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State-Owned Commercial Banks

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Abstract

This paper builds a new dataset on bank ownership and reassesses the links between state-ownership of banks and each of financial development, economic growth, financial stability, bank performance, liquidity creation, and lending cyclicality. Using panel data to estimate the short-and medium-term relationship between state-ownership and financial depth, the paper shows that there is no robust correlation between these two variables. The paper also finds no evidence of a negative correlation between state-ownership of banks and economic growth (if anything, the relationship is positive but rarely statistically significant). Looking at financial instability, the paper finds that banking crises predict increases in state-ownership but that there is no evidence that high state-ownership predicts banking crises. Focusing on bank performance, the paper shows that data for the period 1995-2009 are consistent with existing evidence that state owned banks are less profitable than their private counterparts in emerging and developing economies. However, more recent data show no difference between the profitability of private and public banks located in emerging and developing economies. The paper also corroborates the existing literature which shows that in emerging and developing economies lending by state-owned banks is less procyclical than private bank lending. Exploring the role of fiscal fundamentals, the paper does not find any difference in countercyclicality between high and low debt countries, but it finds that countercyclical lending by state-owned banks substitutes, rather than complement, countercyclical fiscal policy. It also finds that lending by state-owned banks helps smoothing production in labor intensive industries and in industries with a large share of small firms.

JEL Codes: G21, H11, O16
Keywords: Banking, State-owned banks, Financial stability

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1 Introduction

The presence of the state in the financial system through direct ownership of banks has decreased rapidly since the late 1980s. In the mid-1970s, the government owned more than 40% of bank assets in advanced economies and about two-thirds of bank assets in developing and emerging economies. By the early 1990s, state ownership of banks had dropped to about 25% in advanced economies and to less than 50% in emerging and developing economies (Levy Yeyati, Micco, and Panizza, 2007). Privatization continued through the 1990s and the first years of the new millennium. Immediately before the global financial crisis, the government controlled about 18% of bank assets in advanced economies and 30% of bank assets in emerging and developing economies.[1]

State-ownership of banks is often justified by market failures and development goals. The *social view* emphasizes how public interventions can address market imperfections that lead to underinvestment in projects with high social returns (Stiglitz, 1994, Levy Yeyati et al., 2007). The *development view* highlights the necessity of state-owned banks in countries where institutional failures prevent the development of a financial sector that can meet a country's development needs (Lewis, 1950 and Gerschenkron, 1962).[2]

The privatization wave that started in the 1980s was linked to a sea change in the consensus view on the role of the state in finance (and the role of the state in the economy, more in general). The perception that political failures dominate market failures led to the view that the latter should be addressed with regulation and subsidies (or not addressed at all) rather than with direct ownership of firms. State-ownership became associated with the idea that state-owned enterprises only exist to provide rents to the policymakers that control them (Kornai, 1979, and Shleifer and Vishny, 1994). This *political view* of state-ownership (La Porta, López-de-Silanes, and Shleifer, 2002) was crystallized by an influential World Bank report which concluded that: "Whatever its original objectives, state ownership tends to stunt financial sector development, thereby contributing to slower growth" (World Bank, 2001, p. 123).

The global financial crisis led a resurgence of interest in state-ownership of banks (Inter-American Development, 2004, Bank, World Bank, 2012, Inter-American Development, 2014,

[1] These shares include state-owned development banks. State-ownership shares of commercial banks are 4-6 percentage points lower (see Figures 4-7, below).

[2] Lewis (1950) also favored the nationalization of banking and other important industries (such as railways, steel, and chemicals) on the ground of democratic accountability. He stated that leadership of these sectors "wield great power, and it is right that those how hold them should be nominated by the public and answerable to the public" (p. 101)

International Monetary Fund, 2020, and European Bank for Reconstruction and Development, 2020). This paper contributes to the discussion by building a new dataset which is longer and more detailed than what has been used in the existing literature and by using these new data to reassess the links between state-ownership of banks and each of financial development, economic growth, financial stability, bank performance, liquidity creation, and lending cyclicality. A detailed treatment of each of these topics would require more space than what can be included in, an already long paper. The results described in this paper are thus meant as an agenda for future research on the role of state-owned banks.

Besides using more recent and longer data, this paper differs from previous work by focusing on commercial banks, instead of combining commercial and development banks. Commercial and development banks have different missions and modes of operations. Many development banks have an explicit development mandate which, in some cases, is narrowly defined (lending to the agricultural sector, lending to SMEs, lending to the export industry). State-owned commercial banks, instead, tend to have broader mandates. Moreover, while most commercial banks operate as first tier institutions (i.e., they interact directly with the final borrower), a substantial number of development banks are second tier institutions (see Fernandez-Arias, Hausmann, and Panizza, 2020) with a completely different business model and cost structure. Hence, it does not make much sense to compare the performance and roles of these different types of financial institutions.

The influential work by La Porta et al. (2002) shows that state ownership of banks in the 1970s is associated with lower future financial depth and GDP growth. However, the cross-sectional nature of their analysis does not allow controlling for unobservable factors which could be jointly correlated with state ownership of banks and the outcomes of interest. As discussed in Section 4, the presence of such unobservable factors makes the negative relationship between state-ownership and growth observed in cross-country studies consistent with both the political and the social and development views described above. Levy Yeyati et al. (2007) try to address this issue by controlling for country fixed effects and find a weak *positive* relationship between state-ownership and financial depth. However, their sample is short (1995-2002) and does not allow estimating whether state-ownership predicts financial depth or growth over the medium and long-term. The dataset assembled for this paper allows using panel data to estimate the short-and medium-term relationship between state-ownership and financial depth. I find that there is no robust correlation between these two variables. I also find no robust correlation between state-ownership of banks and successive growth,

measured using both 5-year and 10-year growth spells (if anything, the relationship is positive but rarely statistically significant).

Another question that has been explored in the literature is whether state-ownership of banks is associated with financial instability. Previous work has found a positive univariate correlation between state-ownership of banks and the incidence of banking crises. This positive correlation, however, is not robust to controlling for other variables (Barth, Caprio, and Levine, 2004). As banking crises often lead to bank nationalization episodes, I carefully look at the timing of crises and find that, while banking crises predict increases in state-ownership, there is no evidence that state-ownership predicts banking crises.

Section 5 uses bank-level data to study the relationship between ownership and performance. Existing research found that state-owned banks located in emerging and developing economies are less profitable than private banks (Micco et al., 2007 and Cull, Martinez Peria, and Verrier, 2018). Results based on data for the period 1995-2009 are consistent with these findings. However, recent data paint a more nuanced picture and suggest no difference between the profitability of private and public banks located in emerging and developing economies. For this latter period there is instead a statistically significant difference between the profitability of public and private banks located in advanced economies. There are also substantial differences across emerging regions. State-owned banks are more profitable than their private counterparts in East Asia and less profitable in East Europe and Central Asia. With respect to non-performing loans, results based on recent data are consistent with previous work indicating that state-owned banks in both advanced and developing economies have higher levels of non-performing loans than private banks. The gap, however, has decreased over time in both advanced and middle-income economies.

I also explore the relationship between bank ownership and government bond holdings. Also in this case, I find that the relationship between these two variables has evolved over time. In earlier years, state-owned banks located in developing and emerging economies held more government bonds than their private counterparts. However, after the explosion of the European sovereign debt crisis, government bonds in the portfolio of state-owned banks located in advanced economies have increased and those of state-owned banks located in developing economies have decreased.

As procyclical lending by private banks may reduce the effectiveness of macroeconomic policies, countercyclical lending by state-owned banks could be useful in smoothing the business cycle. Micco and Panizza (2006) used bank-level data to test this hypothesis and showed that lending by state-owned banks is less procyclical than private bank lending, and that this difference in lending

cyclicality is especially important in developing and emerging economies. Several follow up studies found similar results (World Bank, 2012, Brei and Schclarek, 2013, Cull and Martinez-Peria, 2013, Coleman and Feler, 2015, Bertay et al., 2015, De Haas et al., 2015, Duprey 2015, Chen et al., 2016; Allen et al., 2017). Section 6 corroborates the existing evidence of countercyclical lending by state-owned banks located in developing and emerging market economies and also shows that there is no difference between the pre and post GFC period. Countercyclical lending by state-owned banks does not affect their profitability over the business cycle, but has an effect on the cyclicality of non-performing loans. Contrary to what found by Ture (2021), I do not find any difference in countercyclicality between high and low debt countries, but I do find that countercyclical lending by state-owned banks substitutes, rather than complement, countercyclical fiscal policy.

I conclude the analysis by studying whether the presence of state-owned banks has a differential effect over the business cycle on industries with different characteristics. I find that industries with higher levels of labor intensity do relatively better during recessions in countries with a large share of state-owned banks and that this is also the case for industries with a large share of small firms (this latter result, however, is only statistically significant in advanced economies).

The remainder of the paper is organized as follows. Section 2 describes the construction of the bank-level dataset and discusses trends in state-ownership. Section 3 assesses the relationship between state-ownership and each of financial depth, GDP growth, and financial stability. Section 4 describes the main features of nationalization and privatization episodes. Section 5 uses studies the link between bank-ownership and performance and analyzes if state-owned banks amplify the bank-sovereign doom loop. Section 6 focuses on lending cyclicality. Section 7 concludes.

2 Data

This paper uses four main types of data: (i) bank-level data from Fitch Connect; (ii) macroeconomic data from the IMF-WEO database and from the World Bank World Development Indicators; (iii) firm survey data from the World Bank Enterprise Survey; and (iv) industry-level data from UNIDO.[3]

The first part of this section describes the construction of the bank-level dataset. Readers not interested in these details can jump to subsection 2.2.

[3] Besides these four main sources of data, the paper also uses information on banking crisis from Leven and Valencia (2018) and sovereign credit rating data from Fitch, Moody's, and Standard & Poor's.

2.1 Bank-level Data

I use Fitch Connect data with information on income and balance sheet statements for up to 34,400 banks over 1995-2019. There are three main issues with this dataset:

1. Fitch Connect does not report ownership information for every bank included in the dataset. And, even when available, ownership is only reported the last available year. Hence, ownership history needs to be handcoded. This was the most complicated task in the creation of the dataset used in this paper.

2. Besides commercial banks, Fitch Connect reports data for development banks, asset management companies, leasing and factoring companies, and several other types of financial intermediaries. While Fitch Connect provides labels that identify these types of financial intermediaries, the classification is not always correct. Correcting misclassified financial institutions required substantial manual checks and handcoding.

3. Fitch Connect reports multiple observations for individual banks (depending on consolidation levels and accounting standard) and does not clearly identify the individual units of banking group. Also in this case, manual checks and handcoding were necessary to limit duplications.

Coding ownership history

As a first step, I restricted the sample to commercial banks and used the share of state-ownership reported in Fitch Connect.[4] As mentioned, Fitch Connect does not report ownership history. To build ownership history, I started by merging Fitch Connect data with the dataset built by Micco, Panizza, and Yanez (2007). This dataset contains bank-level ownership history for 1995-2002. Merging the two datasets, however, was not straightforward because they lack a unique bank identifier. After standardizing bank names with the `stnd_compname` command in Stata and merging by bank name, I conducted a series of fuzzy merging (9 in total) with different level of tolerance. After each

[4] Commercial banks are banks classified in Fitch Connect as: (i) Bank Holding Companies; (ii) Banks; (iii) Islamic Banks; (iv) Other Banks; (v) Retail & Consumer Banks; (vi) Universal Commercial Banks; (vii) Financial Institutions; and (viii) Credit Union. For the analysis, I will then drop Islamic Banks.

of these fuzzy merges, I manually verified each merged bank to eliminate all false positives and handmatched some false negatives.[5] Handcoding was especially important because the fuzzy merging algorithm generates false positives for banks with long names and several words in common (for instance, the algorithm may erroneously match "First National Bank of Missouri" with "First National Bank of Mississippi").

After merging the two datasets, I compared the last available ownership observation in the Micco et al. (2007) dataset with 2018/19 ownership information from Fitch Connect. If the two datapoint had similar values (with a tolerance of 3%), I assumed that ownership had not changed between 2003/04 and 2018/19 and built full ownership history using this assumption.[6]

Next, I used data on bank privatization from Bertay et al. (2020) to reconstruct the ownership history of banks for which there was no match between the ownership values of Micco et al. (2007) and Fitch Connect data (either because the last value of Micco et al., 2007, is different from the Fitch Connect value for 2018/19 or because ownership is only available in one of the two datasets). Bertay et al. (2020) always report information on privatization receipts but do not always have data on the privatized share. If a bank had information on both privatization receipts and privatization share, I used the information on privatization share. When this information was not available, I followed Bertay et al. (2020) and built a proxy for privatization share by looking at the value of privatization receipts over the common equity value of the bank reported in Fitch Connect. For banks with more than one entry per year (i.e., banks which had multiple privatization rounds in a given year), I collapsed the dataset by summing privatization shares and receipts at the year level. If in a given year there are multiple privatization rounds and in at least one of these rounds there is information on both privatization revenues and privatization shares, I computed a "market" equity value using information on privatization share and then applied this market equity value to compute privatization shares for rounds with only information on privatization revenues.[7] I then manually checked the outcome of this process and fixed a few classification mistakes. I also made sure that the results were consistent with Micco et al. (2007) and Fitch Connect ownership information. Specifically, I checked that privatization shares did not add to more than 100% or did not lead to shares of state-ownership that were different from what reported by Fitch Connect for 2018/19.

[5] This process requires building several auxiliary sub-codes which correct bank names and eliminate wrong matches.

[6] Note that in classifying ownership, I followed La Porta et al. (2002) and Micco et al. (2007) and considered ownership by foreign governments as private rather than state ownership.

[7] There are a few observations with negative equity values and for these observations I assumed 100% privatization.

Next, I focused on banks for which there was no match between the ownership data of Micco et al. (2007) and those of Fitch Connect and that were not included in the data assembled by Bertay et al. (2020). I coded these banks as follows:

1. For banks for which ownership had changed but for which the change does not make any difference for bank control (for instance, state ownership in Micco et al., 2007 is 75% and in Fitch Connect is 55% or for which state ownership in Micco et al., 2007, is 1% and in Fitch Connect less than 10%), I used ownership from Micco et al. (2007) up until the last available year in that dataset and then Fitch Connect data for the remaining years.
2. I built a list of all banks which, in 2018, were among the banks that accounted for at least 80% of total commercial bank assets or were among the top 5 commercial banks by assets in a given country. For this list, which includes 275 banks, I built ownership histories by searching bank websites and conducting other types of internet searches.
3. I complemented existing ownership histories (including for banks coded with the steps listed above) by looking at all the banks mentioned in Cull and Martínez Pería (2013), de la Plaza and Sirtaine (2005), Enoch et al. (2001), Igan et al. (2019), Lindgren et al. (1999), and Rose and Wieladek (2014).[8] I also conducted internet searches for nationalization and re-privatization histories for all banking crises for which Laeven and Valencia (2018) report a nationalization episode. Finally, I built histories for all the banks included in the Wikipedia entry on nationalization episodes.[9]
4. I built a list of top 200 global banks at any moment in time (not just in 2018) and verified that ownership history was coded for each of these banks. For banks with missing ownership history, I conducted internet searches and coded ownership history.

Final checks

The steps described above yield a dataset with over 30,000 banks (about 310,000 observations) with full ownership history. I sorted these banks by country and names and scanned their names to identify banks that obviously belong to the same group and to also identify leasing, factoring and asset management companies which were still present in the dataset. I also built dummy variables for

[8] I would like to thank Andy Rose for sharing some of the non-confidential data from Rose and Wieladek (2014).
[9] https://en.wikipedia.org/wiki/List_of_nationalizations_by_country

sparkassen, landesbanken and all cooperative banks (raiffeisen, crediti cooperativi, banque populaires, shinking banks, volksbanken, etc).

In order to avoid duplications, I manually checked nearly 300 banking groups including nearly 15,000 bank-year observations and selected the group members that should be retained in the dataset. The selection was based on bank size and data availability. The objective was to retain the "bank" component of the group.

As the dataset includes countries, such as France, Germany, Italy, Japan, and the US which have thousands of very small banks, I dropped from the dataset all the banks that are never among the top 200 by assets in a given country. In the final dataset, I retained both consolidated and unconsolidated accounts, but when both types of accounts are available, the analysis uses the unconsolidated account.

2.2 Summary Statistics, Trends, and Comparison with Other Datasets

The procedure described above yields an unbalanced panel of 7,150 banks in 180 countries over the period 1995-2018 and a total of over 100,000 observations for which I have information on total assets (over 90,000 observations with information for returns on assets). In the original dataset, state ownership is coded as a continuous variable, but for the purpose of analysis, I created a dummy for state-owned banks which take value one for banks in which state ownership is greater than 20%.[10] About 11% of bank-years are coded as state-owned. In the sample, there are 755 banks which are coded as state-owned in at least one year.

Table 1A reports the summary statistics for some key variables (all ratios are Winsorized at 99%). The top panel uses data for all banks and the middle and bottom panels use data for private and state-owned banks, respectively. A simple comparison of the two groups shows that the average state-owned bank is about twice as large as the average private-owned banks, it is less profitable, and has a higher share of non-performing loans. There are no large differences across types of banks along the other variables reported in Table 1A.

[10] This is standard in the literature because, as mentioned by La Porta et al. (2002), 20% ownership is typically sufficient for control. Ture (2021) Frigerio and Vandone (2018), Cornett et al. (2009). and Dinc (2005) also use thresholds in the 20-25% range to define state ownership, while Bertay et al. (2015), Brei and Schclarek (2013), Cull and Martinez-Peria (2013), and Micco et al. (2007) use a threshold of 50%. The results of this paper are robust to using a higher threshold for the state-ownership dummy.

Tables 1B focuses on banks based in advanced economies. Also in this case, the average private bank is more profitable than the average state-owned bank. However, in this sample there are no large differences in size and in the share of non-performing loans. Table 1C focuses on banks based in emerging and developing economies and shows that state owned banks tend to be larger, less profitable, and have more non-performing loans. While in advanced economies, private banks hold relatively more government bonds than state-owned banks, the opposite is true in developing and emerging economies.

Figure 1 plots the evolution of the share of banks for which state-ownership is greater than zero (even if it is less than 20%, note that this is a simple mean not weighted by bank size). In the full sample, this share decreased over 1995-2004 and increased over 2005-2018. However, the share remained close to 10% throughout the period (top left panel of Figure 1). In Advanced Economies, the share of banks with some form of state ownership was 5.5% in 1995, it then dropped to below 4% over 1999-2007, and started increasing during the Global Financial Crisis (top right panel of Figure 1). In middle income countries, instead, the share of banks with some form of state ownership kept decreasing from more than 20% in the mid-1990s to just above 15% in 2018 (bottom left panel of Figure 1). Finally, in low-income economies, the share of banks with some form of state ownership went from about 18% in the mid 1990 to 12% in 2002, it then jumped to 18% in 2005 and decreased slowly to 14% over 2005-2018.

Figure 2 plots the non-parametric distribution of the share of state-ownership for banks with positive state-ownership (the black lines are for 2010 and the red lines for 2018). In advanced and middle-income economies, the distribution is concentrated towards high shares (above 80%) of state ownership (even though in middle income economies the 2018 distribution is flatter than the 2010 distribution). In low-income economies, instead, there are two peaks, one at 20% and one at 90%. In this group of countries, the distribution of state-ownership shares is flatter than advanced and middle income economies.

I build two country-year level measures of state ownership. The first measure is the number of state-owned banks over the total number of banks. Formally:

$$SGOB_{c,t} = \frac{\sum_{i=1}^{N}(GB_{i(c),t})}{N_{c,t}} \quad (1)$$

Where $G_{i(c),t}$ is a dummy variable which takes value one if bank i (located in country c) in year t is state owned (with state-ownership defined using the 20% threshold) and zero if it is private, and $N_{c,t}$ is the number of commercial banks that operate in country c in year t.

The second measure is the share of state ownership weighted by bank assets. Formally:

$$GOB_{c,t} = \frac{\sum_{i=1}^{N}(GB_{i(c),t}A_{i(c),t})}{\sum_{i=1}^{N}(A_{i(c),t})} \quad (2)$$

Where $A_{i(c),t}$ are the assets of bank i (located in country c) in year t, and all other variables are defined as in Equation (1).[11] Throughout the paper, I will use GOB to indicate a country-level continuous measure of state-ownership and PUB as a bank-level dummy that takes value one if the bank is state-owned (using the 20% threshold).

Before describing the evolution of state-ownership, I compare the indicators built for this paper with existing cross-country measures of state-ownership. The top panel of Table 2, compares $GOB_{c,t}$ with the share of state ownership reported by the World Bank's Bank Regulation and Supervision Survey (BRSS).[12] The Table only uses the countries and years for which data from both sources are available (BRSS data are available for the 2000, 2005, and 2008-16). The first two rows of the table show that the average values are almost identical: 21% average ownership in this paper's data and 19% in BRSS. The values become even closer (18% and 19%) if I use a 50% threshold to define state-ownership (this is the same threshold used in BRSS). The gap becomes larger if I include development banks in my sample (24% versus 19%). Figure 3 shows the evolution of the two measures over time. Table 3 shows that the correlation between the two datasets is high (63% with the 20% threshold for ownership and 65% with the 50% threshold) and always statistically significant at the 1% confidence level.

[11] Note that while Equation (2) measures the share of bank assets controlled by the government (under the assumption that 20% ownership gives control), I could have used an alternative measures that focuses on the share of bank assets owned by the government: $\frac{\sum_{i=1}^{N}(SHGB_{i(c),t}A_{i(c),t})}{\sum_{i=1}^{N}(A_{i(c),t})}$, where $SHGB_{i(c),t}$ is not a dummy, but the share of assets of bank i owned by the government. This is the measure of ownership used by La Porta et al., (2002). While I think that a measure that focuses on control is preferable, the two measures are highly correlated. For instance, in the dataset of La Porta et al. (2002) the correlation between their measure of ownership and their measure of control (using a 20% threshold to define control) is 0.95. In the paper, I will use the term "share of state-ownership" as a synonymous for "share of assets controlled by the government."

[12] The precise question asked in the survey is: What percent of the banking system's assets was in banks that were government-controlled (e.g., where government owned 50% or more equity) at the end of year X? For a description of the survey see Barth et al. (2004).

The bottom panel of Table 2 compares the data used in this paper for 1995 with state ownership computed by La Porta et al. (2002). In this case, we find a difference of 11 percentage points (28% versus 37% if development banks are not included and 31% versus 40% if development banks are included). These differences are probably due to the fact that, while I use all banks included in Fitch Connect, La Porta et al. (2002) only include the largest ten banks for each country. As state-owned banks tend to be large, the focus on a relatively small number of large institutions tends to yield higher shares of state-ownership. With this caveat in mind, the correlation between the two dataset remains high and statistically significant at the one percent confidence level (Table 4).

Figure 4 plots the evolution of state-ownership over 1995-2018. The black lines show the simple average ($SGOB_{c,t}$) and the red lines the weighted average ($GOB_{c,t}$). As state-owned banks tend to be large, the weighted average is higher than the simple average. The top left panel of Figure 4 shows that the share of commercial bank assets controlled by the state dropped from nearly 30% in 1994 to about 20% in 2018. In advanced economies, the share of bank assets controlled by the government went from 20% in 1995 to about 15% in 2009 and then increased to about 17% in the aftermath of the global financial crisis (top right panel of Figure 4). In middle income countries, instead, state ownership decreased from about 40% in 1995 to 28% in 2018. In low-income economies, the share of assets controlled by the state started at 30% in 1995, bottomed out to about 22% in 2008, increased to 25% over 2008-14, and dropped again over 2014-18.

Focusing on developing regions (Figure 5), state ownership increased rapidly in East Asia after the Asian financial crisis and then remained constant at about 30%. In East Europe and Central Asia, state ownership decreased rapidly over 1995-2010 and then flattened at about 25% of bank assets. In Latin American and the Caribbean, state-ownership decreased over 1995-2004 and then increased again over 2005-10. In the Middle East and North Africa and in Sub-Saharan Africa, state-ownership decreased until 2014 and then increased slightly over 2015-18. In South-Asia, state-ownership decreased over the whole period (going from 75% in 1995 to about 50% in 2018) but it still remains high.

Figure 6 also includes state-owned development banks. It shows that development banks are large in both advanced and developing economies and that they are particularly important role in East Asia, Latin America, and Sub-Saharan Africa.

3 Country-level Evidence

This section uses country-level panel data to assess the relationship between state-ownership of banks and each of financial depth, economic growth, and financial stability. Before looking at the regressions' results, it is worth noting that one should be careful in interpreting cross-country regressions which relate state-ownership of banks with outcomes such as financial depth or GDP growth.

As the observed cross-country variation is state-ownership of banks is not random, a negative correlation between the endogenously chosen level of state-ownership and each of financial and economic growth could either be driven by the presence of market failures (as postulated by the development and social views of state-owned banks), by the presence of political failures (as postulated by the political view), or by the joint presence of these different types of failures. This endogeneity problem can be illustrated with a simplified version of the model described in Rodrik (2012).

Assume a situation in which: (i) a certain market failure $\theta \in [0,1]$ has a negative effect on a policy objective G (financial depth or economic growth, in our case); (ii) the government can mitigate this market failure by establishing a state-owned bank of size $s \in [0,1]$; and (iii) there are agency costs $\varphi\alpha(s)$ associated with the operations of this state-owned bank, where φ is a shift parameter associated with policy effectiveness (lower values of φ are associated with more efficient policymaking), and with $\alpha(0) = 0$, and $\alpha' > 0$, and $\alpha'' > 0$. Given these assumptions, the socially optimal size of the state-owned banks is obtained from the following maximization problems:

$$\max_{s} G(s,\theta,\varphi) = (1-\theta(1-s))A - \varphi\alpha(s) \qquad (3)$$

and the socially optimal value of s is implicitly defined by the first order condition $\theta A - \varphi\alpha' = 0$.[13]

If s is chosen by self-interest policymakers who, besides caring about social welfare (with weight $\lambda \in [0,1]$), also obtain private rents $\pi(s)$ (with $\pi' > 0$ and $\pi'' < 0$) from the state-owned banks, the equilibrium level of s is obtained from the following maximization problem:

$$\max_{s} U(s,\theta,\varphi) = \lambda[(1-\theta(1-s))A - \varphi\alpha(s)] + (1-\lambda)\pi(s) \qquad (4)$$

[13] I assume $\varphi > 0$, because with $\varphi = 0$, the social planner problem yields the corner solution $s = 1$.

The value of s chosen by self-interested politicians is implicitly defined by $\theta A - \varphi\alpha' + \frac{(1-\lambda)\pi'}{\lambda} = 0$. If $\lambda < 1$, politicians provide more state-owned banking than it is socially optimal. In other words, there is a political motive to state-own banks.

Rodrik (2012) points out that the presence of political motives does not necessarily mean that setting $s = 0$ is preferable to the suboptimal level of state-owned banks chosen by self-interested politicians. This would only be the case if $(1-\theta)A > (1-\theta(1-s^*))A - \varphi\alpha(s^*)$, where s^* is the size of state-owned banking that solves the self-interested policymakers' problem. In other words, the fact that political imperfections lead to too much state-ownership does not necessarily imply that the optimal level of state-ownership is zero. This first consideration suggests that the ample evidence in favor of political motives (Sapienza, 2004, Dinç, 2005, Khawaja and Mian, 2005, Micco et al., 2007) does not necessarily mean that zero state-ownership would be a preferable option.

Second, and more important, the simple model derived by Rodrik provides an illustration of the endogeneity problem as it can yield a cross-country negative correlation between s and G even in a situation in which policymakers are both benevolent (λ is close to one) and efficient (φ is small). To show that this is the case consider a group of countries with different levels of distortions θ and verify that the equilibrium level of state-ownership s^* is increasing in θ and the policy objective G is decreasing in θ:

$$\frac{\partial s^*}{\partial \theta} = \frac{A}{\varphi\alpha'' - \frac{1-\lambda}{\lambda}\pi''} > 0 \qquad (5)$$

$$\frac{\partial G}{\partial \theta} = -(1-s^*)A - \frac{A\pi'}{\varphi\alpha'' - \frac{1-\lambda}{\lambda}\pi''} < 0 \qquad (6)$$

Therefore, if θ is unobservable and cannot be controlled for, a cross-country regression of G over s will show that state ownership is negatively correlated with G. And this is so even if policymakers choose the level of s that maximizes G. This a classic endogeneity problem: as market imperfection increase, benevolent policymakers will increase state-ownership, but since $\varphi > 0$, the optimal level of state-ownership will never fully eliminate the effect of the distortion (i.e., $s^* < 1$) generating a negative correlation between s^* and G. Hence:

> when we observe a negative correlation between interventions and performance, we cannot distinguish between two diametrically opposed views of the world —one in

> which governments are driven by desirable economic motives and one in which they are driven by economically harmful, political motives (Rodrik, 2012, p. 146)

In the regressions of this section, I will try to address this issue by augment the models with a rich set of controls, with country fixed effects (which capture the time-invariant component of θ), and by also looking at whether state-ownership predicts financial depth or the other way around. However, none of these strategies can fully solve the endogeneity problem described above.

3.1 State Owned Banks and Financial Depth

Given the intertemporal nature of the typical financial contract, the presence of asymmetric information and weak contract enforcement are key sources of financial market imperfections which reduce private banks' incentives to lend to small and informationally opaque borrowers. The presence of these market failures is the most commonly used rationale for state interventions in financial markets and for the presence of state-owned banks.

This is the theory, but what do the data say? Existing research shows that state-ownership of banks is negatively associated with the diffusion of bank branches and ATM machines and it is not significantly correlated with access to loans and deposit accounts (Beck et al., 2007). Results on the relationship between the presence of state-owned banks and financial depth are instead mixed. Using cross-country data on state-ownership for the 1970s and 1980s, La Porta et al. (2002) and Levy Yeyati et al. (2007) find a negative and statistically significant relationship between the presence of state-owned banks and successive financial depth. Using a sample of fifty-nine developed and developing countries, Barth et al. (2001) also find a negative association between state ownership and financial depth, as measured by bank and nonbank credit to the private sector over GDP. Using data for the 1990s, instead, Levy Yeyati et al. (2007) find that the correlation between state-ownership and financial depth is often positive, albeit rarely statistically significant. After controlling for bank regulation, Barth et al. (2004) find no significant correlation between government ownership of banks and several indicators of bank development and performance.

This section updates these studies using the data described in Section 3. Table 5 explores the contemporaneous correlation between state-ownership and financial depth (proxied by credit to the private sector over GDP) in an unbalanced panel of up to 171 countries over the period 1995-2018. The different models are estimated using both pooled OLS and fixed effects regressions. Fixed

effects regressions have the advantage of attenuating omitted-variable problems as they implicitly control for institutional deficits which are jointly associated with small financial sectors and the presence of state-ownership (θ in Rodrik's model). However, in the presence of variables with limited within country variation, fixed effects models can also lead to multicollinearity and amplify problems associated with measurement error.

Column 1 of Table 5 shows that the correlation between state-ownership and credit to the private sector is negative, indicating that countries with more state-owned banks are characterized by smaller financial sector. The bottom panel of the table shows that this negative correlation is robust to including country fixed effects. However, there could be time-variant country characteristics which are jointly correlated with market failure and state ownership. These variables include creditors' rights, macroeconomic stability (which can be proxied by inflation), and an overall measure of economic development (proxied by GDP per capita). Legal origin can also be an important driver of financial depth (La Porta et al., 1998). Columns 2-8 show that in most cases the correlation between state-ownership and financial depth is no longer statistically significant once I control for these variables (the correlation remains marginally significant at the 10% confidence level in the fixed effects regression for the sample of emerging and developing economies).

I probe further and test whether state ownership of banks predicts credit to the private sector over a five-year period. I find no robust evidence of a negative correlation between state-ownership and future levels of financial depth. Table 6 includes the lagged dependent variable and it is thus equivalent to a regression in which the dependent variable is the change in private credit.[14] Table 7, instead, is a regression in levels. In order to avoid choosing an arbitrary starting point, the regressions of Tables 5 and 6 include all possible five-year spells. The presence of overlapping five-year spells creates moving average errors (in this case, of order MA(4)) even if the original errors were i.i.d. I address this issue by clustering the standard errors by country, a procedure that corrects for arbitrary departures from independence within each country.

In the regressions that do not include country fixed effects, I find that state-ownership of banks predicts a reduction in financial depth, but only in advanced economies (Column 5, top panel of Table 6). In the models that include country fixed effects, state-ownership is associated with a small decrease in financial depth in the sample that includes all countries. This effect is larger in the

[14] As the joint inclusion of fixed effects and the lagged dependent variable can lead to biased estimations (Nickell, 1981 and Arellano and Bond, 1991), I also estimate the model without fixed effects and by dropping the lagged dependent variable. The standard difference and system GMM estimators are, instead, not suitable for my set up give the presence of non i.i.d errors.

post 2011 period (columns 2 and 4 of the bottom panel of Table 6). Focusing on the level models of Table 7, I find that in the pooled OLS regressions, the coefficient attached to state-ownership is generally not statistically significant (it is marginally significant at the 10% confidence level in the sample of advanced economies). In the fixed effect regressions, instead, the coefficient is negative and statistically significant in the full sample (especially in the post 2011 sample) and in the advanced economies sample. I never find a statistically significant correlations in the regressions that only use data for emerging and developing economies.

Tables 8 and 9 conduct the opposite experiment and test whether financial depth predicts changes in state-ownership (Table 8) or in the level of state ownership (Table 9). Regression results suggest that higher financial depth is associated with higher levels of state-ownership fiver-year later. However, the coefficients are rarely statistically significant. The tables also show that there is evidence that state-owned banks are more prevalent in countries with weak creditor's right. This result, however, is not robust to controlling for country fixed effects or for the initial level of state-ownership.

Summing up, while previous work which used older data and focused on the cross-sectional correlation between state ownership and financial depth found a strong negative correlation between state-ownership of banks and financial depth, the results of Tables 5-9 show that more recent data and a panel set-up that allows controlling for a richer set of covariates suggest that there is no strong correlation between state ownership of banks and bank credit to the private sector (a result already present in Levy Yeyati et al., 2007) and that state-ownership of banks rarely predicts or is predicted by financial depth. Most of these findings are in contrast with both the view that state ownership stunts financial sector development (World Bank, 2001) and with the development and social views suggesting that state-owned banks have a positive catalytic effect and should be especially active in countries with poorly working financial sectors.[15]

While this section focuses on macro-level correlations, it is worth using survey data to check if state-owned banks lend to firms which are more likely to be credit constrained or to have positive spillovers. The World Bank Enterprise Survey covers more than 134,000 firms in 140 countries over a 13-year period (2008-1019).[16] The survey includes a question on whether the firm has a loan and,

[15] One partial exception is that low creditor rights sometimes predict a higher share of state-owned banks, but as mentioned this result is not robust to controlling for the initial share of state-ownership nor to including country fixed effects.

[16] The survey mostly covers emerging and developing economies, but it also includes a few southern European high-income economies (Italy, Portugal, Cyprus, and Greece). Note that countries are not observed every year.

if the answer is yes, a follow up question on the type of financial institution that granted the loan. One of the possible answers is "State-owned bank or government agency" (other possible answers are "Private commercial bank"; "Non-bank financial institution"; and "Other"). In the raw data, 6.8% of surveyed firms report having borrowed from a government owned bank. This share increases to 8.8% when appropriate survey weights are applied. These values may underestimate the share of firms that have borrowed from a state-owned bank because if a firm has borrowed from both a state-owned bank and a private bank, it may decide to answer that it borrowed from a private bank.[17]

I use the answer to this question to study the characteristics of the firms that borrow from state-owned banks.[18] The results, reported in Tables 10 and 11, do not help in discriminating among the various theories discussed in the introduction. One the one hand, I find that firms that are state-owned or part of a large conglomerate (and, hence, less likely to be credit constrained) are more likely to borrow from state-owned banks. On the other hand, there is evidence that firms that invest more (and hence could generate positive spillovers) and that report facing financing constraints are more likely to borrow from state-owned banks. This latter result is especially important in the Middle East and North Africa and South Asia. There is also evidence that in Low Income Economies, especially in South Asia and Sub-Saharan Africa, firms that innovate are more likely to borrow from state-owned banks.

3.2 State Owned Banks and GDP Growth

I now study the more elusive question of whether state-ownership is correlated with long-run GDP growth. There are at least two channels through which state-ownership of banks could affect growth. On the positive side, state-owned banks could contribute to financing projects with high social returns but lower private returns. On the negative side, political lending may lead to resource misallocation and thus reduce economic growth.

Existing work yields mixed results, While, in a pure cross-country set up, La Porta et al. (2002) found a strong negative correlation between state-ownership and economic growth, Levy

For 45 countries, the survey includes at least 4 years of data, for other 60, at least 2 years, and for 35 only one year.

[17] Moreover, the firm may not know if the bank is state-owned or not, but it is not clear in which direction this would bias the result.

[18] In the analysis I use the weights suggested by the survey manual: svyset idstd [pweight=wt], strata(strata) singleunit(scaled))

Yeyati et al. (2007) show that these results are somewhat sensitive to the sample and time period used in the analysis.

Tables 12 and 13 provide a new set of estimates that use more recent data and a panel framework. In Table 12, I focus on 5-year growth spells and in Table 13 on 10-year growth spells. In all regressions, I use the same set of controls as in Beck and Levine (2004) and, as in Tables 6-9, I use overlapping growth periods and correct for the presence of a moving average component in the error term.

The regressions that use 5-year spells show a positive correlation between state ownership and subsequent growth in the full sample of countries (column 1, Table 12) and in the subsamples of emerging and developing economies (column 3) and middle-income countries (columns 4). These results, however, are not robust to controlling for country fixed effects (columns 6-10). The regressions that focus on 10-year growth spells show weaker statistically significant correlations for the full sample (column 1, Table 13) and for the sample of emerging and developing economies (column 3), again these results are not robust to controlling for country fixed effects.

Taken together, the results of Tables 12 and 13 suggest that there is a weak and rarely statistically significant *positive* correlation between state-ownership of banks and subsequent growth, but find no evidence in line with the negative correlation found in purely cross-sectional studies that use older data.

3.3 State Owned Banks and Banking Crises

There is limited and mixed evidence on the link between state-ownership of banks and the incidence of banking crises (Cull et al., 2018). Caprio and Martinez Peria (2004) find that state-ownership of banks is positively associated with the prevalence of banking crises. La Porta et al. (2002), instead, find no statistically significant correlation between state ownership and the incidence of banking crises over 1970-1990, and Barth et al. (2004) find a positive univariate correlation between state-ownership of banks and the incidence of banking crises which, however, is not robust to controlling for other variables.

Causality is an especially complicated issue because banking crises often lead to nationalization episodes (Laeven and Valencia, 2018) and studies which do not carefully control for the timing of the event may reach wrong conclusions. The dataset assembled for this paper is especially suitable to address this issue as it allows to carefully control for state-ownership before

and after banking crises. With this objective in mind, I use a multivariate logit model to estimate the following specification:

$$CRISIS_{c,t} = \alpha + \beta_1 GOB_{c,t-1} + \beta_2 GOB_{c,t} + \beta_3 GOB_{c,t+1} + \\ + \delta_1 MIC_c + \delta_2 LIC_c + \kappa GFC_t + X_{c,t-1}\Gamma + \varepsilon_{c,t} \quad (7)$$

Where $CRISIS_{c,t}$ is a dummy variable that takes value one in the first year of a banking crisis (I drop from the sample all the crisis years after the first, the data are from Leaven and Valencia, 2018), $GOB_{c,t-1}$, $GOB_{c,t}$, and $GOB_{c,t+1}$ are the lagged, contemporaneous, and future values of government ownership of banks, MIC and LIC are dummy variables that take value one for middle income and low income countries, respectively (high-income is the excluded group), GFC is a dummy that takes value one for the years of the global financial crisis (2008 and 2009), and $X_{c,t-1}$ is a matrix of country-year level controls.

I start by estimating Equation (7) by only including state ownership (i.e., I set $\delta = \kappa = \Gamma = 0$). Column 1 of Table 14 indicates that higher levels of state ownership at time $t-1$ are *negatively* and significantly associated with the probability of observing a banking crisis at time t, that there is no significant contemporaneous correlation between state ownership and the likelihood of observing a banking crisis, and that the share of state-ownership increases *after* the crisis. This is consistent with the idea that banking crises cause state-ownership, rather than the other way around. This finding is also consistent with Laeven and Valencia's (2018) data which show that a large number of banking crises are followed by nationalization episodes.

Column 2 shows that the results are robust to controlling for the middle income and low-income dummies. These dummies show a higher incidence of banking crises in middle income countries, while low-income countries are not significantly different from high income countries. Column 3 shows that, as expected, the incidence of banking crises increased during the global financial crisis. However, controlling for the GFC dummy does not alter the previous results. Finally, column 4 augments the model with the set of controls used by Demirgüç-Kunt and Detragiache (2005). As expected, I find that banking crises are positively associated with currency depreciations, inflation, and credit growth. Controlling for these variables, I find that the coefficient associated with $GOB_{c,t-1}$ remains negative and statistically significant, while the coefficient of $GOB_{c,t+1}$ remains positive but it is no longer significant.

Taken together, the results of Table 14 suggest that there is no evidence that higher levels of state-ownership of banks predicts banking crises over the period 1995-2018. There is some evidence that banking crises are associated with an increase of state-ownership of banks.

4 Nationalization and Privatization Episodes

I now briefly explore the behavior of a subset of bank characteristics around privatization and nationalization episodes. In the bank-level dataset there are 230 observations in which state-ownership decreases by at least 10 percentage points and 56 observations in which state ownership increases by at least 10 percentage points (Table 15). Note that the privatization and nationalization episodes described in Table 15 underestimate the true extend of privatization and nationalization episodes as they do not keep track of banks that are absorbed by another bank.

In the average privatization episode, state ownership decreases by 44 percentage points (the median value is 33) with an interquartile range of nearly 50 percentage points (18- 65). The average nationalization episode is larger (64 percentage points) and skewed in the opposite direction (at 75, the median is larger than the mean), with the episode at the 75th percentile consisting of a full nationalization.

Figures 7 and 8 plot the evolution of a set of bank-level indicators around privatization and nationalization episodes. The top left panel of the two figures show that both nationalized and privatized banks are larger than the average bank, but that there is no clear trend in bank size around privatization and nationalization episodes. Nationalizations and privatization are not related to z-scores, privatized banks have higher interest margins than nationalized banks (top right panel of Figure 7) or banks that did not change form of ownership. Banks tend to increase loan provisions in the run up of privatization and nationalization episodes and banks tend to have higher loan growth in the year of the privatization and nationalization event. Deposit growth, however, tends to be low in the year that precedes a nationalization event.

5 Bank-Ownership and Performance

This section uses bank-level data to study the relationship between ownership and different measures of bank performance and activity. I start by looking at profitability, net interest margins (and separately at interest income and expenditure), and non-performing loans, I then check if state-owned

banks are more likely to hold government bonds, and I conclude by studying the relationship between state-ownership and liquidity creation.

5.1 Profitability, Interest Margins and Non-performing Loans

I estimate, several versions of the following model:

$$Y_{i(c),t} = \alpha PUB_{i(c),t} + \boldsymbol{X}_{i(c),t}\boldsymbol{B} + cy + type + \varepsilon_{i(c),t} \quad (8)$$

Where $Y_{i(c),t}$ is a performance indicator for bank i, in country c, in year t, $PUB_{i(c),t}$ is a dummy that takes value one for state-owned banks, $\boldsymbol{X}_{i(c),t}$is a matrix of bank-level controls, and cy and $type$ are country-year and bank type fixed effects.[19] Errors are clustered at the bank level. Note that even though SOE is time-varying, Equation (8) does not include bank fixed effects because ownership changes are rare and the inclusion of fixed effects would only allow estimating the effect of ownership for the relatively small number of banks that changed ownership.

I consider the following performance indicators: (i) Returns on Assets (ROA); (ii) Net Interest Margin (NIM); (iii) Interest Income/Assets; (iv) Interest Expenditure/Assets; and (v) Non-Performing Loans/Loans. I use the following set of controls: (i) Log(assets); (ii) non-interest income/assets; (iii) customer deposits/assets; (iii) Loan/assets; and (iv) non-interest expenditure over assets.

I estimate Equation (8) separately for the sub-sample of advanced economies, middle-income economies, low-income economies, East-Asia and Pacific, East Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa, South Asia, and Sub-Saharan Africa. I also estimate models for the whole period, and for 1995-2009 and 2010-2018 separately. Finally, I estimate the regressions year by year, separately for advanced economies, middle-income economies, and low-income economies. Given the large number of estimations involved in these exercises, I do not report tables with full regressions results, but a set of graphs with the point estimates of α and the confidence intervals of these estimates. I also report results for a set of regressions that do not include bank type fixed effects.

[19] Bank types are: Bank holding company, Commercial bank, Credit union, Cooperative bank, Investment bank, Private bank, Savings bank.

Returns on assets

When I estimate the model for the full period (1995-2018), I tend to find a negative correlation between state-ownership and bank profitability (the exception is East Asia and Pacific). However, the correlation is only statistically significant at the 95% confidence level in emerging and developing economies (the coefficient is precisely estimated in middle income countries) and in East Europe and Central Asia (top left panel of Figure 9). The results are essentially identical if I do not include bank specialization fixed effects (top right panel of Figure 9).

The bottom panel of Figure 9 shows substantial time heterogeneity. There is evidence that before 2010 state-owned banks located in developing and emerging markets had lower profitability than their private counterparts. The gap was particularly large in East Europe and Central Asia and in Latin America and the Caribbean. Instead, there was no differential between private and state-owned banks profitability in advanced economies. In the second part of the sample, instead, there is no statistically significant difference in profitability between private and public banks located in developing and emerging economies. However, a gap opened in advanced economies, with state owned banks having profitability levels which are significantly lower than those of private banks. The data also show that in this subperiod there are no differences between the profitability of state-owned and private banks located in Latin America, the Middle East, South Asia and Sub-Saharan Africa. State-owned banks in East Asia are more profitable than private banks and the opposite is true in East Europe and Central Asia.

Figure 10, plots the evolution of the relative profitability of state-owned banks. It shows how this relative profitability dropped in advanced economies in the aftermath of the Global Financial crisis and how the opposite happened in middle income economies. In low-income economies the relative profitability of state-owned banks increased over 1995-2007 and deteriorated significantly in 2017-18.

Net Interest Margin and Interest Income and Expenditure

Data for the full period show that state-owned banks tend to have higher net interest margins than their private counterparts and that the difference between the two groups is statistically significant in middle-income economies, East Asia and Pacific, and Latin America and the Caribbean (top left

panel of Figure 11).[20] In the case of middle-income economies and Latin America, higher net interest margins are driven by both higher interest income and lower interest expenditure (top left panels of Figures 13 and 15), in the case of East Asia, instead, the difference is mostly driven by higher interest income.

As in the case of profitability, the relationship between state ownership and net interest margins changed over time (bottom panels of Figure 11). The higher net interest margins enjoyed by state owned banks in Latin America are mostly driven by the pre-2010 period and those of East Asia are driven by the post 2009 period. Moreover, state-owned banks in East Europe had higher interest margins before 2010 and lower after 2010 (with the difference being statistically significant in the latter period). The data also show that state owned banks in East Asia had higher interest income than their counterparts after 2009, but that there was no significant difference in the previous period and that there are no differences in interest expenditure. Instead, we find that Latin American state-owned banks had much lower interest expenditure than their private counterparts in 1995-2009, but not in 2010-18.

Non-performing loans

The top left panel of Figure 17 shows that state-owned banks tend to have higher non-performing loans than their private counterparts in both advanced economies and emerging and developing economies. The difference is especially high in low-income economies and in South Asia and Latin America. The bottom panels of Figure 17 show again substantial over time heterogeneity and indicate smaller differences in non-performing loans in the post 2009 period (the difference in non-performing loans is no longer statistically significant in both Latin America and Sub-Saharan Africa).

Figure 18 shows that in advanced economies the global financial crisis led to a sudden drop in the difference between non-performing loans in public and private banks. This lower gap was due to a small decrease in the NPL of state-owned banks (which went from 7.8% to 6.8%) and a large increase in NPL of private banks (from 4.6% to 7.2%). The difference between NPL of public and private banks also decreased rapidly in middle income economies over 1999-2009, but started increasing again over 2011-18. In low-income economies, instead, the different between NPL of state-owned and private banks has remained more or less constant and positive over 2005-2018.

[20] The gap is slightly negative but not statistically significant in East Europe and the Middle East.

5.2 Lending to the Government

Large holdings of government bonds in bank balance sheets may amplify financial vulnerabilities through the bank-sovereign doom loop. IMF (2020) documents that during the European sovereign debt crisis there was a substantial increase in holdings of government paper by state-owned banks and that in emerging and developing economies with high levels of public debt, state-owned banks hold more government bonds than private banks.

The top left panel of Figure 19 shows that holdings of government bonds by state-owned banks are significantly larger than holding of government bonds by private banks in advanced economies, low-income economies, in Eastern Europe and Central Asia, and in Latin America and the Caribbean. Looking at sub-periods, we observe opposite trends for advanced economies and middle-income economies (Figure 20 and bottom panels of Figure 19). While the relative share of government bonds held by state-owned banks increased rapidly in advanced economies after the European sovereign debt crisis of 2011-12, the opposite happened in middle income economies. In this latter group of countries, the difference between sovereign debt holdings of public and private banks was large and statistically significant until 2007 and went to basically zero after that. Within the group of developing and emerging market economies, Latin America is the only region in which state-owned banks held more government bonds than their private counterparts in the 2010-18 period.

In Table 16, I probe further and check if state-owned banks hold more government bonds when public debt is particularly. Formally, I estimate the following equation:

$$\frac{GB_{i(c),t}}{A_{i(c),t}} = PUB_{i(c),t}\left(\alpha + \beta\frac{DEBT_{c,t-1}}{GDP_{c,t-1}}\right) + \ln\left(A_{i(c),t-1}\right)\left(\gamma + \delta\frac{DEBT_{c,t-1}}{GDP_{c,t-1}}\right) + cy + bk + \varepsilon_{i(c),t} \quad (9)$$

Where $\frac{GB_{i(c),t}}{A_{i(c),t}}$ is the share of government bond holdings over total assets of bank i in year t, $PUB_{i(c),t}$ is a dummy that takes value one if the bank is state-owned, $\frac{DEBT_{c,t-1}}{GDP_{c,t-1}}$ is the debt-to-GDP ratio in country c, year $t-1$, bk is a set of bank fixed effects, and the other variables are defined as in Equation (8).

Note that the main effect of $\frac{DEBT_{c,t-1}}{GDP_{c,t}-1}$ is absorbed by the country-year fixed effects. A key difference between Equation (8) and Equation (9) is that the latter includes bank-fixed effects. Hence,

α measures how *changes* in ownership affect government bond holdings when $\frac{DEBT_{c,t}}{GDP_{c,t}} = 0$, and β measures how the relationship between state-ownership and government bond holdings varies with the level of public debt.

A positive value of β indicates that state-owned banks are more likely to hold government bonds than their private counterparts when public debt is high (conversely, a negative value of β suggests that state-owned banks hold less government bonds when public debt is high). As state-owned banks tend to be larger than private banks, I also interact debt-to-GDP with bank size (measured by lagged log assets) to make sure that β does not only capture bank size.

Regression results are reported in Table 16. As interactive effects are difficult to interpret in the presence of continuous variable, I plot the correlation between state-ownership and government debt holdings at different levels of public debt. In the full sample, there is evidence that in countries with high debt levels state-owned banks hold more public debt than their private counterparts (top left panel of Figure 21). This finding is, however, driven by the behavior of middle-income economies. In high income economies, the relative share of bonds held by state-owned banks decreases with debt levels and the difference with government bond holdings by private banks loses statistical significance when public debt surpasses 30% of GDP. In middle-income economies, instead, the difference grows with the level of public debt, and it becomes statistically significant when public debt surpasses 40% of GDP. Focusing on different geographical regions, I find that the effect of debt levels on government bond holdings by state-owned banks is driven by East Asia and Latin America (columns 5 and 7 of Table 16).

The bottom right panel of Figure 21 and column 4 of Table 16 show that in low-income economies there is no association between state-ownership and government bond holdings. This latter result is in contrast with the results of Figure 19 which shows that in low-income economies state-owned banks hold marginally more government bonds. The key difference between the results of Figure 19 and those of Figure 21 and Table 16 is that, besides interacting ownership with debt levels, the latter also control for bank fixed effects.

5.3 Liquidity Creation

Empirical work on the links between finance and economic growth has principally focused on the size of the financial sector, without testing the specific channels emphasized by theoretical models of financial intermediation (Levine, 2005). One of the services that the banking sector provides to

the economy is the transformation of illiquid assets into liquid liabilities. Building on the work of Berger and Bouwman (2009), Beck et al. (2020) build a measure of bank liquidity creation for a large sample of banks in about 100 countries over 1987-2014 and show that liquidity creation by banks is positively associated with economic growth and investment, but only in countries with a large share of tangible assets. Liquidity creation, however, is a double-edged sword as there is also evidence that liquidity transformation activities by banks can increase systemic financial risk (Allen et al, 2009, and Silva, 2020).

I use the same methodology of Beck et al. (2020) to build a bank-level measure of liquidity creation and, controlling for bank size, country-year fixed effects, and sector fixed effects, I test if state-owned banks are different from private banks in terms of liquidity creation. I find limited evidence in this direction. The regressions of Table 17 indicate that the state-ownership dummy is often positive but never positive and statistically significant. It is, however, negative and statistically significant at the 5% confidence level for emerging and developing economies over the 1995-2008 period (column 6, Table 17).

6 Cyclicality

One possible rationale for state-ownership of banks is that procyclical lending of private banks may reduce the effectiveness of countercyclical macroeconomic policies (Levy Yeyati et al., 2007). If this is the case, countercyclical lending by state-owned banks could be useful in smoothing the business cycle, especially during deep recessions.

I start by focusing on the cyclicality of bank lending and liquidity creation, and then check if the presence of state-owned banks affects industrial activity over the business cycle.

Cyclicality of credit growth

To the best of my knowledge, Micco and Panizza (2006) were the first to use bank-level data to show that lending by state-owned banks in emerging and developing economies is less procyclical than private bank lending. Several follow up studies corroborated this result using both cross country data (World Bank, 2012, Brei and Schclarek, 2013, Cull and Martinez-Peria, 2013, Coleman and Feler, 2015, Bertay et al., 2015, De Haas et al., 2015, Duprey 2015, Chen et al., 2016; Allen et al., 2017) and by focusing on individual countries (Önder and Özyıldırım, 2013, and Bonomo et al., 2015). A

recent study by Ture (2021) also finds that lending by state-owned banks is less procyclical than private bank lending, but that this is not the case in developing economies with high levels of public debt.

In this section, I update the analysis of Micco and Panizza (2006) and also explore the role of heterogeneity, building on the work of Ture (2021). I start by estimating the following model:

$$LOANGR_{i(c),t} = PUB_{i(c),t}(\alpha + \beta GR_{c,t}) + \ln(A_{i(c),t-1})(\gamma + \delta GR_{c,t}) + \\ + \boldsymbol{X}_{i(c),t}\boldsymbol{B} + cy + bk + \varepsilon_{i(c),t} \quad (10)$$

Where $LOANGR_{i(c),t}$ is the growth rate of net loans (measured in USD) of bank i located in country c, $GR_{c,t}$ is real GDP growth in country c, year t, and all other variables are as above. In the set-up of equation (10), $\beta < 0$ indicates that state-owned banks are less procyclical (or more countercyclical) than their private counterparts (the main effect of $GR_{c,t}$ is absorbed by the country-year fixed effects).

Column 1 of Table 18 estimates Equation (10) by setting $\gamma = \delta = \boldsymbol{B} = 0$. As in Micco and Panizza (2006), I find that β is negative and statistically significant, consistent with the idea that state-owned banks contribute to macroeconomic stabilization. Columns 2 and 3 show that this result is robust to relaxing the assumption that $\gamma = \delta = \boldsymbol{B} = 0$. In columns 4 and 5, I estimate separate models for advanced economies and emerging and developing economies and corroborate Micco and Panizza's (2006) finding that the countercyclical role of state-owned banks is only present in emerging and developing economies. Columns 6-11 of Table 18 show that the results are also robust running separate regressions for the pre and post 2009 period.

In Table 19, I estimate Equation (10) by replacing loan growth with return on assets. The idea is to check if the countercyclical role of state-owned banks reduces their profitability around the business cycle. I find no evidence in this direction. However, I do find some evidence that lending countercyclicality affects the cyclicality of non-performing loans. The last four columns of Table 20 show that when I use NPL as dependent variable, the interaction between the state ownership dummy and lagged growth is negative and marginally significant, indicating that NPLs of state-owned banks grow relatively more than those of private banks after bad times.

Table 21 explores the role of fiscal fundamentals. In columns 1-3, I allow for separate coefficients for high and low-public debt country-years. High debt is defined as having a debt-to-GDP ratio above 100% for advanced economies and above 60% for developing and emerging economies. Contrary to what found by Ture (2021), I do not find any difference in countercyclicality

between high and low debt countries. If anything, countercyclicality seems higher in high debt countries (but the difference is not statistically significant). There are four key differences between my analysis and that of Ture (2021): (i) a larger and longer sample (my sample of emerging and developing countries includes 29,800 observations, that of Ture about 3,000 observations; (ii) different coverage (my sample only includes commercial banks); (iii) I measure cyclicality using real GDP growth instead of using a deviation from trend growth;[21] and (iv) I include country-year fixed effects instead of macroeconomic controls. In future analyses, it would be interesting to explore which of these differences drives the different results.[22]

I the last three columns of Table 21, I use sovereign ratings as an encompassing measure of fiscal fundamentals. I allow for different coefficients for investment grade and non-investment grade country-years and find that countercyclicality is higher in non-investment grade countries.

I now study whether the stabilizing role of state-owned banks complements or substitutes countercyclical fiscal policy. I start by estimating country-by-country regressions of the growth rate of real primary expenditure on GDP growth over a 15-year window. I then recover the estimate parameters and create a dummy variable PC (procyclical) that takes value one if the correlation between expenditure growth and GDP growth between year t and $t-15$ is positive, and zero otherwise.

Next, I run regressions similar to those of Table 18 separately for country-years characterized by countercyclical (columns 1, 4, 7, and 9 of Table 22) and procyclical (columns 2, 4, 8, and 10 of Table 22) policies. In the full sample (columns 1, 2, 4 and 5), I find that lending by state-owned banks is countercyclical only when fiscal policy is procyclical. As in Micco and Panizza (2006), I find no evidence of countercyclical lending in advanced economies (columns 7 and 8). In emerging and developing economies, instead, lending is only countercyclical when fiscal policy is procyclical (columns 9 and 10). These results suggest that countercyclical lending by state-owned banks is especially important when countries have limited ability to conduct countercyclical policies. As final check, I do not split the sample but use a triple interaction ($PUB \times GR \times PC$) to test if the degree of countercyclical lending by state-owned banks is significantly different when fiscal policies are procyclical. Columns 3 and 6 of Table 22 show that this is the case.

[21] I adopt this strategy because in emerging and developing countries trend growth is not well-defined (Aguiar and Gopinath, 2007).

[22] Another possible difference has to do with the role of global crises. Specifically, Ture (2021) finds that high public debt in developing economies matters for cyclicality when she excludes the Global Financial Crisis from the sample.

Cyclicality of liquidity creation

Table 23 uses a model similar to that of Equation (10) to explore the cyclicality of liquidity creation. The results suggest that state-owned banks increase the procyclicality of liquidity creation in advanced economies (column 4) and decrease the procyclicality of liquidity creation in developing and emerging economies (column 6). These results corroborate the previous evidence that the countercyclical role of state-owned banks is particularly important in developing and emerging economies.

Industry-level evidence

I conclude the analysis by using industry-level data to study whether the presence of state-owned banks affects how value-added growth in industries with different characteristics respond to cyclical fluctuations. All regressions build on the now standard Rajan and Zingales (1998) model. However, I estimate the model at annual frequency:

$$VAGR_{j(c),t} = IND_j\left(\alpha GOB_{c,t} + \beta BT_{c,t} + \gamma GOB_{c,t} \times BT_{c,t}\right) + cy + jy + cj + \varepsilon_{j(c),t} \quad (10)$$

$VAGR_{j(c),t}$ is value added growth in industry j, country c, in year t, IND_j is an industry characteristic (more on this below), $GOB_{c,t}$ is the share of state-owned banks in country c, year t, $BT_{c,t}$ is a "bad times" dummy that takes value one if in a given year GDP growth is below the country-specific median value or unemployment is above the country-specific median (I use a discrete measure to simplify the interpretation in a set up in which the key parameter of interest is related to a triple interaction), and cy, jy, and cj are country-year, industry-year, and country-industry fixed effects.

I use 4 types of industry characteristics (IND_j). I start with the classic Rajan and Zingales (1998) measure of external financial dependence for US industries (I use an updated measure which covers the period 1997-2006, see Table A1 in Choi, 2020). Next, I use UNIDO data to compute an indicator of labor intensity measured as the average industry-level employment over value added, and an indicator of human capital intensity measured as total wages over employment. As wages vary across levels of development, I compute these two indicators separately for high-income, middle

income, and low-income economies. Finally, I look at the industry level share of small-enterprises by using the industry share of US firms with less than 20 employees from Beck et al. (2008).

I report regressions using all countries (columns 1 and 2 of Tables 24-27) and then limit the sample to advanced economies (columns 3 and 4), emerging and developing economies (columns 5 and 6), and middle-income economies (columns 7 and 8). I do not report separate results for low-income economies because of the relatively small number of observations in this group.

External financial dependence

I start by using external financial dependence as industry characteristic. When I estimate the model without allowing for different coefficients during good and bad times, I find that the interaction between external financial dependence and state-ownership is always positive (suggesting that firms that need more external financial resources have higher average growth in countries with a large share of state-owned banks) but almost never statistically significant (it is significant at the 10% confidence level in the sample of emerging and developing economies, Column 5, Table 24).

When I interact external financial dependence with the bad times dummy, I find that in advanced economies with a small share of state-owned banks firms that need more external financial resources do relatively better during bad times (column 4). However, the presence of state-owned banks reverses this effect and when the share of state-owned banks reaches 30% the beneficial effects of higher external financial dependence are completely reversed. In the subsamples of emerging and developing economies and middle-income economies, the coefficient of the triple interaction is positive but never statistically significant.

Labor and human capital intensity

For both political and macroeconomic stabilization motives, state-owned banks might be particularly interested in lending to industries that employ a relatively large number of people. This should especially be the case during recessions.

Table 25 shows that the relationship between industry-level value added growth and the interaction of industry-level labor intensity and state-ownership of banks varies across groups of countries, but that it is never statistically significant. Focusing on the countercyclical role of state-owned banks, columns 2, 4, 6 and 8 suggest that labor intensive industries do relatively worse in bad

times (however, the coefficient is never statistically significant). However, the positive and statistically significant (albeit only at the 10% level) effect of the triple interaction indicates that low growth in bad times is mitigated by the presence of state-owned banks. These results suggest that state-owned banks may play a role in limiting employment fluctuations in both advanced and emerging economies.

In Table 26, I substitute the industry-level index of labor intensity with an index of human capital intensity. The results provide some evidence that industries with high human capital intensity do relatively better during bad times, but state-owned banks play no role along this dimension.

Firm size

State owned banks often have an explicit mandate of targeting small and medium enterprises (Inter-American Development Bank, 2014). In Table 27, I study whether industries with a relatively large share of small enterprises do relatively better in countries with a larger share of state-owned banks and if this effect differs across good and bad times.

When I estimate the model without allowing for different coefficients during good and bad times, I find that the interaction between external financial dependence and state-ownership is always negative, but never statistically significant (columns 1, 3, 5, and 7 of Table 26). When I differentiate between good and bad times, instead, I find that in countries without state-owned banks industries with a larger share of small firms do relatively worse in bad times. This effect has approximately the same magnitude in advanced and emerging and developing economies. This finding is likely to be due to the fact that small firms are less diversified and are more likely to face credit constraints during bad times. The triple interaction is, however, positive (albeit only significant in advanced economies) indicating that the presence of state-owned banks can partly reverse this effect.

7 Conclusions

There are opposite views on the role of state-owned banks. While the social and development views suggest that state-ownership of banks can address important market failures and promote financial deepening, the political view maintains that state-owned banks only exist to provide rents to the policymakers that control them and that they have a negative effect on financial sector development and economic growth.

This paper uses new data on state-owned commercial banks and finds no evidence that state-ownership of bank predicts financial depth or economic growth. There is also no evidence that state-ownership increases the likelihood of financial crises. Recent data also show decreasing profitability gaps between state-owned and private banks, but indicate that state-owned banks tend to have more non-performing loans. On the positive side, there is evidence that state-owned bank may contribute to macroeconomic stabilization, especially in countries where fiscal policy is procyclical.

One key takeaway is that there is substantial heterogeneity both across countries and across time. Future research should focus on understanding the drivers of this heterogeneity.

References

Aguiar Mark and Gita Gopinath (2007) "Emerging Market Business Cycles: The Cycle Is the Trend" *Journal of Political Economy*, 115: 69-102.

Allen, Franklin, Ana Babus, and Elena Carletti (2009). Financial Crises: Theory and Evidence. *Annual Review of Financial Economics, 1* 97-116.

Allen, F., K. Jackowicz, O. Kowalewski, and L. Kozłowski. 2017. "Bank Lending, Crises, and Changing Ownership Structure in Central and Eastern European Countries." *Journal of Corporate Finance* 42: 494–515.

Andrews, Michael (2005) "State-Owned Banks, Stability, Privatization, and Growth: Practical Policy Decisions in a World Without Empirical Proof," IMF WP 05/10

Arellano, Manuel, and Stephen Bond (1991): "Some Tests of Specification for Panel Data: MonteCarlo Evidence and an Application to Employment Equations" *The Review of Economic Studies*, 58(2), 277–297

Argentieri Mariani, Lucas (2020) "Government-owned Banks and Development: on Unintended Consequences of Privatization" mimeo

Barth, James, Gerard Caprio, and Ross Levine. 2001. "The Regulation and Supervision of Banks around the World." In *Integrating Emerging Market Countries into the Global Financial System,* edited by Robert E. Litan and Richard Herring. Brookings-Wharton Papers on Financial Services. Brookings.

Barth, James, Gerard Caprio, and Ross Levine (2004) "Bank regulation and supervision: what works best?" *Journal of Financial Intermediation*, Volume 13 (2): 205-248

Beck, Thorsten and Ross Levine (2004), "Stock markets, banks, and growth: Panel evidence," *Journal of Banking and Finance*, 28(3), 423–442.

Beck Thorsten, Asli Demirgüç-Kunt, Luc Laeven, and Ross Levine (2008), Finance, Firm Size, and Growth. Journal of Money, Credit and Banking, 40: 1379-1405.

Beck, Thorsten, Robin Döttling, Thomas Lambert, and Mathijs Van Dijk (2020). "Liquidity Creation, Investment, and Growth" CEPR DP 14956

Berger, Allan and Christa Bouwman (2009). Bank liquidity creation. Review of Financial Studies 22 (9), 3779-3837.

Bertay, Ata Can, Pietro Calice, Federico Alfonso Diaz Kalan, Oliver Masetti (2020) "Recent Trends in Bank Privatization," mimeo WB

Bertay, Ata Can, Asli Demirgüç-Kunt, and Harry Huizinga (2015) "Bank Ownership and Credit over the Business Cycle: Is Lending by State Banks Less Procyclical?" *Journal of Banking and Finance* 50: 326–39.

Bonomo, M., R.D. Brito, and B. Martins. 2015. "The After-Crisis Government-Driven Credit Expansion in Brazil: A Firm-Level Analysis." *Journal of International Money and Finance* 55: 111–34.

Brei, M., and A. Schclarek (2013) "Public Bank Lending in Times of Crisis." *Journal of Financial Stability* 9 (4): 820–30.

Chen, Y. S., Y. Chen, I. Hasan, and C. Y. Lin. 2016. "Is There a Bright Side of Government Banks? Evidence from the Global Financial Crisis." Journal of Financial Stability 26(5): 128–43.

Choi, ByeongHwa (2020) "Financial Development, Endogenous Dependence on External Financing, and Trade," *Economica*, 87: 530-587.

Coleman, N. and L. Feler. 2015. "Bank Ownership, Lending, and Local Economic Performance during the 2008–09 Financial Crisis." *Journal of Monetary Economics* 71: 50–66.

Cornett, M., G. Lin, S. Khaksari, and H. Tehranian (2009) "The Impact of State Ownership on Performance Differences in Privately-Owned versus State-Owned Banks: An International Comparison." *Journal of Financial Intermediation* 19 (1): 74–94.

Cull, Robert and Maria Soledad Martínez Pería (2013) "Bank Ownership and lending patterns during the 2008-2009 financial crisis: Evidence from Latin America and Eastern Europe" *Journal of Banking and Finance*, 37: 4861-4878

Cull, Robert, Maria Soledad Martínez Pería and Jeanne Verrier (2018) "Bank Ownership: Trends and Implications" WB Research Working Paper 8297

De Haas, R., Y. Korniyenko, A. Pivovarsky, and T. Tsankova. 2015. "Taming the Herd? Foreign Banks, the Vienna Initiative and Crisis Transmission." *Journal of Financial Intermediation* 24 (3): 325–55.

de la Plaza Luis and Sophie Sirtaine (2005) "An Analysis of the 2002 Uruguayan Banking Crisis" World Bank Policy Research Working Paper 3780

Demirgüç-Kunt, Asli and Enrica Detragiache (2005) "Cross-Country Empirical Studies of Systemic Bank Distress: A Survey" IMF WP 05/96

Dinç, Serdar (2005) "Politicians and Banks: Political Influences on Government-Owned Banks in Emerging Markets." *Journal of Financial Economics* 77 (2): 453–79.

Duprey, T. 2015. "Do Publicly Owned Banks Lend Against the Wind?" *International Journal of Central Banking* 11 (2): 65–112.

Enoch, Charles, Barbara Baldwin, Olier Frécaut and Arto Kovanen (2001) "Indonesia: Anatomy of a Banking Crisis Two years of living dangerously" IMF WP 01/52

European Bank for Reconstruction and Development (2020) *Transition Report*, European Bank for Reconstruction and Development, London

Fernandez-Arias, Eduardo, Ricardo Hausmann, and Ugo Panizza (2020). "Smart Development Banks." *Journal of Industry, Competition and Trade*, 19 (69)

Frigerio, M., and D. Vandone (2018) "Bank Ownership and Firm-Level Performance: An Empirical Assessment of State-Owned Development Banks." In *Contemporary Issues in Banking*, edited by M. García-Olalla and J. Clifton, 197–219. Palgrave Macmillan Studies in Banking and Financial Institutions. London: Palgrave Macmillan.

Gerschenkron, Alexander (1962) *Economic Backwardness in Historical Perspective* Harvard University Press, Cambridge, MA.

Igan, Deniz, Hala Moussawi, Alexander F. Tieman, Aleksandra Zdzienicka, Giovanni Dell'Ariccia, and Paolo Mauro (2019) "The Long Shadow of the Global Financial Crisis: Public Interventions in the Financial Sector" IMF WP 19/164

Inter-American Development Bank (2004) *Unlocking Credit: The Quest for Deep and Stable Bank Lending*, Inter-American Development Bank, Washington DC

Inter-American Development Bank (2014) *Rethinking Productive Development*, Inter-American Development Bank, Washington DC

International Monetary Fund (2020) *Fiscal Monitor*, April, International Monetary Fund, Washington DC

Kornai, Janos (1979) "Resource-constrained versus demand-constrained systems," *Econometrica* 47, 801–819.

Laeven Luc, & Fabian Valencia, 2018. "Systemic Banking Crises Revisited" IMF Working Papers 18/206, International Monetary Fund.

La Porta, Rafael, Florencio López-de-Silanes, and Andrei Shleifer (2002) "Government Ownership of Banks." *Journal of Finance* 57 (1): 265–301.

La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer, and Robert Vishny (1998) "Law and Finance." *Journal of Political Economy* 106 (6): 1135-55.

Levine, Ross (2005) "Finance and Growth: Theory and Evidence," Handbook of Economic Growth, in: Philippe Aghion & Steven Durlauf (ed.), Handbook of Economic Growth, edition 1, volume 1, chapter 12, pages 865-934 Elsevier.

Lewis, W. Arthur (1950) *The Principles of Economic Planning* G. Allen & Unwin, London

Lindgren, Carl-Johan, Tomás J.T. Baliño, Charles Enoch,Anne-Marie Gulde, Marc Quintyn, and Leslie Teo (1999) *Financial Sector Crisis and Restructuring Lessons from Asia*, IMF Occasional Paper 188

Micco, Alejandro, and Ugo Panizza. 2006. "Bank Ownership and Lending Behavior." *Economics Letters* 93(2): 248–54.

Micco, Alejandro, Ugo Panizza, and Monica Yanez (2007) "Bank ownership and performance. Does politics matter?" *Journal of Banking & Finance*, 31(1): 219-241.

Nickell, Stephen (1981): "Biases in Dynamic Models with Fixed Effects" *Econometrica*, 49(6): 1417–1426.

Önder, Z. and S. Özyıldırım. 2013. "Role of Bank Credit on Local Growth: Do Politics and Crisis Matter?" *Journal of Financial Stability* 9 (1), 13–25.

Rodrik, Dani (2012) "Why We Learn Nothing from Regressing Economic Growth on Policies" *Seoul Journal of Economics*. 25. 137-151

Rose Andrew and Tomasz Wieladek (2014) "Financial Protectionism? First Evidence," *Journal of Finance*, 69(5): 2127-2149.

Shleifer, Andrei, and Robert Vishny (1994) "Politicians and firms," *Quarterly Journal of Economics* 109, 995–1025.

Silva, A. F. (2019). "Strategic Liquidity Mismatch and Financial Sector Stability" *Review of Financial Studies* 32 (12), 4696-4733.

Stiglitz, Joseph. (1994) "The Role of the State in Financial Markets." *Proceedings of the World Bank Annual Conference on Economic Development 1993*. Washington: World Bank.

Ture, Elif (2021) "Revisiting the Stabilization Role of Public Banks: Public Debt Matters," IMF WP 21/7

World Bank. 2001. *Finance for Growth: Policy Choices in a Volatile World*. The World Bank, Washington DC.

World Bank. 2012. *Global Financial Development Report 2013: Rethinking the Role of the State in Finance*. The World Bank, Washington DC.

Table 1A: Summary Statistics, Bank-Level Data, All Countries

	N. Obs.	Mean	St. Dev	Min	Max
PUB	100,774	0.1	0.3	0.0	1.0
ROA	90,931	1.3	1.8	0.0	12.3
Tot Assets	100,773	18306	107922	0.0	4066332
Customer deposits over Assets (%)	97,643	62.0	23.9	0.0	94.4
Loan to Assets Ratio (%)	98,931	54.7	22.0	0.0	93.2
Interest Expenditure over Assets	100,649	0.0	0.0	0.0	0.2
Interest Income over Assets	96,888	0.0	0.0	0.0	0.2
Net Interest Margin	91,056	4.2	3.9	0.0	24.0
Non-Interest Income over Assets	94,628	0.0	0.0	0.0	0.3
NPL over Loans (%)	63,522	6.2	9.4	0.0	56.2
Provisions over Total Assets (%)	81,906	0.8	1.4	0.0	9.2
Government Bonds over Assets (%)	58,714	0.1	0.1	0.0	0.5
Private Banks					
ROA	80,249	1.36	1.86	0.00	12.31
Tot Assets	89,137	16116	89833	0.00	3126270
Customer deposits over Assets (%)	86,183	61.67	24.32	0.00	94.42
Loan to Assets Ratio (%)	87,393	54.77	22.41	0.00	93.19
Interest Expenditure over Assets	89,022	0.03	0.03	0.00	0.18
Interest Income over Assets	85,625	0.03	0.03	0.00	0.18
Net Interest Margin	80,296	4.23	3.93	0.00	23.96
Non-Interest Income over Assets	83,425	0.02	0.04	0.00	0.26
NPL over Loans (%)	56,975	6.02	9.19	0.00	56.18
Provisions over Total Assets (%)	72,326	0.81	1.39	0.00	9.16
Government Bonds over Assets (%)	50,521	0.10	0.11	0.00	0.52
State-Owned Banks					
ROA	10,682	1.00	1.44	0.00	12.31
Tot Assets	11,636	35088	196813	0	4066332
Customer deposits over Assets (%)	11,460	64.65	19.99	0.00	94.42
Loan to Assets Ratio (%)	11,538	54.35	18.85	0.00	93.19
Interest Expenditure over Assets	11,627	0.03	0.03	0.00	0.18
Interest Income over Assets	11,263	0.03	0.02	0.00	0.18
Net Interest Margin	10,760	3.93	3.47	0.00	23.96
Non-Interest Income over Assets	11,203	0.02	0.03	0.00	0.26
NPL over Loans (%)	6,547	8.25	10.77	0.00	56.18
Provisions over Total Assets (%)	9,580	0.89	1.43	0.00	9.16
Government Bonds over Assets (%)	8,193	0.11	0.12	0.00	0.52

Table 1B: Summary Statistics, Bank-Level Data, Advanced Economies

	N. Obs	Mean	St. Dev	Min	Max
PUB	50,987	0.00	0.29	0.00	1.00
ROA	47,087	0.88	1.56	0.00	12.31
Tot Assets	50,987	26355	122603	0.00	3126270
Customer deposits over Assets (%)	49,017	63.14	24.09	0.00	94.42
Loan to Assets Ratio (%)	49,849	58.79	23.52	0.00	93.19
Interest Expenditure over Assets	50,880	0.02	0.02	0.00	0.18
Interest Income over Assets	48,675	0.02	0.02	0.00	0.18
Net Interest Margin	46,624	2.52	2.06	0.00	23.96
Non-Interest Income over Assets	47,285	0.01	0.03	0.00	0.26
NPL over Loans (%)	28,299	3.69	6.06	0.00	56.18
Provisions over Total Assets (%)	40,801	0.44	0.83	0.00	9.16
Government Bonds over Assets (%)	28,660	0.07	0.09	0.00	0.52
Private Banks					
ROA	42,561	0.94	1.61	0.00	12.31
Tot Assets	46,274	26117	120900	0.00	3126270
Customer deposits over Assets (%)	44,406	63	25	0.00	94
Loan to Assets Ratio (%)	45,202	58.55	24.00	0.00	93.19
Interest Expenditure over Assets	46,176	0.02	0.02	0.00	0.18
Interest Income over Assets	44,068	0.02	0.02	0.00	0.18
Net Interest Margin	42,063	2.56	2.15	0.00	23.96
Non-Interest Income over Assets	42,754	0.02	0.03	0.00	0.26
NPL over Loans (%)	26,698	3.68	6.00	0.00	56.18
Provisions over Total Assets (%)	37,036	0.44	0.85	0.00	9.16
Government Bonds over Assets (%)	24,975	0.08	0.09	0.00	0.52
State-Owned Banks					
ROA	4,526	0.35	0.80	0.00	12.31
Tot Assets	4,713	28686	138208	0.00	2689866
Customer deposits over Assets (%)	4,611	65.52	16.48	0.00	94.42
Loan to Assets Ratio (%)	4,647	61.13	18.00	0.00	93.19
Interest Expenditure over Assets	4,704	0.02	0.01	0.00	0.18
Interest Income over Assets	4,607	0.02	0.01	0.00	0.12
Net Interest Margin	4,561	2.15	0.93	0.00	23.96
Non-Interest Income over Assets	4,531	0.01	0.01	0.00	0.26
NPL over Loans (%)	1,601	3.87	7.05	0.00	56.18
Provisions over Total Assets (%)	3,765	0.41	0.57	0.00	9.16
Government Bonds over Assets (%)	3,685	0.05	0.06	0.00	0.52

Table 1C: Summary Statistics, Bank-Level Data, Emerging and Developing Economies

	N. Obs	Mean	St. Dev	Min	Max
PUB	50,987	0.09	0.29	0.00	1.00
ROA	47,087	0.88	1.56	0.00	12.31
Tot Assets	50,987	26355	122603	0.00	3126270
Customer deposits over Assets (%)	49,017	63.14	24.09	0.00	94.42
Loan to Assets Ratio (%)	49,849	58.79	23.52	0.00	93.19
Interest Expenditure over Assets	50,880	0.02	0.02	0.00	0.18
Interest Income over Assets	48,675	0.02	0.02	0.00	0.18
Net Interest Margin	46,624	2.52	2.06	0.00	23.96
Non-Interest Income over Assets	47,285	0.01	0.03	0.00	0.26
NPL over Loans (%)	28,299	3.69	6.06	0.00	56.18
Provisions over Total Assets (%)	40,801	0.44	0.83	0.00	9.16
Government Bonds over Assets (%)	28,660	0.07	0.09	0.00	0.52
Private Banks					
ROA	37,688	1.84	2.00	0.00	12.31
Tot Assets	42,863	5318	27886	0.00	998749
Customer deposits over Assets (%)	41,777	60.36	23.81	0.00	94.42
Loan to Assets Ratio (%)	42,191	50.71	19.79	0.00	93.19
Interest Expenditure over Assets	42,846	0.04	0.04	0.00	0.18
Interest Income over Assets	41,557	0.05	0.03	0.00	0.18
Net Interest Margin	38,233	6.07	4.57	0.00	23.96
Non-Interest Income over Assets	40,671	0.03	0.05	0.00	0.26
NPL over Loans (%)	30,277	8.08	10.86	0.00	56.18
Provisions over Total Assets (%)	35,290	1.19	1.70	0.00	9.16
Government Bonds over Assets (%)	25,546	0.13	0.12	0.00	0.52
State-Owned Banks					
ROA	6,156	1.48	1.60	0.00	12.31
Tot Assets	6,923	39446	228165	0.02	4066332
Customer deposits over Assets (%)	6,849	64.05	22.03	0.00	94.42
Loan to Assets Ratio (%)	6,891	49.77	18.01	0.00	93.19
Interest Expenditure over Assets	6,923	0.04	0.03	0.00	0.18
Interest Income over Assets	6,656	0.04	0.03	0.00	0.18
Net Interest Margin	6,199	5.23	4.02	0.00	23.96
Non-Interest Income over Assets	6,672	0.03	0.04	0.00	0.26
NPL over Loans (%)	4,946	9.66	11.37	0.00	56.18
Provisions over Total Assets (%)	5,815	1.20	1.71	0.00	9.16
Government Bonds over Assets (%)	4,508	0.16	0.13	0.00	0.52

Table 2: Comparison with other datasets

	N. Obs	Mean	St. Dev	Min.	Max
	Comparison with BRSS				
This paper using 20% threshold	1,038	0.21	0.25	0	1.00
World Bank Survey	1,038	0.19	0.19	0	0.98
This paper using 50% threshold	1,038	0.18	0.24	0	1.00
This paper including development banks	1,038	0.24	0.25	0	1.00
	Comparison with La Porta et al. (2002)				
This paper using 20% threshold only 1995	89	0.28	0.29	0.00	1.00
La Porta et al. only commercial banks, 1995	89	0.37	0.32	0.00	1.00
This paper including development banks,	89	0.31	0.29	0.00	1.00
La Porta et al., 1995	89	0.40	0.31	0.00	1.00
La Porta et al., 1970	89	0.58	0.35	0.00	1.00

Table 3: Correlation with Bank Ownership data from BRSS

	This paper with			World Bank
	20% thresh.	Dev. banks	50% thresh.	Survey
This paper with 20% threshold	1.00			
This paper with development banks	0.97	1.00		
	[0.00]			
This paper with 50% threshold	0.87	0.84	1.00	
	[0.00]	[0.00]		
World Bank Survey	0.63	0.58	0.65	1.00
	[0.00]	[0.00]	[0.00]	

P-value in brackets

Table 4: Correlation with La Porta et al. (2002)

	This paper with		La Porta et al.		
	20% thresh.	Dev. banks	CB 1995	1995	1970
This paper with 20% threshold	1.00				
This paper with development banks	0.98	1.00			
	[0.00]				
La Porta et al, CB, 1995	0.62	0.62	1.00		
	[0.00]	[0.00]			
La Porta et al, 1995	0.61	0.61	0.98	1.00	
	[0.00]	[0.00]	[0.00]		
La Porta et al., 1970	0.56	0.57	0.76	0.78	1.00
	[0.00]	[0.00]	[0.00]	[0.00]	

P-value in brackets

Table 5: State-Owned Banks and Financial Depth (Dep. Var: Credit to the Private Sector)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOB	-0.195**	-0.036	-0.050	0.021	-0.236	0.052	-0.069	0.103
	(0.085)	(0.086)	(0.085)	(0.110)	(0.383)	(0.086)	(0.210)	(0.087)
ln(Y_PC)		0.211***	0.198***	0.230***	-0.049	0.128***	0.049	0.150***
		(0.022)	(0.024)	(0.024)	(0.206)	(0.018)	(0.048)	(0.051)
C Rights		0.032***	0.033***	0.031***	0.053***	0.021***	0.029***	0.020**
		(0.007)	(0.008)	(0.010)	(0.015)	(0.006)	(0.009)	(0.009)
ln(INFL)		-0.0001*	-0.0001*	-0.011***	-0.014	-0.0001**	-0.0001	-0.002**
		(0.00002)	(0.00002)	(0.003)	(0.022)	(0.00002)	(0.0001)	(0.001)
ENG		0.060	0.072	0.043	0.127	0.011	0.287*	-0.080
		(0.060)	(0.063)	(0.068)	(0.163)	(0.057)	(0.152)	(0.060)
GER		0.055	0.103	-0.057	0.248	0.064	0.213	
		(0.121)	(0.130)	(0.112)	(0.228)	(0.104)	(0.148)	
SCAND		0.245**	0.231	0.249**	0.048	0.245***		
		(0.106)	(0.140)	(0.107)	(0.152)	(0.053)		
SOC		-0.190***	-0.187***	-0.168***		-0.119***	-0.040	-0.117
		(0.041)	(0.040)	(0.054)		(0.040)	(0.068)	(0.071)
Const.	0.527***	-1.540***	-1.443***	-1.647***	1.407	-0.839***	-0.172	-0.980**
	(0.041)	(0.180)	(0.190)	(0.234)	(2.173)	(0.143)	(0.457)	(0.385)
N. Obs	3,646	3,029	2,079	950	532	2,497	1,012	764
R2	0.016	0.485	0.489	0.473	0.196	0.302	0.257	0.324
Fixed effects regressions								
GOB	-0.164***	-0.056	-0.097	-0.002	-0.128	-0.065*	-0.048	-0.002
	(0.050)	(0.051)	(0.065)	(0.040)	(0.268)	(0.039)	(0.052)	(0.064)
ln(GDP PC)		0.227***	0.165***	-0.072	-0.070	0.271***	0.324***	0.220***
		(0.041)	(0.052)	(0.137)	(0.401)	(0.037)	(0.074)	(0.059)
C Rights		0.020***	0.023***	0.003	0.061***	0.008**	0.007*	0.025***
		(0.005)	(0.007)	(0.004)	(0.018)	(0.003)	(0.004)	(0.006)
ln(INFL)		-0.0001	0.0001	-0.001**	-0.001	0.0001	0.001	-0.0001
		(0.0001)	(0.0001)	(0.001)	(0.014)	(0.0001)	(0.001)	(0.0001)
N. Obs	3,646	3,202	2,147	1,055	539	2,663	783	2,184
N. Countries	171	165	159	160	28	137	37	118
Sample	All	All	Y<2012	Y>2011	AE	EMDE	MIC	LIC

Robust standard errors in parenthesis, clustered at the country level.
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 6: State-Owned Banks and Financial Depth (Dep. Var: Credit to the Private Sector)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOB_{t-5}	-0.043**	-0.043	-0.025	-0.056	-0.605***	0.012	0.035	0.015
	(0.021)	(0.033)	(0.034)	(0.050)	(0.196)	(0.026)	(0.056)	(0.033)
$PRIVY_{t-5}$	0.944***	0.862***	0.860***	0.854***	0.634***	0.912***	0.886***	1.115***
	(0.024)	(0.039)	(0.054)	(0.049)	(0.088)	(0.034)	(0.052)	(0.074)
$ln(Y\_PC)_{t-5}$		0.040***	0.047***	0.022*	0.026	0.017***	0.026**	0.010
		(0.009)	(0.012)	(0.012)	(0.096)	(0.006)	(0.012)	(0.011)
$C\ Rights_{t-5}$		-0.002	0.008*	0.001	-0.016	0.005	0.003	0.004
		(0.003)	(0.005)	(0.006)	(0.011)	(0.003)	(0.007)	(0.004)
$ln(INFL)_{t-5}$		-0.0001*	-0.0001*	-0.0001	0.010	-0.0001**	-0.0001*	-0.0001
		(0.00002)	(0.00002)	(0.001)	(0.015)	(0.00002)	(0.0005)	(0.0001)
ENG			0.019	-0.010	0.152**	-0.018	0.025	-0.030
			(0.025)	(0.028)	(0.067)	(0.015)	(0.036)	(0.019)
GER			0.028	-0.038	0.102	0.014	0.044	
			(0.041)	(0.047)	(0.094)	(0.030)	(0.046)	
SCAND			0.232*	-0.053	0.146	0.025		
			(0.118)	(0.097)	(0.103)	(0.023)		
SOC			0.051*	-0.045		0.011	0.016	-0.009
			(0.029)	(0.037)		(0.018)	(0.033)	(0.027)
Const.	0.091***	-0.223***	-0.326***	-0.070	0.234	-0.087*	-0.175	-0.049
	(0.014)	(0.063)	(0.088)	(0.096)	(1.036)	(0.048)	(0.115)	(0.081)
N. Obs	0.091***	-0.223***	-0.326***	-0.070	0.234	-0.087*	-0.175	-0.049
R2	(0.014)	(0.063)	(0.088)	(0.096)	(1.036)	(0.048)	(0.115)	(0.081)
Fixed effects regressions								
GOB_{t-5}	-0.191***	-0.089*	-0.048	-0.165***	-0.328	-0.042	-0.062	0.041
	(0.057)	(0.052)	(0.044)	(0.059)	(0.235)	(0.039)	(0.064)	(0.049)
$PRIVY_{t-5}$	0.264***	0.178***	0.204***	0.130*	0.128*	0.229***	0.204**	0.665***
	(0.071)	(0.047)	(0.067)	(0.078)	(0.068)	(0.066)	(0.079)	(0.092)
$ln(GDP\ PC)_{t-5}$		0.237***	0.324***	0.193**	1.600***	0.189***	0.139**	0.198***
		(0.048)	(0.060)	(0.077)	(0.400)	(0.044)	(0.060)	(0.065)
$C\ Rights_{t-5}$		0.009**	0.010***	0.010	-0.026**	0.011***	0.018***	0.000
		(0.004)	(0.004)	(0.007)	(0.011)	(0.003)	(0.006)	(0.003)
$ln(INFL)_{t-5}$		0.0001	-0.0001	0.001	0.015**	-0.0001	-0.0001	0.0001
		(0.0001)	(0.0010)	(0.0001)	(0.007)	(0.0001)	(0.0001)	(0.0001)
N. Obs	2,818	2,407	1,371	1,036	397	2,010	783	601
N. Countries	170	164	148	159	28	136	47	37
Sample	All	All	Y<2012	Y>2011	AE	EMDE	MIC	LIC

Robust standard errors in parenthesis, clustered at the country level.
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 7: State-Owned Banks and Financial Depth (Dep. Var: Credit to the Private Sector)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOB_{t-5}	-0.226**	-0.064	-0.083	-0.006	-0.622*	0.076	-0.030	0.154
	(0.089)	(0.096)	(0.096)	(0.110)	(0.341)	(0.095)	(0.224)	(0.109)
$\ln(Y\ PC)_{t-5}$		0.222***	0.213***	0.210***	0.038	0.121***	0.045	0.153***
		(0.021)	(0.027)	(0.021)	(0.233)	(0.019)	(0.049)	(0.055)
C Rights $_{t-5}$		0.028***	0.029***	0.040***	0.025*	0.027***	0.037***	0.025**
		(0.007)	(0.010)	(0.014)	(0.014)	(0.006)	(0.009)	(0.009)
$\ln(INFL)_{t-5}$		-0.0001*	-0.0001*	-0.010***	0.005	-0.0001**	-0.0001*	-0.002**
		(0.00005)	(0.00005)	(0.003)	(0.014)	(0.00004)	(0.00005)	(0.001)
ENG			0.103	-0.010	0.224	-0.011	0.269*	-0.114
			(0.069)	(0.074)	(0.161)	(0.061)	(0.153)	(0.071)
GER			0.123	-0.089	0.259	0.077	0.219	
			(0.124)	(0.117)	(0.220)	(0.108)	(0.150)	
SCAND			0.278*	0.203*	0.126	0.235***		
			(0.162)	(0.114)	(0.184)	(0.061)		
SOC			-0.136***	-0.143**			-0.107**	-0.030
			(0.046)	(0.062)		(0.043)	(0.074)	(0.085)
Const.	0.569***	-1.559***	-1.501***	-1.457***	0.586	-0.770***	-0.140	-0.980**
	(0.044)	(0.169)	(0.212)	(0.195)	(2.428)	(0.146)	(0.461)	(0.410)
N. Obs	2,963	2,502	1,442	963	452	1,953	807	596
R2	0.021	0.452	0.520	0.495	0.214	0.311	0.279	0.313
Fixed effects regressions								
GOB_{t-5}	-0.230***	-0.116**	-0.06	-0.165***	-0.427*	-0.057	-0.093	-0.003
	-0.055	-0.056	-0.046	-0.063	-0.233	-0.038	-0.067	-0.063
$\ln(GDP\ PC)_{t-5}$		0.267***	0.385***	0.220***	1.479***	0.237***	0.183***	0.361***
		-0.047	-0.064	-0.071	-0.294	-0.043	-0.065	-0.086
C Rights $_{t-5}$		0.013***	0.014***	0.01	-0.018*	0.014***	0.021***	0.006
		-0.004	-0.004	-0.007	-0.01	-0.004	-0.007	-0.004
$\ln(INFL)_{t-5}$		0.0001	0.0001	0.0001	0.012*	0.0001	0.0001	0.001
		(0.0001)	(0.0001)	(0.0001)	-0.007	(0.0001)	(0.0001)	-0.001
N. Obs	2,963	2,502	1,455	1,047	454	2,048	808	606
N. Countries	171	164	150	159	28	136	47	37
Sample	All	All	Y<2012	Y>2011	AE	EMDE	MIC	LIC

Robust standard errors in parenthesis, clustered at the country level.
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 8: State-Owned Banks and Financial Depth (Dep Var: Share of State-Owned Banks)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PRIVY $_{t-5}$	0.026**	0.024*	0.040**	0.021	0.032	0.031	0.024	0.023
	(0.010)	(0.014)	(0.020)	(0.015)	(0.027)	(0.023)	(0.027)	(0.072)
GOB $_{t-5}$	0.778***	0.789***	0.766***	0.810***	0.689***	0.784***	0.848***	0.771***
	(0.032)	(0.031)	(0.034)	(0.049)	(0.117)	(0.034)	(0.041)	(0.038)
ln(Y PC) $_{t-5}$		-0.004	-0.005	-0.001	0.014	-0.000	-0.006	0.008
		(0.006)	(0.007)	(0.008)	(0.052)	(0.007)	(0.014)	(0.019)
C Rights $_{t-5}$		0.002	0.001	-0.002	0.002	0.000	0.006	0.000
		(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)
ln(INFL) $_{t-5}$		-0.001***	-0.001***	0.001	0.006	-0.001***	-0.001***	0.001
		(0.0003)	(0.0003)	(0.001)	(0.003)	(0.0003)	(0.0003)	(0.001)
ENG			0.011	-0.027*	-0.058	0.001	-0.014	0.015
			(0.015)	(0.015)	(0.035)	(0.014)	(0.027)	(0.022)
GER			-0.022	-0.025	-0.017	-0.034*	-0.035*	
			(0.027)	(0.015)	(0.027)	(0.020)	(0.019)	
SCAND			0.049	-0.031	-0.027	0.083***		
			(0.053)	(0.029)	(0.038)	(0.021)		
SOC			0.024	0.015		0.024	0.014	0.009
			(0.038)	(0.021)		(0.027)	(0.049)	(0.026)
Const.	0.016**	0.047	0.042	0.051	-0.133	0.015	0.052	-0.053
	(0.008)	(0.047)	(0.054)	(0.074)	(0.555)	(0.053)	(0.140)	(0.135)
N. Obs.	2,994	2,581	1,365	1,111	430	2,046	838	634
R2	0.709	0.719	0.736	0.744	0.536	0.752	0.785	0.785
				Fixed Effects				
PRIVY $_{t-5}$	0.02	0.035	0.001	0.054	0.078*	-0.031	-0.031	-0.158
	(0.033)	(0.034)	(0.032)	(0.036)	(0.041)	(0.055)	(0.072)	(0.111)
GOB $_{t-5}$	0.185***	0.153***	0.062	-0.07	0.054	0.163***	0.240***	0.247***
	(0.053)	(0.05)	(0.053)	(0.066)	(0.089)	(0.057)	(0.075)	(0.088)
ln(GDP PC) $_{t-5}$		-0.105***	-0.143***	-0.083*	-0.038	-0.086***	-0.103***	0.019
		(0.029)	(0.05)	(0.046)	(0.09)	(0.03)	(0.03)	(0.074)
C Rights $_{t-5}$		0.005**	0.003	0.005	0.003	0.005*	0.004	0.004
		(0.002)	(0.002)	(0.005)	(0.003)	(0.002)	(0.003)	(0.004)
ln(INFL) $_{t-5}$		0.0001	0.0001***	0.0001	-0.004	0.0001	0.0001	0.0001
		(0.0001)	(000005)	(0.0001)	(0.003)	(0.0001)	(0.0001)	(0.0001)
N. Obs.	2,994	2,581	1,375	1,206	433	2,148	840	644
N. countries	169	161	146	161	28	133	47	37
Sample	All	All	Y<2012	Y>2011	AE	EMDE	MIC	LIC

Robust standard errors in parenthesis, clustered at the country level.
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 9: State-Owned Banks and Financial Depth (Dep. Var: Share of State-Owned Banks)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PRIVY $_{t-5}$	-0.064*	0.012	-0.014	0.043	0.004	0.091	-0.024	0.270
	(0.035)	(0.052)	(0.061)	(0.042)	(0.062)	(0.095)	(0.119)	(0.223)
ln(Y PC) $_{t-5}$		-0.017	-0.019	-0.010	-0.070	-0.004	-0.089*	-0.094
		(0.021)	(0.027)	(0.019)	(0.105)	(0.025)	(0.044)	(0.094)
C Rights $_{t-5}$		-0.010**	-0.016**	-0.030***	0.009	-0.025***	-0.011	-0.020**
		(0.005)	(0.007)	(0.009)	(0.007)	(0.006)	(0.012)	(0.010)
ln(INFL) $_{t-5}$		0.0001	0.0001	0.005***	0.019***	0.0001	0.0001	-0.0001**
		(0.0001)	(0.000)1	(0.002)	(0.005)	(0.0001)	(0.0001)	(0.00005)
ENG			0.074	0.079	-0.111*	0.102*	0.199**	0.134
			(0.053)	(0.052)	(0.054)	(0.052)	(0.075)	(0.091)
GER			0.075	0.084	0.020	0.049	0.091	
			(0.084)	(0.055)	(0.077)	(0.080)	(0.109)	
SCAND			-0.004	0.165*	-0.036	0.480***		
			(0.076)	(0.096)	(0.077)	(0.039)		
SOC			0.064	0.115		0.109	0.196*	0.076
			(0.090)	(0.076)		(0.081)	(0.109)	(0.114)
Const.	0.250***	0.389**	0.384*	0.324*	0.797	0.263	1.097**	0.882
	(0.027)	(0.179)	(0.220)	(0.167)	(1.126)	(0.202)	(0.409)	(0.686)
N. Obs.	3,640	3,054	1,835	1,112	495	2,452	994	786
R2	0.009	0.022	0.039	0.117	0.134	0.071	0.201	0.086
				Fixed Effects				
PRIVY $_{t-5}$	-0.008	0.047	0.059	0.054	0.062	-0.003	-0.039	-0.076
	(0.033)	(0.035)	(0.043)	(0.036)	(0.043)	(0.054)	(0.058)	(0.134)
ln(GDP PC) $_{t-5}$		-0.123***	-0.117**	-0.072	-0.053	-0.105***	-0.105**	-0.071
		(0.032)	(0.045)	(0.044)	(0.148)	(0.035)	(0.045)	(0.078)
C Rights $_{t-5}$		0.000	-0.004	0.005	0.003	-0.002	-0.002	0.000
		(0.003)	(0.002)	(0.005)	(0.005)	(0.003)	(0.006)	(0.005)
ln(INFL) $_{t-5}$		0.0001*	0.0001*	-0.0001	-0.0010	0.0001*	0.0001***	-0.0001
		(0.00006)	(0.00006)	(0.001)	(0.004)	(0.00006)	(0.00003)	(0.0001)
N. Obs.	3,640	3,054	1,845	1,209	498	2,556	996	796
N. countries	170	162	147	162	28	134	47	37
Sample	All	All	Y<2012	Y>2011	AE	EMDE	MIC	LIC

Robust standard errors in parenthesis, clustered at the country level.
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 10: What types of firms borrow from State-Owned Banks, Logit model (Dep. Var: Has Borrowed from a state-owned bank dummy)

	(1)	(2)	(3)	(4)	(5)
Very small city	0.404	0.151	0.407	0.396	0.485**
	(1.624)	(0.344)	(1.614)	(1.319)	(2.329)
Part of a large firm	0.349**	0.863	0.333**	0.802**	-0.146
	(2.145)	(1.412)	(1.985)	(2.535)	(0.982)
State-owned	1.188***	2.296	1.169***	1.032***	1.350***
	(4.968)	(1.601)	(4.885)	(2.954)	(3.734)
Foreign-owned	-0.840***	-1.369*	-0.823***	-1.130***	-0.507
	(2.918)	(1.874)	(2.814)	(4.241)	(1.020)
Young	0.337	-0.679	0.343	0.567	-0.317
	(0.737)	(0.810)	(0.743)	(0.931)	(1.045)
Exporter	0.061	0.034	0.059	-0.045	0.361**
	(0.284)	(0.039)	(0.270)	(0.136)	(2.162)
Has purchased Fixed Assets	0.586***	-0.615	0.607***	0.651**	0.441***
	(3.212)	(0.899)	(3.275)	(2.459)	(3.620)
Has innovated	0.401*	0.726	0.392*	0.383	0.463***
	(1.763)	(0.777)	(1.686)	(1.034)	(3.668)
Access to finance is a problem	0.477**	1.123**	0.465**	0.530	0.361**
	(2.418)	(2.035)	(2.304)	(1.524)	(2.570)
Employment Growth $_{(t, t-3)}$	-0.086	-0.653	-0.082	-0.084	-0.132
	(0.328)	(0.913)	(0.311)	(0.231)	(0.739)
Ln(employment)$_{t-3}$	0.130**	0.187	0.130**	0.188*	-0.004
	(2.074)	(0.498)	(2.036)	(1.822)	(0.086)
Service sector	0.034	0.610	0.024	0.332	-0.628***
	(0.260)	(0.788)	(0.180)	(1.585)	(5.751)
Constant	-4.916***	-7.812***	-4.899***	-7.020***	-3.338***
	(6.469)	(3.503)	(6.396)	(5.704)	(4.522)
N. Obs.	89,689	3,700	85,979	40,638	45,061
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Sample	ALL	AE	EMDE	MIC	LIC

t-statistics in parenthesis.
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 11: What types of firms borrow from State-Owned Banks, Logit model (Dep. Var: Has Borrowed from a state-owned bank dummy)

	(1)	(2)	(3)	(4)	(5)	(6)
Very small city	0.847	0.389	0.056	-0.070	0.250	1.054*
	(1.544)	(1.306)	(0.175)	(0.217)	(1.409)	(1.832)
Part of a large firm	-0.018	0.908***	-0.050	0.800**	-0.354***	-0.714*
	(0.039)	(2.626)	(0.164)	(2.321)	(2.736)	(1.707)
State-owned	1.038*	1.029***		0.711	3.048***	1.784***
	(1.735)	(3.049)		(0.704)	(3.977)	(4.298)
Foreign-owned	-0.457	-1.119***	-1.575***	-0.497	-0.144	0.157
	(1.474)	(3.972)	(3.846)	(0.909)	(0.365)	(0.473)
Young	-0.458	0.567	0.139	-0.043	-0.774***	1.571***
	(0.694)	(0.914)	(0.200)	(0.054)	(2.669)	(3.801)
Exporter	0.157	-0.040	0.279	0.147	0.529***	0.279
	(0.429)	(0.115)	(0.875)	(0.461)	(4.085)	(0.951)
Has purchased Fixed Assets	0.244	0.678**	0.065	0.913**	0.623***	0.252
	(1.320)	(2.501)	(0.250)	(2.198)	(5.824)	(1.053)
Has innovated	0.522	0.353	0.566**	0.020	0.631***	0.686**
	(1.636)	(0.875)	(2.085)	(0.056)	(5.434)	(2.380)
Access to finance is a problem	0.216	0.538	0.302	0.708**	0.571***	0.489*
	(1.014)	(1.518)	(0.835)	(2.071)	(3.264)	(1.673)
Employment Growth $_{(t, t-3)}$	-0.209	-0.074	-0.285	-0.719*	0.169	0.213
	(0.577)	(0.201)	(0.776)	(1.678)	(0.940)	(0.629)
Ln(employment)$_{t-3}$	0.072	0.193*	0.027	-0.088	-0.046	0.295**
	(0.849)	(1.794)	(0.292)	(0.741)	(1.029)	(2.481)
Service sector	-0.125	0.341	-0.168	-0.726***	-1.187***	0.127
	(0.542)	(1.569)	(0.665)	(2.650)	(10.109)	(0.580)
Constant	-5.403***	-7.315***	-2.477***	-3.056**	-2.778***	-4.692**
	(3.130)	(5.749)	(3.105)	(2.195)	(3.447)	(2.326)
N. Obs	9,538	32,543	10,168	8,047	11,203	13,889
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sample	EAP	ECA	LAC	MNA	SAS	SSA

t-statistics in parenthesis.
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 12: State-Owned Banks and GDP Growth (Dep. Var: per capita GDP growth, 5-year average)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ln(Y PC) $_{t-5}$	-0.893***	-1.488***	-0.915***	-1.847***	-0.033	-5.559***	-7.178***	-5.469***	-6.244***	-4.219***
	(0.235)	(0.436)	(0.250)	(0.382)	(0.718)	(0.957)	(1.847)	(1.005)	(1.795)	(1.427)
GOB $_{t-5}$	1.607**	1.289	1.585**	2.525***	1.026	-0.033	2.495	-0.219	0.757	-1.348
	(0.671)	(0.826)	(0.716)	(0.921)	(0.841)	(0.578)	(1.892)	(0.557)	(0.868)	(1.231)
PRIVY $_{t-5}$	-0.019	-1.126***	0.066	-0.029	-0.022	-0.564**	-1.241**	-0.479	-0.702	-0.127
	(0.217)	(0.268)	(0.243)	(0.328)	(0.377)	(0.271)	(0.495)	(0.296)	(0.445)	(0.606)
EDU $_{t-5}$	1.934***	3.240***	1.985***	3.492***	0.165	7.048***	-0.083	7.234***	8.637***	5.053
	(0.562)	(1.065)	(0.588)	(0.902)	(0.605)	(1.378)	(2.784)	(1.475)	(2.185)	(3.192)
Gov Cons $_{t-5}$	-0.756*	-1.939***	-0.559	0.895	-1.896**	0.690	1.427	0.658	2.501*	-0.476
	(0.427)	(0.481)	(0.539)	(0.775)	(0.866)	(0.583)	(1.853)	(0.598)	(1.325)	(0.971)
Open $_{t-5}$	0.320	0.586***	0.052	0.222	0.144	0.572	2.626*	0.512	2.126*	0.435
	(0.205)	(0.199)	(0.325)	(0.487)	(0.488)	(0.461)	(1.496)	(0.476)	(1.207)	(0.406)
Ln(INF) $_{t-5}$	-0.002***	-0.115**	-0.002***	-0.012	-0.003***	-0.002*	-0.133***	-0.002*	-0.020***	-0.001**
	(0.001)	(0.042)	(0.001)	(0.007)	(0.001)	(0.001)	(0.035)	(0.001)	(0.005)	(0.000)
Constant	6.767***	12.705***	7.625***	8.727***	6.612					
	(1.975)	(4.410)	(2.324)	(2.858)	(5.734)					
N. Obs	2,171	437	1,734	741	460	2,171	437	1,734	741	460
R2	0.149	0.230	0.126	0.285	0.142					
N. Countries	134	28	106	44	30	134	28	106	44	30
Sample	All	AE	EMDE	MIC	LIC	All	AE	EMDE	MIC	LIC
Country FE	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parenthesis, clustered at the country level.

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 13: State-Owned Banks and GDP Growth (Dep. Var: per capita GDP growth, 10-year average)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ln(Y PC) $_{t-10}$	-1.062***	-1.443**	-1.030***	-1.718***	-0.996	-5.324***	-3.545*	-5.452***	-3.562**	-9.840**
	(0.231)	(0.612)	(0.237)	(0.325)	(0.766)	(1.110)	(1.838)	(1.164)	(1.572)	(4.059)
GOB $_{t-10}$	1.546**	0.814	1.418*	1.132	1.235	0.252	-0.363	0.183	0.235	1.179
	(0.752)	(1.400)	(0.799)	(1.353)	(0.817)	(0.573)	(2.276)	(0.587)	(1.274)	(0.816)
PRIVY $_{t-10}$	0.257	0.415	0.327	0.605	0.151	0.135	0.762	0.030	-0.158	0.711
	(0.221)	(0.626)	(0.245)	(0.402)	(0.308)	(0.344)	(0.788)	(0.373)	(0.482)	(0.695)
EDU $_{t-10}$	1.683***	4.924***	1.783***	2.550***	0.738	2.307	2.100	2.270	1.336	8.042**
	(0.450)	(1.354)	(0.464)	(0.719)	(0.446)	(1.498)	(3.964)	(1.537)	(2.697)	(3.823)
Gov Cons $_{t-10}$	-1.006***	-1.297	-0.728	-0.079	-1.655**	1.177*	-0.407	1.211*	1.449	-0.141
	(0.368)	(0.815)	(0.456)	(0.603)	(0.606)	(0.677)	(2.216)	(0.684)	(1.347)	(0.467)
Open $_{t-10}$	0.238	1.132***	-0.264	-0.575	0.382	0.094	0.934	0.002	-0.882	0.877*
	(0.228)	(0.310)	(0.327)	(0.438)	(0.468)	(0.549)	(1.536)	(0.584)	(1.091)	(0.505)
Ln(INF) $_{t-10}$	0.0001	-0.030	0.0001	0.016***	-0.002***	0.001	-0.003	0.001	0.012***	-0.0001
	(0.001)	(0.060)	(0.001)	(0.005)	(0.001)	(0.001)	(0.071)	(0.001)	(0.003)	(0.0001)
Constant	10.172***	3.513	11.288***	16.223***	12.053*					
	(2.401)	(8.814)	(2.813)	(4.142)	(6.137)					
N. Obs	1,535	304	1,231	528	326	1,535	304	1,231	528	326
R2	0.179	0.237	0.150	0.267	0.189					
N. Countries	129	28	101	42	27	129	28	101	42	27
Sample	All	AE	EMDE	MIC	LIC	All	AE	EMDE	MIC	LIC
Country FE	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parenthesis, clustered at the country level.

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 14: State-Owned Banks and Banking Crises, Logit model (Dep. Var: Banking Crisis Dummy)

	(1)	(2)	(3)	(4)
GOB_{t-1}	-3.773***	-4.469***	-4.439***	-6.109***
	(0.863)	(0.956)	(1.127)	(1.197)
GOB	0.708	0.622	0.813	1.662
	(1.326)	(1.442)	(1.464)	(2.835)
GOB_{t+1}	3.033***	3.482***	3.380***	3.589
	(0.940)	(1.033)	(1.174)	(3.449)
$GROWTH_{t-1}$				0.009
				(0.063)
ΔTOT_{t-1}				-0.109
				(2.348)
ΔDX_{t-1}				-0.045***
				(0.016)
$RRATE_{t-1}$				0.062*
				(0.034)
$Ln(INF)_{t-1}$				0.036**
				(0.015)
$ln(Y\ PC)_{t-1}$				-0.204
				(0.348)
$GOV\ BAL/GDP_{t-1}$				0.035
				(0.026)
$MONEY/RES_{t-1}$				0.056*
				(0.029)
$PRIVY_{t-1}$				1.519**
				(0.627)
$CR\ GROWTH_{t-3}$				0.803**
				(0.350)
MIC		0.825***	0.798**	2.377***
		(0.296)	(0.310)	(0.684)
LIC		-0.585	-0.569	0.603
		(0.497)	(0.471)	(1.113)
GFC			1.826***	1.212***
			(0.284)	(0.459)
Constant	-4.269***	-4.426***	-5.011***	-6.040*
	(0.171)	(0.240)	(0.275)	(3.360)
N. Obs.	3,670	3,670	3,827	2,133
Pseudo R2	0.02	0.05	0.11	0.24

Robust standard errors in parenthesis,
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 15: Bank Nationalization and Privatization Episodes

	N.	Mean	Median	St. Dev.	P25	P75	Min	Max
Privatization	230	44.3	33.4	30.9	17.9	65.3	10	100
Nationalization	56	64.4	75.0	34.6	29.7	100	10.7	100

Table 16: Lending to the Government and Debt-to-GDP ratio (Dep var: Government Bonds over Total Assets)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
PUB	0.0437	5.578**	-1.462	-1.219	-5.335*	1.917	2.334	2.791	-5.266	-2.191
	(1.171)	(2.306)	(1.395)	(7.209)	(2.915)	(2.589)	(2.918)	(2.950)	(6.835)	(7.452)
PUBxD/Y	3.722***	-3.429*	7.606***	3.163	20.37**	5.486	8.167**	0.926	2.510	5.695
	(1.436)	(1.902)	(2.332)	(3.552)	(8.526)	(3.869)	(3.633)	(4.385)	(9.294)	(3.798)
$Ln(Assets)_{t-1}$	-0.117	0.232	-0.770**	0.995	-2.374***	-0.186	-1.161*	-1.516	-0.0118	1.379
	(0.213)	(0.291)	(0.321)	(0.878)	(0.807)	(0.464)	(0.609)	(1.207)	(1.418)	(0.890)
$Ln(Assets)_{t-1}$xD/Y	-0.259	-0.644**	0.704	-2.023	3.530*	-0.294	1.121*	0.800	-1.140	-1.975
	(0.279)	(0.322)	(0.484)	(1.700)	(2.031)	(0.774)	(0.674)	(1.124)	(2.358)	(1.614)
N. Obs	52,259	30,984	17,150	4,125	4,327	7,119	5,536	2,368	3,031	3,260
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	MIC	LIC	EAP	ECA	LAC	MNA	SAS	SSA

t-statistics in parenthesis computed using robust standard errors clustered at the bank level
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 17: Bank Ownership and Liquidity Creation (Dep. var: Liquidity Creation)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PUB	0.859	0.536	-0.506	0.628	2.085	-2.180**	1.061	-1.485	1.022
	(1.073)	(0.279)	(0.652)	(0.665)	(0.989)	(2.204)	(1.177)	(0.692)	(1.119)
$ln(Assets)_{t-1}$	1.101***	0.041	2.499***	1.082***	0.104	2.787***	1.131***	0.015	2.298***
	(7.092)	(0.175)	(15.001)	(5.972)	(0.409)	(12.698)	(6.210)	(0.053)	(11.315)
N. Obs.	95,313	48,932	46,381	48,540	26,899	21,641	46,773	22,033	24,740
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	AE	EMDE	ALL	AE	EMDE	ALL	AE	EMDE
					Year<2009			Year ≥2009	

t-statistics in parenthesis computed using robust standard errors clustered at the bank level
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 18: Bank Ownership and Lending Cyclicality (Dep. var: Growth of Net Loans)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
PUB	5.056**	3.255**	3.268**	4.017	3.339*	0.308	-1.818	0.863	3.482	10.407	2.828
	(2.219)	(2.048)	(2.051)	(0.926)	(1.928)	(0.143)	(0.370)	(0.366)	(1.504)	(1.081)	(1.193)
PUBxGR	-0.333***	-0.385***	-0.388***	-0.102	-0.503***	-0.261*	-0.006	-0.387**	-0.464***	-0.057	-0.590***
	(2.691)	(3.961)	(3.825)	(0.547)	(4.393)	(1.742)	(0.018)	(2.311)	(4.046)	(0.269)	(4.426)
$ln(Assets)_{t-1}$		-12.710***	-12.718***	-10.812***	-14.919***	-14.353***	-12.522***	-16.688***	-14.475***	-12.183***	-16.991***
		(30.730)	(29.376)	(17.645)	(29.039)	(19.170)	(11.854)	(19.535)	(16.505)	(9.289)	(19.141)
$ln(Assets)_{t-1}$xGR			0.002	0.053	0.036	-0.032	-0.017	0.011	-0.039	-0.009	-0.007
			(0.079)	(1.070)	(1.114)	(0.694)	(0.195)	(0.209)	(1.083)	(0.143)	(0.177)
Cust Dep/Assets $_{t-1}$		-0.109***	-0.109***	-0.107***	-0.103***	-0.097***	-0.108***	-0.084***	-0.091***	-0.085*	-0.085***
		(7.641)	(7.630)	(5.144)	(5.311)	(4.361)	(3.571)	(2.640)	(3.729)	(1.868)	(2.998)
Loans/Assets $_{t-1}$		-0.700***	-0.700***	-0.554***	-0.816***	-0.792***	-0.623***	-0.937***	-0.858***	-0.732***	-0.927***
		(38.600)	(38.599)	(20.498)	(34.435)	(28.714)	(15.680)	(25.276)	(28.128)	(13.549)	(25.877)
N. Obs.	63,802	62,726	62,726	31,373	31,353	33,579	18,544	15,035	28,787	12,670	16,117
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	ALL	ALL	AE	EMDE	ALL	AE	EMDE	ALL	AE	EMDE
							Year<2009			Year ≥2009	

t-statistics in parenthesis computed using robust standard errors clustered at the bank level

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 19: Bank Ownership and Cyclicality of profits (Dep. var: ROA)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PUB	0.007	-0.062	-0.041	-0.166	0.010	-0.030	-0.024	-0.166	0.025
	(0.059)	(0.641)	(0.424)	(1.241)	(0.084)	(0.321)	(0.255)	(1.276)	(0.210)
PUBxGR	0.008	0.011*	0.006	0.000	0.004				
	(1.321)	(1.764)	(0.927)	(0.017)	(0.453)				
$ln(Assets)_{t-1}$		-0.115***	-0.128***	-0.105***	-0.151***	-0.115***	-0.119***	-0.105***	-0.131***
		(5.155)	(5.533)	(3.239)	(4.534)	(5.151)	(5.140)	(3.228)	(3.993)
$ln(Assets)_{t-1}$xGR			0.004**	-0.002	0.007***				
			(2.536)	(1.492)	(3.028)				
Cust Dep/Assets $_{t-1}$		-0.007***	-0.007***	-0.006***	-0.008***	-0.007***	-0.007***	-0.006***	-0.008***
		(7.241)	(7.297)	(3.637)	(6.730)	(7.262)	(7.272)	(3.639)	(6.688)
Loans/Assets $_{t-1}$		-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
		(1.154)	(1.152)	(0.650)	(1.013)	(1.151)	(1.151)	(0.645)	(1.021)
PUBxGR $_{t-1}$						0.005	0.003	-0.001	0.002
						(0.853)	(0.573)	(0.104)	(0.290)
$ln(Assets)_{t-1}$xGR $_{t-1}$							0.001	-0.002	0.003
							(0.809)	(1.220)	(1.405)
N. Obs	93,673	83,019	83,019	43,446	39,573	83,000	83,000	43,446	39,554
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	ALL	ALL	AE	EMDE	ALL	ALL	AE	EMDE

t-statistics in parenthesis computed using robust standard errors clustered at the bank level

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 20: Bank Ownership and Cyclicality of NPL (Dep. var: NPL)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PUB	3.337***	2.952***	3.031***	5.059***	2.508**	3.331***	3.360***	5.351***	2.856**
	(3.225)	(2.823)	(2.900)	(3.474)	(1.969)	(3.176)	(3.200)	(3.620)	(2.226)
PUBxGR	-0.054	-0.042	-0.065	-0.027	-0.053				
	(1.039)	(0.797)	(1.189)	(0.191)	(0.877)				
$ln(Assets)_{t-1}$		0.586***	0.521***	-0.144	1.148***	0.583***	0.563***	-0.127	1.201***
		(4.658)	(3.970)	(1.121)	(5.239)	(4.642)	(4.268)	(1.001)	(5.466)
$ln(Assets)_{t-1}$xGR			0.020**	0.012	0.012				
			(2.077)	(1.148)	(0.956)				
Cust Dep/Assets $_{t-1}$		-0.008	-0.008	-0.012	-0.010	-0.008	-0.008	-0.011	-0.010
		(1.411)	(1.473)	(1.398)	(1.286)	(1.397)	(1.409)	(1.375)	(1.247)
Loans/Assets $_{t-1}$		-0.036***	-0.036***	-0.019***	-0.047***	-0.037***	-0.037***	-0.019***	-0.048***
		(5.475)	(5.470)	(2.920)	(4.841)	(5.546)	(5.544)	(2.904)	(4.927)
PUBxGR $_{t-1}$						-0.126**	-0.133**	-0.197*	-0.114*
						(2.373)	(2.411)	(1.874)	(1.870)
$ln(Assets)_{t-1}$xGR $_{t-1}$							0.006	0.004	-0.001
							(0.722)	(0.418)	(0.100)
N. Obs	65,248	61,310	61,310	27,679	33,631	61,305	61,305	27,679	33,626
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	ALL	ALL	AE	EMDE	ALL	ALL	AE	EMDE

t-statistics in parenthesis computed using robust standard errors clustered at the bank level

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 21: Bank Ownership, Lending Cyclicality, and Fiscal Fundamentals (Dep. var: Growth of Net Loans)

	(1)	(2)	(3)	(4)	(5)	(6)
PUB	2.406	3.973	1.945	2.680	3.220	2.125
	(1.451)	(0.905)	(1.078)	(1.522)	(0.792)	(1.060)
PUBxGRxLow Debt	-0.271**	-0.006	-0.341**			
	(2.258)	(0.032)	(2.417)			
PUBxGRxHigh Debt	-0.453**	-0.915	-0.468**			
	(2.161)	(0.824)	(2.127)			
$\ln(\text{Assets})_{t-1}$	-12.998***	-11.049***	-14.834***	-12.531***	-10.695***	-14.837***
	(31.597)	(18.035)	(29.267)	(28.613)	(17.626)	(26.764)
Cust Dep/Assets $_{t-1}$	-0.104***	-0.098***	-0.102***	-0.104***	-0.106***	-0.093***
	(7.152)	(4.566)	(5.174)	(6.990)	(5.111)	(4.447)
Loans/Assets $_{t-1}$	-0.696***	-0.556***	-0.809***	-0.676***	-0.554***	-0.791***
	(37.286)	(19.959)	(33.284)	(35.750)	(20.461)	(30.859)
PUBxGRxInv. Grade				-0.125	-0.015	-0.163
				(0.825)	(0.081)	(0.830)
PUBxGRxNon-Inv. Grade				-0.656***	-10.790	-0.680***
				(4.191)	(1.449)	(4.153)
Observations	59,843	30,029	29,814	58,330	31,372	26,958
CY FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	AE	EMDE	ALL	AE	EMDE

t-statistics in parenthesis computed using robust standard errors clustered at the bank level

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 22: Bank Ownership, Lending Cyclicality, and Cyclicality of Fiscal Policy (Dep. var: Growth of Net Loans)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
PUB	6.921***	5.293*	6.594***	7.000***	5.216*	6.560***	9.828**	6.045	5.952	4.818
	(2.720)	(1.810)	(2.783)	(2.724)	(1.787)	(2.754)	(2.390)	(1.269)	(1.604)	(1.256)
PUBxGR	-0.143	-0.470***	0.117	-0.254	-0.451**	0.064	-0.390	-0.091	-0.421	-0.570***
	(0.723)	(2.588)	(0.674)	(1.223)	(2.469)	(0.368)	(1.490)	(0.282)	(1.350)	(2.666)
PUBxPC			2.135**			2.038*				
			(2.065)			(1.901)				
PUBxGRxPC			-0.632***			-0.534**				
			(2.809)			(2.360)				
ln(Assets)$_{t-1}$	-12.93***	-14.37***	-13.53***	-13.21***	-14.33***	-13.62***	-10.59***	-12.98***	-17.83***	-15.79***
	(12.39)	(16.79)	(22.96)	(12.03)	(16.18)	(21.32)	(8.35)	(10.08)	(9.75)	(15.47)
ln(Assets)$_{t-1}$xGR				0.107	-0.017	0.059	0.161*	0.024	0.167	-0.008
				(1.366)	(0.342)	(0.959)	(1.670)	(0.253)	(1.153)	(0.144)
ln(Assets)$_{t-1}$xPC						0.175				
						(0.629)				
ln(Ass)$_{t-1}$xGR xPC						-0.098				
						(1.375)				
Cust Dep/Assets $_{t-1}$	-0.204***	-0.062**	-0.102***	-0.205***	-0.061**	-0.101***	-0.168***	-0.046	-0.225***	-0.078**
	(5.185)	(2.368)	(4.940)	(5.196)	(2.355)	(4.926)	(3.693)	(1.178)	(3.265)	(2.224)
Loans/Assets $_{t-1}$	-0.645***	-0.780***	-0.697***	-0.647***	-0.780***	-0.697***	-0.475***	-0.642***	-1.011***	-0.896***
	(15.464)	(24.242)	(28.834)	(15.484)	(24.229)	(28.849)	(10.633)	(13.621)	(13.678)	(20.402)
Observations	14,159	19,977	34,912	14,159	19,977	34,912	9,315	10,202	4,844	9,775
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	ALL	ALL	ALL	ALL	ALL	AE	AE	EMDE	EMDE
Procyclical FP	No	Yes		No	Yes		No	Yes	No	Yes

t-statistics in parenthesis computed using robust standard errors clustered at the bank level

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 23: Bank Ownership and Cyclicality of Liquidity Creation (Dep. var: Liquidity Creation)

	(1)	(2)	(3)	(4)	(5)	(6)
PUB	0.771	1.203	-6.315*	-6.773*	3.533**	4.255***
	(0.500)	(0.752)	(1.681)	(1.814)	(2.496)	(2.869)
PUBxGR		-0.110*		0.287**		-0.157**
		(1.699)		(2.204)		(2.010)
$ln(Assets)_{t-1}$	1.594***	1.528***	1.401***	1.227***	1.862***	1.894***
	(5.522)	(5.188)	(3.162)	(2.781)	(5.649)	(5.601)
$ln(Assets)_{t-1}$xGR		0.021		0.070**		-0.001
		(1.450)		(2.542)		(0.034)
N. Obs.	95,572	95,096	49,282	49,014	46,290	46,082
CY FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	ALL	AE	AE	EMDE	EMDE

t-statistics in parenthesis computed using robust standard errors clustered at the bank level

*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 24: Industry Growth, Bank Ownership and External Financial Dependence in Good and Bad Times (Dep. var: Industry-level Value Added Growth)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOBxEFD	1.769	1.904	0.639	3.377	2.857*	2.606	1.639	1.120
	(1.161)	(1.205)	(0.254)	(1.417)	(1.811)	(1.556)	(1.321)	(0.744)
BTxEFD		0.533**		1.136**		0.233*		0.032
		(2.787)		(2.691)		(1.984)		(0.060)
GOBxBTxEFB		-0.350		-4.477*		0.637		1.050
		(0.349)		(1.951)		(1.159)		(0.650)
N. Obs	23,334	23,305	9,472	9,472	13,859	13,830	9,704	9,704
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CI FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	ALL	AE	AE	EMDE	EMDE	MIC	MIC

t-statistics in parenthesis computed using robust standard errors clustered at the country and industry-level
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 25: Industry Growth, Bank Ownership and Labor Intensity in Good and Bad Times (Dep. var: Industry-level Value Added Growth)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOBxLI	-9.418	-14.105**	30.098	-144.434	-9.119	-12.962*	-3.844	-9.248
	(1.301)	(2.265)	(0.194)	(0.744)	(1.159)	(1.908)	(0.482)	(1.571)
BTxLI		-0.878		-89.191*		-0.920		-1.644
		(1.420)		(1.912)		(1.448)		(1.361)
GOBxBTxLI		8.462**		288.672*		6.910*		9.702*
		(2.211)		(1.936)		(1.932)		(2.019)
N. Obs	26,695	26,656	10,857	10,857	15,835	15,796	11,061	11,061
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CI FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	ALL	AE	AE	EMDE	EMDE	MIC	MIC

t-statistics in parenthesis computed using robust standard errors clustered at the country and industry-level
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 26: Industry Growth, Bank Ownership and Human Capital Intensity in Good and Bad Times
(Dep. var: Industry-level Value Added Growth)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOBxHCI	-0.149	-0.112	1.297	15.632	-0.143	-0.083	0.306	0.089
	(0.432)	(0.317)	(0.124)	(0.666)	(0.404)	(0.236)	(0.131)	(0.036)
BTxHCI		0.053		10.062***		0.072*		-0.125
		(1.241)		(2.795)		(1.774)		(0.298)
GOBxBTxHCI		-0.072		-21.239		-0.107		0.380
		(0.814)		(0.841)		(1.402)		(0.263)
N. Obs	26,695	26,656	10,857	10,857	15,835	15,796	11,061	11,061
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CI FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	ALL	AE	AE	EMDE	EMDE	MIC	MIC

t-statistics in parenthesis computed using robust standard errors clustered at the country and industry-level
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

Table 27: Industry Growth, Bank Ownership and Small Firms in Good and Bad Times
(Dep. var: Industry-level Value Added Growth)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOBxSME	-0.247	-0.426*	-0.366	-0.846**	-0.237	-0.389	-0.181	-0.382
	(1.438)	(1.774)	(1.385)	(2.403)	(0.777)	(0.995)	(0.578)	(1.059)
BTxSME		-0.173***		-0.152**		-0.202***		-0.162***
		(2.977)		(2.226)		(3.093)		(2.930)
GOBxBTxSME		0.359**		0.787***		0.267		0.356
		(2.180)		(3.470)		(1.373)		(1.421)
N. Obs	26,695	26,656	10,857	10,857	15,835	15,796	11,061	11,061
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CI FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	ALL	ALL	AE	AE	EMDE	EMDE	MIC	MIC

t-statistics in parenthesis computed using robust standard errors clustered at the country and industry-level
*** Statistically significant at the 1% level, ** Statistically significant at the 5% level, * Statistically significant at the 10% level

FIGURES

Figure 1: Share of banks with some form of state ownership

This figure plots the share of banks for which the state owns at least one percent of the capital. The top left panel includes all the banks included in the dataset used in this paper, the top right panel only uses data for banks based in advanced economies, and the bottom panels use data for banks based in middle income (MIC) and low income (LIC) economies.

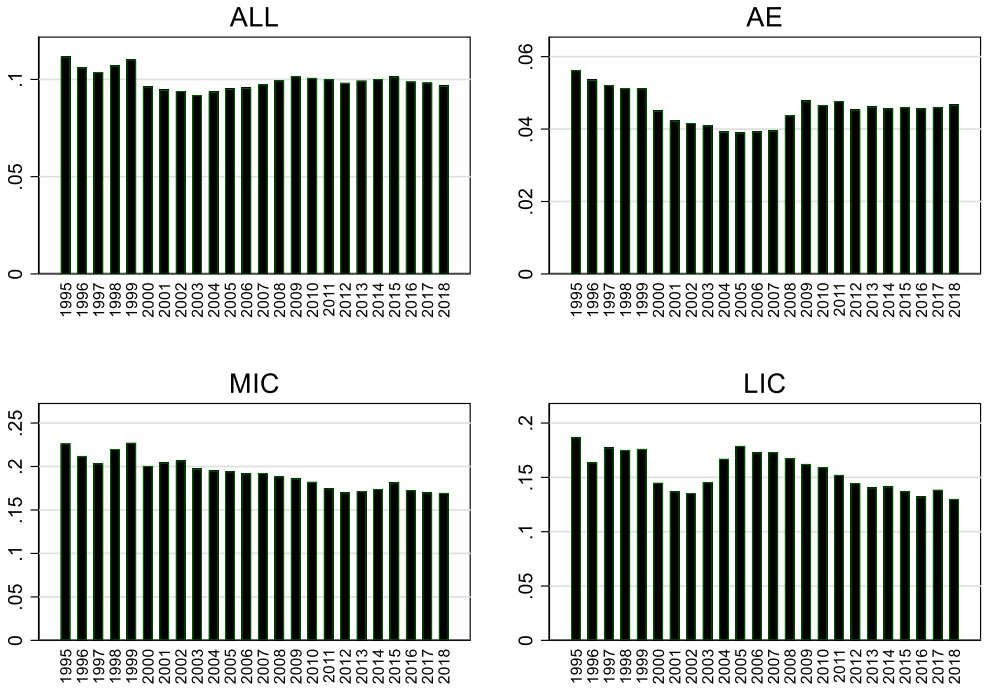


Figure 2: Distribution of State-Ownership Shares

This figure plots the non-parametric distribution (Epanechnikov Kernel) of state ownership for all banks in which state ownership is at least 1%. The Black line plots the distribution in 2010 and the red line plots the distribution in 2018. The top left panel includes all the banks included in the dataset used in this paper, the top right panel only uses data for banks based in advanced economies, and the bottom panels use data for banks based in middle income (MIC) and low income (LIC) economies.

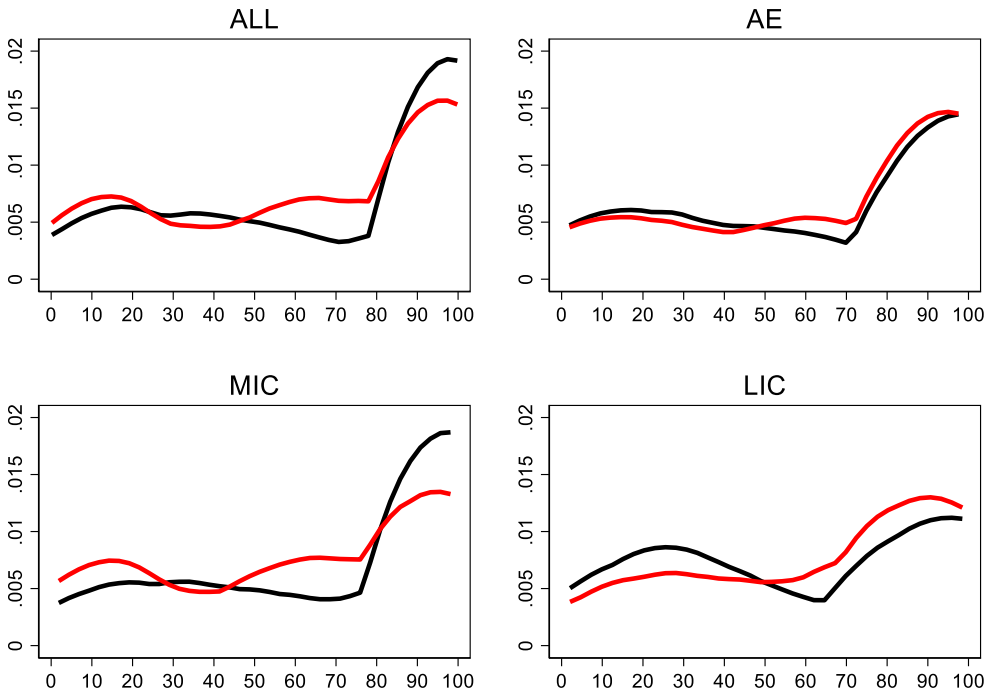


Figure 3: Comparison with World Bank Survey Data

This figure compares the evolution of state ownership of bank calculated with the data of this paper with state ownership data from the World Bank Survey described in Barth et al. (200X).

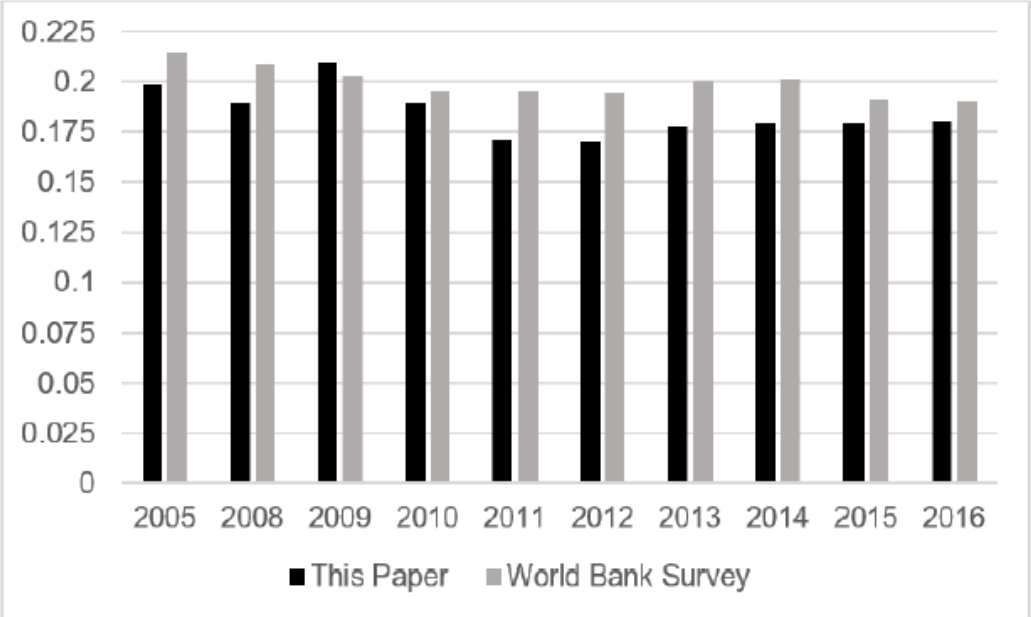


Figure 4: Share of state-owned banks

This figure plots the share of state-owned banks with banks defined as being state-owned if national or local governments own at least 20% of the bank's capital. The black line in the shows the share of state owned banks without weighting by bank assets (each bank as weight one and all countries have the same weight) and the red line plots the share using within country weights (so large banks within country have a larger weight, but all countries have the same weight) The top left panel includes all the banks included in the dataset used in this paper, the top right panel only uses data for banks based in advanced economies, and the bottom panels use data for banks based in middle income (MIC) and low income (LIC) economies.

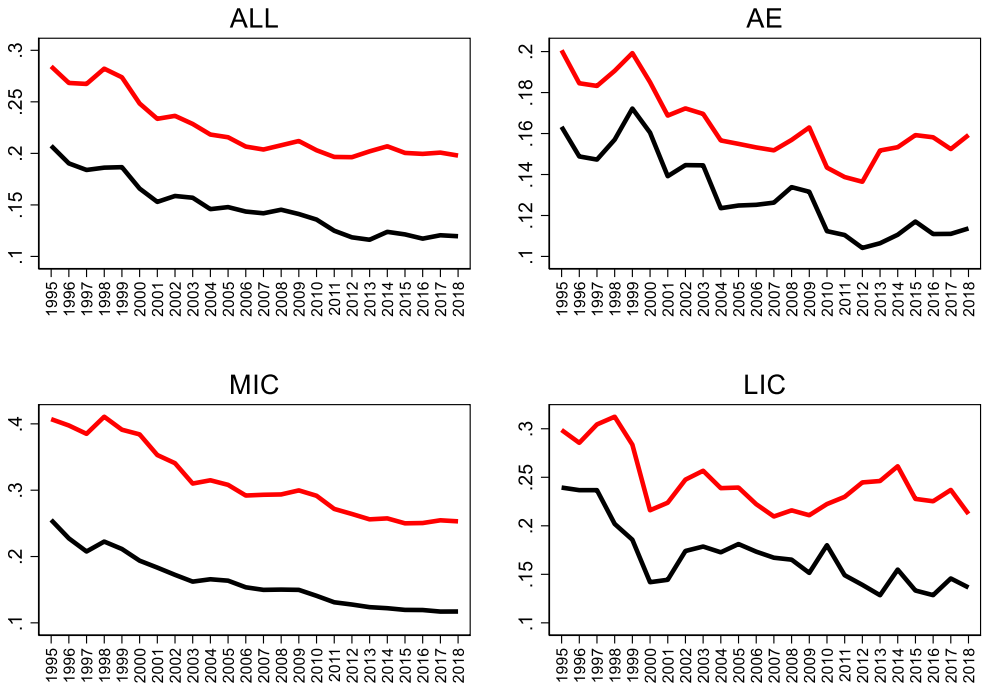


Figure 5: Share of state-owned banks across developing regions

This figure plots the share of state-owned banks with banks defined as being state-owned if national or local governments own at least 20% of the bank's capital. The black line shows the share of state owned banks without weighting by bank assets (each bank as weight one and all countries have the same weight) and the red line plots the share using within country weights (so large banks within country have a larger weight, but all countries have the same weight) The various graphs plot trends for East Asia and Pacific (EAP), Eastern Europe and Central Asia (ECA), Latin America and the Caribbean (LAC), Middle East and North Africa (MNA), South Asia (SAS), and Sub-Saharan Africa (SSA).

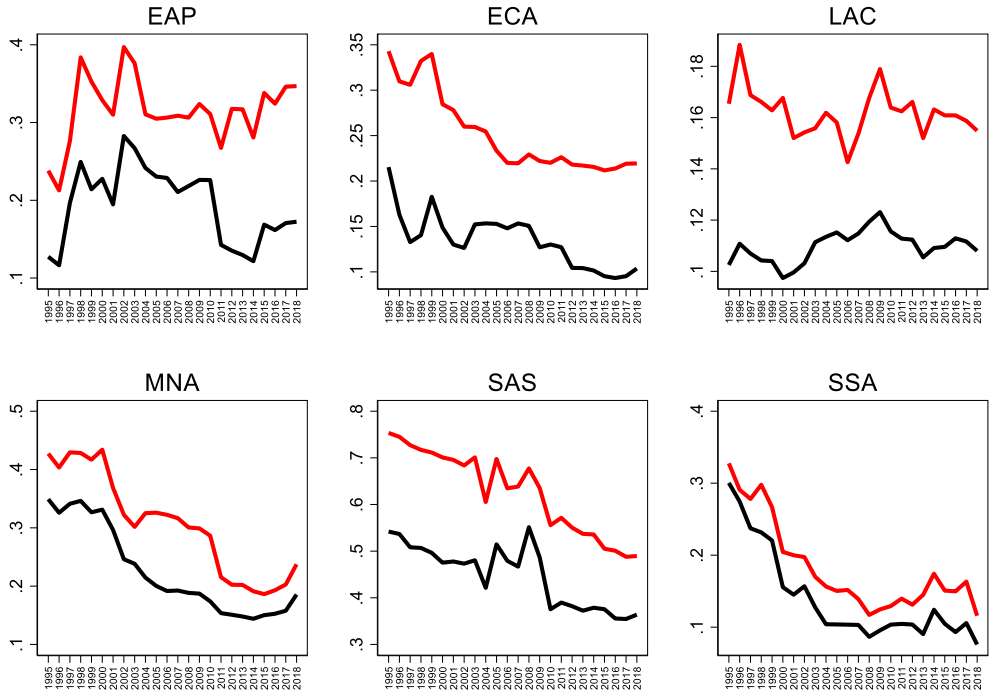


Figure 6: Share of state-owned commercial and development banks

This figure compares share of state-owned commercial banks (as defined in Figures 4 and 5) with the share of state-owned commercial and development banks. The red line plots the share of state-owned commercial banks using within country weights (so large banks within country have a larger weight, but all countries have the same weight) and the gray line plots the share of state-owned commercial and development banks also using within country weights.

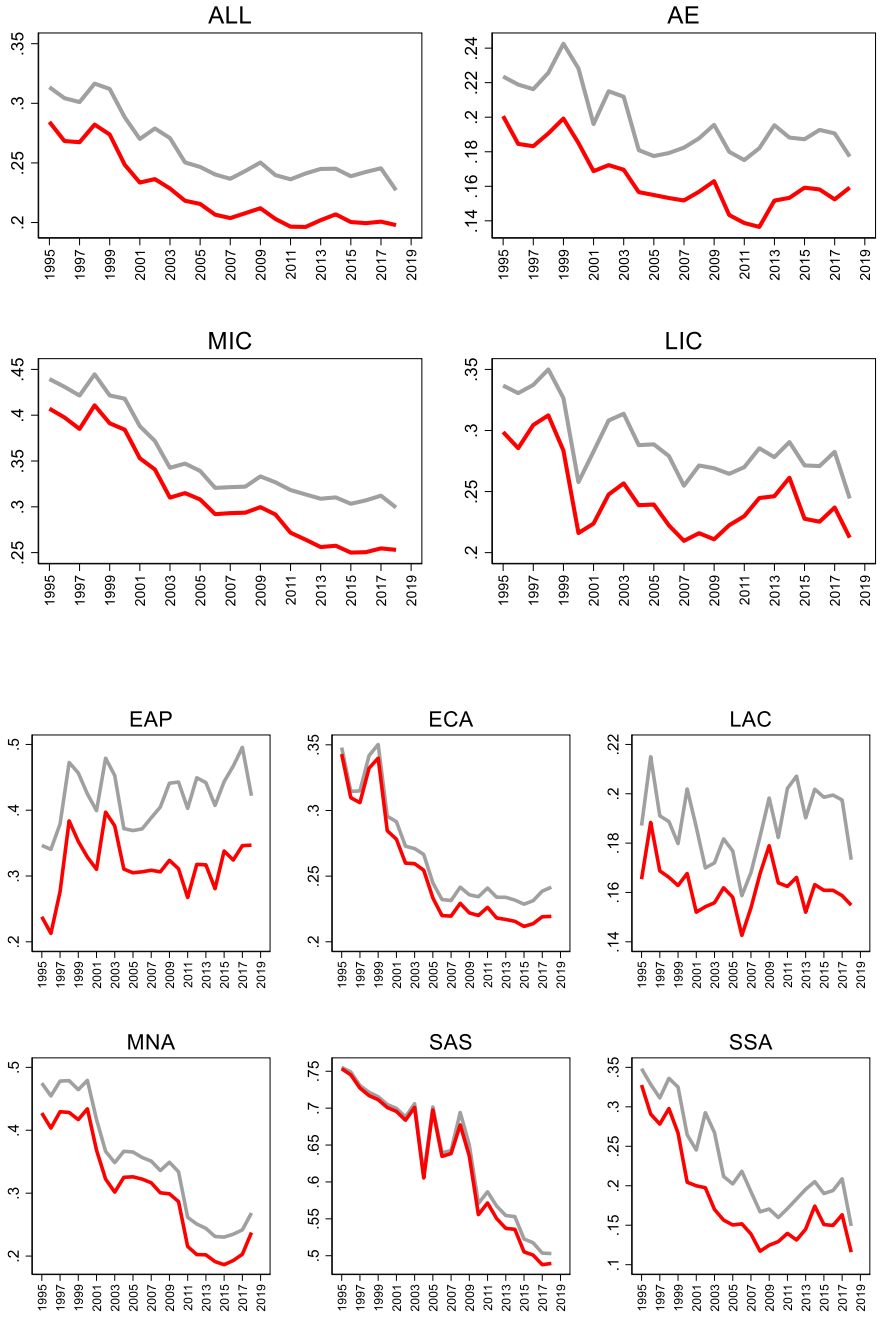
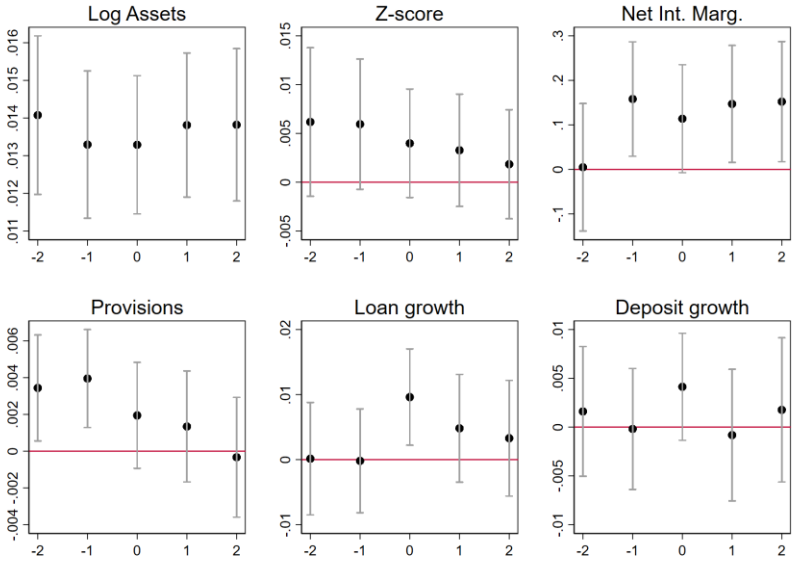
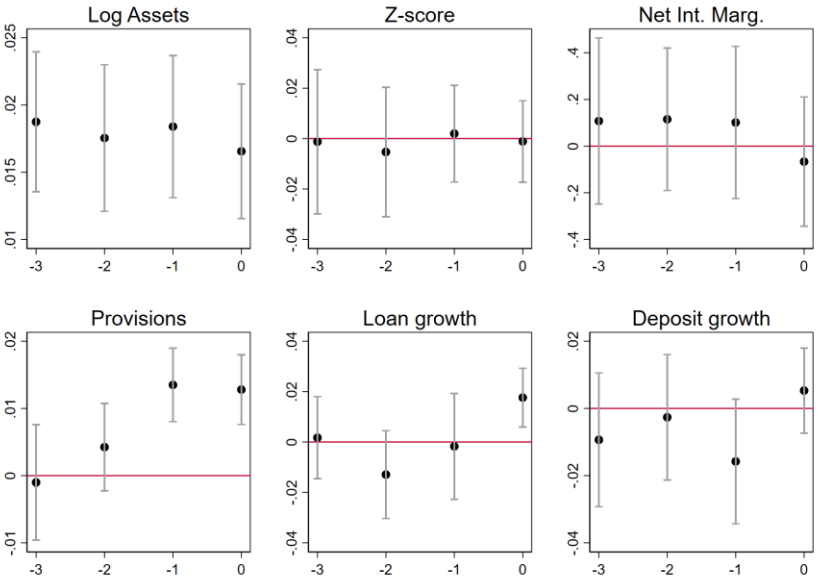


Figure 7: Bank Performance around Privatization Events



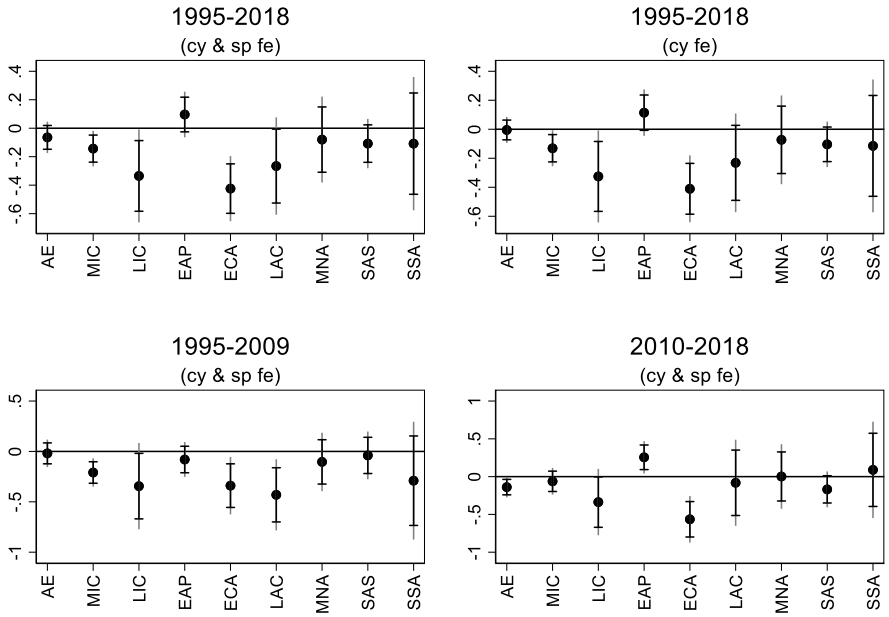
The spikes are 95% confidence intervals

Figure 8: Bank Performance around Nationalization Events



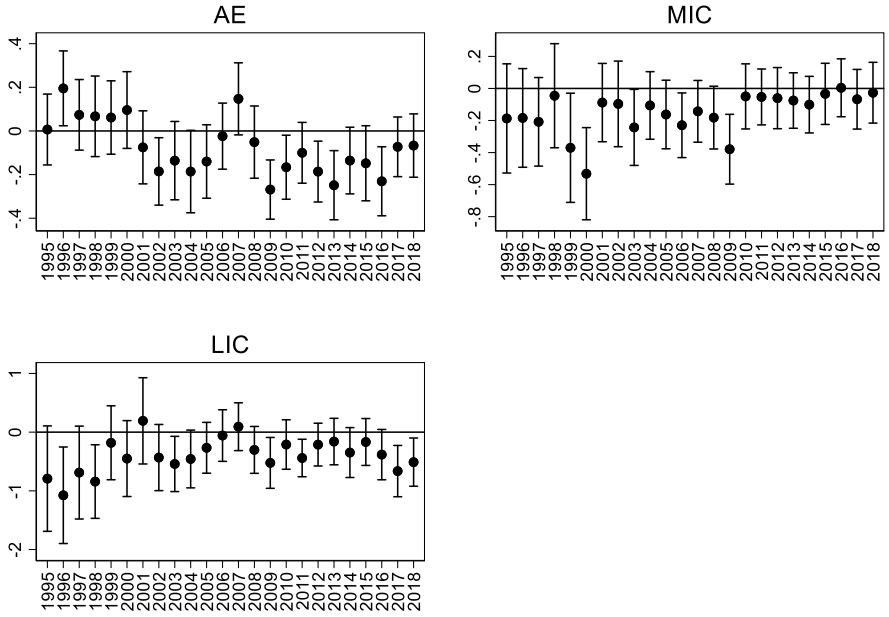
The spikes are 95% confidence intervals

Figure 9: Bank ownership and profitability (Dep. Vari. Return on Assets)



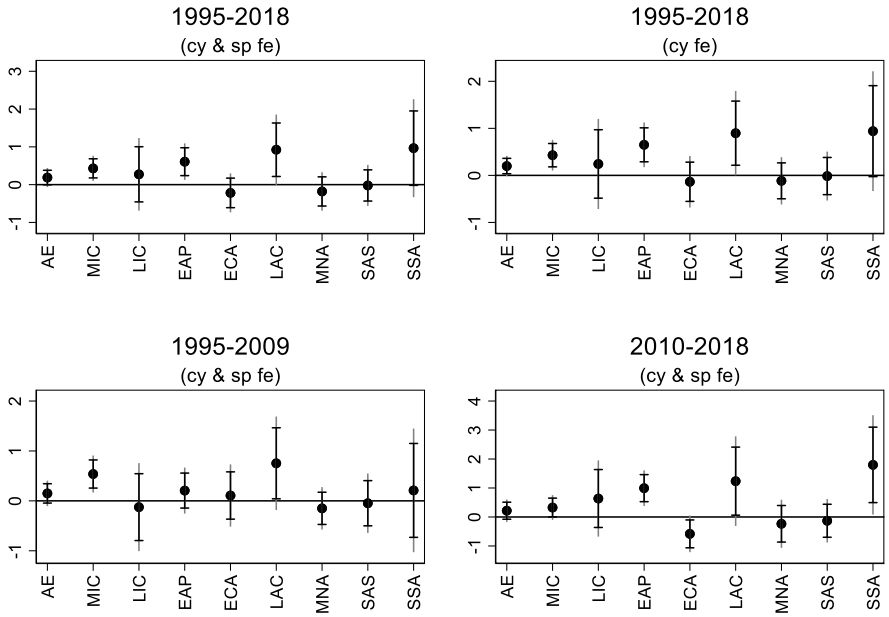
The spikes are 95% (in black) and 99% (in grey) confidence intervals

Figure 10: Bank ownership and profitability (Dep. Vari. Return on Assets)



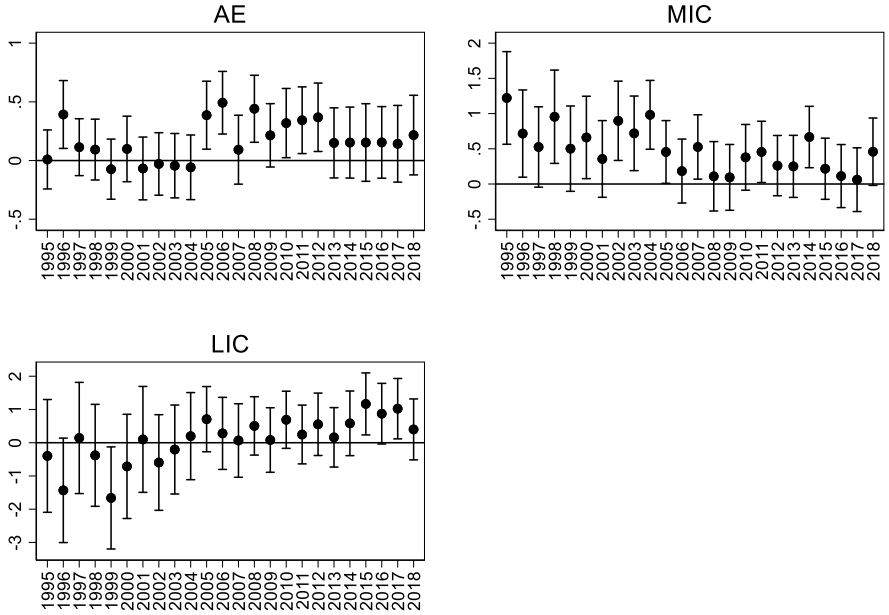
The spikes are 90% confidence intervals

Figure 11: Bank ownership and Interest Margin (Dep.Var. Net Interest Margin)



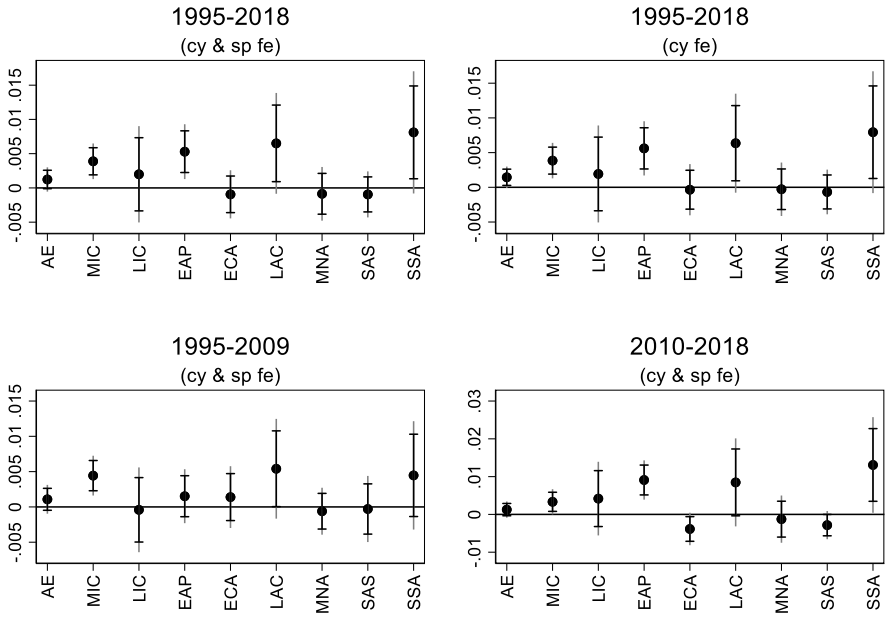
The spikes are 95% (in black) and 99% (in grey) confidence intervals

Figure 12: Bank ownership and Interest Margin (Dep.Var. Net Interest Margin)



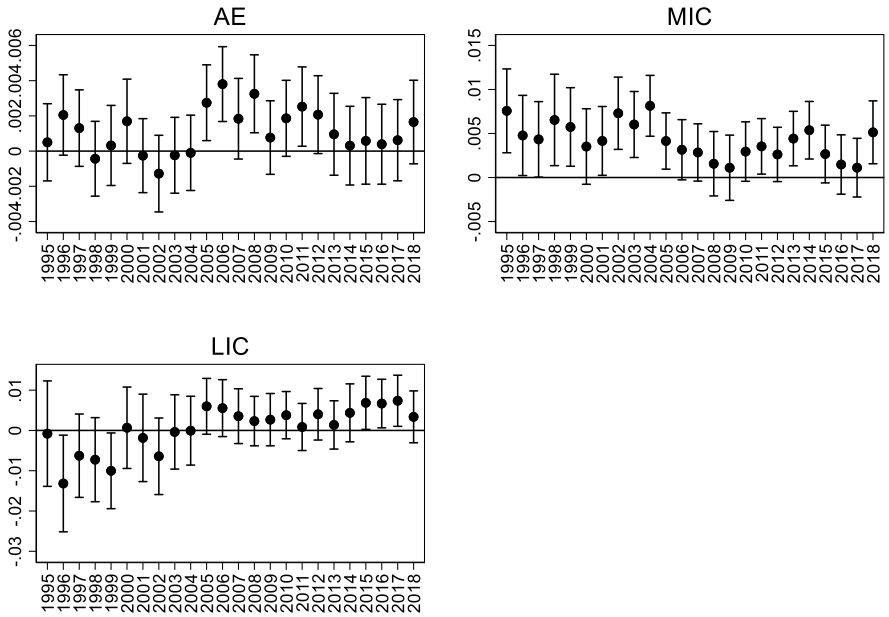
The spikes are 90% confidence intervals

Figure 13: Bank ownership and Interest Income (Dep. Var Net Interest Income over Assets)



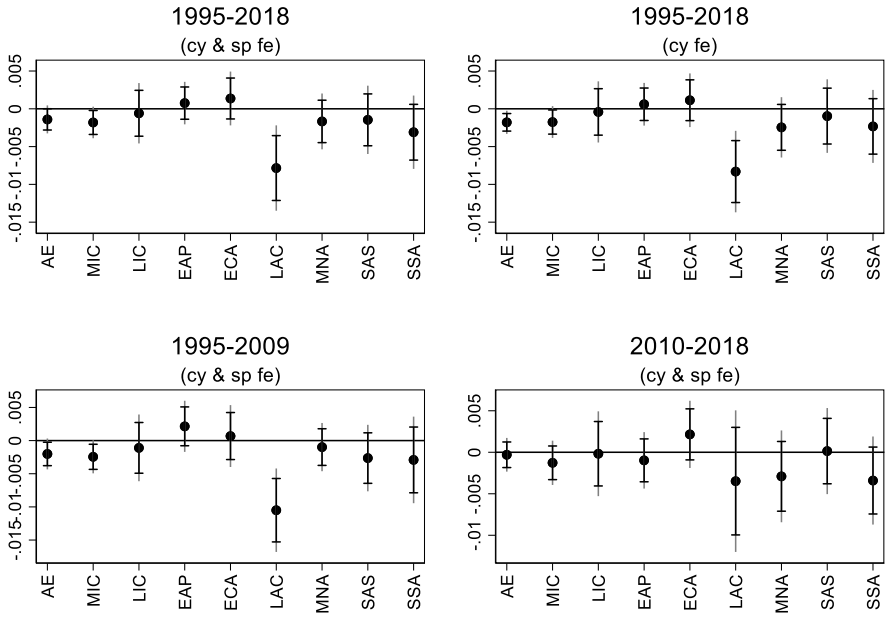
The spikes are 95% (in black) and 99% (in grey) confidence intervals

Figure 14: Bank ownership and Interest Income (Dep. Var Net Interest Income over Assets)



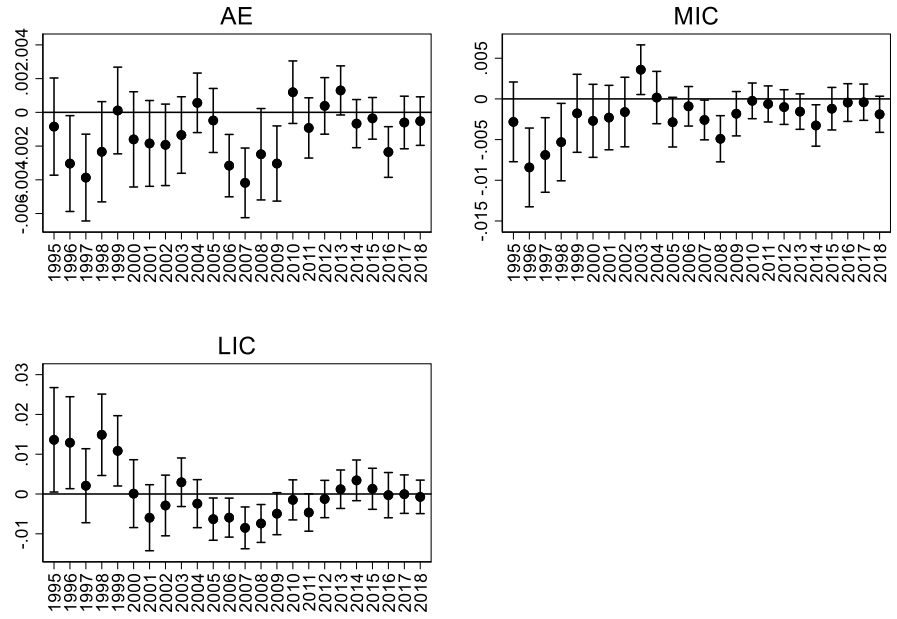
The spikes are 90% confidence intervals

Figure 15: Bank ownership and Interest Expenditure (Dep. Var. Net Interest Expenditure over Assets)



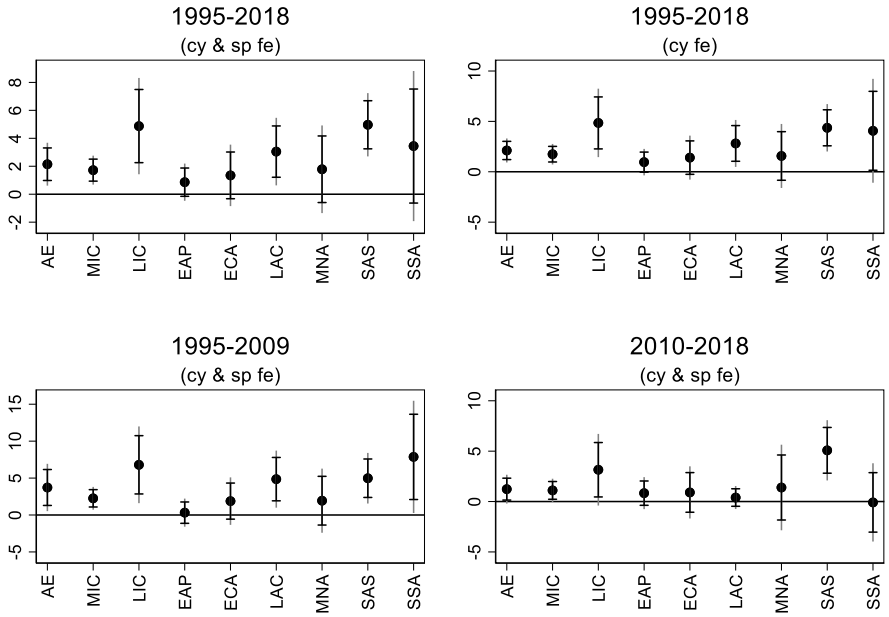
The spikes are 95% (in black) and 99% (in grey) confidence intervals

Figure16: Bank ownership and Interest Expenditure (Dep. Var. Net Interest Expenditure over Assets)



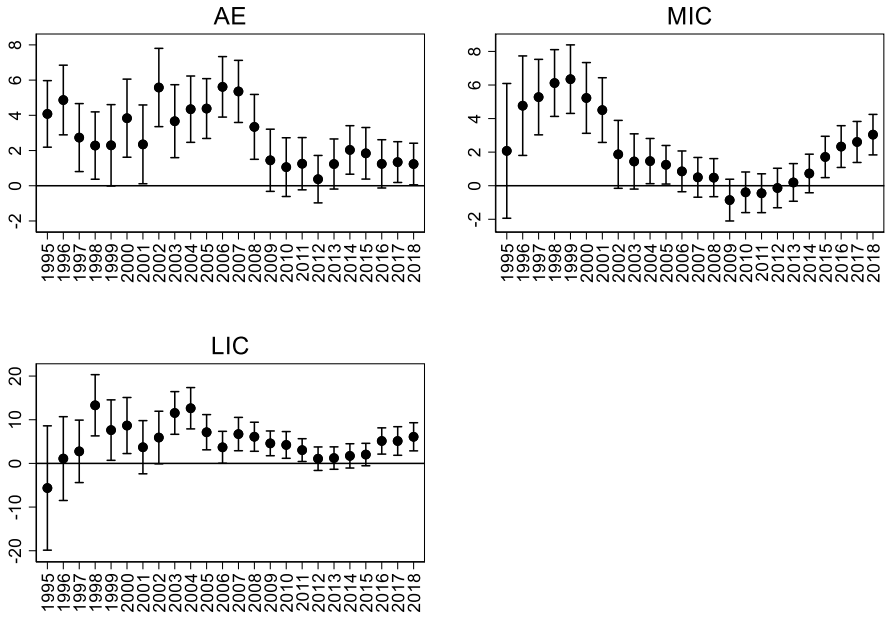
The spikes are 90% confidence intervals

Figure 17: Bank ownership and Non-Performing Loans (Dep. Var Non-Performing Loans over Assets)



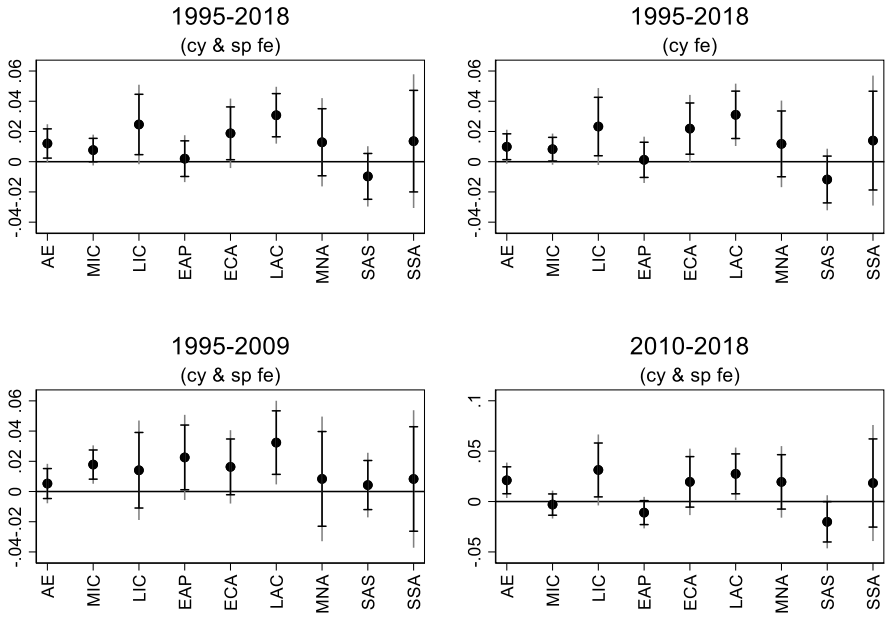
The spikes are 95% (in black) and 99% (in grey) confidence intervals

Figure 18: Bank ownership and Non-Performing Loans (Dep. Var Non-Performing Loans over Assets)



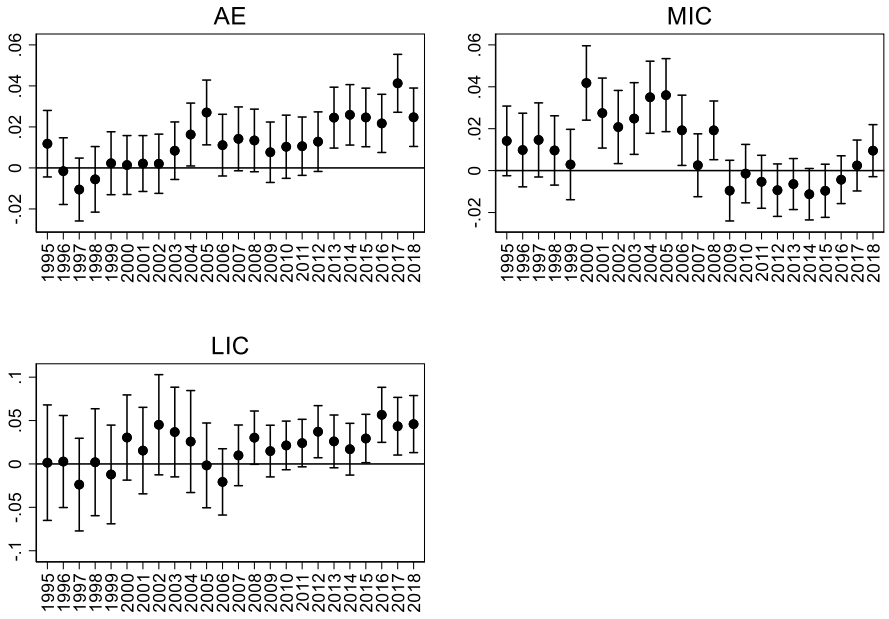
The spikes are 90% confidence intervals

Figure 19: Bank ownership and Lending to the Government (Dep. Var Government Bond Holding over Assets)



The spikes are 95% (in black) and 99% (in grey) confidence intervals

Figure 20: Bank ownership and Lending to the Government (Dep. Var Government Bond Holding over Assets)



The spikes are 90% confidence intervals

Figure 21: Government bond holding of public banks at different levels of debt-to-GDP (based on columns 1-4 of Table 16)