

Besides the 5 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). The first one is a retail commercial bank. The second one is a mixed institution that has both retail and second-tier activities, handles the government social payment, and is very active in the mortgage market. The third one is a development bank that act mostly as a second-tier institution. Until 2001, both BB and CEF's balance sheets were characterized by a large amount of non-performing loans that were then absorbed by the federal government with a net cost of approximately 6 percent of GDP (three quarter of this cost were due to the restructuring of CEF). BNDES had a sound balance sheet and did not need any restructuring.

### *Mexico*

In 1982, Mexican president Lopez Portillo nationalized the entire banking system (the nationalization was incorporated into the constitution). In 1990 the Mexican Congress amended the constitution with the objective to allow the privatization of the banks nationalized in 1982.<sup>6</sup> As the design of the privatization process was formulated in a way to maximize the sale price of the privatized banks, the Mexican Government signaled to potential bidders that the newly privatized banks would be operating in a system characterized by low 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 and protection from foreign competition was even stipulated in the NAFTA agreement. The privatization process was indeed a success in maximizing privatization revenues and the Mexican government raised more than 12 billion dollars from the privatization process. However, as owners had very little capital invested in the institutions, they adopted particularly risky (and in some cases fraudulent) behavior. In this environment characterized by very fragile banks, the Tequila crisis of 1994-1995 led to a collapse of the Mexican banking system. The ratio on non-performing loans grew to 36 percent at the end of 1995 and 53 percent at the end of 1996 (with bank directors systematically looting the bank assets by engaging into related lending activities, La Porta et al., 2003). As 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 and state ownership of commercial banks completely disappeared (the state, however, still own several development financial institutions the largest of which is *Nacional Financiera*).



### **3. Should the state be in the banking business? Theory**

A priori, absent any market imperfection, a no-intervention stance needs not be justified; hence, the emphasis on the rationale for proactive policies that characterizes this –as well as other policy– debates. In particular, the public bank debate has been dominated by arguments related with a trade off between market failures (notably, imperfect information and enforceability, and social externalities) and government failures (notably, political lending and other agency problems). Naturally, the presence of market failures per se does not imply that government interference is warranted: the relevant policy question should evaluate whether the benefits of intervention outweigh its costs.

In this section, we revisit the analytical arguments behind this trade off. More precisely, in order to better understand whether and under what conditions the state should be in the banking business, it is useful to decompose the issue into the following two questions: (i) are there market failures that justify state intervention in the banking sector?, and (ii) how are these market failures better addressed: through subsidies and regulations or through direct state ownership?

#### **3.1 The Rationale for State Intervention**

Standard arguments for state intervention in the banking sector can be broadly classified into four groups: (i) maintaining the safety and soundness of the banking system; (ii) mitigating market failures due to the presence of asymmetric information; (iii) financing socially valuable (but financially unprofitable) projects; and (iv) promoting financial development and giving access to competitive banking services to residents of isolated areas.

The first group of reasons has to do with the fact that banks are inherently fragile institutions due to their maturity transformation role (namely, the funding of illiquid loans through short-term deposits), a situation that can lead to self-fulfilling bank runs and widespread bank failures. However, banking fragility by itself would not justify government intervention aimed at guaranteeing the stability of the banking system, unless bank failures generate large negative externalities. It is precisely in this sense that banks are special because, besides intermediating credit, they also provide two services that have a public-good nature: they are the backup source of liquidity for all other institutions and the transmission belt for monetary policy (Corrigan, 1982). The need for state intervention also arises from the fact that, due to the large leverage ratios that characterize financial institutions in general, bank managers and owners may have strong incentives to pursue investment activities that are riskier than the ones that would be preferred by depositors (see Jensen and Meckling, 1976 and, for a textbook treatment, Freixas and

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<sup>6</sup> The description of the evolution of the Mexican banking system is based on Haber (2004).

Rochet, 1997). This would not be a problem if depositors could effectively monitor banks' managers. However, there is a free rider problem in bank monitoring because banks' liabilities are mostly held by small depositors who have very limited incentives and ability to monitor banks' activities. The same problem underlies the role of banks as delegated monitors of depositors' investments, as pointed out by Diamond (1984). It has to be noted, however, that these arguments have been invoked to motivate the need for more stringent *prudential* regulation, rather than for direct state participation in banking activities.

The second set of explanations concerns the fact that financial markets in general, and banking in particular, are informational intensive activities. It is generally accepted that the stock of information gathered by banks plays a role in increasing the pool of domestic savings that is channeled to available investment opportunities. However, as information has some public-good characteristics (non-rivalries in consumption and costly excludability), it would be undersupplied by competitive markets and, to the extent that information entails a fixed acquisition cost, it would lead to imperfect competition in the banking system. Moreover, information can be easily destroyed, increasing the cost of bank failures as customers of the failed bank may lose access to credit. In addition, asymmetric information may lead to credit rationing, that is, a situation in which good projects are underfinanced (or not financed at all) due to the lack of verifiable information.<sup>7</sup> A similar case can be made for the relationship between depositors and banks: lack of bank-specific information can dissuade savers from depositing in banks, particularly in incipient banking systems where long-standing customer relationships are still to be built.

The third group of reasons has to do with the fact that private lenders may have limited incentives to finance projects that produce externalities. In this line, direct state participation would be warranted to compensate for market imperfections that leave socially profitable (but financially unattractive) investments underfinanced. Alternatively, state intervention may be justified by big-push theories like the one originally formulated by Rosenstein-Rodan, whereby private banks fail to internalize the positive externalities of their lending on economic activity. Along these lines, it is also possible to argue that private banks tend to underreact to countercyclical monetary policy as they do not internalize the fact that, by increasing lending, they contribute to push the economy out of a recession (an hypothesis that may be labeled the *macroeconomic* view).<sup>8</sup> If this is the case, state intervention could solve a coordination problem and make monetary policy more effective. Then, in the absence of developed capital markets that

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<sup>7</sup> Rationing may occur as an adverse selection phenomenon when, by pooling good and bad projects, the lender increases the financing costs to the point of driving good projects out of the market. For a detailed discussion of market failures arising from costly and asymmetric information, see Stiglitz (1994)

<sup>8</sup> Prudential regulation may create an additional disincentive, as both the quality of banks' portfolios and prospective investments tend to deteriorate during a recession.

provide alternative sources of financing, which is the case in most developing countries, state intervention may be warranted as a complement to private bank lending.

A last argument, often invoked by supporters of state intervention in the banking sector, points out that private banks may not find it profitable to open branches in rural and isolated areas and that state intervention is necessary in order to provide banking services to residents of these areas. Underlying this argument are the beliefs that granting access to banking services may increase financial development with positive externalities on growth or poverty reduction (see, for instance, Burgess and Pande, 2003), and that access to financial services is, at any rate, a right and that the state should make an effort to guarantee its universal provision. Along similar lines, the presence of public banks has also been advocated as a means to guarantee competitive behavior in an otherwise collusive banking sector. This rationale, however, is likely to be relevant only when the regulatory and monitoring capacity of the public sector is limited and prone to capture.

Interestingly, while any of the banking aspects mentioned in the section (with the notable exception of prudential standards) are clearly less “contractible” (in that their quality is less readily verifiable) than, say, utilities or telephone services where private provision is generally accepted, these imperfections could in principle be largely mitigated directly by regulation. Ultimately, the arguments pro-intervention rely on how intervention and regulation are implemented in practice.<sup>9</sup> To this we turn next.

### **3.2 How Should the State Intervene?**

While most economists would agree that market failures in the banking system warrant some degree of government intervention, the specific nature of this intervention and, in particular, the dilemma between regulation and contracting of private agents, and direct state ownership, is less likely to generate consensus. Under what conditions would state ownership be justified?

The literature on contracting provides some insight into this question. If the government knows exactly what it wants to produce and if the characteristics of the goods or services to be produced can be written in a contract or specified by regulation, then it will not matter whether a given good or service is directly provided by the government or contracted to a private provider.<sup>10</sup> Analyzing the more realistic case in which the good or service to be provided has some “non-contractible” quality, Hart et al. (1997)

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<sup>9</sup> Note that this involves a trade off between government failure in direct participation and in regulation, different from the trade off between market and government failure at the core of the public bank debate.

<sup>10</sup> This is because, from the government’s point of view, there is no difference between providing the right set of incentives to the private or public managers, and this holds even in the presence of moral hazard and adverse selection (Hart et al, 1997).

show that, if cost reductions lead to a deterioration of the non-contractible quality, private provisions may have benefits in terms of cost reduction but may yield lower quality. Their main finding is that the non-contractible quality will depend on the effect of cost reduction activities on the quality of the good or service provided and that public ownership is preferable when there is limited potential for quality improvement or when the adverse effect of cost reduction on quality is likely to be substantial.

To provide a concrete example, consider the case in which a government wants to establish a development bank whose ultimate objective is to promote economic development by making loans to certain economic sectors at a subsidized interest rate, due to the presence of important externalities. The government could either establish a public development bank or contract a private provider. According to Hart et al. (1997), the private provider will have an incentive to reduce costs, however, as economic development cannot be easily monitored (at least in the short term), the bank could take cost-saving actions that would reduce its long-term development impact: for instance, it could eliminate (or understaff) its research department thereby reducing its ability to identify and target projects that generate large externalities. This seems to suggest a theoretical rationale for direct ownership of development banks –indeed, most development banks are either public or have a mixed (public-private) structure. By contrast, the objective of providing banking services to isolated areas could be readily met by contracting a private bank to open branches in specific locations, a solution that appears to dominate direct ownership if the latter involves the *de novo* creation of a public institution.

The claim that public banks may be more efficient than private sector institutions in achieving objectives that are not clearly contractible or monitorable may seem paradoxical. After all, if the state cannot clearly write a contract with a private sector provider, how can it provide incentives to the bureaucrats? The claim, however, is in line with Holmstrom and Milgrom's (1991) result that increasing the incentives along a measurable performance dimension (costs or profitability) reduces the incentives along non-measurable dimensions. By assigning a smaller weight to performance, public banks may be more responsive to the development mandate. This argument also provides one possible explanation for the finding that public banks tend to be less profitable than their private counterparts. Interestingly, in this context, the finding of profitable public banks may be signaling the failure of the incentive scheme rather than its success. Pressures for profitability (for prudential reasons or for fear that financial losses may fuel support for privatization), may induce public bank managers to deviate from their social mandate and mimic private banks in their credit allocation criteria, in what De la Torre (2003) labeled the "Sisyphus syndrome". If so, public banks, although efficient, would become redundant.

Critics of government intervention argue that state ownership of banks eventually leads to a situation in which credit allocation is dictated by political rather than economic considerations (Kane, 1977). However, once we deviate from the assumption of a benevolent government, the impact of

corruption, patronage, and, more in general, a “weak” state on the balance between the costs and benefits of state ownership is not straightforward. While state ownership may increase the opportunities for corruption and patronage, a “weak” state makes contracting and regulation more difficult and hence may increase the benefits of state ownership. In particular, as Hart et al. (1997) note, corruption may weaken the case for private contracting as privatization maximizes the private rents (bribes) that can be collected by politicians.

Market failures in the banking sector do not only concern the underprovision of certain goods or services but also the inherent fragility of the banking system. In this regard, the traditional view is that regulation and supervision, together with deposit insurance, can reasonably reduce banking fragility without eliminating the incentives to reduce costs and innovate that arise from private ownership. This is indeed the avenue followed by most industrial countries. It is, however, true that deposit insurance and regulation do not work satisfactorily in poor developing countries that are plagued by high levels of corruption and poor institutional quality (Demirgüç-Kunt and Detragiache, 2002, Barth et al., 2003).<sup>11</sup> In this context, direct state ownership could increase the trust of the public in the banking system and lead to deeper financial markets. This was the original view of Alexander Gerschenkron, recently formalized by Adrianova et al. (2002) based on the case of Russia where public mistrust of banks induces most small savers to keep their funds outside the banking system and where 70 percent of retail deposits are with the largest state savings bank. Note that the argument can be made more generally in terms of a comparison of agency costs. Credible deposit insurance and effective regulation and supervision can offset the mistrust of depositors while limiting the contingent liability of the insurance agency. If regulation and supervision are ineffective, however, the cost in terms of insurance outlays may outweigh the agency costs of direct state ownership. Thus, the case for direct intervention motivated by the mistrust of private bankers hinges on the government’s ability to provide incentives and monitor private bank owners and managers relative to its ability to do so for its own agents.

### **3.3 What Should Public Banks Do?**

In order to evaluate the performance of public bank, it is important to have a clear idea of what public banks are *a priori* expected to do, in line with the alternative motivations discussed above.

The social view would indicate that public banks should be more active in sectors where market failures are likely to be more prevalent, namely, those associated with information asymmetries, intangible assets, large external financing needs, and significant spillovers. Candidates would include

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<sup>11</sup> Note that these authors do not advocate state-ownership as solution to this problem. In their view, market discipline is the best way to address the problems of poor regulation and ineffective supervision.

agriculture (plagued by asymmetric information and aggregated shocks), R&D-intensive sectors like the pharmaceutical industry (with a large share of intangible assets and potentially large spillovers), or capital intensive industries with long start-up periods with negative cash-flows (like the aerospace industry, for instance). It is also plausible that politicians may want to use public banks to limit employment volatility. Therefore, one should expect them to lend to labor-intensive sectors, particularly during recessions and in the presence of high unemployment rates. This discussion suggests that we should not expect to see public banks competing with the private sector to finance firms with alternative sources of credit, or the public sector. There are, however, two exceptions to this general statement.

The first one has been stressed by the development view: in a context of poor institutional development and a general mistrust of private banks, public banks could be the only viable financial institutions and a fundamental stepping-stone in the creation of a country's financial system. Furthermore, well-structured public financial institutions may disseminate their experience to private sector partners and hence promote financial development. This was, indeed, the case for the development banks created in Europe during the 19<sup>th</sup> century (Armedáriz de Aghion 1999). Thus, commercial (as opposed to development) public banks may play a role at the very early stages of financial development.

The second one has to do with the fact that private bank lending could overreact to recessions and amplify the business cycle. Although this problem could be addressed with government guarantees or subsidies, these actions could take time to materialize as they would likely require some sort of legislative action. Hence, a public bank manager that internalizes the benefits of increasing credit during recessions may play a useful role in smoothing credit cycles.<sup>12</sup>

Some policy makers argue that public sector banks could also be used as a tool to address in a non-transparent way a whole class of problems that may arise at times of crises. For instance, public sector banks could be used as a crisis resolution vehicle (absorbing bad loans of restructured banks) or as an instrument to quickly distribute subsidies (hiding their fiscal cost or overcoming political economy constraints) to politically sensitive sectors or industries particularly hit by the crisis. Clearly, there is a trade-off between the costs and benefits of having such an instrument. On the one hand, by increasing policymakers' degrees of freedom, public banks may make policy more effective. On the other hand, by reducing transparency and accountability, they increase the opportunities for waste, corruption, and patronage and may generate a series of contingent liabilities that are not properly accounted for in the fiscal accounts.

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<sup>12</sup> The idea is similar to the argument that monetary policy has shorter implementation lags than fiscal policy. In this context, a case can be made in favor of contingent guarantees that activate in the event of a crisis.

## **4 What do the Data Say?**

In this section we review the empirical evidence and present new results on the performance of public banks and their economic impact. We divide this empirical literature into two parts. The first one comprises firm-level microeconomic studies on public bank performance and externalities, and the second one focuses on macroeconomic studies based on cross-country comparisons.

### **4.1 Evidence from bank-level data**

Most studies that use bank-level data center on profitability and costs, although a few papers try to explicitly test some of the channels reviewed in the previous sections. For ease of exposition, we start with a survey of studies that focus on bank performance, to move next to studies that aim at testing specific channels.

#### *Bank Performance*

A few studies have looked at the relative efficiency of public banks with mixed results. Altunas, Evans and Molyneux (2001) investigate scale economies, inefficiencies, and technical progress for a sample of private, mutual, and publicly-owned banks in the German market. They find little evidence that privately-owned banks are more efficient than public and mutual banks. Indeed, efficiency measures indicate that public and mutual banks have slight cost and profit advantages over their private commercial banking counterparts, a feature which may be explained by their lower cost of funds. On the other hand, their results suggest that public banks do not play the subsidizing role that the social view typically assigns to them.

Micco et al. (2007) compare public bank performance with that of private (domestically- and foreign-owned) banks. They find that, whereas public banks located in developing countries underperform their private counterparts in terms of profitability, non-performing loans and overhead costs, the performance of public and private banks located in industrial countries does not differ significantly.<sup>13</sup> These findings need to be interpreted as averages for industrial and developing countries. There is, however, substantial heterogeneity in profitability within the developing set across regions (Table 2). In particular, underperformance is not especially strong in the Middle East and North Africa and

the East Europe and Central Asia regions, but it is large in South Asia and (particularly) Latin America. In this section, we look at the experience of Latin America in greater detail using a data from bank superintendences.<sup>14</sup>

Figure 3 characterizes public bank performance in the ten Latin American countries included in Table 1. The values plotted are the coefficients of the public bank dummy 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. Hence, the graph plots the performance of public banks relative to that of private domestically owned banks. The figure shows that public banks charge lower interest rates than their private counterparts and also pay lower interest rates on their deposits (90 basis points less than private banks). 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 (for example, the difference in returns on assets is 0.4 percentage points).

Table 3 complements these results, reporting the coefficient for the public sector dummy in country-by-country regressions of performance indicators.<sup>15</sup> There is, again, substantial heterogeneity *within* the region. The relative profitability of public banks is particularly low in Colombia and Honduras but in Costa Rica public banks are more profitable than 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 difference in interest rate 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.

These findings suggest that, despite their lower efficiency (higher non-performing loans and overheads costs, and lower returns) and greater exposure to sovereign risk (from a larger share of loans to the public sector), public banks are still perceived to be safer (hence, the lower borrowing rates, which in turn allow them to extend credit at lower lending rate).<sup>16</sup>

Somewhat at odds with the better individual performance of private banks, Clark, Cull and Shirley (2003) find that, in 7 out of 18 episodes surveyed, privatization did not lead to an

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<sup>13</sup> Mian (2005) focuses on banks located in emerging markets and find that public banks are significantly less profitable than private foreign banks but does not provide a direct test of the difference in profitability between domestic public and private banks.

<sup>14</sup> These data tend to be of higher quality but not directly comparable with the BankScope data used in Table 2.

<sup>15</sup> Table 3 reports the point estimates of the public ownership dummy of country-by country bank level estimates.



improvement in overall bank performance, in 6 it yielded a small improvement, with substantial improvement only in the remaining 5. Another survey conducted by Megginson (2003) concludes that, while in developed economies bank privatization does lead to improvement in terms of profitability and stock performance, these improvements are smaller than what is typically found in the case of privatization of non-financial companies.

Argentina is a well-documented case of bank privatization for which there is limited consensus on the final outcome of the process. Berger et al. (2004) find a net reduction of the share of non-performing loans in privatized banks but argue that this is likely to be due to sample selection bias (specifically, the cleaning process at the time of the privatization, which typically coincide with individual or systemic financial problems). They find a much weaker effect on increased profitability (the coefficient in their regressions is often not significant) and no effect on cost reduction (although 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 (which, again, may be due to the cleaning process) and allocated less of their lending to the agriculture sector. At the same time, they find no significant difference in loan composition (public sector, consumer and manufacturing loans). Clarke et al. (2003) argue that the drop in loans of 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 the loans are back where they were before privatization and that they are likely to increase over time, although no supporting evidence is reported.

In the case of Mexico, the bank privatization of the early 1990s produced disastrous effects, but the privatization that followed the Tequila crisis fared better in terms of asset quality (once again, helped by a government bailout). However, Haber and Musacchio (2004) find that the newly privatized Mexican banks (particularly those foreign owned) reduced credit extended to the private sector by more than 2 percent a year. As a consequence bank lending as a share of GDP dropped substantially and at the end of 2003 amounted to approximately 14 percent. Credit to the private sector dropped even more substantially to about 8 percent of GDP, or less than one third of the average ratio for Latin America during the 1990s.

#### *Political versus development view*

As both the development and political view of public banks are consistent with their low profitability, the findings described above are of limited help in evaluating whether public banks can play a useful role in

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<sup>16</sup> An alternative explanation for this last result is that public banks may benefit from indirect subsidies coming from government deposits paying no or low interest rates. This is the case of Chile, where the Banco del Estado de Chile manages the central government checking account.

economic development. There are, however, a set of recent papers that provide a direct test of the political channel of public banks.

Khawaja and Mian (2004) use loan-level data for more than 90,000 firms located in Pakistan and find that firms with politically connected directors have more access to credit from public banks, even though they have higher default rates. They also provide evidence that this behavior is not justified by a social mandate but purely due to political motivations. Sapienza (2004) studies the comparative performance of privately- and publicly-owned banks in Italy and also finds evidence in support of the political view of public banks. In particular, she shows that public banks: (i) charge lower interest rates than their private counterparts to similar firms, even if the latter have access to financing from private banks; (ii) allocate credit according to the electoral results of the party affiliated with the bank; (iii) favor mostly large firms; (iv) favor firms located in depressed areas. While the last finding is somewhat aligned with the development view, the first three findings provide strong evidence in support of the political view.

Micco et al. (2007) test whether the differential performance between public and private banks is driven by political considerations by checking whether this differential widens during election years and finds strong support for this hypothesis.<sup>17</sup> Moreover, they find that election years are associated with more aggressive lending coupled with a decrease in prices, which indicates the presence of a supply shock consistent with the political lending hypothesis.

### *Macroeconomic Stabilization*

As noted above, a rationale for the existence of public banks is that they could play a useful countercyclical role by stabilizing credit. Using macroeconomic data, Cecchetti and Krause, (2001) find evidence in the opposite direction. Specifically, they find that the effectiveness of monetary policy is lower in countries which have a large share of public banks. One problem with Cecchetti and Krause's (2001) results is that state-ownership of banks may be capturing other factors (like lower levels of financial development) that are related to the effectiveness of monetary policy and not controlled in their tests. Micco and Panizza (2006) address this problem by using banks-level data to look at whether bank ownership affects credit growth during different parts of the business cycle. Under the premise that public banks play a useful stabilization role, one should observe that, compared to the behavior of private banks, public bank lending should be less responsive to macroeconomic shocks (that is, it should decrease by less during recessions and increase by less during expansions). They find that credit extended by public banks is indeed less procyclical than credit extended by private banks, and that the smoothing effect of

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<sup>17</sup> Along similar lines, Dinç (2005) finds that bank lending increases substantially during election years.

public banks is particularly strong in periods characterized by a slow growth of domestic deposits and when credit growth lags the growth in demand deposit.<sup>18</sup>

These results suggest that public banks may play a useful role in reducing credit procyclicality and, through that channel, business cycle fluctuations. However, a skeptic could note that weaker procyclicality may reflect an inadequate risk management by “lazy” public bank managers that, lacking incentives to maximize profits, do not look for lending opportunities during expansions and do not limit risk exposure during recessions. This hypothesis, however, is at odds with the finding that other earning assets held by state-owned banks –as well as non-interest income– are never less procyclical than for private domestic banks, which provides support for the interpretation of the results in terms of credit smoothing.<sup>19</sup>

## 4.2 Cross-country evidence

In this section, we review the existing cross-country evidence of the effect of state ownership of banks and present some new results. We first look at how the presence of state-owned banks affects financial development and GDP growth. Next, we present new results on how state-ownership of banks affects the efficiency and competitive behavior of private banks. Finally, we look at the relationship between state-ownership of banks and access to banking services.

### *Financial Development and GDP Growth*

Looking at the correlation between public participation in the banking sector and financial development, Barth et al. (2002) argue that greater state ownership of banks tends to be associated with more non-performing loans but they find that, after controlling for bank regulation, government ownership of banks is not robustly linked with other indicators of bank development and performance.<sup>20</sup> These results are somewhat in contrast with their previous work (Barth et al. 2000) where, for a sample of 59 developed

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<sup>18</sup> More precisely, they run a panel regression of bank-specific loan growth rates on output growth, estimating a different coefficient for growth according to whether or not the bank is public (including interactions with foreign ownership, bank size and election years) and find that the coefficient is 50 percent lower for public banks than for domestic private banks.

<sup>19</sup> It should be pointed out, however, that Micco and Panizza (2006) look at bank-level variables and not at total credit. The benign effect of public banks on credit procyclicality may be weakened or strengthened according to whether public and private bank lending behave as strategic substitutes or complements.

<sup>20</sup> They also study the relationship between banking crises and state ownership of banks, but they do not find a significant link. Some evidence for such a relationship is found by Caprio and Martinez Peira (2002). However, the fact that bank failures during a crisis tend to be followed by nationalization may generate a positive correlation between the propensity to face banking crises and the extent of ex-post state ownership, independently of whether or not state participation increases banking fragility.

and developing countries, they found a negative association between state-ownership and financial depth as measured by the ratios of bank and non-bank credit to the private sector over GDP, and by the value of securities traded domestically, even after controlling for economic development and the quality of government.

The interpretation of these findings in terms of causality is rather difficult. In particular, these results do not help clarifying whether public banks' existence is justified by development and social objectives or whether their existence is purely due to political reasons. In fact, the correlation between state ownership of banks and poor institutional quality (as measured by lack of property rights), low financial development, government intervention in the economy, and low GDP per capita, is justified by all theories aimed at explaining state intervention in the banking sector.

La Porta et al. (2001), perhaps the most influential and widely quoted paper in the public banks literature, focus more specifically on the determinants and implications of state ownership of banks. Their original data on public ownership (which comprises public shares for about 90 countries) show that government ownership of banks at an earlier period is associated with a slower subsequent development of the financial system and slower economic growth. Their tests, while controlling for initial conditions (financial and economic development, state ownership ratio), are still limited to cross-section correlations and, as they themselves note, "are not conclusive evidence of causality." This is particularly true in light of the strong persistence of both credit shares and state-ownerships ratios.<sup>21</sup> As noted, a negative contemporaneous link between government ownership and financial development is not at odds with Gerscherkron's (1962) development view.

A study that addresses the problem of causality is Galindo and Micco (2004). These authors use the methodology originally devised by Rajan and Zingales (1998) and show that the presence of public banks mitigates the positive effect of financial development. However, this result can be interpreted as evidence in favor of a negative link between growth and state-ownership of banks only under the strong – and rather unrealistic– assumption that there is no correlation between the presence of public banks and the level of financial development.

As the statistical analysis of La Porta et al. groups together very different countries, including former socialist economies where state ownership was the rule and for which data for earlier periods are less reliable, a revision of their results may shed additional light on these issues. Tables 5-7 revisit their

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<sup>21</sup> The correlation between state ownership of banks in 1970 and 1995 is 0.77, the correlation between state ownership of banks in 1970 and 1985 is 0.88, and the correlation between state ownership of banks in 1985 and 1995 is 0.79 (all the p values are 0.00). In turn, the correlation between private credit over GDP ratios in 1960 and 1995 is 0.68, the correlation between private credit over GDP ratios in 1960 and 1985 is 0.78, and the correlation between private credit over GDP ratios in 1985 and 1995 is 0.92.

findings using their own measures of public shares in the banking sector and updating and extending in time the private credit and GDP data following their definitions and sources.<sup>22</sup>

Table 5 focuses on the relationship between state ownership of banks and subsequent financial development. Column 1 reproduces the results in Table IV of La Porta et al. for ease of comparison. Column 2 replicates the regression using the new data. Reassuringly, the original results remain virtually unchanged; indicating that state ownership of banks depresses subsequent financial development even after controlling for initial GDP and the initial level of financial development. This is also true when 1970 (the earlier year for which they compute the state ownership ratio) is used as the initial period (column 3). However, columns 4 and 5 show that there is substantial heterogeneity across periods, with the negative effect of state-owned banks being much stronger in the late 1980s than in the 1970s.

We can complement the analysis of La Porta et al. by using more recent data that allow for a more complete set of controls. Table 6 studies the determinants of bank credit to the private sector (measured as a share of GDP) in the late 1990s by controlling for bank ownership (using the both the share of state-owned and foreign-owned banks), GDP per capita, inflation, level of corruption, cost of contract enforcement, creditor information, and bank concentration. The specification is borrowed from Detragiache et al. (2006), who estimate this regression only for low-income countries. However, before using this whole set of control, we start by reproducing La Porta et al. (2002) basic specification. Column 1 shows that once we use more recent data there is no statistically significant correlation between state ownership of banks and the size of the domestic credit market (and, if anything the correlation is positive). Column 2 includes the set of controls of Detragiache et al. (2006) and shows that also in this case there is no statistically significant correlation between state-ownership and credit to the private sector. Interestingly, we find that countries that have more foreign-owned banks tends to have smaller credit markets, which may reflect the fact that foreign entry is more prevalent in developing economies that have gone through episodes of financial distress. In columns 3, 4, 5, and 6 we look specifically at developing countries, low- and low-middle income countries (based on the World Bank's income classification), low-income countries, and Latin America and the Caribbean, respectively. We find that the coefficient for state-owned banks is positive but never statistically significant (the coefficient for foreign-owned banks is always negative but not statistically significant).

Next, we replicate the same exercises substituting the growth rate of credit to the private sector (namely, the percentage change between average credit to the private sector in 1995-1998 and 1999-2005)

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<sup>22</sup> Initial per capita GDP is expressed in current U.S. dollars (source: World Development Indicators). Credit to GDP ratios are computed as credit to the private sector (lines 22.d.f and 22zw, plus line 42d) over GDP (source: International Financial Statistics). The growth in the credit to GDP ratio is computed as the average of the log difference of the ratio over the period, for those countries for which a minimum of 10 observations is available. In

as the dependent variable (Table 7). Again, we start by using the same control used by La Porta et al. (2002) and find that the coefficient of the variable measuring public ownership is negative but not statistically significant. In column 2, we use the same set of controls used in Table 6 plus the initial stock credit to the private sector (all measured over 1995-1998). In line with the results in Table 5, we find that the coefficient for state-ownership is negative (indicating that a large share of state-owned banks inhibits credit growth), but the coefficient is rarely statistically significant (it is marginally significant at the ten percent confidence level only for the sample of low and middle-low income countries).

One problem with the estimates reported in Tables 5-7 is that they are likely to be plagued by causality and omitted variable problems. In particular, if public banks are more likely to arise in a context in which private financial intermediation is discouraged by institutional deficits, the negative link between private financial intermediation and state ownership could be due to either reverse causality or to the omission of institutional variables (see Rodrik, 2005, for a discussion of this issue).<sup>23</sup>

It is also possible to use panel data to test whether changes in state ownership are associated with the speed of financial development, for which, as before, we follow Detragiache et al. (2006). In this setting, the coefficient attached to the variable measuring state-ownership captures how changes in the public share are correlated with changes in credit to the private sector. Table 8 uses a simple OLS panel regression and, contrary to most of the results discussed above, finds that increases in state-ownership of banks are *positively* associated with credit growth. However, the coefficient is statistically significant only when both developing and industrial countries are included. There are, however, two problems with the estimation of Table 8. First, using panel data mitigates but does not solve the endogeneity problems highlighted before.<sup>24</sup> Second, it is well known that fixed effects estimates are problematic in the presence of lagged dependent variables. The System GMM estimator developed by Blundell and Bond (1998) and Arellano and Bover (1995), which under certain conditions can help address both of these problems, again fails to find a significant link (Table 9).<sup>25</sup> Indeed, these negative results are in line with those of Detragiache et al. (2006) for a different sample of countries.

Summing up, while the work of La Porta et al. found strong evidence that state-ownership of banks had a negative effect on the supply of bank credit to the private sector, using more recent data and more sophisticated statistical techniques we find no significant correlation between state-ownership of

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order to maintain data homogeneity columns 2-10 only use data for which WDI and IFS information are available this reduces the sample to 70 observations

<sup>23</sup> In Levy Yeyati et al. (2006), we instrument the state-ownership variable using an index of public enterprises as a share of the economy, with mixed results.

<sup>24</sup> For example, bank privatization or nationalization could be the result of a banking crisis.

<sup>25</sup> The last two rows of the table report the p values of the OIR Sargan test and the test for the presence of second-order serial correlation. Both tests do not reject the hypothesis that the model is well specified.

banks and bank credit to the private sector.<sup>26</sup> Thus, the evidence that the prevalence of state ownership in the banking sector conspires against its ultimate development appears to be weaker than hinted by previous studies. On the other hand, there is no indication that state ownership has the positive catalytic effect that its advocates have suggested. Ultimately, a balanced reading of these results would indicate that public banks, at best, do not play much of a role in the development of their private counterparts.<sup>27</sup>

### *Efficiency and competitive behavior of private banks*

Most of the public bank debate focuses on whether and how the presence of state-owned banks influences the supply bank credit, but to the best of our knowledge there are no studies that look at whether the presence of state-owned banks affects the efficiency and the competitive behavior of private banks. To this we turn next.

We proxy banking sector efficiency by a standard indicator: overhead costs. Table 10 reports, for alternative country samples, a regression of average overheads costs (as a share of total assets) of private banks (both domestically and foreign owned) over a set of country characteristics that includes: state ownership of banks, foreign ownership of banks, log GDP per capita, institutional proxies (lack of corruption, contract enforcement cost), log inflation and bank concentration.<sup>28</sup> The first four columns show that the coefficient attached to the state-ownership variable is always negative and statistically significant for the low-income sample. This surprising finding goes against the current conventional wisdom that presumes that the presence of state-owned banks has a negative effect on the overall efficiency of the banking sector, and seems to support the view that in very poor countries the presence of state-owned banks can have positive spillovers on their private counterparts.

Figure 4 presents a partial scatter plot of this regression and shows that the result does not seem to be driven by outliers. To test this hypothesis more formally, we re-estimate the models of the first four columns using quantile regressions with bootstrapped standard errors, a methodology that reduces the

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<sup>26</sup> Clarke, Cull and Martínez Pería (2004) provide another study of banks 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 and 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.

<sup>27</sup> The same conclusion can be extracted from the more elusive question on the impact of public banks on long-run economic growth, where a robust effect –and a specific channel– is even more difficult to identify empirically. See Levy Yeyati et al.(2006).

<sup>28</sup> Average overhead costs were calculated using bank-level data from Bankscope. We adopted the following steps: (i) divided overhead costs by total assets; (ii) dropped from our dataset all banks with state-ownership above 50 percent; (iii) computed country-year averages of overheads over total assets; (computed country averages for the 1995-2002 period).

weight of outliers. The results, reported in columns (5)-(8) of Table 10, are, if anything, stronger, indicating that the presence of state-owned banks significantly reduces the overhead costs of private banks in all but one sub-sample (the exception is the low and middle-low income sample, for which the coefficient is large but not statistically significant).

If the presence of state-owned banks increases the efficiency of private banks, a natural question is whether this increase in efficiency is passed onto customers (and the economy as a whole) in the form of lower interest margins. We do this by regression a proxy of the net interest margin (we compute this proxy by dividing net interest revenues by total assets) of private banks over the same set of variables included in Table 10.<sup>29</sup> Table 11 shows that, indeed, the share of state owned banks has a negative effect on the net interest margin of private banks. The effect is of comparable magnitude and statistically significant for all sub-samples (results are somewhat weaker but still significant when we use quantile regressions). If the presence of public banks limits non-competitive pricing in some concentrated banking sectors, lower margins could be the reflection of a more competitive market structure. We find some evidence that this might be the case and that the correlation between the private bank profitability and public participation is never statistically significant (Table 12). This indicates that that lower margins (Table 11) are compensated (and possibly the result of) by cost reductions (Table 10), with little impact on bank profits.

### *Access to banking services*

Another important aspect of the public bank debate concerns the provision of banking services. The need to provide access to credit and savings instruments to small and medium enterprises or residents in isolated areas is often invoked as a main goal of public banks. More generally, the provision of banking services across all income levels and geographical regions is one the most frequently used justifications for the presence of state-owned banks (despite the fact that the rationale for direct state ownership is rather weak, see section 3.2). To evaluate the value of public banks, then, we need to test whether their presence indeed improves access to credit services, for which we use a new dataset assembled by Beck, Demirguc-Kunt et al. (2005).<sup>30</sup>

We do that in Table 13, where we examine the relationship between state-ownership of banks and the geographic and demographic penetration of bank branches and ATM machines (we use a specification

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<sup>29</sup> To compute the net interest margin of private banks we also use bank-level data from Bankscope and follow a procedure similar to the one used to compute overheads cost.

<sup>30</sup> Beck et al. (2005) use this dataset to show that there is either a negative correlation or no correlation between the presence state-owned banks and access to banking services. However, in their cross-country regression, they only control for regional dummies.



similar to that of Detragiache et al., 2006, but in addition we control for state-ownership and the percentage of the population living in rural areas). We find no statistically relationship between state-ownership of banks and the two access proxies. Table 14 looks at this issue from an alternative perspective, using loan and deposit accounts per capita as a measure of the provision of bank services.<sup>31</sup> Again, we find no significant relationship with state ownership.

## 5 Conclusions

Whereas several prominent development economists writing in the 1960s and 1970s strongly supported government intervention in the banking sector and direct state ownership of banks, recently the conventional view is that state ownership of banks is not beneficial for economic development or, in the words of a recent World Bank report, that: "...whatever its original objectives, state ownership of banks tends to stunt financial sector development, thereby contributing to slower growth." (World Bank, 2001, P. 123).

In this paper we revisit the public banks debate, and survey the existing empirical evidence, testing its robustness and expanding it. Although we found some support for the idea that public banks do not allocate credit optimally, we also showed that the results demonstrating that state ownership inhibits financial development and growth are far less robust than previously thought. Furthermore, we reported some new evidence indicating that public banks may play a useful role in reducing credit procyclicality.

One argument that is often invoked against state ownership of banks is that private banks tend to be more profitable than public banks. There is in fact evidence that this is the case (especially in developing countries). As we pointed out, however, it would be unfair to the development view to evaluate public banks by their financial profitability, rather than by their development and stabilizing effect. As both financial development and institutional quality are closely related with economic growth, it is very difficult to make a statement on the development role of public banks based on cross-country evidence, without disentangling the causal relationship between these variables and state ownership of banks. Our finding that public banks may have a positive effect of private bank efficiency and performance may explain the inconclusive results on the overall effect of public banks on the quality of the banking sector as a whole.

It is hard to make general statements on the desirability and past performance of public banks based on a cross-country analysis of aggregate data. There are two reasons for this. One has to do with the basic specification problems (omitted variables and endogeneity) compounded by data restrictions (for

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<sup>31</sup> Note that this measure reflects the interaction of supply and demand factors and is less clearly connected with bank outreach than ATM and branch penetration.

example, the lack of good institutional measures for earlier periods). The other relates to the fact that public institutions are a heterogeneous family that may work satisfactorily in some countries and disappointingly in some others. Moreover, heterogeneity is also present within individual countries.<sup>32</sup> Thus, while cross-country studies tend to spread either a negative or a neutral light on the role of public sector banks, more detailed work using micro-level data finds that, once provided with the right incentives, public sector banks may play a positive role in mobilizing savings (Yaron and Charitonenko, 2001) or facilitating consumption smoothing during a crisis (Alem and Townsend, 2002).

Characteristics that may affect the success of a state-owned bank include: (i) the nature of the bank objective and mission; (ii) clear accounting of the subsidy component and constant evaluation of its mission; and (iii) the bank's governance structure.<sup>33</sup> By far, the main criticism levied on public banks is their poor management and political motivation, highlighting the importance of an appropriate governance structure. While there is no literature that is specific to the problems of the governance of public banks, it is possible to formulate some principles on how managers of public banks should be chosen by drawing a parallel with the literature on central banking (for example, operational independence, and a representative, non-politically appointed board of directors).<sup>34</sup>

Ultimately, while there is now a widespread agreement on the fact that politics does play a role in the lending decisions of public banks, this does not necessarily imply that public banks play no role in development: on the contrary, one could easily envision situations in which political influences coexist with a development mandate. Precisely because of that, rather than focusing on a simple good or bad approach, future empirical research should study the conditions under which the potential benefits of public banks can outweigh the potential inefficiencies generated by their political nature.

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<sup>32</sup> For instance, Brazil has three large state owned banks: Banco do Brasil, Caixa Economica Federal, and Banco Nacional de Desenvolvimento Econômico e Social. While all three institutions rely on highly subsidized source of funds, most observers are convinced that the three institutions operate and absolve their mandate with very different degrees of efficiency with Caixa Economica Federal being the less efficient and Banco Nacional de Desenvolvimento Econômico e Social the most efficient and better managed.

<sup>33</sup> See Levy Yeyati et al. (2006) for a discussion along these lines.

<sup>34</sup> Interestingly, the need to protect the independence of the bank may provide a political economy explanation of why it may be optimal to have institutions that mix banking activities with development activities rather than pure development institutions with no banking activities (this latter option has been suggested by De la Torre, 2003). Whereas a well-managed development bank has the potential of conducting its activities without direct government transfers, a development agency would depend on such transfers and, as a result, on the discretion (and the influence) of the executive that grants them.

## Appendix 1: Public Banks Taxonomy<sup>35</sup>

While it is difficult to exactly define the range of operations of public banks and financial institution, a taxonomy can be helpful in order to better understand their role and possible objectives. By focusing on the type of operations performed by the various public financial institutions and on whether they act as first- or second-tier banks in the liability and/or assets side of the balance sheet, it is possible to separate them into four groups.

The first group includes *retail commercial banks*. These are banks that may have an ultimate social or development objective but that have operations that in their nature are virtually indistinguishable from those of private commercial banks. They collect deposits from the public and use them to give direct credit to firms and individuals. As such, they act as first-tier banks in both the liability and asset side of the balance sheet.<sup>36</sup> Besides embracing typical retail activities such as credit card management and insurance, in some cases, public banks in this category act as universal or near-universal commercial banks (either directly or through affiliates). This group also includes institutions that were originally created with well-defined development purposes but have grown to also incorporate commercial banking activities. These *hybrid institutions* play both the role of development bank and commercial bank, and act as a government agent administering subsidies and various government programs. One key difference between banks in this subgroup and standard retail banks is that, while the latter are funded primarily through private deposits, the former fund their operations with government transfers or special deposits from the government.<sup>37</sup>

The second group includes institutions that do not operate directly with the public on the liability side—i.e., they do not take deposits. These are institutions funded by multilateral development agencies, bonds issuance or government transfers that act either as second-tier banks in the assets side (lending through other banks) or lend directly to firms that operate in specific sectors of the economy (exports, agriculture, firms with high innovative content, etc.). In some cases, these institutions act as financial agent of the government or are assigned a key role in the structural reform process.

The third group includes institutions that act as first-tier banks on the liability side but not on the asset side. These are institutions that collect deposits but invest all their assets in short-term government paper and make no loans (in this sense, they operate like *quasi-narrow banks*). Their ultimate objective is to mobilize savings by supplying safe deposits. Postal offices in continental Europe and Japan traditionally played such a role.

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<sup>35</sup> Augusto De La Torre provided invaluable help in formulating this taxonomy.

<sup>36</sup> Some of these banks have a national charter and other just operate in a given region or province.

The fourth group would include institutions that do not explicitly make loans nor issue liabilities but play the role of *development agency* through a potentially wide range of instruments, including providing (directly or via the private sector) technical assistance, issuing partial guarantees, matching grants, and subsidies. As such they neither lend or borrow and hence do not act as banks (either first or second tier) on either the liability or asset side.

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<sup>37</sup> However, this distinction is sometimes rather vague, as retail public banks also tend to hold a large amount of government deposits.

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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: 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 (0.170)***	-4.493 (3.754)	-0.559 (0.307)*	-3.288 (2.324)	-1.214 (0.253)***	-6.447 (1.901)***	0.089 (0.107)	-1.976 (1.176)*	-0.211 (0.072)***	-6.604 (1.270)***
Foreign	0.271 (0.149)*	1.235 (1.795)	0.594 (0.261)**	5.280 (2.186)**	-0.226 (0.127)*	-0.905 (1.135)	0.084 (0.085)	0.789 (1.009)	0.027 (0.163)	-4.155 (2.454)*
Non Int Inc/TA	-0.130 (0.148)	-1.920 (1.284)	-0.020 (0.069)	-0.351 (0.521)	-0.013 (0.044)	-0.106 (0.272)	0.099 (0.079)	0.062 (0.706)	0.151 (0.058)***	2.361 (0.893)***
Dda Dep/TDep	0.005 (0.003)	0.026 (0.041)	0.018 (0.006)***	0.066 (0.040)	0.011 (0.007)*	0.128 (0.050)***	0.002 (0.004)	0.000 (0.037)	-0.003 (0.005)	-0.163 (0.070)**
Lag TA (ln)	0.152 (0.070)**	2.015 (0.893)**	0.021 (0.144)	0.536 (1.130)	0.129 (0.086)	2.112 (0.707)***	-0.191 (0.040)***	1.132 (0.434)***	-0.123 (0.040)***	-0.212 (0.680)
Lag Share	-1.756 (0.686)**	-10.642 (9.260)	-1.770 (1.499)	-3.893 (9.001)	1.187 (0.968)	3.487 (7.850)	1.320 (0.298)***	3.241 (3.291)	0.148 (0.540)	3.099 (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 3: Public Bank Performance Indicators Relative to Private Domestic Banks**

Country	ROA	Interest Rate (Loans)	Interest Rate (Deposits)	NPL	Loans to Public Sector
Argentina	-0.0037	-0.0045	-0.0023		0.0876
Bolivia					
Brazil	-0.0026	-0.0194	-0.0176	0.0644	0.0009
Chile	-0.0001	-0.0034	-0.0094	0.0090	0.1725
Colombia	-0.0098	0.0078	0.0001	0.0703	0.0734
Costa Rica	0.0014	0.0039	-0.0013	0.2337	0.1661
Guatemala	-0.0010	-0.0042	-0.0021	0.2465	-0.0031
Honduras	-0.0058	-0.0162	-0.0147	0.2620	0.0428
Mexico	-0.0035	0.0013	0.0312	0.0158	-0.0150
Nicaragua	-0.0111	0.0185	0.0056	0.1163	
Peru					
El Salvador	-0.0052	-0.0070	-0.0041	0.1219	0.0636

**Table 4: Public Sector Loans**

Country	Private banks	Public banks	Foreign banks	Private banks	Public banks	Foreign banks	Private banks	Public banks	Foreign banks
	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%

**Table 5: The Effect of State Ownership of Banks on Financial Development**

Dependent Variable: Average annual growth rate of private credit / GDP					
	(1)	(2)	(3)	(4)	(5)
GDPPC (initial)	-0.056 (0.433)	-0.205* (0.122)	-0.176 (0.135)	-0.030 (0.270)	-0.345 (0.212)
Priv. Cred. (initial)	-0.056*** (0.019)	-0.037*** (0.009)	-0.036*** (0.009)	-0.083*** (0.025)	-0.051*** (0.015)
Public share (initial)	-0.039*** (0.011)	-0.021** (0.008)	-0.019** (0.009)	-0.015 (0.015)	-0.039** (0.017)
Constant	6.681** (2.616)	6.651*** (1.225)	6.257*** (1.305)	7.040*** (2.601)	9.411*** (2.276)
Observations	82	66	70	66	77
R-squared	0.21	0.26	0.20	0.17	0.21
period	(1960-99)	(1960-99)	(1970-02)	(1970-85)	(1986-02)

Robust standard errors in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 6: Bank Ownership and Credit to the Private Sector**

	(1)	(2)	(3)	(4)	(5)	(6)
Public share (initial)	7.012 (0.77)	1.404 (0.15)	8.032 (0.84)	6.741 (0.64)	13.080 (1.14)	2.248 (0.07)
Foreign share (initial)	10.212 (5.43)***	-31.460 (2.43)**	-17.220 (1.41)	-19.537 (1.39)	-11.416 (0.78)	-12.352 (0.67)
GDPPC (initial)		-2.275 (0.78)	-0.737 (0.33)	-0.054 (0.02)	-2.949 (0.64)	-10.174 (1.14)
C3 (initial)		-35.687 (1.55)	-53.641 (3.72)***	-54.180 (3.24)***	-55.553 (3.14)***	-74.016 (2.02)*
Constant	-37.229 (2.88)***	97.191 (2.78)***	101.860 (3.94)***	101.771 (3.29)***	90.847 (2.70)**	226.713 (2.48)**
Observations	129	112	90	76	39	20
R-squared	0.24	0.39	0.38	0.39	0.44	0.59
Sample	All	All	Developing	Low and middle -low income	Low income	LAC

The dependent variable is bank credit to the private sector measured as share of GDP (source: World Bank's WDI). Public Share and Foreign Share are state and foreign-ownership of banks respectively (source: Micco, Panizza and Yanez), GDPPC is the log of GDP per capita (source: World Bank's WDI), C3 is a measure of bank concentration (share of assets controlled by the 3 largest banks, source: Micco, Panizza, and Yanez). The regressions also control for log inflation, a measure of lack of corruption, the number of days that it takes to enforce a contract, and a measure of the cost to banks of obtaining information about borrowers. Credit to the private sector is measured as 1995-2005 average; all other variables (with exception of control of corruption and cost to banks of obtaining information) are averages for 1995-2002.

Robust t statistics in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 7: Bank Ownership and Growth in Credit to the Private Sector**

	(1)	(2)	(3)	(4)	(5)	(6)
Priv. Cred. (initial)	-0.004 (2.22)**	-0.004 (2.17)**	-0.008 (3.24)***	-0.010 (3.12)***	-0.014 (1.84)*	-0.006 (1.72)
Public share (initial)	-0.297 (1.14)	-0.427 (1.60)	-0.245 (1.01)	-0.468 (1.68)*	-0.264 (0.59)	0.275 (0.55)
Foreign share (initial)		-0.423 (1.62)	-0.250 (1.27)	-0.443 (1.69)*	-0.343 (0.60)	0.147 (0.42)
GDPPC (initial)	-0.066 (1.73)*	-0.072 (1.05)	-0.060 (1.11)	-0.116 (1.57)	-0.149 (0.64)	-0.426 (2.97)**
Constant	0.732 (2.59)**	0.923 (1.39)	1.161 (2.06)**	1.983 (3.16)***	2.734 (1.50)	4.020 (2.98)**
Observations	116	114	87	67	34	24
R-squared	0.11	0.15	0.19	0.26	0.28	0.64
Sample	All	All	Developing	Low and middle- low income	Low income	LAC
Model	La Porta et al. (2002)		Detragiache et al. (2006)			

The dependent variable is the percentage change in bank credit to the private sector (measured as share of GDP) between 1995-1998 and 1999-2005). Public Share and Foreign Share are state and foreign -ownership of banks respectively (source: Micco, Panizza and Yanez). GDPPC is the log of GDP per capita (source: World Bank's WDI). Columns 2-6 include a set of controls similar to the one used by Detragiache et al. (2006). This set of controls (coefficients not reported) include: log inflation, Lack of corruption, inverse of the number of days that it takes to enforce a contract, cost to banks of obtaining information about borrowers, bank concentration, log of inflation, and two dummy variables for countries that had a banking crisis in 1990-1993 and 1994-2004. All explanatory variables (with exception of control for corruption and contract enforcement) are averages for 1995-1998.

Robust t statistics in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 8: Bank Ownership and Credit to the Private Sector. Panel Estimates (Fixed Effects)**

	(1)	(2)	(3)	(4)	(5)
Lagged Dep Var	0.536 (6.41)***	0.549 (4.56)***	0.558 (2.76)***	0.555 (4.09)***	0.414 (1.64)
Public share (lagged)	15.851 (2.46)**	4.680 (1.24)	3.647 (0.68)	3.830 (0.93)	5.318 (0.68)
Foreign share (lagged)	13.954 (2.48)**	6.599 (1.36)	1.533 (0.26)	3.854 (0.68)	12.839 (1.61)
GDPPC (lagged)	-2.965 (0.78)	-2.752 (0.75)	-8.515 (1.90)*	-1.130 (0.39)	-6.868 (0.85)
Constant	49.855 (1.54)	40.019 (1.42)	61.905 (2.00)**	25.396 (1.14)	80.438 (1.15)
Observations	894	680	258	518	186
Number of code	125	98	41	77	24
R-squared	0.29	0.31	0.41	0.33	0.30
Sample	All	Developing	Low and middle- low income	Low income	LAC

This table report panel estimates for various samples of countries. The estimation period is 1995-2002. All regression include country fixed effects and year fixed effects. The dependent variable is bank credit to the private sector (measured as share of GDP). Public Share and Foreign Share are state and foreign -ownership of banks respectively (source: Micco, Panizza and Yanez), GDPPC is the log of GDP per capita (source: World Bank's WDI). All regressions control for lagged log inflation and bank concentration (share of assets controlled by the 3 largest banks). Robust t statistics in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 9: Bank Ownership and Credit to the Private Sector. Panel Estimates (System GMM)**

	(1)	(2)	(3)	(4)
Lagged Dep Var	0.816 (9.39)***	0.897 (10.24)***	0.887 (14.39)***	0.922 (16.56)***
Public share (lagged)	-5.812 (0.74)	-8.009 (1.23)	-8.619 (0.85)	-6.684 (1.16)
Foreign share (lagged)	-4.864 (0.78)	-4.835 (0.66)	-10.115 (0.91)	-1.758 (0.30)
GDPPC (lagged)	1.042 (0.74)	1.414 (0.91)	-0.586 (0.11)	-1.057 (0.63)
Constant	13.379 (1.03)	4.810 (0.40)	16.109 (0.52)	25.099 (1.85)*
Observations	762	680	258	518
Number of code	125	98	41	77
Sargan test (p value)	0.308	0.149	0.980	0.460
Test for 2 <sup>nd</sup> order serial correlation (p value)	0.302	0.643	0.83	.0484
Sample	All	Developing	Low and middle-low income	Low income

This table report System GMM estimates (using the two-step finite sample Windmejer correction) for various samples of countries. The estimation period is 1995-2002. All regression include country fixed effects and year fixed effects. The dependent variable is bank credit to the private sector (measured as share of GDP). Public Share and Foreign Share are state and foreign -ownership of banks respectively (source: Micco, Panizza and Yanez), GDPPC is the log of GDP per capita (source: World Bank's WDI), All regression control for lagged log inflation and bank concentration (share of assets controlled by the 3 largest banks).

t statistics in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 10: Bank Ownership and Overheads Cost of Private Banks**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OH_P	OH_P	OH_P	OH_P	OH_P	OH_P	OH_P	OH_P
Public share	-0.014 (1.22)	-0.011 (0.85)	-0.016 (1.15)	-0.032 (3.52)***	-0.031 (3.29)***	-0.030 (2.30)**	-0.028 (1.43)	-0.038 (3.39)***
Foreign share	0.018 (1.42)	0.025 (1.66)*	0.019 (1.07)	0.020 (1.50)	-0.006 (0.40)	0.010 (0.59)	0.020 (0.95)	0.025 (1.43)
GDPPC	0.004 (1.31)	0.005 (1.16)	0.003 (0.61)	-0.007 (1.31)	0.003 (0.98)	0.008 (1.66)	0.002 (0.27)	-0.015 (1.50)
C3	-0.008 (0.51)	-0.011 (0.55)	-0.013 (0.58)	-0.040 (2.15)**	-0.002 (0.10)	0.026 (1.12)	0.000 (0.01)	-0.074 (2.37)**
Constant	0.010 (0.29)	0.007 (0.15)	0.027 (0.53)	0.131 (2.77)***	0.013 (0.38)	-0.053 (1.01)	0.011 (0.15)	0.216 (2.57)**
Observations	115	93	79	39	115	93	79	39
R-squared	0.36	0.32	0.30	0.58				
Methodology	OLS	OLS	OLS	OLS	Quantile regression with bootstrapped standard errors			
	All	Developing	Low and middle-low income	Low income	All	Developing	Low and middle-low income	Low income

The dependent variable is average overhead costs of private banks (authors' calculations based on bankscope data). Public Share and Foreign Share are state and foreign -ownership of banks respectively (source: Micco, Panizza and Yanez), GDPPC is the log of GDP per capita (source: World Bank's WDI), and C3 is a measure of bank concentration (share of assets controlled by the 3 largest banks, source: Micco, Panizza, and Yanez). All variables are averages for 1995-2002. All regressions control for log inflation, a measure of lack of corruption, and number of days that it takes to enforce a contract.

Robust t statistics in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%



**Table 11: Bank Ownership and Interest Margins of Private Banks**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Public share	-0.029 (2.98)***	-0.032 (2.85)***	-0.032 (2.63)**	-0.024 (2.73)**	-0.026 (2.27)**	-0.026 (1.91)*	-0.024 (1.80)*	-0.030 (2.66)**
Foreign share	0.006 (0.68)	0.005 (0.49)	0.007 (0.58)	0.022 (2.37)**	0.010 (0.95)	0.008 (0.54)	0.020 (1.16)	0.023 (1.35)
GDPPC	-0.007 (1.74)*	-0.008 (1.76)*	-0.010 (1.88)*	-0.014 (2.86)***	-0.003 (1.24)	-0.006 (1.32)	-0.009 (1.55)	-0.015 (2.34)**
C3	-0.010 (0.80)	-0.012 (0.78)	-0.013 (0.74)	-0.040 (2.83)***	-0.013 (1.10)	-0.020 (0.99)	-0.027 (1.31)	-0.052 (2.72)**
Constant	0.090 (3.05)***	0.103 (2.95)***	0.118 (2.76)***	0.171 (4.41)***	0.064 (2.49)**	0.093 (2.20)**	0.121 (2.18)**	0.189 (4.00)***
Observations	115	93	79	39	115	93	79	39
R-squared	0.46	0.38	0.42	0.69				
Methodology	OLS	OLS	OLS	OLS	Quantile regression with bootstrapped standard errors			
	All	Developing	Low and middle-low income	Low income	All	Developing	Low and middle-low income	Low income

The dependent variable is average interest margin of private banks (authors' calculations based on bankscope data). Public Share and Foreign Share are state and foreign -ownership of banks respectively (source: Micco, Panizza and Yanez), GDPPC is the log of GDP per capita (source: World Bank's WDI), and C3 is a measure of bank concentration (share of assets controlled by the 3 largest banks, source: Micco, Panizza, and Yanez). All variables are averages for 1995-2002. All regressions control for log inflation, a measure of lack of corruption, and number of days that it takes to enforce a contract.

Robust t statistics in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 12: Bank Ownership and Profitability of Private Banks**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Public share	-0.484 (0.48)	-0.324 (0.28)	0.670 (0.57)	1.631 (1.27)	-0.583 (0.91)	-0.256 (0.30)	0.159 (0.21)	0.590 (0.39)
Foreign share	-0.635 (0.68)	-0.366 (0.33)	1.056 (0.96)	2.269 (1.70)*	-0.591 (0.71)	0.312 (0.23)	0.982 (1.11)	1.549 (0.71)
GDPPC	-0.419 (2.04)**	-0.516 (2.15)**	-0.476 (1.68)*	-0.798 (1.51)	-0.159 (0.88)	-0.432 (1.43)	-0.568 (2.42)**	-0.612 (1.00)
C3	1.002 (1.04)	0.653 (0.56)	-0.076 (0.06)	-1.745 (1.04)	1.032 (1.11)	-0.423 (0.26)	-1.236 (1.28)	-1.115 (0.61)
Constant	4.116 (2.25)**	4.945 (2.29)**	4.425 (1.59)	6.937 (1.81)*	1.965 (1.14)	4.460 (1.40)	5.672 (2.20)**	5.083 (1.00)
Observations	115	93	79	39	115	93	79	39
R-squared	0.16	0.15	0.16	0.33				
Methodology	OLS	OLS	OLS	OLS	Quantile regression with bootstrapped standard errors			
	All	Developing	Low and middle-low income	Low income	All	Developing	Low and middle-low income	Low income

The dependent variable is average return on assets (ROA) interest margin of private banks (authors' calculations based on bankscope data). Public Share and Foreign Share are state and foreign -ownership of banks respectively (source: Micco, Panizza and Yanez), GDPPC is the log of GDP per capita (source: World Bank's WDI), and C3 is a measure of bank concentration (share of assets controlled by the 3 largest banks, source: Micco, Panizza, and Yanez). All variables are averages for 1995-2002. All regressions control for log inflation, a measure of lack of corruption, and number of days that it takes to enforce a contract.

Robust t statistics in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 13: Bank Ownership and Geographic and Demographic Bank Penetration**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Dependent Variable: Geographic Branch Penetration			Dependent Variable: Demographic Branch Penetration			Dependent Variable: Geographic ATM Penetration			Dependent Variable: Demographic ATM Penetration		
Public share	-1.393 (0.19)	0.570 (0.11)	1.523 (0.39)	0.496 (0.25)	0.078 (0.03)	0.603 (0.24)	-7.706 (0.38)	12.717 (0.47)	1.161 (0.72)	0.949 (0.18)	4.144 (0.61)	-0.910 (1.10)
Foreign share	18.922 (1.65)	5.003 (0.78)	-2.114 (0.46)	0.946 (0.33)	-0.594 (0.23)	-0.217 (0.07)	58.208 (2.06)**	43.690 (1.08)	-2.362 (0.43)	9.182 (1.06)	17.750 (1.60)	2.013 (0.84)
GDPPC	5.603 (1.13)	8.780 (2.21)**	1.027 (0.61)	2.799 (2.96)***	2.693 (5.07)***	1.147 (1.23)	63.113 (1.75)*	75.142 (1.81)*	2.398 (0.75)	18.640 (3.04)***	19.045 (2.73)**	4.467 (3.20)**
density	0.183 (3.04)***	0.073 (3.39)***	0.052 (16.48)***	0.009 (2.68)***	0.007 (2.00)*	0.005 (1.94)*	0.233 (3.02)***	0.044 (1.41)	0.000 (0.14)	0.003 (0.62)	0.007 (0.86)	-0.001 (0.48)
Constant	-45.154 (1.07)	-63.593 (1.92)*	-7.314 (0.54)	-14.755 (1.65)	-11.498 (2.21)**	-1.510 (0.16)	-543.483 (1.74)*	-620.3 (1.75)*	-16.5 (0.78)	-148.7 (2.74)***	-145.6 (2.44)**	-27.7 (3.11)**
Observations	63	46	20	63	46	20	57	41	15	57	41	15
R-squared	0.75	0.70	0.95	0.52	0.60	0.47	0.63	0.51	0.57	0.59	0.59	0.89
Sample	Developing	Low and middle-low income	Low income	Developing	Low and middle-low income	Low income	Developing	Low and middle-low income	Low income	Developing	Low and middle-low income	Low income

Geographic Branch Penetration is the number of bank branches divided by the area of the country (in square miles), Demographic Branch Penetration is the number of bank branches divided by population, Geographic ATM Penetration is the number of ATM machines divided by the area of the country (in square miles), Demographic ATM Penetration is the number of ATM machines divided by population (all the data on demographic and geographic penetration are from Beck et al, 2005). Public Share and Foreign Share are state and foreign -ownership of banks respectively (source: Micco, Panizza and Yanez), GDPPC is the log of GDP per capita (source: World Bank's WDI), density is population density (source: World Bank's WDI). All regressions control for lack of corruption, share of the population leaving in rural areas and log inflation.

Robust t statistics in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 14: Bank Ownership and Bank Accounts**

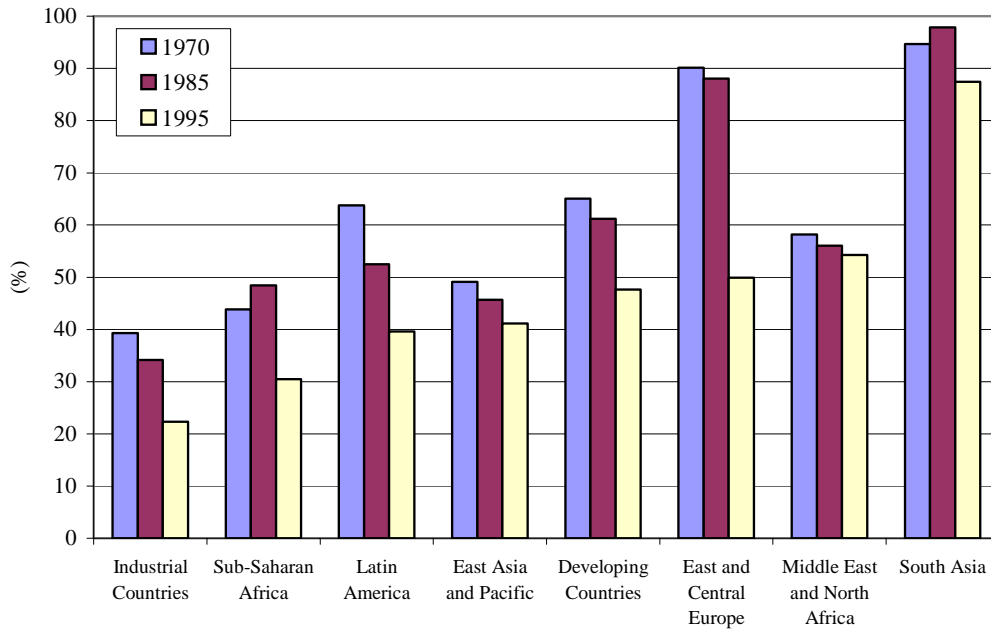
	(1)	(2)	(3)	(4)
	Dependent Variable: Loan Accounts per Capita		Dependent Variable: Deposit Accounts per Capita	
Public share	80.547 (0.52)	-33.208 (0.43)	369.172 (1.23)	497.125 (1.13)
Foreign share	-42.694 (0.40)	-70.917 (1.01)	-133.001 (0.52)	-236.827 (0.81)
GDPPC	86.096 (1.87)*	80.653 (2.31)**	342.913 (2.85)***	350.974 (2.56)**
density	0.034 (0.48)	0.014 (0.23)	0.675 (2.15)**	-0.098 (0.35)
Constant	-606.915 (1.35)	-535.282 (1.86)*	-2,572.197 (2.62)**	-2,327.804 (2.26)**
Observations	29	21	37	27
R-squared	0.49	0.48	0.71	0.64
Sample	Developing	Low and middle-low income	Developing	Low and middle-low income

Data on loan and deposit account per capita are from Beck et al (2005). Public Share and Foreign Share are state and foreign -ownership of banks respectively (source: Micco, Panizza and Yanez), GDPPC is the log of GDP per capita (source: World Bank's WDI), density is population density (source: World Bank's WDI). All regressions control for lack of corruption, share of the population leaving in rural areas and log inflation. Robust t statistics in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table A1: Summary Statistics**

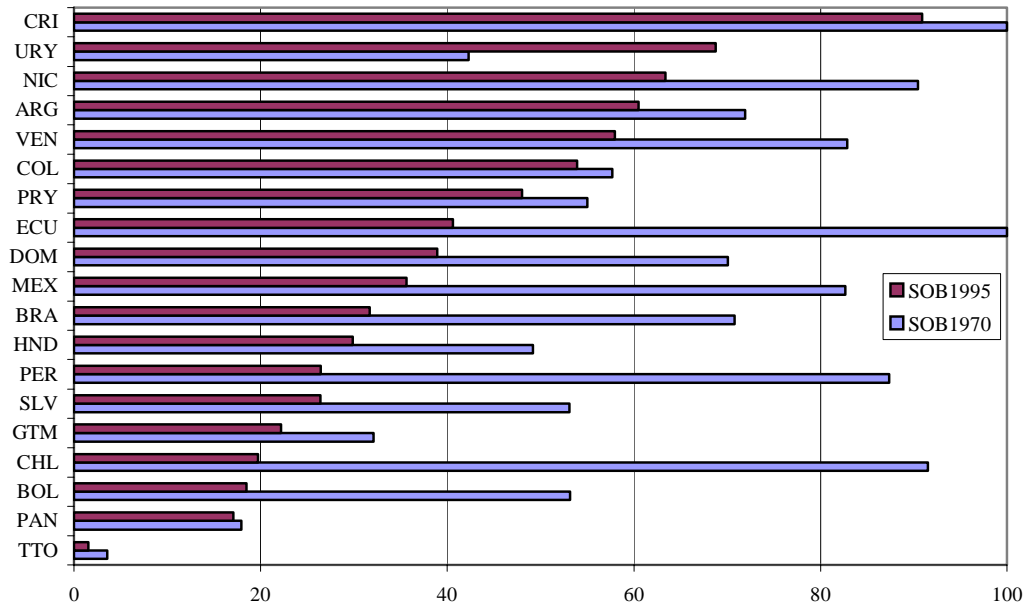
Variable	N. Obs.	Mean	Std. Dev.	Min	Max
Panel Analysis					
Bank Credit to Private Sector	894	45.94	36.14	1.00	194.00
Public Share	894	0.24	0.26	0.00	1.00
Foreign Share	894	0.24	0.25	0.00	0.99
Log GDP per Capita	894	7.87	1.58	4.52	10.79
Bank Concentration (C3)	894	0.67	0.21	0.16	1.00
Cross-Country Analysis					
Bank Credit to Private Sector	112	43.07	33.22	1.00	177.30
Public Share	115	0.23	0.23	0.00	0.99
Foreign Share	115	0.24	0.22	0.00	0.89
Log GDP per Capita	115	7.62	1.57	4.80	10.78
Lack of Corruption	115	-0.01	1.01	-1.29	2.48
Bank Concentration (C3)	115	0.67	0.21	0.19	1.00
Overheads of Private Banks	115	0.05	0.03	0.01	0.19
Margins of Private Banks	115	0.05	0.03	-0.61	0.13
ROA of Private Banks	115	1.56	1.75	-4.61	7.67
Geographic Branch Penetration	85	24.39	50.78	0.11	375.00
Demographic Branch Penetration	85	14.63	16.69	0.41	95.8
Geographic ATM Penetration	77	48.16	93.49	0.07	462.5
Demographic ATM Penetration	77	30.19	33.67	0.06	135.2
Loan accounts per capita	36	215.14	233.16	4.38	776.40
Population Density	85	138.18	204.50	2.22	1213.00

**Figure 1: State ownership of Banks across the World**



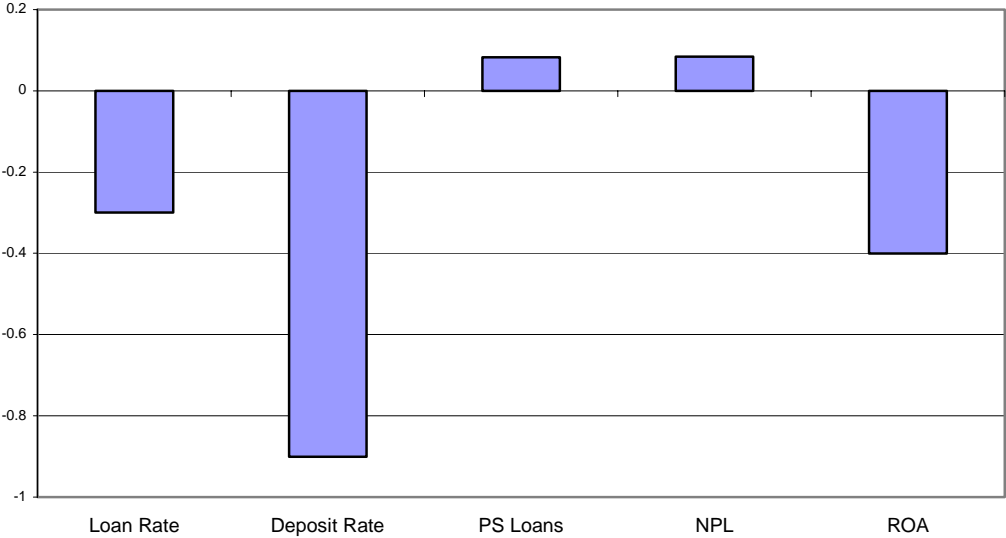
Source: Own calculations based on data from La Porta et al. (2002)

**Figure 2: State ownership of Banks in Latin America**



Source: Own calculations based on data from La Porta et al. (2002)

**Figure 3: Relative performance of public banks located in Latin America**



Source: Own calculation based on balance sheet data.



