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by

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Abstract[*]

This paper examines whether bank ownership (public versus private, domestic versus foreign) is correlated with bank lending behavior over the business cycle. The paper finds that state-owned banks may play a useful credit-smoothing role because their lending is less responsive to macroeconomic shocks than the lending of private banks. The paper investigates whether this differential behavior is due to an explicit objective of stabilizing credit or to the presence of "lazy" public bank managers; evidence is found in support of the former hypothesis. In the case of foreign-owned banks, the paper finds that the results are less clear-cut and argues that this finding is in line with existing theoretical models.

Keywords: State-owned banks; Foreign-owned banks; Credit cycle
JEL Codes: G21; H11; E44

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1. Introduction

This paper uses bank-level balance sheet data to test whether bank ownership (public versus private, domestic versus foreign) is correlated with bank lending behavior over the business cycle. The paper contributes to two strands of the current literature on the effects of bank ownership.[1]

The first strand relates to the literature that focuses on the desirability of state-owned banks. While most of the existing literature on the desirability of state-owned banks focuses on their effect on growth and financial development, this paper focuses on a different question.[2] In particular, the paper tests whether macroeconomic shocks have a smaller effect on the lending behavior of state-owned banks compared with their effect on the lending behavior of private banks. The finding that lending by state-owned banks decreases less during recessions and increases less during expansions would provide evidence that this group of banks stabilizes credit and hence plays a useful countercyclical role. There are three possible reasons why state-owned banks may stabilize credit. The first has to do with the fact that their principal (i.e., the state) internalizes the benefits that derive from a more stable macroeconomic environment and hence credit stabilization is part of the objective function of state-owned banks. The second has to do with the fact that, if bank failures are more likely during recessions, and if depositors think that public banks are safer than private banks (because of either implicit or explicit full deposit insurance), the former can enjoy a more stable deposit base and hence be better able to smooth credit. A third, less benign explanation is that lower cyclicality is due to the fact that managers of state-owned banks do not have a proper set of incentives and that lower cyclicality is due to the behavior of "lazy" public bank managers.

The second strand relates to the literature that studies whether foreign-owned banks play a useful stabilizing role or instead contribute to the volatility that characterizes most emerging market countries.[3] There are various possible reasons why the behavior of foreign-owned banks may differ from that of domestic banks. On the one hand, if the business cycle is correlated with

[1] There is also a third strand of the literature that focuses on the relationship between bank ownership and bank performance; see, for instance, Demirgüç-Kunt and Huizinga (2000) and Micco, Panizza and Yañez (2004). This strand, however, is less related to the questions addressed in this paper.

[2] La Porta, López-de-Silanes and Shleifer (2002) and Galindo and Micco (2004), provide evidence in favor of the hypothesis that state-owned banks negatively affect growth. Sapienza (2004) provides evidence in favor of the political view of state-owned banks, while Levy-Yeyati, Micco and Panizza (2004) present a more nuanced view.

the relative return of investment in the host country, one should expect foreign-owned banks to be more procyclical than domestic private banks. This is because during good times they can increase lending by accessing foreign credit lines, while during bad times they can leave the country and look for more profitable lending opportunities abroad. On the other hand, if credit crunches are mainly due to a decline in deposits, foreign banks may be less sensitive to the cycle because of their access to foreign funding (Galindo and Micco, 2004). Furthermore, as in the case of public banks, if depositors perceive foreign banks to be less risky than private banks, the deposit base of foreign banks will be more stable, and their lending will be more stable as well.

2. Regressions Results

To test how bank ownership affects bank lending over the business cycle we use the following econometric specification:

$$GRL_{i,j,t} = a_i + b_{j,t} + g_1\left(YGR_{j,t} * PUB_{i,j,t}\right) + g_2\left(YGR_{j,t} * FOR_{i,j,t}\right) + \\ + d\left(YGR_{j,t} * SIZE_i\right) + e_{i,j,t} \qquad (1)$$

where $GRL_{i,j,t}$ measures the growth rate of loans by bank *i* in country *j* at time *t* (the growth rate is measured as the difference between log loans at time *t* and log loans at time *t* minus 1), a_i is a bank fixed effect, $b_{j,t}$ is a country-year fixed effect that controls for all factors that are country specific (level of development, geography, institutions, etc.) and country-year specific (macroeconomic shocks, political instability, changes in regulations, etc.). *PUB* is a dummy variable that takes a value of 1 if more than 50 per cent of the bank is owned by the public sector, *FOR* is a dummy variable that takes a value of 1 if more than 50 per cent of the bank is foreign-owned, and SIZE is a variable that measures average bank size.[4] $YGR_{j,t}$ measures the GDP growth rate of country *j* at time *t* and proxies for macroeconomic shocks, hence the interactions $YGR_{j,t} * PUB_{i,j,t}$ and $YGR_{j,t} * FOR_{i,j,t}$ measure how lending by public and foreign banks reacts (relative to private domestically owned banks) to shocks (the main effect of $YGRL_{j,t}$ is

[3] Galindo and Micco (2004) provide evidence in support of the first hypothesis, and Caballero, Cowan and Kearns (2004) provide evidence in favor of the second hypothesis.

[4] *SIZE* is a measure of relative size and is defined as bank's *i* average total assets divided by average total assets of the banking system in country *j*.

controlled for by country-year fixed effects ($b_{j,t}$). We also include the interaction between bank size and GDP growth ($YGR_{j,t} * SIZE_i$) to make sure that the estimated effect of the interaction between ownership type and shocks is not driven by the fact that ownership is correlated with bank size.

In estimating the model, we recognize that some countries have many more observations than others (for instance, the 27 industrial countries included in our sample contain 70 percent of observations while the 92 developing countries constitute the remaining 30 percent). Therefore, if we do not weight our estimations, our results would end up being driven by the countries for which we have a large number of observations. Hence we weight each observation by the bank's share in total assets; Levy-Yeyati and Micco (2003) discuss the rationale for this weighting scheme.

In all estimations, we use a new dataset (based on Bankscope but with new ownership coding) assembled by Micco, Panizza and Yañez (2004). The original dataset contains data for the 1995-2002 period and includes 49,804 observations, corresponding to a number of banks that ranges between 5,445 (in 1995) and 6,628 (in 2001). However, there are several reasons why the dataset used in this paper is much smaller. First of all, since we work with growth rates, we lose at least one observation for each bank.[5] Second, in order to have a homogenous dataset, we only include banks for which all the dependent variables used in all regressions are available. Third, we drop all country-years for which we do not have at least five banks. Finally, we also drop outliers by excluding the top and bottom 2 percent of observations for each dependent variable and by dropping all observations in which bank-level loan growth is greater than 100 percent (in absolute value) and aggregate loan growth is bigger than 50 percent.[6] As a result, after carefully cleaning the data, we are left with a sample of 25,325 observations (5,496 observations for banks located in developing countries and 19,829 observations for banks located in industrial countries).

[5] In some cases, we lose more than one observation per bank because, whenever a bank changes ownership, we code it as a new bank. To make sure that our results are not driven by the transition from one ownership structure to another, we also drop all the bank-year observations in which there is a change in ownership (so if bank i was public in year 1999 and becomes private in 2000, we drop the observation for 2000). While this coding strategy has a cost in terms of degrees of freedom, we decided that overcontrolling was the safest strategy.

[6] Slight differences in the number of observations across regressions are due to the fact that not all dependent variables have the same number of observations. For instance, we have fewer observations for deposit growth than for growth in loans (24,622 versus 25,325).

Regression results are reported in Table 1.[7] For the sake of brevity the discussion will focus on our main parameters of interest, which are γ_1 and γ_2. A negative value of these coefficients will indicate that state-owned and foreign-owned banks smooth credit; a positive coefficient will indicate the opposite. Before focusing on the specification described in Equation (1), we estimate the model by substituting the country-year fixed effects with the main effect of GDP growth (columns 1-3). This is an important step because it shows that loan growth is indeed correlated with macroeconomic shocks as measured by GDP growth. Column 1 (which focuses on all countries for which we have data) shows that a 1-percent increase (drop) in GDP is associated with a 1.46 percent increase (drop) in lending by private domestic banks. The coefficient of $YGR * PUB$ is –1.352, indicating that lending by state-owned banks is much less procyclical than that of private domestic banks. In fact, the total effect for state-owned banks (1.464-1.352= 0.112) is extremely small and not significantly different from zero, indicating that lending by state-owned banks is acyclical. In the case of foreign banks, we find that they are not significantly different from domestic private banks (at –0.003, the coefficient is neither economically nor statistically significant). Column 2 focuses on a sub-sample of developing countries and finds results that are essentially identical to those of Column 1 (the coefficient for $YGR * FOR$ is a bit higher but still far from being statistically or economically significant).

Column 3 focuses on a sub-sample of industrial countries. While the results are qualitatively similar to those of Column 1, it is important to note that credit cyclicality is much lower in industrial than in developing countries (the elasticity goes from 1.4 to 0.5) and that the lending activity of state-owned banks located in industrial countries seems to be countercyclical (0.521-0.803= -0.282, however the sum of the two coefficients is not significantly different from zero). As in the case of developing countries, we find that foreign banks are not significantly different from domestic private banks.

Galindo and Micco (2004) provide a formal model that discusses the circumstances under which foreign banks stabilize and destabilize credit. They focus on four states of the world: (i) periods in which credit is decreasing and deposits are decreasing at a faster rate (deposit crunch); (ii) periods in which credit is decreasing and deposits are decreasing at a slower rate (negative opportunity shock); (iii) periods in which credit is growing and deposits are growing at a faster

[7] All the results discussed here are robust to including the lagged dependent variable and to estimating the model in levels.

rate (positive funding shock); and (iv) periods in which credit is growing and deposits are growing at a slower rate (positive opportunity shock). These authors suggest that, compared with domestic private bank credit, foreign bank credit should be higher during deposit crunches and positive opportunity shocks (because foreign banks can access foreign funds to finance domestic credit) and lower during negative opportunity shocks and positive funding shocks (because foreign banks can direct some of their deposits abroad). Using a sample of banks located in 13 Latin American countries, Galindo and Micco (2004) find some evidence in support of their model. Our finding that foreign banks are not significantly different from domestic private banks might be due to the fact that changes in GDP growth are positively correlated with deposits and opportunity shocks. If this were the case, and if foreign banks are more procyclical than domestic banks in the presence of opportunity shocks and less procyclical in the presence of deposit shocks, one would expect to find that the average behavior of a foreign bank is not distinguishable from that of a private domestic bank.

In columns 4-6 we estimate the specification described by Equation 1 (i.e., we include country-year fixed effects). As in the previous three columns, the point estimates suggest that state-owned bank lending is less procyclical than lending by domestic private banks. The coefficient is highly significant in both statistical and economic terms. Column 4 indicates that state-owned banks are 84 percent less procyclical than domestic private banks. As before, we find that foreign banks are not significantly different from domestic banks. Column 5 shows that the results for the sub-sample of developing countries are basically identical to the results for the whole sample.[8] Column 6 restricts the sample to industrial countries and finds a much stronger effect for both state-owned and foreign-owned banks. In the case of state-owned banks, the coefficient is greater than one, indicating that their lending of state-owned banks is much less procyclical than that of domestic private banks (in fact lending of state-owned banks is probably counter-cyclical). The result for foreign banks (negative and statistically significant) is somewhat unexpected given that domestic private banks located in industrial countries have probably the same access to external credit and external lending opportunities as their foreign counterparts (in

[8] This is not surprising, because our estimation method gives the same weight to each country (no matter how many banks are included in the sample) and since our sample includes 92 developing countries and 27 industrial countries, the results for the aggregate sample tend to be similar to those of the developing country sub-sample. Hence, from now on we will focus on the two sub-samples and will not discuss in detail the regressions that include both developing and industrial countries.

fact, large domestic banks located in industrial countries are likely to have large subsidiaries in other countries).

Columns 7 and 8 repeat the experiments of Columns 5 and 6 but use unweighted estimations. To avoid problems related to including a large number of very small banks, we drop all banks with assets that are less than 1 percent of total bank assets in the country. This reduces our sample to 5,305 observations (as one may expect, the largest drop is in the sub-sample of industrial countries, which goes from 19,829 observations to 1,544 observations). The results are qualitatively similar to the ones described above. However, we now find that in developing countries g_1 goes from –0.8 to –1.25, and g_2 goes from –0.11 and not significant to –0.71 and statistically significant at the 10-percent confidence level. In the sub-sample of industrial countries (Column 8), the point estimate for g_1 is similar to that in Column 6 but no longer statistically significant. In the case of foreign banks, the point estimate for g_2 is much higher than that in Column 6 but not statistically significant.

One may argue that our results might be driven by reverse causality. One possible story is that countries with a large share of state-owned banks may be subject to smaller shocks because of the useful smoothing role performed by these banks. While it is worth noting that such a mechanism would lead to an underestimation (and not an overestimation) of credit elasticity and of the smoothing effect of state-owned banks, in Columns 9-10 we address the causality issue by replacing GDP growth with its exogenous component (measured by the share of GDP growth which is explained by external demand shocks).[9] As before, we start by estimating our model replacing country-year fixed effects with the main effect of the exogenous component of GDP growth. The results are qualitatively similar to those of Columns 2 and 3. In the case of developing countries, we now obtain coefficients that, in absolute value, are slightly higher than those of Column 2. This was an expected result if we think that the endogeneity of GDP growth was leading to an underestimation of the credit elasticity and of the smoothing effect of state-owned banks. The results for industrial countries are more puzzling because they find an

[9] In particular, for each country, we start by computing an external shock defined as the growth rate of country's *i* trading partners: $EXSHOCK_{i,t} = \sum_j Y_{j,t} \frac{EX_{i,j}}{Y_i}$. Where $Y_{j,t}$ is GDP in year *t* in country *j*, Y_i is average GDP in country *i* and $EX_{i,j}$ are average exports from country *i* to country *j*. Next, we compute the exogenous component of GDP in country *i* as the predicted value of the regression of $Y_{i,t}$ over $EXSHOCK_{i,t}$.

extremely large effect of GDP growth on credit (the elasticity goes from 0.5 to 3) and a very large smoothing effect of state-owned banks (the coefficient goes from -0.8 to -6.3). This difference in results could be due to the fact that external shocks might not be a good source of exogenous variation of GDP growth for industrial countries.[10] Columns 11 and 12 repeat the experiment by substituting the main effect of the exogenous component of GDP growth with country-year fixed effects and obtain results that are qualitatively similar to the ones discussed before.

While discussing why there might be a relationship between ownership and lending cyclicality, we mentioned that some of the stabilizing effects of foreign and state-owned banks may come from a more stable deposit base. The first two columns of Table 2 test this hypothesis. They reproduce the same regressions of Columns 5 and 6 of Table 1 but replace loan growth with deposit growth. We find that g_1 (the coefficient associated with public ownership) is always negative but statistically significant only in the sub-sample of industrial countries. In the case of developing countries, the coefficient is not statistically significant and very close to zero. This may be due to the fact that state-owned banks located in developing countries with serious fiscal problems are not perceived to be safer than private banks. In the case of g_2 (the coefficient associated with foreign ownership), we find that the coefficient is negative but not statistically significant (however, at –0.332, it is economically significant) when we focus on developing countries, and positive and statistically significant in the case of industrial countries. This last result indicates that the deposit base of foreign banks located in industrial countries is more procyclical than the deposit base of domestic banks (both private and state-owned).

2.1 Do They Smooth or Are They Just Lazy?

Table 1 provided some evidence in support of the idea that state-owned banks play a useful smoothing role. A less benign interpretation would be that public bank managers are just "lazy" and, lacking incentives to maximize profits, neither aggressively look for lending opportunities during good phases of the cycle and nor reduce lending during low phases when risk increases. A possible way to determine whether public banks are "useful smoothers" or "lazy managers" is to

[10] In fact, it is reasonable to think that the growth rate of, say, Mexico's main trading partner (i.e., the United States) causes GDP growth in Mexico. However, GDP growth of the trading partners of large industrial countries like the United States, Japan, or Germany might be endogenous with respect to the growth rate of these countries.

compare how the non-lending activities of public and private banks vary over the business cycle. We look at this in the last four columns of Table 2. The table reports regressions similar to those of Table 1, but the dependent variables are now the growth rate in other earning assets (i.e., earning assets which are different from loans) and the growth rate of non-interest income (i.e., income that derives from fees and services and not from lending or bond-holding activities). The key idea is that, if public banks play a useful smoothing role, we should observe a difference in behavior (when compared with private banks) in their lending activity but no difference in behavior in other revenue-generating activities that are performed by both private and state-owned banks.[11] Columns 3 and 4 show that the growth rate of other earning assets held by state-owned banks is never less procyclical than that of private domestic banks. In fact, in the case of industrial countries, we find that it is significantly more procyclical.

The procyclical behavior of other earning assets may be due to the fact that state-owned banks smooth more lending than deposits and hence need to substitute lending with other earning assets. As a consequence, their lending to deposit ratios would increase during good times (when state owned banks reduce lending and increase other earning assets) and decrease during bad times (when state-owned banks replace other earning assets with lending activities).

When we focus on non-interest income, we find some countercyclicality for public banks located in developing countries; the coefficient, however, is not statistically significant. In the case of industrial countries, we find that, if anything, state-owned banks are more procyclical than private banks; as in the case of developing countries, though, the coefficient is not statistically significant.[12] Taken together, these results seem to provide some evidence in favor of the credit-smoothing interpretation rather than for the "lazy managers" interpretation.

In the case of foreign banks located in developing countries, we find that the coefficient is always negative but never statistically significant. When we focus on industrial countries, we find a puzzling sign reversal. In particular, we find that the coefficient is positive and statistically significant in the other earning assets regressions in developing countries and negative and statistically significant in the non-interest income regressions.

[11] We see no reason why managers of public banks should have a mandate to stabilize non-lending activities.

[12] In the regression for non-interest income, we control for loans growth because some fee might be related to lending activity. The results are unchanged if we drop this control.

3. Conclusions

This paper provides evidence that state-owned banks may play a useful credit-smoothing role. In particular, it shows that lending by state-owned banks is much less responsive to macroeconomic shocks than the lending of private banks (both domestic and foreign-owned), and state-owned banks could thus play a useful role in the transmission mechanism of monetary policy. This result contrasts somewhat with the findings of Cecchetti and Krause (2001), but those authors focus on a different test. The paper examines whether this differential behavior is due to an explicit objective to stabilize credit or to the presence of "lazy" public bank managers and finds some evidence in support of the former hypothesis.

One important caveat is that the dataset used in this paper does not allow us to investigate the general equilibrium effect of the smoothing activity of state-owned banks. It may be possible that state-owned bank lending merely crowds out lending from private banks, and hence the presence of state-owned banks does not affect aggregate lending during the business cycle. Analyzing such a hypothesis goes beyond the scope of this paper because it would require moving from micro to macro data, which would raise much more serious endogeneity issues.

The paper also looks at the behavior of foreign-owned banks. Here the results are less clear-cut. In particular, in most regressions, we find no significant difference between the lending behavior of foreign-owned banks and that of private domestic banks. These weak results might be due to the fact that the way in which foreign-owned banks react to macroeconomic shocks is much more complex (as shown by Galindo and Micco, 2004), and our findings could be due to the fact that deposit and opportunity shocks tend to balance each other over the business cycle.

References

Caballero, R., K. Cowan and J. Kearns. 2004. "Fear of Sudden Stops: Lessons from Australia and Chile." NBER Working Paper 10159. Cambridge, United States: National Bureau of Economic Research.

Cecchetti, S., and S. Krause. 2001. "Structure, Macroeconomic Stability and Monetary Policy." NBER Working Paper 8354. Cambridge, United States: National Bureau of Economic Research.

Demirgüç-Kunt, A. and H. Huizinga. 2000. "Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence." *World Bank Economic Review* 13(2): 379-408.

Galindo, A., and A. Micco. 2004. "Do State-Owned Banks Promote Growth? Cross-Country Evidence from Manufacturing Industries." *Economic Letters* 84: 371-376.

Galindo, A., A. Micco and A. Powell. 2003. "Loyal Lending or Fickle Financing: Foreign Banks in Latin America." Washington, DC, United States: Inter-American Development Bank, Research Department. Mimeographed document.

La Porta, R., F. López-de-Silanes, and A. Shleifer. 2002. "Government Ownership of Banks." *Journal of Finance* 57: 265-301.

Levy-Yeyati, E., and A. Micco. 2003. "Banking Competition in Latin America." Paper presented at the first Latin American Competition Forum of the Organisation for Economic Co-operation and Development and the Inter-American Development Bank, Paris, France. First Latin American Competition Forum, Inter-American Development Bank. http://www.iadb.org/res/publications/pubfiles/pubS-164.pdf

Levy-Yeyati, E., A. Micco and U. Panizza. 2004. "Should the Government be in the Banking Business? The Role of State-Owned and Development Banks." Research Department Working Paper 517. Washington, DC, United States: Inter-American Development Bank, Research Department.

Micco, A., U. Panizza and M. Yañez. 2004. "Bank Ownership and Performance." Research Department Working Paper 518. Washington, DC, United States: Inter-American Development Bank, Research Department.

Sapienza, P. 2004. "The Effects of Government Ownership on Bank Lending." *Journal of Financial Economics* 72(2): 357-384.

Appendix: Description of the Data[13]

The purpose of this appendix is to describe the steps taken to construct the dataset used in this paper. As mentioned in the text, our main source of data is Bankscope (BSC). We obtain data for the 1995-1999 period from the June 2001 update of BSC and data for the 2000-2002 period from the February 2004 update of BSC. Processing the data required two main steps, which we describe below.

Avoiding duplications. For most banks, BSC reports balance sheet data at both the consolidated and unconsolidated levels. In order to avoid duplications, it is necessary to use only one of the two definitions. This could have been easily done by just dropping either all the consolidated or unconsolidated statements if BSC reported both types of statements for all banks. However, some banks have only a consolidated statement, and others have only an unconsolidated statement; dropping one category would thus lead to loss of information. Furthermore, it is impossible to automatically keep the unconsolidated statement, for instance, if the consolidated statement is missing because, in some cases, there are slight changes in the reported name of the bank when one moves across different levels of consolidation. An even more difficult problem is that in some cases BSC reports information for the same bank several times. This is especially the case at the time of mergers.

An example may be helpful here. Consider the case of INTESA, the largest Italian banking group. INTESA was created in 1998 with the merger of CARIPLO and AMBROVENETO. In 1999, Banca Commerciale Italiana (COMIT) joined the INTESA group, and in 2001 COMIT completely merged with INTESA, which took the name of INTESABCI. As of 2000, BSC reports data for (i) COMIT; (ii) AMBROVENETO; (iii) CARIPLO; (iv) INTESABCI. Clearly, considering all these four banks would lead to a large overestimation of Italian banking assets. To address this problem, we make use of a variable included in BSC that ranks banks within a country and is built to limit duplications (the variable name is CTRYRANK). In the above case, CTRYRANK takes values of 1 for INTESABCI (recognizing that this is the largest bank in the country), 5 for CARIPLO and 12 for AMBROVENETO, respectively. COMIT is not ranked (CTRYRANK takes the value NR). Therefore, dropping the banks coded as non-ranked can help us in avoiding duplication. There are, however, still two

[13] This appendix is from Micco, Panizza and Yañez (2004) and is introduced for the ease of referees. The appendix will be omitted from the final version of the paper.

problems with this strategy. First, the dataset would still include INTESABCI and two of its components (AMBROVENETO and CARIPLO). Second, the ranking variable refers to the last year, and hence if we were to drop all the banks that are not ranked, we would also drop COMIT for the 1995-1999 period. To address this issue, we looked at all banks with assets greater than the country average coded as non-ranked, and we explored their merger history. This led to a massive amount of recoding that helped us to include in the dataset most of the relevant information and avoid duplications.[14] After eliminating duplications, we end up with a total of 49,804 observations, corresponding to a number of banks that ranges between 5,445 (in 1995) and 6,628 (in 2001). Banks located in industrial countries represent approximately 70 percent of total observations and banks located in developing countries the remaining 30 percent. It is interesting to note that the share of banks located in developing countries increased by two percentage points between 1995 and 2002.

Coding Ownership BSC includes an ownership variable (measuring whether a given bank is owned by the public sector or by foreign investors) but this variable has limited coverage and is only available for the current year, as BSC does not provide ownership history. Therefore, coding ownership history requires looking at one bank at a time. This process involves using a variety of approaches and resources; these include Internet searches, consulting bank websites and publications such as *Euromoney*, and telephone interviews with experts in various countries. As this is a particularly time-consuming and difficult endeavor, and the cost of coding all banks included in the dataset would have been too high, we decided to adopt some cut-off points under which a bank would not be coded.

The following procedure was used to determine cut-off points. In all countries we coded the 10 largest banks, the same strategy followed by La Porta, López-de-Silanes and Shleifer (2002). If these banks represented less than 75 percent of total assets of the banking system, we coded all banks up to 75 percent of total assets of the banking system. In Latin American and industrial countries, we coded the largest 20 banks. Again, if these 20 banks represented less than 75 percent of total assets of the banking system, we coded up to 75 percent. If a bank was not

[14] In the case of the example described above, we adopted the following strategy. We re-ranked (and hence included in the dataset) COMIT from 1995 to 1999 and de-ranked (and hence excluded from the dataset) Ambroveneto and CARIPLO for 2000-2002 and Intesa BCI for 1995-1999. After dropping the non-ranked bank we end up with three banks (COMIT, Ambroveneto and CARIPLO) operating for the 1995-1999 period and one banks (IntesaBCI) operating for the 2000-2002 period.

among the top twenty or in the 75th percentile but the coding was obvious (for instance, in the case of foreign branches), it was also coded.[15]

In coding ownership, we followed the same strategy as La Porta, López-de-Silanes and Shleifer (2002) and assumed that, if X percent of bank A is owned by company B and Y percent of company B is owned by a foreign company (alternately state owned), then bank A is coded as being X*Y percent foreign (state) owned. In order to code ownership, we always went back at least two steps in the ownership structure.

[15] Even with this cut-off, coding ownership required two months of work by a full-time research assistant.

Table 1. Credit Cyclicality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Weighted Standard Fixed Effects Estimations			Weighted Standard Fixed Effects Estimations			Non-Weighted Fixed Effects Estimations		Exogenous Component of GDP Growth			
	GRLOAN	GRLOAN	GRLOAN	GRLOAN	GRLOAN	GRLOAN	GRLOAN	GRLOAN	GRLOAN	GRLOAN	GRLOAN	GRLOAN
YGR	1.464	1.440	0.521						1.597	3.003		
	(0.101)***	(0.223)***	(0.144)***						(0.355)***	(0.264)***		
YGR*PUB	-1.352	-1.404	-0.803	-0.835	-0.804	-1.480	-1.248	-1.294	-1.819	-6.272	-0.928	-4.101
	(0.147)***	(0.311)***	(0.320)**	(0.142)***	(0.307)***	(0.329)***	(0.429)***	(1.484)	(0.515)***	(0.521)***	(0.544)*	(0.564)***
YGR*FOR	-0.003	0.122	0.094	-0.011	0.036	-0.772	-0.658	-1.860	0.006	0.016	-0.189	0.092
	(0.134)	(0.294)	(0.199)	(0.136)	(0.297)	(0.274)***	(0.367)*	(1.461)	(0.460)	(0.253)	(0.433)	(0.260)
YGR*SIZE	-1.580	-0.958	-4.505	-1.559	-1.271	-5.869	-2.803	-3.946	-0.910	-6.185	-2.772	-1.456
	(0.459)***	(1.037)	(0.520)***	(0.513)***	(1.119)	(1.006)***	(1.839)	(5.296)	(1.485)	(0.624)***	(1.555)*	(0.863)*
Observations	25325	5496	19829	25325	5496	19829	3761	1544	5391	19360	5391	19360
R-squared	0.4937	0.5079	0.4108	0.7299	0.7449	0.6322	0.6908	0.5961	0.5140	0.4835	0.7454	0.6637
Group	All	Developing	Industrial	All	Developing	Industrial	Developing	Industrial	Developing	Industrial	Developing	Industrial
Weights	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes

All regressions include bank fixed effects and country-year fixed effects. * significant at the 10 percent confidence level;
** significant at the 10 percent confidence level; *** significant at the 1 percent confidence level.

Table 2. Cyclicality of Deposits and Other Sources of Income

	(1)	(2)	(3)	(4)	(5)	(6)
	Deposits Growth	Deposits Growth	Growth Other Earning Assets	Growth Other Earning Assets	Growth Non-Interest Income	Growth Non-Interest Income
YGR*PUB	-0.004	-1.301	0.070	1.603	-0.584	1.194
	(0.304)	(0.324)***	(0.565)	(0.481)***	(0.707)	(0.782)
YGR*FOR	-0.332	1.603	-0.643	2.090	-0.340	-3.045
	(0.293)	(0.269)***	(0.547)	(0.402)***	(0.669)	(0.600)***
YGR*SIZE	-1.995	-4.046	-1.322	-5.525	-1.444	-7.526
	(1.189)*	(0.991)***	(2.061)	(1.470)***	(2.562)	(2.096)***
GRLOANS					0.243	0.087
					(0.039)***	(0.016)***
Observations	5415	19207	5441	19665	5408	19562
R-squared	0.7238	0.6075	0.6428	0.5739	0.6251	0.5516
Group	Develop.	Industrial	Developing	Industrial	Developing	Industrial
Weights	Yes	Yes	Yes	Yes	Yes	Yes

All regressions include bank fixed effect and country-year fixed effects. * significant at the 10 percent confidence level;
** significant at the 10 percent confidence level; *** significant at the 1 percent confidence level