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THE LOWER SENSITIVITY OF PUBLIC BANK LENDING

TO THE BUSINESS CYCLE

Thibaut Duprey

December 2012
(Revised in May 2013)

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Bank Ownership and Credit Cycle :

the lower sensitivity of public bank lending to the business cycle [*]

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Résumé

Le présent article analyse le comportement des banques publiques au long du cycle économique. Grâce à une base de donnée unique, de 1990 à 2010, incluant au plus 459 banques publiques dans 93 pays, il est possible de prendre en considération les changements de propriété avec les privatisations et nationalisations en temps de crise, lesquelles tendraient à diminuer les différences entre banques publiques et privées. Je trouve que (i) les prêts des banques publiques sont significativement moins cycliques que ceux des banques privées, (ii) les banques publiques diminuent moins leurs prêts en cas de retournement économique, avec une relation positive entre développement économique et capacité d'absorption des chocs macroéconomiques par les banques publiques, et (iii) les banques privatisées passent d'un régime de faible cyclicité des prêts à une cyclicité proche de celle des banques privées. Ce co-mouvement plus faible des prêts des banques publiques avec les fluctuations économiques révèle à la fois (a) une moindre vulnérabilité du bilan et un financement plus stable des banques publiques, ce qui est cohérent avec un modèle bancaire favorisant les relations avec le client, (b) mais aussi un provisionnement pour pertes décalé dans le temps, symptôme de mauvaise gestion des actifs; la combinaison des deux explications est liée au niveau de développement économique : si les pays développées peuvent être caractérisés par une cyclicité efficiente des prêts des banques publiques, pour les pays moins développés cela risque de retranscrire davantage une allocation inefficace du crédit.

Mots-clefs : cycle du crédit, procyclicité, banques publiques, privatisations, nationalisations, dépréciations différées.
Code JEL : G21, G28, G32, H44.

Abstract

This paper examines empirically to which extent public banks feature a different pattern in their lending behaviour over macroeconomic fluctuations. Based on a unique dataset from 1990 to 2010, including at most 459 public banks in 93 countries, I can handle ownership change by including records on privatisations as well as nationalisations during banking crisis, which would otherwise blur the picture. I find that (i) public bank lending is significantly less cyclical than that of private banks, (ii) public banks cut less on their loans during economic downturns, with a positive relation between economic development and their ability to absorb macro shocks, and (iii) privatised banks switch from a regime of low to high lending cyclicality. Then, the lower co-movement of public bank loans with macroeconomic fluctuations reveals both (a) a less vulnerable balance sheet structure and more stable financing sources, which is consistent with a lending relationship business model, (b) as well as delayed loan deterioration, which is a symptom of forbearance and inefficient loan management; the actual combination of the two is not orthogonal to economic development, with high income countries more likely to feature efficient public bank lending cyclicality, while evidences suggest it may reveal an inefficient credit allocation for less developed countries.

Keywords : lending cycle, procyclicality, public banking, privatisations, nationalisations, forbearance.
JEL Classification : G21, G28, G32, H44.

1 Introduction

After the recent turmoil in the world economy, direct public interventions in the banking sector are at the heart of current policy debates. Indeed, several countries decided either to nationalize ailing financial institutions or to strengthen the public banking sector in order to prevent credit constraints from negatively affecting the recovery and foster lending against the wind policies. These interventions led to an increase in the weight of the public banking sector, which was still significant even before the outbreak of the crisis, with the share of public banks' asset among the 20 largest banks being 12.9% and 25.3% in 2007 in my dataset, respectively for developed and developing countries. Nevertheless, since the seminal paper by La Porta et al. (2002) [1] , which accompanied the wave of privatisations in the 1990s, it is widely accepted that public banks are a source of long term inefficiency. A few papers suggest however that inefficient banking systems, among which those with strong public involvement, weathered the crisis better (Giannone et al., 2011). But so far, while most efforts are now devoted to understanding the sources of the pro-cyclicality of the financial system, there has been very little focus on the short term impact of public banking along the business cycle, especially its ability to smooth out the lending cycle and extend its loan book in case of economic downturn. More precisely it could have important policy implications to disentangle the evolution of loan volumes whether the bank was already public at the dawn of the crisis of if national authorities took control afterwards.

Against this backdrop, the present paper analyses whether bank ownership can be an important feature in determining the evolution of bank lending over macroeconomic fluctuations, and thus whether public banking can indeed be considered as a tool to ease credit in case of economic downturn. Indeed, it could be considered that the continuous tightening of credit standards since 2007Q3 [2], despite very accommodating monetary policies, would call for more direct involvement of the public authorities in order to re-open the credit tap; that is to say public banks could help restore the transmission of the monetary policy (Morck et al., 2013) and allow for more lending against the wind thanks to their different business model, thus coping with what would be deemed as "insufficient" lending by private banks.

Using individual bank balance sheet data over 1990-2010 for 93 countries covering at most

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1. As well as Barth et al. (2004) or Galindo and Micco (2004); partly because public banks fail to screen out good projects, which squeezes interest margins (Allen et al., 2005; Sapienza, 2004; Mian, 2006; Micco and Panizza, 2006; Iannotta et al., 2007) and implies that they fail to allocate credit efficiently (Megginson, 2005).

2. As revealed by the Bank Lending Survey realised in the Euro Area.

459 public banks, I look at the comparative fluctuations of public bank versus private bank lending over the business cycle. I show that public bank lending is less cyclical than private bank counterparts; more interestingly, public banks decrease significantly less their loans during periods of economic downturn. I investigate to which extent this feature relates to more relationship lending (Delgado et al., 2007) as well as less efficient credit allocation but more stable (guaranteed) financing sources, which would be consistent with Iannotta et al. (2013) providing evidences on larger operational risks without translating into default risks.

Only a handful of papers focused on this issue by analysing short term variations in loan supply to the economy. First, using a cross-country dataset over the period 1995-2002, Micco and Panizza (2006) study whether state-ownership of banks is correlated with lending behaviour over the business cycle and find that their lending is less responsive to macroeconomic fluctuations than the lending of private banks. Two case studies provide similar results (Germany from 1987 to 2005: Foos, 2009; South Korea around the 2008 recession: Leonya and Romeub, 2011). Two contemporaneous papers focus on the same issue; Bertay et al. (2012) take a cross-country approach, while using GMM estimation on log-levels, and conclude that lending by state banks is less pro-cyclical than lending by private banks, especially in countries with good governance. Likewise, Cull and Martinez Peria (2012) present a before/after 2008 analysis and find that banks reacted in a countercyclical fashion in Latin America, but not in Europe.

This paper contributes to the literature in three ways. First I use a unique dataset which combines the public bank ownership dummy with records of individual bank privatisation events, as well as an indicator on bank nationalisations during crises, which allows me not only to capture ownership at one point in time, but also to proxy the evolution of the ownership structure over time. This enables me to tackle the endogeneity of public banking; indeed, the real impact of public ownership may be blurred by inadvertently capturing the negative effect of banks newly rescued or bailed out which appear as being publicly owned. Likewise, newly privatised banks appear as private but may still have a different (and inefficient) organization inherited from their former public feature. Thus, by comparing banks before and after their privatisations, I should capture a move towards more sensitivity to the business cycle.

A second novelty is the focus on asymmetric reactions both over economic development as well as the phase of the business cycle (I include the Great Recession in my sample). To that extent I distinguish between periods with positive or negative macroeconomic shocks by computing the deviation from output trend or from potential output. Overall, public bank

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lending appears to be less pro-cyclical and tend to cut less on aggregate (or corporate) lending volumes during economic downturns. This is especially true for more developed countries, while it is sometimes even more pro-cyclical in low income countries, so that my results feature a positive relation between economic development and public banks' ability to absorb shocks; a higher level of economic development is associated with a smaller lending cyclicality of public banks relative to their private bank counterparts for a given GDP growth.

This finding may appear at odds with both the development (Gerschenkron, 1962; Barth et al., 2000) as well as the political view of public banking (Shleifer and Vishny, 1994; Sapienza, 2004; Khwaja and Mian, 2005; Dinc, 2005; Micco et al., 2007; Iannotta et al., 2013), which suggests a negative relation between the level of economic and institutional development and the gap between public and private bank behaviour. But then, those studies often conclude that the gap is less significant when banks are more efficient, without considering that alternative business models may as well explain this gap; moreover those approaches to public banking rather focus on long term development or short term fluctuations over the political cycle.

The third contribution is that I try to relate this public bank lending behaviour to the structure of its balance sheet in order to get an idea of the efficiency or not of loan growth variation. I find that public banks have a less vulnerable balance sheet structure, access to more stable financing sources, and are more prone to extending loan maturities. This is consistent with more lending relationship practices, whereby public banks provide smaller loans to new customers even in the up-swing phase and cut less on their loans in case of economic downturns thanks to a lower reliability on short term finance and explicit public support. Thus the lower cyclicality of public bank lending can simply signal an alternative business model allowing them to be more focused on long term profitability.

Nevertheless, this attractive picture of public bank lending is not orthogonal to economic development; public banks in developing countries have a less liquid portfolio and tend to delay loss-provisioning and loan write-off, which signals inefficient forbearance beyond the mere maturity extensions associated with closer lending relationships in case of temporary shocks. In fact, the combination of efficiency and business model is here the key distinction line along the phase of economic development: developed countries would feature an efficient lower cyclicality of public bank lending, steaming from a more lending relationship model, thanks to a lower vulnerability and a stronger funding stability, while the efficiency of public bank lending throughout macroeconomic fluctuations in less developed countries is subject to caution.

The next section describes the dataset and exposes the methodology, especially the way public banking is handled. Section 3 presents the key results of the paper about public bank lending along economic fluctuations, depending on the sign of the macroeconomic shock. Section 4 tries to put forward several complementary explanations depending on the level of economic development. Finally, section 5 concludes.

2   Dataset and methodology

2.1   Public ownership definition

I use three variables of Public ownership based on Bankscope[3] ranging from 2007 to 2010. CSH50 is a dummy variable that takes 1 if the bank is directly owned at more than 50% by a national[4] public authority ; GOB50 and GOB25 are banks that are ultimately publicly owned by the home country, potentially through an indirect ownership structure, at a threshold respectively above 50% and 25%.

In addition, I add banks before their privatisation to account for the evolution of public ownership of banks from 1990 until 2008[5]. When I do not distinguish for the specific privatised banks, or if my dataset was not capturing all privatised banks, the bias should be towards a lower difference in lending cycle between public and private banks. Indeed, newly privatised banks, coded as private, still retain some specific features inherited from their former public ownership.

Observations from the privatisation database of the World Bank[6] are matched with the Bankscope database using either the current or previous name of the bank; out of 703 privatisation episodes for financial institutions[7] over the 1988-2008 period, I obtain 195 individual

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3. After including banks defined as Specialized Governmental Credit Institutions in the "special" variable of Bankscope.

4. I do not consider banks publicly owned by a foreign government, as it is unlikely to respond differently to the national economic cycle.

5. When several privatisation programs took place for one bank, I use both the privatisation with the largest proceeds and the latest one as a threshold for public ownership.

6. Reports privatisation events of at least 1 million USD which encompass different deal types : trade sale, competition sale, strategic sale, private sale, direct sale, block sale, share sales, GDR, IPO, public offering, employee offer, bid, auction, capital increase, tender, greenfield project, joint-venture, concession, liquidation, divestiture.

7. The sector defined as Financial encompasses different types of institutions which are not necessarily the focus of the Bankscope Database; the following are listed for the 1988-1999 period: banking, consumer credit, financial, financial intermediaries, financial services, insurance, industrial complex, pension funds, real estate, social security.

matches[8] (i.e. 30%) which occurred during or after each bank time span[9]. There is no reason to believe that this creates a selection bias in terms of lending cyclical properties of the privatised institutions, all the more since some privatisation types (liquidation or divestiture) *de facto* cannot be matched and as far as a large number of privatisations concerns real estate firms or insurance companies.

Bank nationalizations are accounted for using both the World Bank database on banking crisis, which reports countries where the state took over troubled financial institutions over the period 1980-2003[10], and the nationalization during crisis dummy used by La Porta et al. (2002). Banks nationalized after the outbreak of the 2008 crisis, some of which are listed in the IMF database on systemic banking crisis, are alternatively coded as public for the last two years or simply dropped out. See table 5. Banks rescued but without transfer of ownership are not considered as nationalized; hence if they were able to lend more or cut less on their lending activities over the crisis, it would make those banks coded as private less pro-cyclical and henceforth reduce the private-public difference in lending growth. So the bias would go against the results presented here. As detailed below, this effect is still likely captured when controlling for country ratings' change.

As a benchmark, I want to relate my dataset on public ownership with the one of La Porta et al. (2002). I compute the share of public banks asset in the top[11] largest banks and compare it with the measures GB50 and GB20 defined as the share of asset held by banks controlled by public authorities (minimal ownership of respectively 50% and 20%) in the top 10 largest financial institutions. Figure 1 displays the shares for 1995[12] over 81 countries included in both datasets. The perimeter of public banking in the two studies appears to be quite similar, despite a somewhat smaller share of public banking assets in developing countries due to the

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8. The same institution can undergo several waves of privatisation over time, in which case each episode is recorded separately.

9. I only matched privatisation episodes of a bank that occurred after the year of the first observation that enters the dataset, so that previous years can be recoded as public. Privatisation events which took place before the first observation is captured by bank fixed effects.

10. To that extent, I recoded the "Comments" column if the description of the banking crisis mentionned governmental interventions via nationalisations.

11. Up to a maximum of 20 per country per year, to account for the fact that I work on a non-consolidated dataset with potentially more small public bank units. A maximum of 10 banks ranked by assets does not sensibly modify the picture. Moreover, for many developing countries, I only have a few observations for the year 1995, so that when censoring the dataset which overlaps with La Porta et al. (2002) to countries for which I have e.g. more than 5 observations in 1995, the under-coverage of public banking assets in developing countries is reduced.

12. The latest date available in La Porta et al. (2002). In 1995, I have 263 public banks in 63 countries; also, I have 2779 bank-year observations over 93 countries in 1995 versus at the most 3715 in 2004 and on average 3456 during the years 2000, which means in 1995 I have roughly 80% of the number of observations per year over the years 2000s. In the meantime, I have less than 1000 bank-year observations before 1993.

Figure 1: **Share of the banking assets publicly owned**
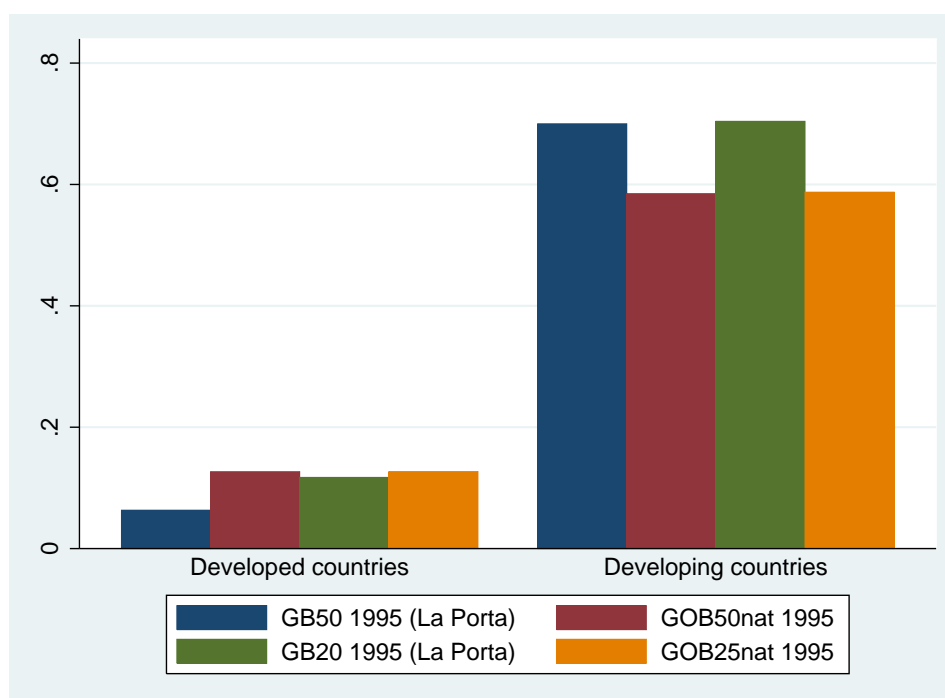
bad coverage of Bankscope for the early years.

2.2 Dataset construction

I use mainly Bankscope as well as the World Bank database on privatisations, the World Bank database on banking crisis and the IMF database on systemic banking crisis. Tables 1, 2 and 3 describe the variables used and report the pairwise correlations. For the precise handling of the Bankscope database and the codes associated with it, see Duprey and Lé (2012).

I keep unconsolidated statements and the consolidated ones that do not include unconsolidated companies so that a single entity appears only once. Duplicated assets [13] potentially remain if included in different balance sheets, for instance after a merger. If this is a common issue in the Bankscope database, this is not so much a problem here as I weight each country equally and I keep only consolidated publications to compute aggregated assets at the country level or limit the construction of aggregates to the top 20 banks in each country. To solve this issue further, I ran all regressions by excluding all banks that did not appear in my dataset in 2008, which almost completely removes the risk of a bank merged in the 90s or early 2000

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13. Duplicated assets may arise as well due to the presence of multiple balance sheet statements being reported within a year. Likewise, some countries (Canada, Japan,...) usually report their financial statement in March and have to be recoded as belonging to the year n-1. Then I keep financial statements that are closest to the end of the year, but discard releases made from May to August which cannot really be attributed to either year t or year t-1.

of being still recorded as a separate entity in 2008. All results remain, but I do not use this reduced sample as my baseline result in order to keep the banks that disappeared during the years I cover (these banks may not have the same cyclical properties) and to make sure my dataset encompasses most privatisations that occurred before 2008.

I focus only on countries with at least two banks, since I sometimes have only a single couple public/private bank for the same year. Additionally I restrict to banks which are among the largest 100 banks ranked yearly by country [14] and drop banks with less than 5 observations over the period 1990-2010 [15].

Eventually, the sample size is further reduced as I use growth rates [16]. I set growth rates above $|100|\%$ equal to missing [17]. In the meantime, I keep observations that could be considered as outliers for two variables, namely the growth of relative bank size as well as the growth of relative market size, as it is most likely to capture breaks in the reporting of banks by Bankscope or breaks driven by mergers and acquisitions. Dropping them would create holes in the time-series of bank balance sheet variables of interest.

I am left with a panel-stationary [18] dataset including 93 countries over the 1990-2010 period, 73 of them which did not experience nationalisations during a crisis before 2008, including at most 459 public banks among which 91 privatised banks in 32 countries, which amounts to 32969 bank-year observations for 3511 distinct banks (see table 4 for a break down by country).

2.3 Methodology

I focus on the role of GDP and ownership status in determining the evolution of the credit distributed by banks by estimating the following model as a benchmark:

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14. This is not very restrictive as I want to keep most public and privatised bank observations. Results are not sensitive to this threshold and remain for instance if I only focus on the top 20 banks.

15. I stop in 2011 Q1, since I recode financial statement published during the first quarter of each year as capturing mainly t-1 data. This is the last year for which my dataset provides complete coverage of financial institutions. Also, I do not have ownership change records for the period after 2008-9.

16. Using log-transformations would not enhance the coverage of my sample since I use as well lagged variables.

17. If this increase in lending was driven by mergers and acquisitions, it would be captured when I control for the growth of relative asset size.

18. The Fisher stationarity statistic for panel data tests for the hypothesis that at least one series is stationary against the null of all series being non-stationary.

$$
\begin{aligned}
gLoan_{i,t} \quad = \quad & \beta_1 * MacroShock_{c,t} \\
+ \quad & \beta_2 * MacroShock_{c,t} * Public_i + \beta_3 * Public_i \\
+ \quad & \beta_4 * MacroShock_{c,t} * Foreign_i + \beta_5 * Foreign_i \\
+ \quad & \beta_6 * X_{i/c,t-1} + \upsilon_{i,t} \qquad\qquad\qquad (1)
\end{aligned}
$$

where i stands for bank, t for year and c for country. $Public$ (resp. $Foreign$) is a dummy variable which takes 1 if the bank is considered as public (resp. foreign).

The results are indifferent to choosing gross or net loan growth as explained variable [19]. I use several alternative variables to proxy for the cycle in the economic activities, what I called here $MacorShock$; as a benchmark, I used GDP growth, but also the deviation from the H-P filtered output trend or the output gap between actual and potential GDP. [20]. Hence β_1 represents the systematic relationship between *private* bank loan growth and the cycle when the proxy for macro shocks increases by one percentage point, while $\beta_1 + \beta_2$ is the specific co-movement of *public* bank loans with macroeconomic fluctuations. I am interested in the sign and significance of β_2, which gives me the additional effect on lending growth due to the public ownership.

Moreover, in order to make sure that the cyclicality of public bank lending indeed captures the difference driven by the public/private ownership but not the distinction along the national/foreign dimension, I need to include the foreign dummy [21] with its interaction with GDP growth. Failing to capture the larger volatility of foreign bank lending would artificially increase aggregate lending cyclicality of private banks and widen the gap with public bank lending fluctuations.

I control for macroeconomic country-wide variables, banking sector specificities as well as

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19. Also, I ran robustness checks on a subset of business and corporate loans in order to make sure the cyclical pattern of public bank lending is not driven by forced loans to the government in case of hardship; but the sample is reduced by one third and the number of public banks by about 20%. Similar statistically significant results as the benchmark case are obtained for direct ownership (CSH50).

20. I use GDP growth rather than the growth rate of GDP per capita; the latter is useful if one is focused on development issues related to public banking, but I prefer using the former as I want the evolution along the cycle, in response to shocks: what matters is the aggregate size of bank lending in relation to the expansion of GDP, rather than the actual availability of loans to each individual and its interaction to individual wealth.

21. Foreign ownership dummy is limited to the extent that it reflects only end of period ownership, as of 2008-10. But it is likely that a foreign-owned bank at the beginning of my sample period remained owned by a foreign entity until today. Then I might capture banks which were sold to a foreign institution and as a result was not foreign at an earlier date, but this would only dilute the specific lending cyclicality properties of foreign banks; what really matters here is to capture away the foreign banks to avoid misinterpreting the impact of public banking.

individual bank features. First I control for lagged inflation but more importantly for country rating changes [22] over the previous year. Indeed I am worried that the interaction between public bailout and implicit guarantees may blur the picture: an increase in the support by public authorities to ailing banks is likely to boost their lending but as it increases the fiscal burden on the government, it may reduce the implicit guarantees enjoyed by private banks and thus limit their lending abilities next period. I also control for the lagged logarithm of GDP per capita in order to proxy for economic development, which might not be orthogonal to the use of public banking as a way to boost lending, if one takes a development view approach to public banking. The alternative would be to consider indexes of financial and institutional development, which is unlikely to be time-varying and available for all countries [23]. I also consider crisis years and nationalisation in crisis dummies.

Second, I control for banking sector specificities, namely lagged banking concentration (Concentration ratio in the top 4 banks or Hirschman-Herfindahl index) [24] as well as previous period market size and its evolution over time. Indeed, the level of competition within a banking sector matters, as banks tend to increase their leverage when the intensity of competition increases, and deeper markets can have access to easier and cheaper financing sources, while, also, smaller markets have a stronger growth potential. In addition, by including the growth rate of market size, I can to some extent capture breaks in the reporting of bank balance sheet by Bankscope.

Third, I control for bank-specific balance sheet variables. I focus mainly on size variables [25] (the absolute size with the log of assets and the relative size with the business share of each bank) without retaining liquidity, capital positions nor profitability in the baseline as those variables actually reflect the difference between public and private banks. Including those controls would reduce the number of public banks in the dataset which may not be subject to the same public disclosure rules, and would restrict cyclical differences in lending growth to banks having similar balance sheet composition and similar profitability. Conversely, I prefer to investigate in a second step to which extent balance sheet composition impacts lending cyclicality differently for public

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22. S&P ratings as well as outlooks of long term rating in foreign currency are converted to a numerical scale ranging from 1 ("D" negative outlook) to 69 ("AAA" and positive outlook), so that a downgrade decreases the rating from several notches while a mere change in the outlook is equivalent to a one notch decrease.

23. Some of those indexes include government intervention in the banking sector as an input, which *de facto* makes them of no use here. See Bertay et al. (2012) for a similar paper taking this route.

24. To be sure to match the actual size of the banking sector, I use aggregate figures of the banking sector based on the same Bankscope dataset but with only consolidated data, so that I am sure I avoid double counting assets when working with the larger, unconsolidated, dataset.

25. There is some evidence that smaller banks invest more in the collection of 'soft' information Berger et al., 2005, which may induce more stable credit policies and less cyclical long-term relationships.

or private banks. In addition, by controlling for the growth rate of the relative size of the bank, I try to capture post-merger situations which are characterized by spikes in bank relative size. Indeed, if mergers and acquisitions are pro-cyclical, it would tend to increase private bank loan cyclicality relatively more than public banks. When required, I include dummies for privatised banks (possibly before/after) and/or 2008-9 bank bailout packages.

Then, in order to be able to analyse the behaviour of public banks during the upswing or the downturn, I run the same baseline regression but now distinguishing for expansionary phases versus recessionary phases. First, I cannot use the same reference point (e.g. positive or negative growth rates) across countries; else I would mingle the effects in a cross-country analysis that includes fast growing developing countries and slow growing developed countries. I can instead consider observations above or below the mean growth rate of GDP by country over the whole period, so that I have roughly the same number of observation above or below. But then I would implicitly assume that the correct country-specific reference point is time invariant, and the interpretation of the coefficient would be difficult. Indeed, I would only observe the cyclicality of bank lending clustered by above/below mean GDP growth, but would not be able to say, for instance, that public banks reduced less their loans in case of bad economic conditions; above/below country average growth rates could possible mingle both positive and negative growth rates so that sign interpretation would not be possible [26].

Ideally, one would rather want to focus on the positive or negative deviation from the country specific potential output [27]. But this output gap is only available for OECD member states. Instead, to keep the largest cross-section, I use the deviation from the H-P filtered output trend [28], so that the expansionary phase corresponds to GDP growing faster than its trend. Thus, I estimate the following model in order to outline potential asymmetric behaviour along the business cycle, where *PositiveShock* (resp. *NegativeShock*) is a dummy variable which takes 1 if the variable *MacroShock* is positive (resp. negative) :

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26. Henceforth, results are not reported but support the results presented thereafter, with government-owned banks featuring countercyclical lending both in the above and below average cluster.

27. Potential output is defined as the level of output that an economy can in principle produce at a constant inflation rate, absent temporary shocks.

28. The output trend is calculated using a Hodrick-Prescott filter with smoothing parameter of 6.25 on the dataset of yearly GDP from 1970 to 2010, as suggested by Ravn and Uhlig (2002).

$$
\begin{aligned}
gLoan_{i,t} \;=\;\; & \alpha_1 * MacroShock_{c,t} \\[4pt]
+\;\; & \alpha_2 * MacroShock_{c,t} * Public_i * PositiveShock_{c,t} \\[4pt]
+\;\; & \alpha_3 * MacroShock_{c,t} * Public_i * NegativeShock_{c,t} \\[4pt]
+\;\; & \alpha_4 * MacroShock_{c,t} * Foreign_i + \alpha_5 * Foreign_i \\[4pt]
+\;\; & \alpha_6 * Public_i + \alpha_7 * PositiveShock_{c,t} + \alpha_8 * X_{i/c,t-1} + \upsilon_{i,t} \qquad (2)
\end{aligned}
$$

As a baseline, I consider the following structure for the error term:

$$
\upsilon_{i,t} = \alpha_i + \alpha_{c,t} + \epsilon_{i,t}
$$

which includes bank fixed effects –as the result of Haussman tests suggest, which reject the hypothesis of uncorrelated individual effect– as well as country-year fixed effects. For the latter, it implies that I reduce the coverage of my sample to get a more balanced panel[29]. To get the largest coverage and as a result include most privatisation events[30], I replace the country-year FE by year dummies to go back to 1990. As a result of my specification, I discard all institutional arrangements which are likely to be country specific and time invariant[31].

Eventually, in order to make sure the results are not driven by the over-representation of some countries, which is a common problem in Bankscope, I re-weight the observations at the country level.

3 Results on public bank lending cyclicality

3.1 Stylized facts on public bank lending along economic fluctuations

Figure 2 shows that at the aggregate, public banks decrease less their loans than private banks in periods of lower economic growth[32]. Graph 3 displays the same type of analysis focused

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29. Only over the period 1999-2010; not reported here.

30. More than half of the privatisation events took place in the 1990s.

31. If not time invariant, they would be captured by country-year fixed effects; but such OLS regressions require a more balanced sample over the years 1999-2010. These similar results are not reported.

32. This effect does not seem to be driven by forced loans to the government; the raw data on Corporate Loans patterns the same features, although the number of observations is reduced by one fourth. Further disaggregation using Bloomberg data over the 2004-2010 period for the few listed public banks with available data (HRVATSKA POSTANSKA BANKA DD, Croatia; OLDENBURGISCHE LANDESBANK AG, Germany; AGRICULTURAL BANK OF GREECE, Greece; STATE BANK OF INDIA, India; ABU DHABI COMMERCIAL BANK, Abu Dhabi; and others) suggests that Consumer and Commercial or Industrial Loans move the same way as Total

Figure 2: **Average Total Lending Growth over the Cycle**
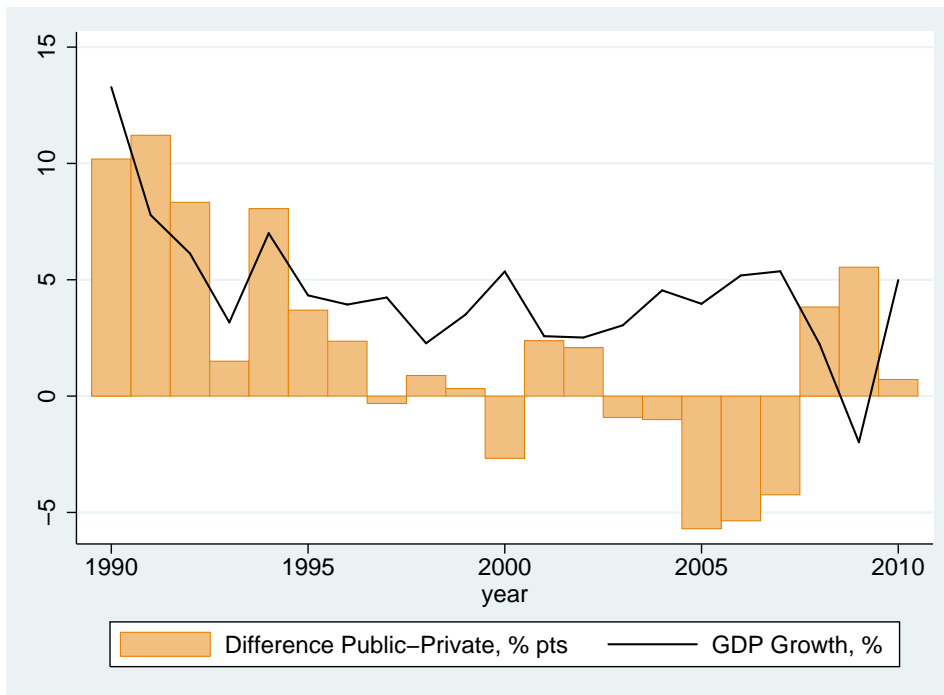
Cross-country GDP growth taken as an average on countries with existing public banking sector weighted by GDP.

on a few countries, that is to say the average difference in lending growth over the business cycle between public and private banks, excluding privatizations. In the German case, the larger drop of public bank loans relative to private bank loans is driven by a few LandesBank which invested heavily in low quality assets. Else restricting to commercial banks only, German public banks decreased much less their lending relative to private banks throughout the 2008-10 crisis.

loans.

Figure 3: **Average difference Public-Private loan growth vs GDP growth Total Lending Growth over the Cycle**

Since the 1990s, the growing role of banks outside their traditional line of business as well as the policy changes towards a more flexible banking regulation in some countries would suggest that the co-movement of bank finance with the cycle increased. Figure 4 displays the evolution of the change in bank loan growth in percentage points associated to a 1% change in GDP, using an 8-years rolling window [33].

The overall co-movement for private banks seems to be in accordance with the evidences on increased financial instability: the upper-left graph pictures a lending boom by private banks where each additional percentage points of GDP was associated with more than a 1% growth in gross loans. For developed countries (upper-middle graph), the co-movement remained around one for one until 2008 before dropping below one, which means that loan growth by private banks decreased at a slower pace than GDP since the outbreak of the crisis. But for other non-OECD countries (upper-right graph), the picture more strongly suggests a build-up of financial fragility with an upward trend; this increased reaction of private bank lending to GDP growth likely reflects the movement of liberalisation and privatisation of the 1990s.

As far as public banks are concerned, loan growth is acyclical, with a deviation associated to a 1% increase in GDP not significantly different from zero, at least until the 2008 crisis; after 2008, public bank loan growth was significantly countercyclical for OECD countries, which likely reflects policies aiming at fostering the recovery during years of recessions and the ability of public banks to expand credit during the burst. Conversely, for other countries, public bank lending started to be pro-cyclical as well, even if less pro-cyclical than private banks, suggesting that public banks were hit as well by the crisis and had to readjust their lending policy and balance sheet size.

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33. The results are identical whether I keep or drop countries with nationalisations during a crisis and banks nationalised over the 2008-9 financial crisis.

Figure 4: **Evolution of lending cyclicality for private (up) and public (down) banks**
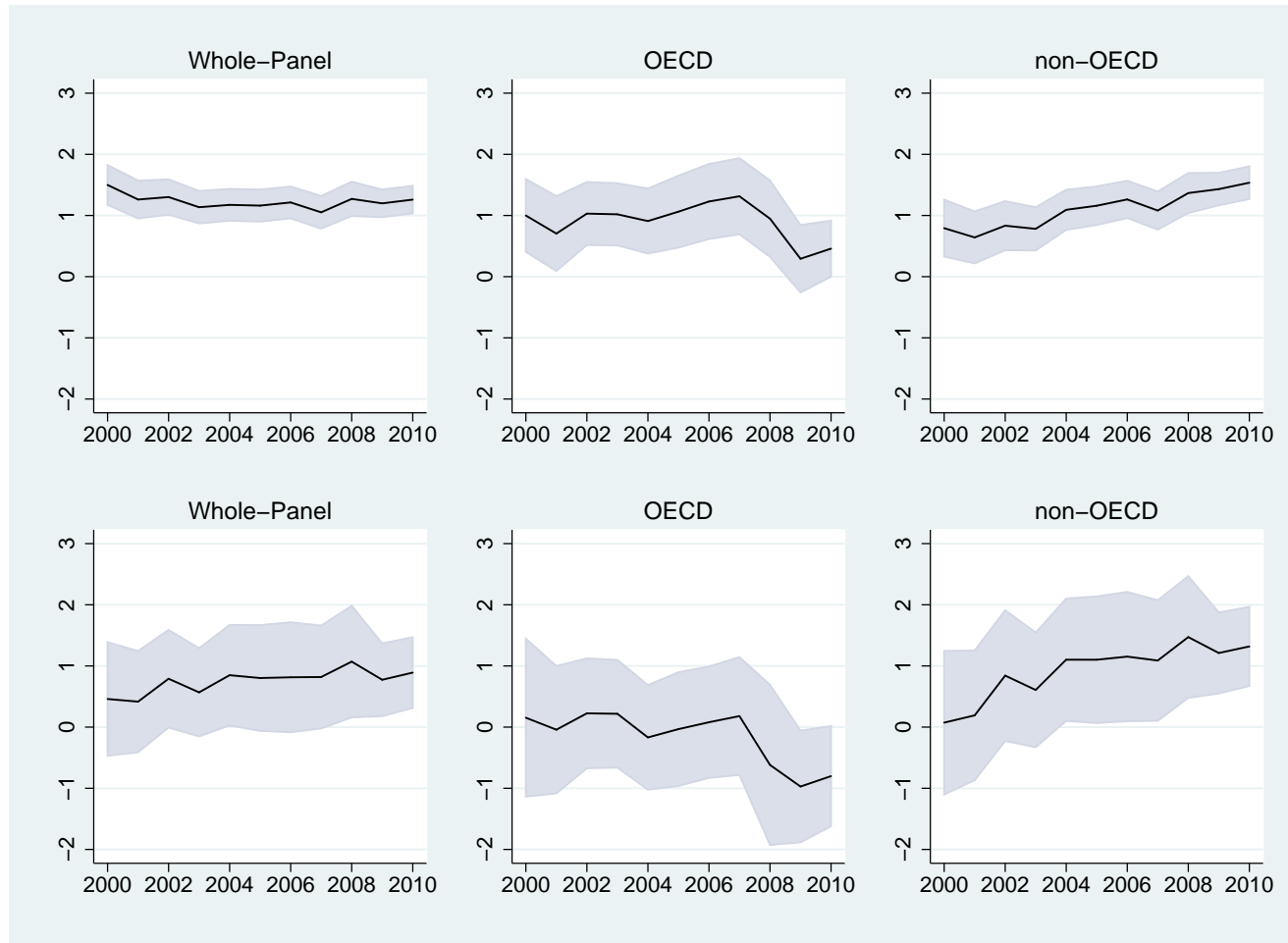
For private (resp. public) banks, the estimates correspond to the coefficient β_1 (resp. $\beta_1+\beta_2$) of equation (1). Each point in time reports the estimates of the benchmark model, using the public bank dummy GOB50_t, with a rolling window over the past 8 years. The solid line is the movement of loan growth (in % points) associated with a 1% change of GDP. The shaded area displays the 95% confidence bands.

3.2 Public bank lending is less cyclical than private bank lending

The main results are displayed in Table 6.

Public bank lending appears to be significantly less cyclical than private bank lending, whether public ownership is direct (CSH50) or not (GOB50 and GOB25).

Nevertheless, two complementary explanations call for a more careful look at ownership change. First, some ailing banks may have been nationalized during a crisis, either in 2008-9 or since 1970, precisely to avoid a lending freeze, which could be captured by the public bank dummy and artificially create a difference in lending cyclicality. Alternatively, failing private banks nationalised during a crisis are unlikely to feature countercyclical lending; henceforth, this correlation between public ownership and asset restructuring would blur the possible "lending against the wind" policy of traditional public banks. If anything, the stronger the public ownership, the more likely the first effect will dominate, that is to say public banks would be able to re-open the credit tap during a crisis.

Indeed the two effects can be observed: on the one hand, for banks over which the government has direct control, the first effect seems to dominate; when I remove banks nationalised in 2008-9 and drop countries which nationalised banks during a banking crisis between 1970 and 2004, the lower cyclicality of public bank lending is somewhat less significant (column 2). On the other hand, for indirect public ownership, the second effect prevails; the difference between public and private banks in terms of lending fluctuations is significantly different from zero only when I drop nationalisations during a banking crisis (columns 5 and 8). By excluding nationalisations, when I combine the coefficients to obtain the total effect, public bank lending becomes acyclical.

In addition, the difference between public and private bank lending could come as a result of a feedback loop from one period to another. Explicit public guarantees or direct nationalisations could tighten the budget constraint of the government, as it is widely observed in Europe since the outbreak of the Sovereign crisis. Such increased pressure on public finance would simultaneously decrease the amount of implicit public guarantees and increase the premium at which private banks refinance themselves; in turn, it would reduce the ability of private banks to extend new loans and induce them to lend more pro-cyclically in case of bad shock than public banks do. This specific effect of government intervention in the banking sector is captured by the change in long term country rating; the coefficient is positive and strongly significant, which means that a downgrade during the previous period reduces loan growth.

Moreover, notice that foreign-owned banks indeed feature a stronger reaction to macroeco-

nomic fluctuations, probably due to their ability to attract international flows in the expansion phase as well as their possibility to reallocate funds in areas with less correlated business cycles in case of downturn. Failing to capture the distinction along the national/foreign dimension[34] would otherwise bias the results towards a larger difference between public and private bank lending cyclicality as public banks are by construction national banks.

As a robustness check, even though I am mostly interested in the co-movement of bank lending with economic fluctuations, I want to make sure that parameter estimation does not suffer from the possibility of reverse causality, whereby loan growth fosters current GDP growth or vice-versa. Henceforth I estimate a system-GMM specification[35] in order to be able to instrument GDP growth and all relevant interaction terms with their lags and all other variables. Nevertheless, my focus here is not to instrument the public ownership dummy as in Bertay et al. (2012), which is a slow and rarely moving dummy unlikely to be well instrumented; I instead control for nationalisations in crisis. Columns 3, 6 and 9 of table 6 feature consistent results, with less cyclical public bank lending. All regressions successfully pass the Hansen J-statistic, robust to heteroskedasticity, which tests for the joint validity of all the internal instruments. The difference-in-Hansen statistic tests for the validity of the lagged loan growth, GDP growth and relevant interaction terms as instruments for the transformed equation and their first differences as instruments in the level equation.

3.3 Privatised bank lending feature a change in lending cyclicality before and after their privatisation

I previously included privatised banks by recoding years before and after their privatisation as respectively public and private. Instead of excluding those banks, it already acts as a robustness check because the distinction between public and private banks is less clear cut[36]. If anything, the bias should be towards a reduction of the difference of behaviour between the two types of institutions.

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34. Note that the Foreign dummy cannot be estimated in a bank fixed effects specifications as it is time-invariant.

35. I use the `xtabond2` command in STATA which allows me, first, to limit the number of missing observations by using the forward orthogonal deviation transform instead of the first difference transformation, and second, to use the collapsed option in order to avoid the proliferation of instruments, as I am using all available lags as internal instruments. Moreover, I reduce my dataset to countries with at least one public bank in order to avoid estimation problems when a dummy, here the public bank ownership dummy, has only a limited number of ones (Roodman, 2009). Last, in order to include country clustered standard errors, I need a slightly more balanced dataset and to that extent drop years until 1996, for which I have less observations.

36. Since I do not know the initial level of the public ownership of the privatised banks.

Table 7 focuses instead on the change of lending cyclicality before and after public bank privatisations. Whether I consider the largest or the latest privatisation event in case of multiple rounds of privatisation, I still observe an increase in lending cyclicality around the change of ownership, which is completely consistent with the fact that public banks would be less sensible to economic fluctuations. When restricted to the 32 countries which concentrate the 91 privatisation events, I observe that privatised banks are less cyclical before their privatisation (regression 1) and do not strongly differ from private banks after their privatisation (regression 2). Likewise, with the GMM methodology, public banks which will be privatised in subsequent years are significantly less cyclical than their private bank counterparts (regression 3 and 4).

I do two robustness checks but do not report the results here. First privatisations often lead to a switch from national to foreign investors, along the movement from private to public capital. In addition to including the foreign dummy interaction term, I can further distinguish between national and foreign block holding after privatisations but I find no additional effect, whoever bought the stakes relinquished by the government. Second, I do a placebo analysis by replacing the year of privatisation by the year before or after. Results do not vary if I take the year t-1 as the year of the privatisation; conversely, by taking the year t+1 instead, I do not find statistically significant results anymore [37], which confirms that the threshold year for the lending behaviour of privatised banks corresponds indeed to the period around their privatisation.

3.4 Public bank lending is heterogeneous across the phases of the business cycle

I ran the same baseline regression but now distinguishing for expansionary phases versus recessionary phases. Table 8 shows the results.

An asymmetry throughout economic fluctuations appears: a negative sign for the interaction term between below trend GDP growth and the Public dummy means that a negative deviation is associated with an increase in loan growth. Thus public bank lending tends to offset negative shocks and move counter-cyclically (regressions 1 and 2). Consistent with the aggregate results, this effect only survives with a looser definition of public banking when I focus on countries which did not nationalised ailing banks in the middle of a crisis (regressions 4 and 6); thus public banks indeed help to ease credit provided that they already existed before the outbreak of the crisis. Otherwise, when GDP increases beyond its historical trend, public bank lending

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37. Or less significant for the GMM specification; it becomes non-significant after t+2.

tends to move even more pro-cyclically than other private banks, but this is not the case for the benchmark public bank dummy with intermediate public ownership intensity.

As a robustness check, I now restrict my dataset to OECD countries, for which I can get their potential output[38] and compute the output gap as a share of the potential output. This can truly be understood as capturing a positive of negative macroeconomic shock. For sake of comparability, I display the results in table 9 along with the other macro shock proxies. The same picture is cross-validated : public bank lending is significantly less cyclical (regressions 1, 2, 4 and 6), especially in case of negative macroeconomic shock which means that public banks reduce less their lending when GDP moves away from its potential level (regressions 3 and 5). Note that for OECD countries, this effect is reversed when I restrict to the reaction of commercial and savings banks to the output gap (regression 7), so that the effect goes mostly through specialized governmental institutions.

To conclude, whatever disaggregation of the economic fluctuations I consider, public bank lending is asymmetric throughout the cycle, which may explain why some studies considering aggregate variations may fail to capture any significant difference in lending behaviour between public and private banks. Periods of positive economic shocks feature pro-cyclical public bank lending, with public banks sometimes increasing faster their credit than private banks, while periods of negative shocks are associated with acyclical public bank lending.

3.5 Public bank lending is heterogeneous across the phase of economic development

I now turn to the interaction between economic development, ownership and lending cyclicality, in order to see to which extent the development view of public banking in the long run can be reconciled with an analysis of short term variations. Table 10 presents the results.

By including a triple interaction term between GDP growth, the public bank dummy and the log of GDP per capita as a proxy for economic development, I obtain a significant negative additional effect for public banks (regression 1); a higher level of economic development is associated with a smaller lending cyclicality of public banks for a given GDP growth. But this specification makes the results for overall public versus private banking cyclicality less straightforward to see[39].

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38. From the OECD Economic Outlook; potential output depends on the capital stock, the potential labour force, the non-accelerating inflation rate of unemployment (NAIRU) and the level of labour efficiency.

39. It is now a combination of several coefficient for each level of development.

To that extent, I rather split my dataset into three subgroups, low, middle and high income countries, following roughly the classification of the World Bank [40]. Middle and high income groups feature very similar short run lending fluctuations, in line with the results presented above (regressions 5 to 10). Nevertheless, low income countries do not feature countercyclical public bank lending, and it might actually be the reverse (regression 3).

Thus, I find a positive relation between economic development and public banks' ability to absorb shocks, while one would have expected low income countries to be keener in using public banking as a political tool to smooth out economic fluctuations. However, first, the cycle which matters most for low income countries, with potentially weaker institutions, may not be the economic cycle but rather the political cycle (Khwaja and Mian, 2005; Dinc, 2005). Second, politically oriented projects, even with a development purpose, may lead to a misallocation of resources and increase the illiquidity of public bank portfolio as well as foster forbearance, issues I now turn to.

4   What can explain the smoother lending policy

I explore here three complementary explanations steaming from a different business model for public banks, namely an access to more stable financing sources, a less vulnerable balance sheet structure, and their ability to smooth out the lending cycle by delaying loan write-off.

4.1   Public banks have more stable financing sources in case of bad shock

The lower reaction of public bank lending, that is to say the lower fluctuation of the asset side of the bank, should map into a lower fluctuation of some components of its liabilities. Indeed the public ownership feature may act as a guarantee against possible losses and, for instance, discourage wholesale withdrawals when economic conditions deteriorate.

Table 12 shows the evolution of public bank liabilities with economic conditions, depending on its maturity. First I consider the evolution of long term funding but it does not seem to be persistently different across public or private banks, apart from expanding slightly faster in case of negative shock for OECD countries (regression 9 and 11). Thus I move to short term funding which I capture using two measures: Money Market Funding which is directly reported

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40. Low income countries are defined as countries with GDP per capita below 4000 USD and high income countries above 12000 USD; if some countries have observations both above and below the threshold, they are included in the upper group. Compared to the grouping of the World Bank, the low income group here corresponds to the low and middle-low income group of the World Bank.

by banks, and thus less reliable with a smaller coverage, and a broader measure of Short Term financing, encompassing all balance sheet items not expressively related to deposits, reserves or long term funds.

Whatever type of short term funding variable I consider, wholesale funding appears to be usually less cyclical for public banks (regressions 2, 5 and 7), usually less subject to a dry-up during bad economic conditions (regression 3), mostly for non-OECD countries (regression 6). In the meantime, public banks, especially in developed economies, rely less on short term finance –understood broadly– during the phases of expansion (regression 3, 9 and 11).

These two complementary effects are in line with the "dark side" approach of wholesale funding, which posits that far from the disciplinary effect of wholesale markets, it exacerbates inefficiencies and creates severe liquidity risks in case of negative news (Huang and Ratnovski, 2010). On the one hand, during the downturn, this abrupt withdrawal is less likely for public banks due to the backup of the public authorities, the smaller share of short term liabilities and the larger share of customer deposits. On the other hand, public banks tend to engage more in relationship lending and thus try to acquire more private information; but this activity requires more monitoring on behalf of investors. So during the upturn, a premium has to be paid if the public bank wants to supplement retail deposits with short term wholesale funds, which implies that, ex-ante, public banks have less incentives to rely on short term finance as it is more costly due to their specific business model.

Customer deposits, another type of short term finance, as it can be withdrawn without restrictions, does not move along the cycle significantly differently for public versus private banks[41]. Indeed, customer deposits, which are mainly motivated by individual liquidity needs, are usually considered to be sluggish (Song and Thakor, 2007) due to deposit insurance schemes, so that the additional guarantee offered by a public bank over the standard state guarantee for all banks is very small and is unlikely to be captured in panel regressions over a long period of time, except maybe around extreme financial stress events[42].

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41. I do not report results here.

42. See for instance the mini crisis of May-June 2004 in Russia due to accusations of money-laundering by private banks reduced depositors' trust in the banking system and led to a "flight to quality" phenomenon with a shift of deposits from private to public banks which still benefit from a widespread trust inherited from their historical dominance of the Russian retail market (p. 26 : Karas et al., 2008).

4.2 Public banks feature a somewhat less vulnerable balance sheet structure

A sounder balance sheet structure between its assets and liabilities is key to ensure the bank can withstand a shock without cutting more than necessary on its new loans. A recent paper by Hahm et al. (2012) proposes to measure the vulnerability of a banking system by looking at the evolution of the stock of non-core liabilities; indeed a lending boom is echoed by the composition of bank liabilities which favours alternative financing sources to customer deposits, especially when the latter cannot cope with growing financing needs.

Thus I look at the evolution of the ratio of non-core (i.e. other than customer deposits) over core liabilities across bank ownership. Results are displayed in table 11. The ratio of non-core liabilities is less cyclical, mostly for OECD countries (regressions 7, 8 and 10), and tend to increase significantly less in periods of expansion (regression 11), so that public banks are less exposed in case of negative shock and thus more able to keep on lending.

If the first ratio looks at the vulnerability of the liability side, the liquidity ratio would capture the vulnerability of a bank on its asset side. For developed countries, the pattern is more clear cut, with a stronger accumulation of liquid assets whether economic conditions are favourable or not (regressions 9 and 11), which should allow public banks to adjust more easily their balance sheet in case of negative shock by selling liquid assets. But as those two effects have opposite signs but go in the same direction, aggregate cyclical behaviour are not significant (regressions 7, 8 and 10) as it pools positive and negative deviations altogether.

Next, for less developed countries, pooled in the non-OECD member group, the picture is somewhat different; the liquidity of the portfolio of public banks seems to worsen faster than that of private banks in case of bad shock while not necessarily improving in normal times (regression 3 and 6). This would mitigate the lower vulnerability on the liability side.

Thus public banks, mainly in high income countries, have a more resilient balance sheet structure, allowing them to better absorb possible shocks rather than cutting more on new loans. Other less developed countries do not seem to have such resilient public banking structure.

4.3 Public banks tend to engage more easily in credit forbearance

If public banks can be more vulnerable in less developed countries, mainly because of the lower liquidity of their portfolio, it could mean that they are less able to extend *new* loans and withstand negative shocks, but it can likely arise as a result of an absence of adjustment of *existing* loans; public banks would then favour illiquid long term projects over liquid short term

assets. In other words, public banks tend to engage more easily in credit forbearance, thus artificially smoothing the variation of their loan book. In addition, if public banks benefit from more stable financing sources, and indeed favour relational lending over short term profits, it may be rational to renegotiate troubled loans and extend maturities instead of writing them off, thus decreasing the liquidity of the loan portfolio, but only if part of the amounts to be repaid have good chances to be recovered. So loan quality should not deteriorate further once loan maturities have been extended, else higher loan growth during economic downturns would rather signal inefficient lending through ever-greening loans and forbearance towards existing loans. Nevertheless, as stated by Iannotta et al. (2013), lower loan quality does not imply higher default risks, due to governmental protection, which may allow for negative equity capital and thus keep risk premium sufficiently low for public banks to keep operating.

Table 13 displays the results of the benchmark model while looking at the evolution in lending efficiency over economic fluctuations. I do not consider directly loan loss reserves as it is a stock and so less consistent with the purpose at hand; I prefer using the evolution of loan loss provisions over time, which is the corresponding flow. Nevertheless, provisioning for larger losses may reflect larger risk taking associated with larger returns, not necessarily an inefficient investment. Hence lending efficiency is measured as the ratio of loan loss provisions over net income, that is to say, the fraction of the revenue that accrues to loan loss reserves.

At a first glance, public banks seem to be more cautious in less developed countries by accumulating more reserves during the upturn of the cycle (regression 1 and 2); but then I distinguish further between the evolution of loan provisioning during a positive or negative macroeconomic shock which followed either a period of positive or negative shock. Thus I observe that the larger accumulation of reserves channels only via larger provisioning for a given net income during periods of expansion *following* a crisis, defined as below trend or below potential output (regression 3). This is a signal that public banks are less efficient after a period of slack economic growth, as they expect to face losses which were not written-down previously but just delayed overtime. Indeed, when the economic situation is currently bad, so that the macro shock is negative, public banks increase less their loan provisioning, especially when the crisis lasted more than one period.

This signal of balance sheet smoothing in case of negative shocks via the practice of loan forbearance is entirely driven by less developed countries (regressions 4 to 6) while the effect does not survive for OECD member states (regressions 7 to 11); indeed one would expect OECD

countries to have a tighter regulation and stronger institutions preventing that kind of non-efficient practice. Efficiency is but here the key distinction line along economic development: in developing countries, if extended loans where to be efficient and repaid, one should not observe this pattern.

5 Conclusion

This paper examines to which extent public banks feature a different pattern in their lending behaviour over macroeconomic fluctuations, and whether this can relate to an alternative business model.

The results are that public bank lending is less reactive to economic fluctuations, a fact which remains in periods of economic downturn, which means that public banks are able to cut less on their new loans when hit by a negative macroeconomic shock. This asymmetry along the business cycle is particularly relevant for countries in middle or high income groups, while low income countries may use public banking more as a political or development tool. Moreover, nationalisation during a banking crisis are shown to blur the picture due to their correlation with public banking : indeed one has to distinguish public banks which can engage is alternative lending practices and nationalised banks which are often ailing banks which need restructuring and downsizing. Conversely, privatised banks are indeed associated with a switch from a regime of low to high lending cyclicality, which is what one would expect if ownership indeed matters for lending policies.

The fact that public banks do not need to readjust their loan portfolio as much as private banks do when hit by a macroeconomic shock reveals both a different business model –relationship lending thanks to public support, which can be efficient– as well as delayed loan deterioration –which is a symptom of inefficient loan management. The actual combination of the two is not orthogonal to economic development. In fact, the efficiency of the business model is here the key distinction line along the phase of economic development: developed countries could feature an efficient lower cyclicality of public bank lending thanks to a lower balance sheet vulnerability and a stronger funding stability, while the efficiency of public bank lending in less developed countries is subject to caution, with an access to somewhat more stable funding sources but as well forbearance lending.

If financial stability matters much more today, fostering public banking may not be the

appropriate step forward. Its desirability would not come so much from its cyclical properties for macroeconomic stability –other more efficient macroprudential instruments should be called for– but rather from its ability to satisfy specific needs which might not be addressed otherwise. The lower cyclicality of the fluctuations in loan provisions to the economy by public banks respond to a different objective, probably more oriented towards long term relationships, but does not necessarily imply that the amplitude of private banks' lending is inefficient. Still, this effect is closely linked to the phase of economic development : in the absence of a sufficiently robust financial and institutional framework, public banks are more likely to be subject to inefficient political pressures or moral hazard issues, leading to a misallocation of resources; thus a lower lending cyclicality in the short run can become a signal of a broader long term inefficiency, without necessarily implying that public banking would disappear from the market (Duprey, 2013), so that if some countries clearly benefited from their pre-existing public banking sector in order to weather the Great Recession, it may not be an advantage in normal times.

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Table 1: **Variables definition**

Variable	Label	Source
gGDP	Growth of GDP, constant 2005 USD	UNSTAT
OutputGap	Deviation of actual GDP from potential GDP in per cent of potential GDP	OECD Eco. Outlook
OutputTrend	Deviation of actual GDP from its trend (H-P filter with smoothing parameter 6,25) over GDP	UNSTAT
gLoan	Growth of gross loans	Bankscope
gLoanCorp	Growth of loans to group companies and other corporate	Bankscope
Size	Log of Asset	Bankscope
SizeRel	Asset of one bank relative to top 20	Bankscope
gSizeRel	Growth of SizeRel	Bankscope
SizeMarket	Asset top 20 banks of one banking sector relative to the sum of the top 20 in all countries	Bankscope
gSizeMarket	Growth of SizeMarket	Bankscope
HHI	Hirschman Herfindal Index	Bankscope
CR4	Concentration ratio of top 4 banks over top 10	Bankscope
RatingChange	Change of long term country rating and outlook in foreign currency	Standard & Poors
GDPperCapita	log of GDP per capita, constant 2005 USD	UNSTAT
Inflation	Inflation rate	UNSTAT
gMMF	Growth of Money Market Funds	Bankscope
gSTfunding	Growth of short term liabilities defined as TotLiabilities-TotDeposits-LTfunding-Reserves	Bankscope
gLTfunding	Growth of long term liabilities	Bankscope
gLiquidRatio	Grwoth of the ratio of liquid asset over total assets	Bankscope
gNoncoreRatio	Growth of the ratio of non-core over Core liabilities (customer deposits)	Bankscope
gEfficiencyRatio	Growth of the ratio of loan loss provisions over net income	Bankscope
CSH50	National Public Controlling Shareholder 50%, 2008-10	Bankscope
GOB50	National Public Ultimate Owner 50% + National Public Controlling Shareholder 50%, 2008-10	Bankscope
GOB25	National Public Ultimate Owner 25% + National Public Controlling Shareholder 50%, 2008-10	Bankscope
Foreign	Dummy for foreign ownership : Ultimate Owner 25% + Controlling Shareholder 50%, 2008-10	Bankscope
Privatised	Dummy for full/partial privatisation, 1988-2008	World Bank privatisation
b4Privatised	Dummy years before largest privatisation wave	World Bank privatisation
b4Privatised2	Dummy years before latest privatisation wave	World Bank privatisation
CSH50_t	Includes years before privatisation recoded as public banks, CSH50+b4Privatised	Bankscope and WB
GOB50_t	Includes years before privatisation recoded as public banks, GOB50+b4Privatised	Bankscope and WB
GOB25_t	Includes years before privatisation recoded as public banks, GOB25+b4Privatised	Bankscope and WB
CSH50_t2	Includes years before privatisation recoded as public banks, CSH50+b4Privatised2	Bankscope and WB
GOB50_t2	Includes years before privatisation recoded as public banks, GOB50+b4Privatised2	Bankscope and WB
GOB25_t2	Includes years before privatisation recoded as public banks, GOB25+b4Privatised2	Bankscope and WB
NatCrisis	Dummy nationalisation during crisis:	
	- from 1970-1995	La Porta et al. (2002)
	- from 1980-2003	World Bank Banking crisis
NatIn2008	Dummy banks nationalised during the 2008-10 systemic banking crisis	IMF systemic banking crisis

Table 2: **Summary Statistics**

Variable	All Banks					Private Banks GOB50=0					Public Banks GOB50=1				
	Mean	Std. Dev.	Min.	Max.	N	Mean	Std. Dev.	Min.	Max.	N	Mean	Std. Dev.	Min.	Max.	N
gGDP	3.21	3.51	-17.73	26.17	32969	3.14	3.48	-17.73	26.17	29760	3.85	3.71	-17.73	26.17	3209
OutputGap	0.35	2.25	-11.02	13.33	19844	0.37	2.25	-11.02	13.33	18327	0.11	2.18	-8.66	8.38	1517
OutputTrend	-0.09	1.84	-15.15	9.4	32969	-0.09	1.85	-15.15	9.4	29760	-0.08	1.81	-15.15	9.4	3209
gLoan	11.15	25.81	-100	100	32969	11.11	26.18	-100	100	29760	11.54	22.01	-100	99.63	3209
gLoanCorp	7.16	33	-100	100	21949	7.23	33.18	-100	100	19733	6.59	31.33	-100	99.83	2216
L_Size	8.34	2.76	-4.43	18.86	32969	8.26	2.78	-4.43	18.86	29760	9.06	2.43	2.04	17.06	3209
L_SizeRel	2.55	5.48	0	92.3	32969	2.45	5.47	0	92.3	29760	3.41	5.51	0.01	64.43	3209
L_gSizeRel	9.45	908.36	-97.54	133400.91	32969	7.32	777.93	-97.54	133400.91	29760	29.26	1692.7	-91.57	95847.37	3209
L_SizeMarket	3.02	5.26	0	48.3	32969	3.09	5.39	0	48.3	29760	2.36	3.83	0	41.07	3209
L_gSizeMarket	3.47	41.29	-87.60	1782.93	32969	3.51	42.18	-87.60	1782.93	29760	3.12	31.8	-81.48	878.97	3209
L_HHI	14.43	8.07	6.4	87.07	32969	14.33	8.02	6.4	87.07	29760	15.38	8.49	6.51	65.76	3209
L_CR4	0.69	0.11	0.47	1	32969	0.69	0.11	0.47	1	29760	0.70	0.11	0.49	1	3209
L_ChangeRatingLT	0.08	2.69	-31	18	32969	0.07	2.68	-31	18	29760	0.19	2.82	-31	18	3209
L_GDPperCapita	9.44	1.33	5.76	11.72	32969	9.5	1.29	5.76	11.72	29760	8.93	1.56	5.98	11.72	3209
L_Inflation	4.93	7.31	-24.25	115.52	32969	4.9	7.34	-24.25	115.52	29760	5.21	7.01	-24.25	93.52	3209
gMMF	-3.32	43.74	-100	100	13999	-3.3	43.9	-100	100	12319	-3.5	42.6	-99.98	99.40	1680
gSTfunding	3.68	35.58	-100	100	15001	3.53	35.56	-100	100	13700	5.3	35.81	-99.93	98.82	1301
gLTfunding	3.6	32.95	-99.99	100	19519	3.25	33.43	-99.99	100	17318	6.34	28.71	-99.51	100	2201
gLiquidRatio	-1.33	32.29	-99.99	99.83	30777	-1.23	32.23	-99.99	99.83	27794	-2.29	32.77	-99.23	99.67	2983
gNoncoreRatio	-2.04	34.12	-99.99	100	28078	-1.98	34.47	-99.99	99.91	25494	-2.67	30.54	-99.92	100	2584
gEfficiencyRatio	-19.16	49.14	-99.99	100	16896	-19.12	49.22	-99.99	100	15188	-19.5	48.39	-99.97	99.83	1708
CSH50	0.07	0.25	0	1	32969	0	0	0	0	29760	0.68	0.47	0	1	3209
GOB50	0.1	0.3	0	1	32969	0	0	0	0	29760	1	0	1	1	3209
GOB25	0.11	0.32	0	1	32969	0.02	0.13	0	1	29760	1	0	1	1	3209
Foreign	0.28	0.45	0	1	32969	0.31	0.46	0	1	29760	0	0	0	0	3209
Privatised	0.03	0.16	0	1	32969	0.03	0.16	0	1	29760	0.03	0.16	0	1	3209
b4Privatised	0.01	0.09	0	1	32969	0.01	0.09	0	1	29760	0.01	0.11	0	1	3209
b4Privatised2	0.01	0.09	0	1	32969	0.01	0.09	0	1	29760	0.01	0.11	0	1	3209
NatCrisis	0.24	0.42	0	1	32969	0.24	0.43	0	1	29760	0.2	0.4	0	1	3209

Table 3: **Cross-correlation**

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	gGDP	1													
2	OutputGap	0,45	1												
3	OutputTrend	0,45	0,79	1											
4	gLoan	0,23	0,11	0,13	1										
5	L_Size	-0,11	-0,11	0,02	-0,08	1									
6	L_SizeRel	0,05	-0,04	0	0,02	0,29	1								
7	L_gSizeRel	0	-0,01	0	0	-0,01	0	1							
8	L_SizeMarket	-0,18	-0,05	0,01	-0,1	0,54	-0,09	-0,01	1						
8	L_gSizeMarket	0,05	0	0,05	0,06	-0,07	-0,02	-0,01	-0,04	1					
10	L_HHI	0,08	-0,09	0	0,08	-0,25	0,15	0	-0,28	0,16	1				
11	L_CR4	0,08	-0,05	0,01	0,08	-0,28	0,13	0	-0,38	0,12	0,84	1			
12	L_ChangeRatingLT	0,32	0,2	0,32	0,13	-0,01	0,01	0	-0,03	0,06	0,05	0,07	1		
13	L_GDPperCapita	-0,35	0,12	0,03	-0,19	0,13	-0,09	-0,01	0,33	-0,06	-0,11	-0,12	0	1	
14	L_Inflation	0,1	0,03	-0,05	0,14	-0,16	0,04	0	-0,23	0,05	0,2	0,18	-0,09	-0,37	1
15	gMMF	0,07	0,09	0,07	0,17	0,03	0,02	0	0,02	0	0	-0,03	0,02	0,03	-0,02
16	gSTfunding	0,12	0,09	0,1	0,21	0,01	0,05	0	-0,03	0,02	0,02	0,02	0,04	-0,04	0
17	gLTfunding	0,06	0,09	0,06	0,22	0,03	0,03	-0,01	0	0	-0,03	-0,03	0,06	0,01	-0,03
18	gLiquidRatio	-0,02	-0,01	-0,01	-0,12	0	0,02	-0,01	0	0	0	-0,02	-0,02	-0,05	0,06
19	gNoncoreRatio	0,04	0,09	0,09	0,1	0,05	0,03	0	0,04	0,01	-0,03	-0,04	0,03	0,05	-0,06
20	gEfficiencyRatio	-0,03	0,07	0,07	0,06	0,03	0,01	0	0,03	0	-0,05	-0,05	0,03	-0,02	-0,02
21	CSH50	0,01	-0,03	0	-0,02	0,08	0,03	0,01	0	0	0,05	0,03	0,01	-0,03	-0,01
22	GOB50	0,06	-0,03	0	0,01	0,09	0,05	0,01	-0,04	0	0,04	0,02	0,01	-0,13	0,01
23	GOB25	0,07	-0,03	0	0,01	0,09	0,09	0,01	-0,05	0	0,04	0,02	0,02	-0,13	0,01
24	Foreign	0,04	0,06	-0,01	0,03	-0,07	0,05	0,01	-0,13	0	0,04	0,04	0,01	-0,08	0,06
25	Privatised	0,07	-0,03	0	0,05	0,07	0,18	0	-0,07	0	0,02	0,04	0,02	-0,18	0,08
26	b4Privatised	0,07	-0,04	0	0,02	0,03	0,13	0	-0,03	0	0,03	0,05	0,01	-0,13	0,04
27	b4Privatised2	0,07	-0,03	0	0,02	0,03	0,12	0	-0,03	0,01	0,03	0,05	0,01	-0,12	0,03
28	NatCrisis	-0,04	-0,07	-0,04	0	0,2	-0,01	0	0,09	0	-0,02	0	-0,07	-0,13	0,12

		15	16	17	18	19	20	21	22	23	24	25	26	27	28
	Table 3 – continued from previous page														
15	gMMF	1													
16	gSTfunding	0,72	1												
17	gLTfunding	0,04	0,05	1											
18	gLiquidRatio	0,01	0,01	0,01	1										
19	gNoncoreRatio	0,32	0,3	0,22	-0,01	1									
20	gEfficiencyRatio	0,01	-0,01	0,05	0	0,02	1								
21	CSH50	-0,01	0	0,01	-0,01	-0,01	-0,01	1							
22	GOB50	0	0,01	0,03	-0,01	-0,01	0	0,81	1						
23	GOB25	0	0,02	0,03	-0,01	0	0	0,75	0,92	1					
24	Foreign	-0,02	0,01	-0,06	0,01	-0,03	-0,03	-0,17	-0,2	-0,22	1				
25	Privatised	-0,03	0,01	-0,02	0,02	0,01	0	-0,02	0	0,03	0,06	1			
26	b4Privatised	-0,02	0,01	-0,01	0,01	0	-0,02	-0,01	0,01	0,06	0,02	0,58	1		
27	b4Privatised2	-0,02	0,01	-0,02	0,01	-0,01	-0,01	-0,01	0,02	0,06	0,02	0,57	0,98	1	
28	NatCrisis	0	-0,03	-0,03	0,02	-0,01	0,01	-0,03	-0,03	-0,03	-0,08	0,03	-0,02	-0,02	1

Table 4: **Description of the panel by country**

ISO code	Country Name	Nber Banks	Nber Obs.	Nber CSH50	Nber GOB50	Nber GOB25	Nber Foreign	Nber Privtsd	Nat. In Crisis	Low Inc.	Mid. Inc.	High Inc.
AR	ARGENTINA	75	699	4	10	10	28	1	1	0	1	0
AT	AUSTRIA	106	1180	2	5	5	17	0	0	0	0	1
AU	AUSTRALIA	36	296	0	0	0	13	0	0	0	0	1
BE	BELGIUM	94	913	2	4	4	26	0	0	0	0	1
BF	BURKINA FASO	4	20	0	0	0	4	0	0	1	0	0
BG	BULGARIA	20	170	2	2	2	14	3	0	0	1	0
BH	BAHRAIN	10	63	0	0	1	8	0	0	0	0	1
BM	BERMUDA	7	46	0	0	0	6	0	0	0	0	1
BO	BOLIVIA	15	141	3	3	3	3	0	0	1	0	0
BR	BRAZIL	102	936	6	11	11	45	1	0	0	1	0
BS	BAHAMAS	5	27	0	0	0	4	0	0	0	0	1
BW	BOTSWANA	7	53	1	1	1	3	0	0	0	1	0
CA	CANADA	56	484	1	2	2	16	0	0	0	0	1
CH	SWITZERLAND	129	1427	25	27	27	22	0	0	0	0	1
CL	CHILE	28	308	0	1	1	8	0	0	0	1	0
CM	CAMEROON	5	29	0	0	0	4	0	0	1	0	0
CN	CHINA-PEOPLE'S REP.	78	637	5	8	11	5	10	0	1	0	0
CO	COLOMBIA	35	359	5	5	5	8	2	1	1	0	0
CR	COSTA RICA	67	515	4	7	7	7	0	0	0	1	0
CY	CYPRUS	14	124	1	1	1	6	0	0	0	0	1
CZ	CZECH REPUBLIC	35	272	3	3	3	23	3	0	0	0	1
DE	GERMANY	132	1442	26	26	28	17	1	0	0	0	1
DK	DENMARK	108	1254	2	5	5	11	0	0	0	0	1
DO	DOMINICAN REP.	37	287	0	1	1	1	0	0	0	1	0
EC	ECUADOR	29	228	0	0	0	3	0	1	1	0	0
EE	ESTONIA	6	54	0	0	0	4	0	1	0	0	1
EG	EGYPT	27	292	3	3	3	15	8	0	1	0	0
ES	SPAIN	114	1327	1	1	1	9	0	1	0	0	1
FI	FINLAND	13	116	4	4	4	3	0	1	0	0	1
FR	FRANCE	119	1225	2	3	3	27	0	0	0	0	1
GB	UNITED KINGDOM	105	809	4	7	16	34	0	0	0	0	1
GR	GREECE	32	269	1	3	3	4	0	0	0	0	1
GT	GUATEMALA	23	165	0	0	1	6	0	0	1	0	0
HR	CROATIA	30	294	2	3	3	12	3	1	0	1	0
HU	HUNGARY	30	293	2	2	2	12	3	0	0	1	0
ID	INDONESIA	65	581	0	5	5	23	6	1	1	0	0
IE	IRELAND	18	115	0	0	0	14	0	0	0	0	1
IL	ISRAEL	16	175	0	0	0	1	0	0	0	0	1
IN	INDIA	90	1001	13	38	39	8	0	0	1	0	0
IS	ICELAND	3	15	0	0	0	0	0	0	0	0	1
IT	ITALY	111	1268	6	6	6	7	0	0	0	0	1
JM	JAMAICA	8	51	0	0	0	5	0	0	0	1	0
JO	JORDAN	13	160	0	0	0	6	0	0	1	0	0
JP	JAPAN	119	1275	6	6	6	2	0	1	0	0	1
KR	KOREA REP. OF	38	378	5	8	11	2	0	1	0	0	1
KW	KUWAIT	23	202	3	3	4	6	0	0	0	0	1
KZ	KAZAKHSTAN	13	97	2	2	2	7	0	0	0	1	0
LB	LEBANON	31	291	0	0	0	14	0	0	0	1	0
LI	LIECHTENSTEIN	13	125	1	1	1	5	0	0	0	0	1
LT	LITHUANIA	9	88	0	1	1	5	0	0	0	1	0
LU	LUXEMBOURG	103	1013	0	1	1	68	0	0	0	0	1
LV	LATVIA	21	210	0	1	1	11	1	1	0	1	0
MA	MOROCCO	12	118	2	3	4	5	2	0	1	0	0
MK	MACEDONIA	7	35	0	0	0	4	1	0	1	0	0
ML	MALI	4	20	1	1	2	2	0	0	1	0	0
MN	MONGOLIA	5	37	1	1	1	1	0	0	1	0	0

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Table 4 – continued from previous page

ISO code	Country Name	Nber Banks	Nber Obs.	Nber CSH50	Nber GOB50	Nber GOB25	Nber Foreign	Nber Privtsd	Nat. In Crisis	Low Inc.	Mid. Inc.	High Inc.
MT	MALTA	8	76	0	0	1	6	0	0	0	0	1
MX	MEXICO	45	391	4	5	5	15	4	0	0	1	0
MY	MALAYSIA	47	463	6	7	14	14	0	0	0	1	0
MZ	MOZAMBIQUE	5	25	0	0	0	5	0	0	1	0	0
NL	NETHERLANDS	62	502	4	5	5	18	0	0	0	0	1
NO	NORWAY	72	680	3	3	8	3	0	1	0	0	1
NZ	NEW ZEALAND	7	62	0	0	0	3	0	0	0	0	1
OM	OMAN	9	104	2	2	2	3	1	0	0	0	1
PA	PANAMA	32	213	1	2	2	13	0	0	0	1	0
PE	PERU	26	231	3	3	3	17	5	1	1	0	0
PH	PHILIPPINES	31	220	3	6	6	5	1	1	1	0	0
PK	PAKISTAN	28	286	4	5	5	8	7	0	1	0	0
PL	POLAND	36	286	1	2	4	23	6	0	0	1	0
PT	PORTUGAL	36	318	4	4	4	11	0	0	0	0	1
PY	PARAGUAY	17	172	0	0	0	8	0	1	1	0	0
QA	QATAR	8	68	1	1	2	6	0	0	0	0	1
RO	ROMANIA	20	161	1	1	1	15	1	0	0	1	0
RS	SERBIA	17	85	1	1	3	13	2	0	0	1	0
RU	RUSSIA	64	415	3	7	10	26	3	0	0	1	0
SA	SAUDI ARABIA	11	66	0	0	2	5	0	0	0	0	1
SE	SWEDEN	88	748	5	6	6	2	0	0	0	0	1
SG	SINGAPORE	38	311	0	0	1	6	0	0	0	0	1
SI	SLOVENIA	12	121	0	0	6	3	1	0	0	0	1
SK	SLOVAKIA	17	161	2	2	2	12	3	0	0	1	0
SN	SENEGAL	8	60	0	0	0	5	0	1	1	0	0
SR	SURINAME	2	20	1	1	1	0	0	0	0	1	0
SV	EL SALVADOR	17	156	1	1	1	10	0	0	1	0	0
TH	THAILAND	34	361	4	5	6	6	1	1	1	0	0
TN	TUNISIA	33	344	1	1	4	17	2	0	1	0	0
TR	TURKEY	7	55	2	2	2	2	2	1	0	1	0
TT	TRINIDAD TOBAGO	11	87	0	1	1	8	0	0	0	0	1
UA	UKRAINE	21	141	1	2	2	14	0	0	1	0	0
US	USA	87	807	0	0	0	30	1	0	0	0	1
UY	URUGUAY	26	204	0	2	2	16	2	1	0	1	0
VE	VENEZUELA	34	283	1	3	3	8	3	1	0	1	0
VN	VIETNAM	16	106	0	2	2	3	1	0	1	0	0
ZA	SOUTH AFRICA	24	171	4	4	4	9	0	0	0	1	0
Total	93	3511	32969	214	311	368	992	91	20	26	27	40

Table 5: **Nationalized Banks over the 2008 crisis in the dataset**

Country	Bank Name	Year	Details
AR	ABN Amro Bank	2008	subsidiary owned by ABN AMRO, nationalised by the Dutch state
AT	Hypo Alpe-Adria Bank AG	2009	
BE	Fortis Bank SA/ NV-BNP Paribas Fortis	2008	nationalised by the Belgian government, then sold to BNP Paribas (75%) in 2009
BR	Banco ABN Amro Real SA	2008	subsidiary owned by ABN AMRO, nationalised by the Dutch state
CH	ABN Amro Bank (Schweiz) AG	2008	subsidiary owned by ABN AMRO, nationalised by the Dutch state
DE	Dexia Kommunalbank Deutschland AG	2008	
FR	Dexia Credit Local SA	2008	
FR	Dexia Municipal Agency	2008	
GB	Isle of Man Bank Limited	2008	owned by Natwest, nationalised by the British government
GB	National Westminster Bank Plc - NatWest	2008	owned by RBS Group, nationalised by the British government
GB	Northern Rock (Asset Management) Plc	2008	nationalised at 100% through UK Financial Investments Limited.
GB	Royal Bank of Scotland Group Plc (The)	2008	nationalised at 57,9%
GB	Royal Bank of Scotland International Limited	2008	
GB	Ulster Bank Limited	2008	owned by RBS Group, nationalised by the British government
HR	Hypo Alpe-Adria-Bank dd	2009	
IE	DePfa ACS Bank	2009	subsidiary owned by Hypo Real Estate, nationalised by the German state
IE	EBS Limited	2010	
LU	ABN Amro Bank (Luxembourg) SA	2008	subsidiary owned by ABN AMRO, nationalised by the Dutch state
LU	Kaupthing Bank Luxembourg SA	2008	subsidiary owned by Kaupthing Bank, nationalised by the Icelandic state
NL	Fortis Bank (Nederland) N.V.	2008	
PY	ABN Amro Bank N.V.	2008	subsidiary owned by ABN AMRO, nationalised by the Dutch state
RS	Hypo Alpe-Adria-Bank AD Beograd	2009	subsidiary owned by Hypo Alpe-Adria Group, nationalised by the Austrian state
UA	Ukrgazprombank	2009	
US	Federal National Mortgage Association-Fannie Mae	2008	
US	Freddie Mac	2008	

Table 6: **Main results on lending cyclicality, 1990-2010[a]**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Public Type		CSH50_t			GOB50_t			GOB25_t	
Estimation type	OLS-FE		GMM	OLS-FE		GMM	OLS-FE		GMM
L.gLoan			0.074**			0.071**			0.088***
			(0.035)			(0.032)			(0.031)
gGDP	1.238***	0.999***	-0.011	1.237***	1.050***	0.154	1.258***	1.073***	0.352
	(0.153)	(0.201)	(0.895)	(0.136)	(0.202)	(0.596)	(0.138)	(0.213)	(0.724)
Public	0.590	-2.230	12.632**	-0.661	-1.642	8.203	-1.438	-3.385	11.619**
	(2.452)	(3.207)	(5.572)	(2.369)	(3.093)	(5.038)	(2.514)	(3.478)	(4.863)
gGDP * Public	-0.760***	-0.607**	-2.284***	-0.455	-0.696***	-1.484**	-0.476*	-0.608***	-1.698***
	(0.192)	(0.263)	(0.770)	(0.298)	(0.220)	(0.711)	(0.263)	(0.226)	(0.634)
gGDP * Foreign	0.334**	0.455**	0.216	0.337**	0.410*	0.687*	0.315**	0.386*	0.522
	(0.139)	(0.213)	(0.427)	(0.139)	(0.212)	(0.359)	(0.147)	(0.231)	(0.327)
L.GDPperCapita	16.502**	7.676	5.666	16.672**	8.040	7.698	16.621**	7.844	6.766
	(6.953)	(8.103)	(7.538)	(6.964)	(8.198)	(7.404)	(6.949)	(8.170)	(8.719)
L.ChangeRatingLT	0.569***	0.858***	1.008***	0.571***	0.858***	0.743***	0.570***	0.857***	0.759***
	(0.113)	(0.161)	(0.312)	(0.112)	(0.162)	(0.219)	(0.113)	(0.162)	(0.261)
L.Inflation	-0.014	0.033	-0.023	-0.013	0.034	-0.048	-0.013	0.034	-0.039
	(0.095)	(0.092)	(0.129)	(0.095)	(0.091)	(0.091)	(0.095)	(0.092)	(0.093)
L.SizeMarket	0.056	0.177		0.057	0.177		0.057	0.178	
	(0.106)	(0.195)		(0.107)	(0.196)		(0.107)	(0.196)	
L.gSizeMarket	0.019**	0.011	0.065***	0.019**	0.011	0.069***	0.019**	0.011	0.068***
	(0.009)	(0.009)	(0.021)	(0.009)	(0.009)	(0.019)	(0.009)	(0.009)	(0.017)
L.SizeUSD	-6.276***	-6.127***	-9.895***	-6.287***	-6.151***	-8.992***	-6.286***	-6.145***	-8.815***
	(1.036)	(1.235)	(1.627)	(1.038)	(1.237)	(1.363)	(1.037)	(1.235)	(1.268)
L.SizeRel	-0.088	-0.194*	-0.781***	-0.087	-0.195*	-0.998***	-0.086	-0.194*	-0.882***
	(0.115)	(0.115)	(0.260)	(0.115)	(0.115)	(0.261)	(0.115)	(0.114)	(0.240)
L.gSizeRel	0.000	0.000	0.030**	0.000	0.000	0.032**	0.000	0.000	0.031**
	(0.000)	(0.000)	(0.013)	(0.000)	(0.000)	(0.013)	(0.000)	(0.000)	(0.012)
Foreign			15.011			20.437			14.670
			(10.580)			(12.715)			(9.135)
NatInCrisis			42.203			94.344			75.938
			(37.276)			(73.660)			(59.593)
gGDP + gGDP * Public	.478**	.392	-2.295**	.781**	.355	-1.33	.782***	.465*	-1.346
	(.213)	(.312)	(1.141)	(.350)	(.288)	(.846)	(.304)	(.256)	(.889)
R-squared	0.089	0.082		0.089	0.082		0.089	0.082	
Bank FE	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drop Nationalisation in crisis	No	Yes	No	No	Yes	No	No	Yes	No
Drop Nationalisations 2008-10	No	Yes	No	No	Yes	No	No	Yes	No
Nber Countries	93	73	64	93	73	70	93	73	75
Nber Private Banks	3286	2529	2458	3189	2456	2557	3134	2410	2577
Nber Private Bk Obs.	30495	23112	21836	29487	22345	22691	29020	21965	22766
Nber Public Banks	267	213	250	359	282	342	411	325	394
Nber Public Bk Obs.	2474	2027	2270	3482	2794	3251	3949	3174	3699
Nber instruments			65			37			65
First Order AR Test			0			0			0
Second Order AR Test			.189			.182			.257
Hansen Test			.235			.265			.198
Diff-Hansen Test			.256			.208			.152

* p<0.10, ** p<0.05, *** p<0.01.

[a] Country clustered robust standard errors in parentheses. Sample of all banks, includes privatised banks as public or private respectively before and after their privatisation (the largest one in the case of several waves of privatisation). All regressions include a constant term and the lagged concentration ratio CR4. Foreign and NatInCrisis cannot be estimated (but still accounted for) with fixed effects as those dummies are time invariant within each cluster. Specifications 6, 7 and 9 focus on the subsample of countries where public banks exist for the period after 1997 in order to estimate country clustered GMM.

Table 7: **Lending cyclicality and Bank Privatisation, 1990-2010[a]**

	(1)	(2)	(3)	(4)
Public Bank type	GOB50		GOB50	
Estimator	OLS-FE		GMM	
Privatisation Type	largest	largest	largest	largest
L.GrowthLoan			0.074	0.078
			(0.059)	(0.086)
gGDP	1.612***	1.583***	-0.322	7.388*
	(0.174)	(0.171)	(0.978)	(3.799)
gGDP * Public	-0.148	-0.132	-0.451	-0.301
	(0.439)	(0.441)	(1.147)	(1.027)
gGDP * b4Privatised	-1.193**	-1.009*	-9.788***	-16.266***
	(0.547)	(0.573)	(3.717)	(5.487)
gGDP * After Privatised		0.372*		0.230
		(0.195)		(0.777)
gGDP * Foreign	0.318*	0.303*	-0.143	-0.910
	(0.161)	(0.155)	(0.707)	(0.751)
gGDP * L.ChangeRating	0.078***	0.077***		
	(0.014)	(0.013)		
Public	0.015	0.692	9.442	-16.248
	(2.715)	(2.794)	(9.275)	(12.344)
L.ChangeRating	0.547***	0.552***	1.407***	-2.249
	(0.136)	(0.134)	(0.509)	(1.745)
L.Inflation	-0.190**	-0.191**	-0.110	-0.459***
	(0.087)	(0.088)	(0.162)	(0.158)
L.SizeUSD	-9.664***	-9.707***	-17.216***	-18.631**
	(1.241)	(1.243)	(4.907)	(8.504)
L.SizeRel	0.030	0.041	0.148	1.181
	(0.163)	(0.165)	(1.042)	(1.619)
L.gSizeRel	0.009*	0.009*	0.046	0.078
	(0.005)	(0.005)	(0.033)	(0.066)
L.gSizeMarket	0.029**	0.030**	0.113**	-0.004
	(0.014)	(0.014)	(0.056)	(0.076)
Privatised dummy			0.099	-12.272
			(17.285)	(14.506)
Foreign			5.052	3.076
			(6.579)	(13.689)
L.CR4	7.232	7.106		
	(11.820)	(11.775)		
L.SizeMarket	0.986***	0.984***		
	(0.214)	(0.214)		
L.GDPperCapita	20.291	20.304		
	(13.352)	(13.326)		
R-squared	0.156	0.156		
Bank FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Drop Nationalisation in crisis	No	No	No	No
Drop Nationalisations 2008-10	No	No	No	No
Nber Countries	32	32	32	32
Nber Private Banks	1075	1075	991	991
Nber Private Bk Obs	9443	9443	8585	8585
Nber Public Banks	173	173	167	167
Nber Public Bk Obs	1516	1516	1445	1445
Nber Banks Privatised	91	91	91	91
Nber instruments			34	37
First Order AR Test			0	.089
Second Order AR Test			.618	.376
Hansen Test			.217	.555
Diff-Hansen Test			.259	.545

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

[a] Country clustered robust standard errors in parentheses. Sample of all banks, public banks are GOB50 but privatised banks are coded separately before their privatisation , and separately (regression 2 and 4) or as private (regression 1 and 3) after their privatisation. All regressions include a constant term. Foreign and Privatised cannot be estimated (but still accounted for) with fixed effects as those dummies are time invariant within each cluster. All specifications focus on the subsample of countries where some public banks where privatised; specification 3 and 4 further restrict to the period after 1996 in order to estimate country clustered GMM.

Table 8: **Heterogeneous lending cyclicality over the business cycle, 1990-2010[a]**

	(1)	(2)	(3)	(4)	(5)	(6)
MacroShock	Deviation from H-P trend					
Public Type	CSH50_t		GOB50_t		GOB25_t	
Estimation type	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE
Macro Shock	1.156***	1.275***	1.120***	1.291***	1.111***	1.268***
	(0.212)	(0.448)	(0.224)	(0.446)	(0.226)	(0.461)
Public	-6.309**	-8.772**	-5.420*	-8.461**	-6.518*	-10.103**
	(2.961)	(3.699)	(3.086)	(3.607)	(3.307)	(3.955)
Positive MacroShock * Pu.	1.041**	1.288**	0.690	1.130	0.934**	1.390***
	(0.480)	(0.595)	(0.540)	(0.730)	(0.437)	(0.514)
Negative MacroShock * Pu.	-1.619***	-1.888***	-0.592	-1.726**	-0.669	-1.556**
	(0.509)	(0.695)	(0.904)	(0.680)	(0.807)	(0.678)
Dummy Negative Macro Shock	-0.402	0.746	-0.392	0.737	-0.383	0.749
	(0.880)	(1.188)	(0.877)	(1.186)	(0.877)	(1.182)
MacroShock * Foreign	0.328	0.306	0.363	0.293	0.375	0.321
	(0.253)	(0.369)	(0.252)	(0.379)	(0.257)	(0.392)
MacroShock +	2.198***	2.562***	1.81***	2.421***	2.046***	2.659***
Positive MacroShock * Pu.	(.566)	(.781)	(.599)	(.854)	(.512)	(.689)
MacroShock +	-.463	-.614	.528	-.435	.442	-.288
Negative MacroShock * Pu.	(.509)	(.742)	(.85)	(.782)	(.746)	(.694)
R-squared	0.076	0.074	0.076	0.074	0.076	0.074
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Drop Nat. in crisis	No	Yes	No	Yes	No	Yes
Drop Nat. 2008-10	No	Yes	No	Yes	No	Yes
Nber Countries	93	73	93	73	93	73
Nber Pr. Banks	3286	2529	3189	2456	3134	2410
Nber Pr. Bk Obs.	30495	23112	29487	22345	29020	21965
Nber Pu. Banks	267	213	359	282	411	325
Nber Pu. Bk Obs.	2474	2027	3482	2794	3949	3174
Nber Pu. Bks if positive shock	1171	966	1675	1344	1899	1518
Nber Pu. Bks if negative shock	1303	1061	1807	1450	2050	1656

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

[a] Country clustered robust standard errors in parentheses. Sample of all banks, public banks are GOB50, includes privatised banks as public or private respectively before and after their privatisation, taken as the largest privatisation event in the case of several waves of privatisation. All regressions include as covariates : the interaction between the Macro Shock and the Foreign dummy, the Public dummy GOB50, lagged long term rating change, lagged log of GDP per capita, lagged inflation, lagged concentration ratio, lagged market size and its growth rate, lagged relative size and its growth rate, lagged absolute size, and when appropriate, the negative macro shock dummy.

Table 9: **Heterogeneous lending cyclicality over the business cycle for OECD countries, 1990-2010[a]**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Macro Shock	gGDP	OutputTrend		OutputGap			
Public Type	GOB50_t	GOB50_t		GOB50_t		GOB50_t	
Bank type	All	All		All		Commercial	
Sample	OECD	OECD	OECD	OECD	OECD	OECD	OECD
MacroShock	0.690**	0.899*	0.824	0.843**	0.656	0.648*	0.319
	(0.303)	(0.443)	(0.603)	(0.327)	(0.430)	(0.356)	(0.434)
MacroShock * Public	-1.128***	-0.941**		-0.716*		0.916***	
	(0.394)	(0.359)		(0.406)		(0.334)	
Positive MacroShock * Pu.			0.154		0.492		1.499**
			(0.536)		(0.479)		(0.642)
Negative MacroShock * Pu.			-1.901**		-1.465**		-0.019
			(0.750)		(0.670)		(0.453)
MacroShock * Foreign	0.888***	0.392	0.405	0.494	0.531*	0.432*	0.457*
	(0.296)	(0.415)	(0.423)	(0.296)	(0.311)	(0.226)	(0.238)
R-squared	0.055	0.050	0.050	0.053	0.053	0.068	0.069
Regres type	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drop Nat. in crisis	No	No	No	No	No	No	No
Drop Nat. 2008-10	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nber Countries	34	34	34	34	34	34	34
Nber Pr. Banks	1869	1869	1869	1869	1869	1381	1381
Nber Pr. Bk Obs.	18368	18368	18368	18368	18368	13801	13801
Nber Pu. Banks	161	161	161	161	161	39	39
Nber Pu. Bk Obs.	1633	1633	1633	1633	1633	332	332
Nber Pu. Bks if positive shock			774		837		181
Nber Pu. Bks if negative shock			859		796		151

* p<0.10, ** p<0.05, *** p<0.01

[a] Country clustered robust standard errors in parentheses. Public banks are GOB50, includes privatised banks as public or private respectively before and after their privatisation, taken as the largest privatisation event in the case of several waves of privatisation. All regressions include as covariates : the interaction between the Macro Shock and the Foreign dummy, the Public dummy GOB50, lagged long term rating change, lagged log of GDP per capita, lagged inflation, lagged concentration ratio, lagged market size and its growth rate, lagged relative size and its growth rate, lagged absolute size, and when appropriate, the negative macro shock dummy.

Table 10: **Heterogeneous lending cyclicality over the phase of economic development, 1990-2010[a]**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample	All	LowIncome			MiddleIncome			HighIncome		
Macro Shock	gGDP	gGDP	OutputTrend		gGDP	OutputTrend		gGDP	OutputTrend	
Public Type	GOB50_t	GOB50_t	GOB50_t		GOB50_t	GOB50_t		GOB50_t	GOB50_t	
MacroShock	2.097***	1.287***	1.833***	2.286***	0.922***	0.511	0.569	0.875**	0.826	0.699
	(0.753)	(0.162)	(0.503)	(0.499)	(0.288)	(0.382)	(0.521)	(0.321)	(0.650)	(0.698)
MacroShock * Public	2.272*	-0.173	1.223*		-0.917***	-0.924***		-1.188***	-0.772	
	(1.273)	(0.354)	(0.644)		(0.283)	(0.154)		(0.426)	(0.515)	
Positive Macro Shock *Pu.				0.887			1.281			0.887
				(2.099)			(1.083)			(0.800)
Negative Macro Shock * Pu.				1.580			-3.403***			-2.100**
				(1.247)			(0.997)			(0.789)
MacroShock * Foreign	0.324**	0.075	1.356***	1.191***	0.294*	0.858***	0.866***	0.434	-0.748	-0.729
	(0.129)	(0.247)	(0.328)	(0.364)	(0.150)	(0.275)	(0.274)	(0.404)	(0.497)	(0.488)
MacroShock * Public * L.GDPperCapita	-0.316**									
	(0.138)									
R-squared	0.090	0.130	0.142	0.143	0.134	0.129	0.130	0.057	0.050	0.050
Estimation type	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drop Nat in crisis	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drop Nat. 2008-10	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nber Countries	93	18	18	18	21	21	21	34	34	34
Nber Pr. Banks	3189	332	332	332	595	595	595	1529	1529	1529
Nber Pr. Bk Obs.	29487	2860	2860	2860	4824	4824	4824	14661	14661	14661
Nber Pu. Banks	359	85	85	85	70	70	70	127	127	127
Nber Pu. Bk Obs.	3482	851	851	851	628	628	628	1315	1315	1315
Nber Pu. Bks if positive shock				442			288			614
Nber Pu. Bks if negative shock				409			340			701

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

[a] Country clustered robust standard errors in parentheses, sample of all banks, public banks are GOB50, includes privatised banks as public or private respectively before and after their privatisation, taken as the largest privatisation event in the case of several waves of privatisation. All regressions include as covariates : the interaction between the Macro Shock and the Foreign dummy, the Public dummy GOB50, lagged long term rating change, lagged inflation, lagged concentration ratio, lagged market size and its growth rate, lagged relative size and its growth rate, lagged absolute size, and when appropriate, the negative macro shock dummy. The first specification includes in addition the interaction between GDP growth and the lagged log of GDP per capita.

Table 11: **Lending cyclicality and Bank Vulnerability, 1990-2010**[a]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Sample	Whole			Non-OECD			OECD				
Macro Shock	gGDP	OutputTrend		gGDP	OutputTrend		gGDP	OutputTrend		OutputGap	
Public Type	GOB50_t	GOB50_t		GOB50_t	GOB50_t		GOB50_t	GOB50_t		GOB50_t	
Estimation Type	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE
Variable : Growth of the ratio of liquid assets											
Macro Shock	-0.548***	-0.516	-0.567	-0.224	-0.488	-0.385	-1.240***	-0.349	-0.723	-0.466	-0.143
	(0.194)	(0.341)	(0.374)	(0.203)	(0.419)	(0.423)	(0.390)	(0.675)	(0.747)	(0.402)	(0.438)
Macro Shock * Public	0.427*	0.105		0.284	0.096		0.253	-0.483		-0.018	
	(0.256)	(0.428)		(0.345)	(0.543)		(0.422)	(0.583)		(0.398)	
Positive Macro Shock * Pu.			-2.103*			-3.063*			2.538**		1.676**
			(1.234)			(1.731)			(1.197)		(0.817)
Negative Macro Shock * Pu.			1.717**			2.267***			-3.152**		-1.830**
			(0.689)			(0.783)			(1.359)		(0.790)
R-squared	0.023	0.022	0.023	0.024	0.023	0.025	0.042	0.026	0.026	0.026	0.026
Nber Countries	93	93	93	59	59	59	34	34	34	34	34
Nber Pr. Banks	3168	3168	3168	1310	1310	1310	1858	1857	1857	1857	1857
Nber Pr. Bk Obs.	23874	23874	23874	8767	8767	8767	15138	14816	14816	14715	14715
Nber Pu. Banks	353	353	353	194	194	194	159	159	159	159	159
Nber Pu. Bk Obs.	2829	2829	2829	1486	1486	1486	1355	1337	1337	1319	1319
Variable : Growth of the ratio of non-core over core liabilities											
Macro Shock	0.878***	1.767***	1.509***	0.771***	1.644***	1.442***	0.754	2.082***	1.136*	0.401	0.854**
	(0.242)	(0.285)	(0.340)	(0.284)	(0.355)	(0.407)	(0.597)	(0.694)	(0.618)	(0.338)	(0.403)
Macro Shock * Public	-0.698*	-0.739		-0.514	-0.036		-0.823**	-2.548**		-2.312**	
	(0.405)	(0.576)		(0.527)	(0.711)		(0.370)	(1.244)		(0.909)	
Positive Macro Shock * Pu.			-0.308			1.085			-3.105		-2.517**
			(1.032)			(1.043)			(2.029)		(1.134)
Negative Macro Shock * Pu.			-1.065			-0.872			-2.010		-0.904
			(0.865)			(1.099)			(2.290)		(1.608)
R-squared	0.019	0.021	0.022	0.025	0.029	0.029	0.023	0.025	0.026	0.027	0.025
Nber Countries	93	93	93	59	59	59	34	34	34	34	34
Nber Pr. Banks	2992	2992	2992	1244	1244	1244	1748	1748	1748	1748	1748
Nber Pr. Bk Obs.	21932	21932	21932	8067	8067	8067	13891	13891	13891	13805	13805
Nber Pu. Banks	311	311	311	178	178	178	133	133	133	133	133
Nber Pu. Bk Obs.	2484	2484	2484	1330	1330	1330	1167	1167	1167	1151	1151
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drop Nat. in crisis	No	No	No	No	No	No	No	No	No	No	No
Drop Nat. 2008-10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* p<0.10, ** p<0.05, *** p<0.01

[a] Country clustered robust standard errors in parentheses, sample of all banks, public banks are GOB50, includes privatised banks as public or private respectively before and after their privatisation, taken as the largest privatisation event in the case of several waves of privatisation. All regressions include as covariates : the interaction between the Macro Shock and the Foreign dummy, the Public dummy GOB50, lagged long term rating change, lagged log of GDP per capita, lagged inflation, lagged concentration ratio, lagged market size and its growth rate, lagged relative size and its growth rate, lagged absolute size, and when appropriate, the negative macro shock dummy.

Table 12: **Lending cyclicality and Bank Funding Sources Stability, 1990-2010[a]**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Sample	Whole			Non-OECD			OECD				
Macro Shock	gGDP	OutputTrend		gGDP	OutputTrend		gGDP	OutputTrend		OutputGap	
Public Type	GOB50_t	GOB50_t		GOB50_t	GOB50_t		GOB50_t	GOB50_t		GOB50_t	
Estimation Type	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE
Variable : Growth of Money Market Funding											
Macro Shock	0.387	-0.031	-0.926	-0.500	-1.396	-0.624	2.068**	1.889	0.161	1.604*	1.490
	(0.454)	(0.897)	(0.926)	(0.342)	(0.902)	(1.154)	(0.929)	(1.243)	(1.203)	(0.897)	(0.929)
Macro Shock * Public	-0.953	-1.086		0.927	0.464		-4.239***	-2.851		-0.672	
	(1.074)	(1.619)		(0.870)	(1.704)		(1.429)	(2.486)		(1.268)	
Positive Macro Shock * Pu.			3.787*			5.642**			0.057		0.016
			(2.081)			(2.227)			(3.424)		(2.760)
Negative Macro Shock * Pu.			-5.708***			-4.217*			-5.398		-1.471
			(2.090)			(2.126)			(4.789)		(2.820)
R-squared	0.041	0.040	0.043	0.052	0.052	0.055	0.055	0.050	0.052	0.054	0.054
Nber Countries	67	67	67	41	41	41	26	26	26	26	26
Nber Pr. Banks	1483	1483	1483	624	624	624	860	860	860	860	860
Nber Pr. Bk Obs.	8266	8266	8266	2923	2923	2923	5356	5356	5356	5356	5356
Nber Pu. Banks	207	207	207	104	104	104	103	103	103	103	103
Nber Pu. Bk Obs.	1375	1375	1375	704	704	704	679	679	679	679	679
Variable : Growth of Short Term Funding											
Macro Shock	0.945**	1.551**	1.893**	2.058***	3.947***	5.028***	0.599	0.181	0.193	0.434	0.507
	(0.422)	(0.772)	(0.812)	(0.599)	(0.943)	(0.710)	(0.536)	(0.788)	(0.697)	(0.609)	(0.799)
Macro Shock * Public	-1.411	-1.922**		-1.378	-3.997***		-2.285***	-1.279		-0.851	
	(0.846)	(0.729)		(1.310)	(1.281)		(0.803)	(0.923)		(0.723)	
Positive Macro Shock * Pu.			-5.708***			-2.271			-6.982**		-3.869**
			(2.115)			(3.033)			(2.741)		(1.673)
Negative Macro Shock * Pu.			2.427			-5.089			4.877		3.152
			(2.476)			(3.725)			(3.153)		(2.056)
R-squared	0.045	0.043	0.044	0.067	0.053	0.056	0.046	0.051	0.052	0.053	0.054
Nber Countries	69	69	69	43	43	43	27	26	26	26	26
Nber Pr. Banks	1543	1543	1543	402	402	402	1375	1143	1143	1143	1143
Nber Pr. Bk Obs.	10114	10114	10114	1566	1566	1566	10618	8566	8566	8566	8566
Nber Pu. Banks	174	174	174	63	63	63	130	111	111	111	111
Nber Pu. Bk Obs.	1131	1131	1131	246	246	246	1071	896	896	896	896

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Table 12 – continued from previous page

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Sample	Whole			Non-OECD			OECD				
Macro Shock	gGDP	OutputTrend		gGDP	OutputTrend		gGDP	OutputTrend		OutputGap	
Public Type	GOB50_t	GOB50_t		GOB50_t	GOB50_t		GOB50_t	GOB50_t		GOB50_t	
Estimation Type	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE
Variable : Growth of Long Term Funding											
Macro Shock	0.599**	0.581	0.968*	0.898**	0.513	0.503	-0.385	-0.097	0.346	0.930**	0.701
	(0.239)	(0.350)	(0.533)	(0.376)	(0.338)	(0.345)	(0.373)	(0.675)	(1.046)	(0.422)	(0.465)
Macro Shock * Public	-0.204	0.483		-0.013	1.689**		-1.446**	-0.855		-1.359	
	(0.314)	(0.675)		(0.397)	(0.650)		(0.543)	(0.969)		(0.843)	
Positive Macro Shock * Pu.			0.986			1.194			1.738		0.420
			(1.503)			(1.946)			(1.579)		(0.959)
Negative Macro Shock * Pu.			-0.058			2.209			-3.462*		-3.342**
			(1.327)			(1.599)			(1.783)		(1.306)
R-squared	0.025	0.024	0.024	0.033	0.037	0.037	0.035	0.035	0.036	0.037	0.038
Nber Countries	72	72	72	45	45	45	27	27	27	27	27
Nber Pr. Banks	1936	1936	1936	692	692	692	1244	1244	1244	1244	1244
Nber Pr. Bk Obs.	13149	13149	13149	3639	3639	3639	9532	9532	9532	9532	9532
Nber Pu. Banks	235	235	235	112	112	112	123	123	123	123	123
Nber Pu. Bk Obs.	1885	1885	1885	844	844	844	1053	1053	1053	1053	1053
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drop Nat. in crisis	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drop Nat. 2008-10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

[a] Country clustered robust standard errors in parentheses, sample of all banks, public banks are GOB50, includes privatised banks as public or private respectively before and after their privatisation, taken as the largest privatisation event in the case of several waves of privatisation. All regressions include as covariates : the interaction between the Macro Shock and the Foreign dummy, the Public dummy GOB50, lagged long term rating change, lagged log of GDP per capita, lagged inflation, lagged concentration ratio, lagged market size and its growth rate, lagged relative size and its growth rate, lagged absolute size, and when appropriate, the negative macro shock dummy.

Table 13: **Lending cyclicality and Bank Efficiency, 1990-2010**[a]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Sample	Whole			Non-OECD			OECD				
Macro Shock	gGDP	OutputTrend		gGDP	OutputTrend		gGDP	OutputTrend		OutputGap	
Public Type	GOB50_t	GOB50_t		GOB50_t	GOB50_t		GOB50_t	GOB50_t		GOB50_t	
Estimation Type	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE	OLS-FE

Variable : Growth of the Efficiency Index (Loan Loss Provision over Net Income)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Macro Shock	-0.089	0.704	-0.484	-0.216	0.594	-0.238	0.222	0.027	-1.530	1.102	0.344
	(0.366)	(0.472)	(1.303)	(0.295)	(0.507)	(1.897)	(0.979)	(1.214)	(1.649)	(0.824)	(1.088)
Positive Macro Shock * Pu.	1.554***	3.918*		1.643**	5.793**		1.353	2.068		0.434	
	(0.558)	(2.078)		(0.664)	(2.696)		(1.201)	(4.091)		(1.735)	
Negative Macro Shock * Pu.	-0.207	-1.171		0.063	-1.363		-0.983	0.012		1.352	
	(0.903)	(1.078)		(1.100)	(1.164)		(1.533)	(3.245)		(1.490)	
Negative Macro Shock * Pu. * Dummy Crisis Yesterday			2.159**			2.184*			1.167		-1.345
			(0.880)			(1.165)			(2.904)		(2.315)
Negative Macro Shock * Pu. * Dummy No Crisis Yesterday			0.951			2.308**			-0.197		2.306
			(1.089)			(1.137)			(2.994)		(2.486)
Positive Macro Shock * Pu. * Dummy Crisis Yesterday			2.401**			3.393***			-0.258		-1.059
			(0.955)			(1.193)			(1.440)		(1.406)
Positive Macro Shock * Pu. * Dummy No Crisis Yesterday			1.408			2.109			1.869		0.083
			(1.267)			(1.539)			(1.877)		(1.813)
R-squared	0.029	0.029	0.032	0.036	0.038	0.036	0.038	0.039	0.041	0.038	0.038
Nber Countries	93	93	93	59	59	59	34	34	34	34	34
Nber Pr. Banks	2810	2810	2810	1198	1198	1198	1613	1613	1613	1609	1609
Nber Pr. Bk Obs.	15060	15060	15060	5528	5528	5528	9541	9541	9541	9449	9449
Nber Pu. Banks	315	315	315	182	182	182	133	133	133	133	133
Nber Pu. Bk Obs.	1799	1799	1799	938	938	938	866	866	866	854	854
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drop Nat. in crisis	No	No	No	No	No	No	No	No	No	No	No
Drop Nat. 2008-10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* p<0.10, ** p<0.05, *** p<0.01

[a] Country clustered robust standard errors in parentheses, sample of all banks, public banks are GOB50, includes privatised banks as public or private respectively before and after their privatisation, taken as the largest privatisation event in the case of several waves of privatisation. All regressions include as covariates : the interaction between the Macro Shock and the Foreign dummy, the Public dummy GOB50, lagged long term rating change, lagged log of GDP per capita, lagged inflation, lagged concentration ratio, lagged market size and its growth rate, lagged relative size and its growth rate, lagged absolute size, and when appropriate, the negative macro shock dummy.

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