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Abstract

This paper investigates empirically the cyclical lending patterns of national development banks. To this purpose, we compare the lending activity of national development banks, across crisis and normal times, with that of public, foreign and domestic private banks using information on the annual financial statements of 336 major banks from 31 Latin American and Caribbean countries over the period of 1995-2014. Using dynamic panel regressions that allow controlling for loan demand and other factors, we find robust evidence that national development and public retail-oriented banks have counteracted the slowdown in the lending activity of private banks during crises by significantly increasing their provision of loans. Our results are particularly important when considering productive lending to the corporate sector. The findings suggest that governments have played an active countercyclical role in their banking systems directly through both national development and retail-oriented public banks. Certainly, national development banks' size, governance structure and financial condition play a key role in determining that the countercyclical response is effective in mitigating the macroeconomic effects of financial turmoil. In addition, it is important that special and innovative credit lines are designed in line with the specific needs of companies in times of crisis. Moreover, credit lines for infrastructure projects that increase the countries' productive and export capabilities are also advisable.

Keywords: Bank lending, National development banks, countercyclical behavior.

JEL codes: G01, G21, G28.

1. Introduction

Since the onset of the global financial crisis, the subsequent credit crunch, and the failure to reignite sustained economic growth, the role of national development and public commercial banks has come to the forefront of the policy agenda. Especially their role in providing credit countercyclically has attracted attention given that such lending can mitigate amplifications in business cycles and prevent a crisis to deepen (UN-DESA, 2005; Griffith-Jones and Ocampo, 2008; Gutierrez et al., 2011; de Olloqui, 2013; Rudolph, 2010; Griffith-Jones and Gottschalk, 2012; World Bank, 2012).

On top of this policy focus, there is also a growing body of detailed empirical evidence that state-owned development and retail-oriented banks have played an active role during crisis resolutions in both advanced and emerging market economies (Brei and Schclarek, 2013, 2015; Bertay et al., 2015). As will be discussed in more detail below, a number of governments have actively counteracted the crisis-related economic slowdown with increased lending intermediated through national public banks. The government responses have particularly been focused on the provision of working capital for productive purposes and long-term loans for investment in the corporate sector and other key areas such as infrastructure. Privately-owned banks, on the other hand, tended to lend pro-cyclically, fueling booms and exacerbating busts.

Evidently, a certain degree of government involvement in the banking sector appears to be important, particularly in volatile environments where countercyclical policies can help smoothing the business cycle. In this context, however, it has to be noted that government interventions in the banking sector are most efficient in countries with sound governance structures and institutional quality (Andrianova et al., 2009; de Olloqui, 2013). In countries where institutional quality is low, distortions in governments' allocation of resources are likely to be prevalent, as banks might be used to favor companies with political connections, soften the public sector budget constraint, or to finance electoral campaigns (Krueger, 1974; Shleifer and Vishny, 1994; Khwaja and Mian, 2005; Carvalho, 2014). Clearly, in such environments it is unlikely that national development banks are able to act countercyclically, when facing a crisis episode, as they are plagued with non-performing loans due to distorted risk assessments or politically-connected lending. Thus, countries have to foster the development of sound institutions that build the ground for well-managed development banks, which can step in and expand lending when the economy is slowing down.

Against this backdrop, the present paper investigates the lending behavior of different types of banks, including national development, public, domestic, and foreign banks from 31 Latin American and Caribbean countries over the period of 1995-2014.[1] A special focus is hereby set on their lending

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[1] In the following, the term "public banks" refers to commercial, corporate or savings banks that are owned by a local government, "domestic (foreign) banks" to commercial, corporate or savings banks that are owned by local (foreign) institutions from the private sector, and "national development banks" refers to non-deposit-taking development banks that are owned by a local government.

responses to systemic financial crises. To shed light on this issue, we use the annual financial statements of 336 major banking institutions, of which 14 are national development banks, 31 public banks, and 291 private banks (134 foreign and 157 domestic). Together these banks account for 3.9 trillion USD of assets at end-2014, corresponding to 95 percent of the assets reported in the Top 200 Latin American Banks Ranking. National development banks accounted hereby for 0.4 trillion USD of assets at end-2014 (or 11 percent of the sample's assets).

Using dynamic panel regressions that allow for parameter shifts across banks of different ownership during normal times and crises in the bank lending equation, we find robust evidence that national development and public banks have played a countercyclical role in their banking systems. While private banks behaved procyclically, i.e. lending more during booms and less during busts, we observe the opposite for national development and public banks. The different crisis responses are not only statistically but also economically significant. Most responsive to the crises has been the lending activity of national development banks. Their real growth rate of lending increased on average by more than 6 percentage points relative to normal times, whereas private foreign and domestic banks reduced their lending activity by more than 3 percentage points. Moreover, the econometric evidence suggests that the increase in public bank lending during times of crisis came in the form of commercial and corporate credits. Thus, according to our results state-owned banks have counteracted the potential adverse economic effects of the slowdown in lending by private banks during crises. To our knowledge, this is the first econometric study that compares the countercyclical behavior of national development banks and other types of banks during crisis periods.

The remainder of the paper is organized as follows. A literature overview is presented in the next section. In section 3, we present the data and descriptive statistics. The econometric methodology is discussed in section 4, while the empirical results are discussed in sections 5 and 6. The final section offers a number of policy conclusions.

2. Literature overview

There is a growing consensus that national development banks should provide countercyclical financing to mitigate amplifications in the business cycle and to prevent a crisis to deepen (UN-DESA, 2005; Griffith-Jones and Ocampo, 2008; Gutierrez et al., 2011; Rudolph, 2010; Griffith-Jones and Gottschalk, 2012; World Bank, 2012; de Olloqui, 2013). The empirical evidence based on a number of surveys and case studies seems to be in line with this view. For example, based on a survey of 90 national development banks from 61 countries, de Luna-Martinez and Vicente (2012) find that their lending volume increased from 1.16 to 1.58 trillion US dollars during 2007-09. This increase of 36 percent in lending was much higher compared to the 10 percent increase in private bank credit in these countries. The authors also find that development banks have extended both short- and long-term credits to existing and new customers who were facing difficulties in debt refinancing and in receiving new lines of credit.

An important Latin American national development bank that operated countercyclically in response to the global financial crisis is Banco Nacional do Desenvolvimento Economico e Social (BNDES) from Brazil. For example, BNDES implemented the PSI investment program (Programa de Sustentação do Investimento) in July 2009 to complement the existing FINAME program (financiamento de máquinas e equipamentos) on financing the acquisition of machinery and equipment produced in Brazil. The PSI program involved, on top of a recapitalization of BNDES, a reduction of interest rates charged on these loans, justified by the positive externalities of the program. Between 2009-10, the disbursements of the FINAME program increased from 20.7 to 46.8 billion Real, an increase of more than 100 percent (Machado and Roitman, 2015; Ferraz et al., 2012).

Focusing on the European experience, Griffith-Jones et al. (2011) provide evidence that the multilateral European Investment Bank (EIB) increased the signatures for lending to small- and medium-sized enterprises (SMEs) by 128 percent during 2007-09, with a growth in loan disbursements of 57 percent over the same period. In addition, the number of EU countries with private banks that intermediated EIB lending to SMEs increased from 16 to 24 percent over the considered period. Such intermediated lending through private banks can hereby avoid the duplication of screening efforts and reduce the costs of acquiring information on individual borrowers (Hainz and Hakenes, 2012). As Griffith-Jones et al. (2011) suggest, the increase in lending to SMEs was feasible, because EIB's capitalization had increased significantly in the years prior to the crisis, which implied that the bank had sufficient internal resources and no capital constraints to increase lending once the crisis hit.

In parallel to the recent literature on the lending behavior of national and multilateral development banks, there exists econometric evidence on the countercyclical behavior of bank lending when broadening the scope to state-owned commercial and savings banks. The literature finds robust evidence that these banks have played an important countercyclical role in their banking systems, helping the economies to recover from the financial turmoil (see, amongst others, Allen et al., 2013; Brei and Schclarek, 2013; Cull and Martínez Pería, 2013; Bertay et al., 2015; Behr et al., 2017).

The theoretical literature that compares the crisis responses of private and state-owned banks suggests a number of explanations for the distinctive lending behavior of these two types of banks. As Brei and Schclarek (2015) argue, the objective of state-owned banks is not only to maximize profits given risks, but also to stabilize and promote the recovery of the economy. Thus, given that their objective function differ, public banks are more willing to take on more risks and expand lending during a crisis period than private banks. A similar argument has been made by Rudolph (2010) who argues that state-owned financial institutions have less volatile risk aversion and therefore provide a more stable source of funding. It is also similar to the argument of Eslava and Freixas (2016) who suggest that a private bank's choice takes into account only the loan repayment, while the other benefits and externalities an investment project may have are not internalized.

Another argument, also put in place by Brei and Schclarek (2015), is that public banks are more likely to be capitalized than their private counterparts during a crisis. Thus, public banks will be in a better position to increase lending during the crisis. The reason for the higher chances of being recapitalized is

that the government, which is the owner of the public bank, due to its higher credibility and financial strength during a crisis is better able to get fresh funds than the private banker. In addition, Brei and Schclarek (2015) also argue that the higher credibility and financial strength of the government, in contrast to that of private bankers, help public banks suffer less deposit withdrawals and/or have fewer problems in rolling over short-term debt. Having less liquidity problems during a crisis, allows public banks lend more than private banks. Note that the increased credibility may be due to an actual recapitalization but could also be due to a credible promise or higher expectation of a future recapitalization.

In line with this literature, Mazzucato and Penna (2016) argue that the procyclical behavior of private banks is explained by realizing that private banks have become increasingly speculative over the past decades, targeting short-term gains through securities trading and brokerage rather than providing loans to long-term productive and innovative projects. Finally, focusing on public development banks, Eslava and Freixas (2016) study the mechanisms that should be implemented in order to efficiently support the targeted firms. They argue that when national development banks lend indirectly through commercial banks, national development bank should provide funds to commercial banks in the form of lending when commercial banks face a liquidity shortage and in the form of credit guarantees, when commercial banks are undercapitalized.

3. Data description

The bank-level data on the annual financial statements are taken from the BankScope database complied by Fitch and Bureau van Dijk. Our data covers banks from 31 countries in Latin America and the Caribbean from 1995 to 2014, spanning over periods of economic booms and downturns. Where possible, we gather consolidated financial statements of banks making the assumption that banks manage their entire set of banking activities on a consolidated basis. If no consolidated statement exists, we use the unconsolidated financial statement reported for the bank instead. To avoid double counting, we exclude subsidiaries that have been majority-owned by other banks in our sample.

Our study focuses on the lending activity of national development banks and other deposit-taking institutions. National development banks are hereby identified as banking institutions that are state-owned, non-deposit taking, and not foreign- or multilaterally-owned. Public, foreign and domestic banks are deposit-taking banks that are majority-owned by a local government, a foreign or domestic holding company, respectively. We use BankScope information on the global ultimate owner as the principle source, but we complement the information with Claessens and Van Horen (2015) and publicly available information from the web pages of each of these banks. Non-bank entities are excluded from the sample.[2] When a bank switched accounting standards, we reconstructed historically the IFRS statements

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[2] We cross-reference the list of financial institutions obtained from BankScope with the registry of licensed banking entities reported on the websites of the various central banks in the region in order to distinguish between deposit-

using the previously reported local GAAP statements.[3] Finally, whether or not a bank is included in the regressions depends as well on the availability of the information on the control variables (macroeconomic and bank-level information). After applying our filters, our initial sample of 618 financial institutions reduces to our final sample of 336 banks, of which there are 14 national development banks, 31 public banks, and 291 private banks.[4] Out of the 291 private banks, 157 are domestically-owned and 134 are subsidiaries of foreign banks. In total, we have 2835 bank-year observations for our regressions.[5]

As can be seen in Table 1, the sample of banks is representative for the region, given that the present banks account for 3.9 trillion USD of assets at end-2014, corresponding to 95 percent of the assets reported in the Top 200 Latin American Banks Ranking of The Banker magazine. Most of these assets (83 percent) are controlled by 172 South American banks that operated in 9 countries, followed by 99 banks (with 626 billon USD of assets) from 4 Central American countries and Mexico, and 66 banks from 17 Caribbean countries with a total of 27 billion USD of assets. In terms of different bank types, national development banks accounted for 0.4 trillion USD of assets at end-2014, corresponding to 11 percent of the total of the sample's assets, while public banks accounted for 1.0, domestic banks for 1.4, and foreign banks for 1.1 trillion USD of assets, see Table 2.

[Insert Table 1 here]

The crisis periods are identified with the banking and currency crisis indicators of Leaven and Valencia (2013).[6] Further, we assigned a crisis period to all countries during the period 2008-12. The reason is that

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[3] taking entities from other types of financial firms. The manual selection of banks is important as BankScope classifies many non-bank financial entities as commercial banks.

[3] In certain cases, the difference between IFRS and local GAAP can be large, especially for banks with a large trading book. The main reason for this is the different treatment of the derivatives netting on the asset and liability side. However, this mainly affects the value of total assets, whereas loan values (the focus of our study) are much less affected. We have tested whether our results are affected when including an IFRS dummy variable and found that our results are unaffected. Because the IFRS dummy was insignificant, we do not include it in our estimations.

[4] The included national development banks are: Banco Nacional de Fomento de la Vivienda y la Produccion –BNV (Dominican Republic); Banco de Desenvolvimento do Espirito Santo SA – BANDES (Brazil); Financiera de Desarrollo Territorial S.A. Findeter (Colombia); Banco Nacional de Comercio Exterior SNC – BANCOMEXT (Mexico); Nacional Financiera S.N.C. (Mexico); National Export-Import Bank of Jamaica Ltd - EXIM Bank (Jamaica); Banco de Comercio Exterior de Colombia SA – BANCOLDEX (Colombia); Banco Nacional de Desenvolvimento Economico e Social – BNDES (Brazil); Banco de Inversion Y Comercio Exterior SA – BICE (Argentina); Banco Nacional de Obras y Servicios Publicos, SNC – BANOBRAS (Mexico); Corporacion Financiera de Desarrollo S.A. – COFIDE (Peru); Financiera Energetica Nacional (Colombia); Development Finance Limited (Trinidad and Tobago); and Banco de Fomento Agropecuario (El Salvador).

[5] It should be noted that this sample of banks differs from the sample used for the calculation of the summary statistics in the first chapter of this book. The reason for this is that not all banks report the required information on the control variables, which implies that those banks had to be dropped in the regressions.

[6] Under their definition, a systemic banking crisis occurs when a country's corporate and financial sectors experience a large number of defaults, and financial institutions and corporations face difficulties in repaying debt on time. The authors combine quantitative data with some subjective assessments by country experts. A currency crisis is defined as an episode during which there was a nominal depreciation of the currency vis-à-vis the US dollar of at least 30 percent that is also at least 10 percentage points higher than the rate of depreciation in the year before.

we would like to capture national development bank's lending in response to the recent global financial crisis as well, even though it did not materialize in every country in the form of a financial crisis. In total, our sample covers 14 banking crises and 13 currency crises that occurred in the 31 countries over the period of 1995-2014.

[Insert Table 2 here]

Our dependent variable, the real growth rate of bank lending which comprises retail lending (residential mortgages and other consumer loans), corporate loans, and commercial loans is measured by the BankScope item net loans. To avoid exchange rate valuation effects, we convert loans measured in US dollars into local currency units using the end-of-period exchange rate. Moreover, to avoid inflation effects, we deflate loans in local currency by the consumer price index or the GDP deflator, if the former is not available. We exclude observations with extremely low and high growth rates (below the 1st and above the 99th percentile) to avoid the impact of mergers and acquisitions on the growth rate of lending and other noise in the data.

From Table 2, which provides summary statistics for our sample of 336 banks across different types, it appears that national development banks recorded on average an annual real growth rate of lending of 3.42 percent in normal times, while during crisis periods they expanded lending at an average growth rate of 10.33 percent. The results for public banks indicate a similar countercyclical pattern with a real growth rate of lending of 6.06 percent in normal times and 15.36 percent during crises. Domestic and foreign banks, on the other hand, appear to lend procyclically, recording higher growth rates in normal times than in times of crisis. To be more precise, domestic and foreign banks recorded an average annual real growth rate of lending of 14.42 and 11.72 percent in normal times, whereas during crises they were lending at a growth rate of 12.31 and 9.42 percent, respectively. Clearly, from these summary statistics, national development banks and public banks showed a countercyclical behavior, while private banks tended to lend procyclically. While national development banks showed the highest degree of countercyclical behavior, foreign banks showed the highest degree of procyclical behavior. These results, however, do not allow to infer causal relationships and to control for loan demand and other factors. In the next section, we will therefore investigate whether these first, tentative results still hold in our regressions on the bank-lending channel.

Table 2 also shows that there is some homogeneity in the average loan-to-asset ratio, with national development banks having the highest ratio of 58.76%. Note, however, that public banks are an exception to this homogeneity, having a clearly lower ratio of 43.51%. When considering the evolution of this ratio through time in Figure 1, we see more heterogeneity. While private banks were increasing their lending ratio between 2005-07 prior to the financial crisis, national development banks reduced their lending ratio. This is presumably a sign that national development banks were acting countercyclically in the boom period. Then in 2009, national development banks started to increase lending, counteracting

the fall in the lending activity of private banks that occurred during 2007-09. Again, this finding suggests that national development banks acted countercyclically in the crisis period.[7]

 [Insert Figure 1 here]

Another interesting difference among these types of banks is the heterogeneity in the types of loans they grant. From Table 2, it is clear that national development banks have been focused on corporate and commercial lending, with a corporate and commercial loans-to-total loans ratio of 60.49 percent, and have concentrated much less on mortgage and consumer loans, with ratios of 8.58 and 8.1 percent, respectively. Instead, the other three types of banks concentrated less on corporate and commercial loans, with ratios of 51.93, 53.21 and 45.64 percent for foreign, domestic and public banks, respectively, and much more on consumer loans, with ratios of 25.96, 26.57 and 29.08 percent, respectively. With respect to mortgages, there is more heterogeneity, with public commercial banks having the highest ratio (17.1 percent). In addition, we observe that national development banks and public banks have the highest ratios of government securities-to-total assets, ranging between 16.56% and 22.14%, respectively.

In terms of the funding structure, it becomes apparent that national development banks are less dependent on deposits, with a ratio of 30.03 percent, and more dependent on long-term funding and capital, with ratios of 26.78 an 15.28 percent, respectively. This more stable long-term funding structure is an important difference with respect to the other types of banks which makes national development banks less dependent on short-term developments, such as sudden swings in the sentiments of depositors and short-term bond investors. The lower liquidity ratio of national development banks may also be a result of this longer-term funding structure if we consider that they do not need to have as many liquid assets in order to respond to sudden freezes in money markets. Certainly, the more stable long-term funding structure of national development banks has positive consequences for their long-term lending possibilities, as well as the countercyclical properties of their lending, as will be discussed further below.

Finally, interest earnings are lower for national development banks, with a ratio over total loans of 11.34 percent. This lower ratio is probably an indication that they charge lower interests on their loans. As mentioned before, this is not a surprise given that development banks do not only take into account the loan repayment, but also the potential externalities and socio-economic impact of the projects. Further, their non-interest income is also lower, with a ratio over total income of 13.04 percent, which might be an indication that they charge lower service fees, being more dependent on their interest income activities. These lower interest and non-interest incomes show up in their lower return on equity ratio, which is equal to 5.21 percent. Partly, this lower return on equity can be attributed to their higher capital

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[7] The use of the loan-to-asset ratio as an indicator of loan availability should be taken with caution. For example, the increase in the ratio for private banks post-2009 may not reflect an increase in lending but a reduction of total assets (the denominator) due to a desire of reducing leverage. Moreover, private banks' lending might have increased because they were intermediating funds from development banks or benefiting from other positive externalities.

ratio. Interestingly, the lower return on equity ratio does not appear to be an indication of higher losses on bad loans, given that their non-performing loan ratio (3.99%) is the lowest among the different types of banks.

4. Econometric methodology

To take into account other bank-specific characteristics that determine individual bank lending and macroeconomic factors that affect loan demand, we utilize a specification that has been used before in the bank lending channel literature (Ehrmann et al., 2003). Given that we are interested in the lending behavior of the different types of banks during normal and crisis periods, we interact a crisis dummy with the bank-specific indicators on the type of a bank. This allows us to account for potential parameter shifts in the estimated relation between lending and the type of a bank, when the state of the economy moves from normal times to a crisis period. National development, public, foreign and domestic banks are hereby distinguished by three dummy variables, DB_{ijt}, PB_{ijt}, and FB_{ijt}, which are equal to one when bank j operating in country i in year t is a national development, public or foreign bank, respectively, and zero otherwise. The dummy for domestic banks is not included due to collinearity, which means that the coefficients associated with the other bank types are interpreted in terms relative to domestic banks.

The approach can be summarized using the following regression model:

$$\Delta L_{ijt} = \alpha_1 \Delta L_{ijt-1} + \alpha + \alpha^* C_{jt} + (\alpha_{DB} + \alpha_{DB}^* C_{jt})DB_{ijt} + (\alpha_{PB} + \alpha_{PB}^* C_{jt})PB_{ijt} + (\alpha_{FB} + \alpha_{FB}^* C_{jt})FB_{ijt} + \beta X_{ijt} + \gamma M_{jt} + u_i + \varepsilon_{ijt}$$

where ΔL_{ijt} denotes bank i's annual real growth rate of lending that operates in country j in year t. C_{jt} is the crisis dummy, X_{ijt} the vector of bank-specific characteristics, and M_{jt} is the vector of macroeconomic control variables specific to each country. One lag of the dependent variable is introduced to limit the omitted variable bias. The error term includes bank-level fixed effects to control for unobserved time-invariant differences across banks and countries. Note that we estimate the model in growth rates, because lending in levels is non-stationary as confirmed by the Im-Pesaran-Shin test.[8] The model is estimated using the system GMM estimator introduced by Arellano and Bond (1991), ensuring efficiency and consistency under the assumption that the residuals are not subject to serial correlation of order two and that the instruments used are valid (tested using the Hansen test). The system version of the estimator is employed, because it tends to outperform the difference GMM estimator by the use of both the difference and levels equation (Blundell and Bond, 1998).

The vector X_{ijt} includes a parsimonious set of bank-specific variables that have been highlighted in the empirical literature as important determinants of loan supply, notably *bank size, return on equity (ROE),*

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[8] In principle one could also work with the loan-to-asset ratio as a dependent variable. We prefer, however, working with the growth rate of lending and thus follow the literature on the bank-lending channel (Kashyap and Stein, 1995; Kishan and Opiela, 2000; Gambacorta and Marques-Ibanez, 2011; Brei et al., 2013; Brei and Schclarek, 2013).

capitalization, non-performing loans, and *liquid assets*. We lag bank-specific characteristics by one year (*t-1*) in order to mitigate possible endogeneity problems among the bank-specific variables. We also include a dummy variable for the change in accounting standards that is equal to 1 when a bank reported under IFRS and zero otherwise. Finally, we demean the bank-specific regressors for estimation purposes, which implies that the results can be interpreted in terms of the average bank (for which the bank-specific characteristics are equal to zero).

Bank size is measured by the logarithm of total assets, ROE by net income divided by total equity, capitalization by the total equity-to-asset ratio, non-performing loans by the ratio of non-performing loans over total loans, and liquid assets are measured by the share of liquid assets (cash and due from banks, available-for-sale securities, and trading securities) in total assets. The coefficient associated with bank size is ambiguous, given that larger banks might have more resources than smaller banks to expand lending and to absorb country-specific disturbances. It might however also be that smaller banks engage more in relationship lending to faster-growing SMEs (Ehrmann and Worms, 2004; Gambacorta, 2005; Brei et al., 2013). More profitable banks should be more likely to expand lending if profits are not distributed and retained. The bank lending literature also tends to find that well-capitalized banks are more likely to expand lending compared to capital-constrained banks, which tend to restore capital ratios by investing in assets with lower risk-weights or by leveraging (Brei and Gambacorta, 2016). Banks with a higher non-performing loan ratio are more likely to face asset write-downs and financial difficulties, and as such they are expected to lend at lower growth rates compared to banks with sounder loan books. Finally, the literature tends to find a positive relationship between liquidity holdings and lending (Kashyap and Stein, 1995; Kishan and Opiela, 2000; Brei et al., 2013), although high liquid asset holdings might as well be an indication for a higher involvement in trading and other investment banking activities.

In terms of the macroeconomic variables, we include the annual real GDP growth rate, the real interest rate (measured by the money market rate minus inflation), annual inflation, and the lagged exchange rate depreciation (measured by the annual growth rate of the exchange rate of the local currency vis-à-vis the US dollar). In Table 3, we present summary statistics for both the macroeconomic and the bank-specific variables.

[insert Table 3 here]

Regarding our regression model, the key coefficients are α, α^*, α_{DB}, α^*_{DB}, α_{FB}, α^*_{FB}, α_{PB}, and α^*_{PB}. The short-run coefficient α measures the lending growth rate of the average domestic bank in normal times (see Table 4 below). The coefficient α^*, which is associated with the crisis dummy, measures the change in the lending response of the average domestic bank during a crisis relative to its lending standard in normal times. If it is significantly negative, this means that the average domestic bank's growth rate of lending during a crisis, $\alpha + \alpha^*$, is lower compared to normal times. The coefficient α_{DB} measures the difference in lending across national development and domestic banks in normal times. If this coefficient is significantly negative, it implies that the average development bank's growth rate of lending during normal times, $\alpha + \alpha_{DB}$, is lower than that of the average domestic bank. During crises, the loan growth of

the average national development bank is equal to $\alpha + \alpha^* + \alpha_{DB} + \alpha_{\cdot DB}$. If $\alpha^* + \alpha_{\cdot DB}$ is significant and positive, this is evidence that the average development bank lends more during a crisis than in normal times. Whether the average development bank lends more during a crisis compared to the average domestic bank is determined by the sum of the coefficients, $\alpha_{DB} + \alpha_{\cdot DB}$. If this sum is significantly positive, then it follows that the average development bank lends at a higher growth rate compared to the average domestic bank during a crisis. Similar interpretations apply to the coefficients associated with foreign banks and public banks, respectively.

Table 4: Lending responses among different types of banks and states of nature

	Domestic banks, $DB_{ijt}= 0$	National development banks, $DB_{ijt}= 1$
No crisis, $C_{jt}= 0$	$\Delta L_{ijt}= \alpha_{i}\Delta L_{ijt-1}+ \alpha$	$\Delta L_{ijt}= \alpha_{i}\Delta L_{ijt-1} + \alpha + \boldsymbol{\alpha_{DB}}$
Crisis, $C_{jt}= 1$	$\Delta L_{ijt}= \alpha_{i}\Delta L_{ijt-1}+ \alpha + \boldsymbol{\alpha^*}$	$\Delta L_{ijt}= \alpha_{i}\Delta L_{ijt-1}+ \alpha + \boldsymbol{\alpha^*} + \boldsymbol{\alpha_{DB}}+\boldsymbol{\alpha_{\cdot DB}}$

Note: For sake of clarity, the table focuses only on the key coefficients associated with domestic and national development banks. Similar relationships apply to differences in lending of domestic banks relative to foreign and public banks.

5. Econometric results

The bank lending equation above is estimated for three specifications: (I) a macro model, which only includes macroeconomic variables; (II) a bank type model that includes macroeconomic variables and the dummy variables distinguishing the different types of banks; and (III) the full bank-specific model, which includes macroeconomic variables, bank-specific variables, and the dummy variables for bank types. Our discussion in what follows will be focused on the full specification (III), given that any omitted variable bias is minimized. For comparison, we show in addition to the system GMM estimation results, the results obtained by pooled OLS for the full model specification in column (IV).

The estimation results are shown in Table 5. Across all specifications and estimators, we find that the real growth rate of lending is significantly and positively autocorrelated confirming our dynamic specification. The estimation results indicate that banks increase lending when economic conditions improve, i.e. when real GDP growth increases. Higher real interest rates and exchange rate depreciation are, on the other hand, associated with significant decreases in bank lending. The only non-significant macroeconomic variable is inflation, indicating that the other macroeconomic indicators capture most of the impact of aggregate economic conditions on individual bank lending.

[Insert Table 5 here]

Regarding the bank-specific control variables, we find that bank size and profitability affect significantly bank lending, while the other variables are not significant at conventional significance levels. Larger banks tend to have lower growth rates in lending, which is in line with the literature (Gambacorta, 2005; Brei et al., 2013). Moreover, as expected, more profitable banks increase their lending activity by more than less profitable banks.

Turning the discussion to our main question of interest, namely, whether the lending behavior across national development banks and the other types of banks has been different in normal times and crisis periods, we observe significant heterogeneous lending behavior, particularly during crises. During normal times, development banks expanded their loan portfolio at significantly lower growth rates compared to the other banks. To be more precise, while the average domestic bank expanded lending at growth rates of α = 9.36 percent per year, the real growth rate of lending of the average national development bank was lower and equal to $\alpha + \alpha_{DB}$ = 9.36 − 6.15 = 3.21 percent. Similar results are found for foreign and public banks during normal times, after controlling for macroeconomic conditions and bank-specific determinants of lending. More specifically, foreign banks expanded lending by $\alpha + \alpha_{FB}$ = 9.36 − 2.96 = 6.40 percent and public banks by $\alpha + \alpha_{PB}$ = 9.36 − 3.38 = 5.98 percent.

During crises, however, the lending pattern of banks changes. To be more precise, the average domestic bank reduces lending by α^* = −3.19 percent per year to a level of $\alpha + \alpha^*$ = 9.36 − 3.19 = 6.17 percent. The average national development bank, on the contrary, counteracts the slowdown in the lending activity of domestic banks by expanding lending at a growth rate of $\alpha + \alpha^* + \alpha_{DB} + \alpha^{\cdot}_{DB}$ = 9.36 − 3.19 − 6.15 + 10.60 = 10.62 percent per year. The lending behavior of the average foreign bank does not differ significantly from that of domestic banks during crises, and its lending activity decreases significantly to a level of $\alpha + \alpha^* + \alpha_{FB}$ = 9.36 − 3.19 − 2.96 = 3.21 percent, given that $\alpha^{\cdot}_{FB}$ is not significantly different from zero. In line with the findings of Brei and Schclarek (2013), public banks increase lending relative to domestic private banks. To be more precise, the average public bank increased its lending activity during times of crisis by $\alpha + \alpha^* + \alpha_{PB} + \alpha^{\cdot}_{PB}$ = 9.36 − 3.19 − 3.38 + 6.66 = 9.45 percent per year. The results are summarized in Table 6 below.

Table 6: Real growth rate of lending across normal and crisis periods

Type of bank	Lending in normal times	Lending during crisis	Δ (Crisis − normal)
Private domestic bank	9.36	6.17	-3.19
National development bank	3.21	10.62	+7.41
Foreign bank	6.40	3.21	-3.19
Public bank	5.98	9.45	+3.47

Note: This table summarizes the regression results of Table 5 (column III), focusing on the different lending responses of the different types of banks during normal and crisis periods, after controlling for bank-fixed effects, bank-specific and macroeconomic factors.

The estimation results corroborate the tentative results of Table 2, suggesting that both domestic and foreign private banks have been lending at higher rates in tranquil times, while cutting down on lending in times of crisis. National development and public banks, on the other hand, had lower lending growth in normal times, but they expanded credit once a crisis hit their economies. In other words, foreign and domestic private banks have been lending procyclically, whereas national development and public banks behaved countercyclically.

The differential lending pattern between these types of banks, as was discussed in section 2, might be explained by a combination of several factors. In the first place, national development banks and public

banks have a higher willingness (or risk tolerance) to provide lending in an unstable crisis environment (Brei and Schclarek, 2015). Such behavior may reflect that their objective is not only to maximize profits given risks, but also to mitigate the ensuing credit crunch and the negative spillovers to the real sector. Secondly, it might also be that national development and public banks increase their capital by more than private banks during crises, given that they may find it easier to access additional capital during a financial turmoil or the government may issue debt on financial markets at lower costs compared to private bank owners. Thirdly, it might be that national development and public banks suffer less liquidity problems in times of crisis because they face less deposit withdrawals and/or have fewer problems in rolling over short-term debt. The lower liquidity problems would be explained by the higher credibility these state-owned banks have, given that an actual and/or future recapitalization is more likely due to the higher credibility and financial strength of the government, in comparison to private bankers.

Finally, the distinct funding structure of development banks, which, as can be seen in Table 2, is more dependent on long-term financing (long-term bonds and equity), may also explain why they face less liquidity problems and can lend more during a crisis than other types of banks. A long-term funding structure probably implies a more extended and evenly distributed cash outflow structure that is less dependent on short- and medium-term developments. Thus, it implies that they have less maturity mismatches between their assets and liabilities, meaning that when payments for issued long-term bonds are due, a similar amount is received by the repayment of extended loans. This means that at any point in time, if a crisis hits and there is a ran on deposits or an unwillingness to refinance expiring bonds, development banks have less liquidity problems than other types of banks that rely more on short-term funding. Moreover, the short-term liquidity problems due to a sudden ran on banks have medium- and long-term effects on affected banks, not only implying medium- and long-term liquidity problems but also implying a decapitalization due to losses incurred by fire sales. Thus, development banks are not only better able to lend countercyclically during a crisis but also in the aftermath of it, becoming a key player to reignite growth.

6. Commercial lending

In this section, we investigate the cyclical pattern of lending to businesses across bank types. In doing so, we re-estimate our econometric model using the real growth rate of corporate and commercial loans, measured by the corresponding BankScope item. Due to reporting limitations on this variable, our sample is reduced to 132 banks covering 11 countries from Latin America and the Caribbean over the period 2001-2014. There are 52 domestic private banks, 50 foreign banks, 20 public banks, and 10 national development banks. The total number of bank-year observations reduces to 1294.

The estimation results are shown in Table 7. Focusing on the full specification (III), we observe important heterogeneity in the provision of corporate loans across banks. The average domestic bank was lending at a real growth rate of α = 12.91 percent per year, both in normal times and crisis periods (given that α^* is not significant). Similar results are reached for the average foreign bank in the region (α_{FB} and α^*_{FB} are

not statistically different from zero). National development banks, on the other hand, increased corporate lending once the state of the economy moved to a crisis period. More precisely, during normal times the average development bank expanded business lending at α = 12.91 percent (α_{DB} is not significant). However, once a crisis hit, they expanded lending to the real sector at a rate of $\alpha + \alpha^{\cdot}_{FB}$ = 12.91 + 21.05 = 33.96 percent per year. Finally, the average public bank's lending to the real sector has been shrinking during normal times at a growth rate of $\alpha + \alpha_{PB}$ = 12.91 − 13.88 = − 0.97 percent. During crises, on the other hand, public banks expanded lending to the real sector at a rate of $\alpha + \alpha_{PB} + \alpha^{\cdot}_{PB}$ = 12.91 − 13.88 + 24.43 = 23.46 percent.

Our estimation results thus suggest that both domestic and foreign bank lending to the corporate and commercial sector was a-cyclical, whereas national development and public banks reacted countercyclically. The countercyclical response of national development and public banks has been more pronounced than when considering total lending, which includes residential mortgages loans and other consumer loans, suggesting that development and public banks have been especially active in the corporate and commercial lending segments during times of crisis.

 [Insert Table 6 here]

7. Conclusion

The present paper investigated empirically the lending responses during normal times and crisis periods across national development, public commercial, domestic private, and foreign private banks. To this purpose, we employed dynamic panel regressions that allow controlling for loan demand and other factors using an extensive dataset on the financial statements of 336 banks from 31 Latin American and Caribbean countries over the period of 1995-2014.

Our main findings are the following. We find robust evidence that national development and public banks increased total lending in response to crisis periods relative to normal times, while domestic and foreign banks decreased their lending relative to their normal lending pattern. It is interesting to observe that the average national development bank lends at a lower lending growth rate than the average domestic bank in normal times (3.21 percent per annum compared to 9.36 percent). However, once a crisis hits, national development banks expanded lending at a higher rate (10.62 percent per annum compared to 6.17 percent for private banks). This countercyclical behavior of national development banks is even stronger when considering corporate and commercial lending rather than total lending. While foreign bank lending did not differ much from domestic bank lending, we observe that public banks have played a similar countercyclical role during times of crisis, as did national development banks.

The differential lending pattern is to a certain extent related to the different objectives banks have and the fact that national development and public banks presumably have a higher willingness (or risk tolerance) to provide lending in an unstable crisis environment. The higher risk tolerance of state-owned

banks may reflect that their objective is not only to maximize profits given risks, but also to mitigate a private bank credit crunch and the negative spillovers to the real sector. It might also be that national development and public banks have been able to increase their capital base by more than private banks during crises, given that they may find it easier to access new capital during a financial turmoil or that the government issued debt on financial markets at a lower cost than private bank owners. Further, it might be that national development and public banks have suffered less liquidity problems in times of crisis because they are less likely to be subject to deposit withdrawals and/or problems in rolling over debt. The higher trust and credibility in state-owned banks derives, in turn, from a more likely current and/or future recapitalization due to the higher financial strength of the government, in comparison to private bankers. Finally, development banks may also have faced less liquidity problems owing to their particular funding structure, which is more dependent on long-term financing (long-term bonds and equity). A more extended and evenly distributed cash outflow structure implies a better maturity match with extended loans. Thus, development banks are better at coping with the liquidity problems that arise when there is a sudden bank run on deposits and/or difficulties in rolling over debt due to a crisis. As these liquidity problems not only have short-term consequences but also medium- and long-term consequences, development banks are not only better suited for carrying out countercyclical lending during a crisis but are also particularly suited to reignite growth after a crisis. Most likely, the observed difference in the lending responses between the different bank types is explained by a combination of all these four factors.

From a policy perspective, our results suggest that governments can play an active countercyclical role in their banking systems directly through national development and public banks. However, the relative size of these banks with respect to the rest of the financial system is an important determinant of the success of this countercyclical policy. Clearly, a sufficiently large state-owned banking sector will have higher chances of contributing to the stability of the economy. Moreover, as many national development banks lend to companies indirectly through private commercial banks, they may also help private banks to act more countercyclically. Another important determinant of the success of the countercyclical policy is the governance structure and institutional quality of these banks. Clearly, well managed national development banks that keep out narrow privately and politically vested interests are more likely to be in a better financial shape in times of crisis, which would allow them to react strongly when needed. Further, it is important that national development banks design specific credit lines that are in coherence with the special needs that companies face when a crisis hits. For example, it is unlikely that companies demand long-term loans for capital investments at times when production capacity is not fully utilized due to lower demand. Instead, it seems more important for companies to access credit lines for working capital or new innovative credit lines that reflect the special needs of the companies during recessions. In addition, the countercyclical lending could be concentrated on public infrastructure projects that foster production and export capabilities.

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Table 1: Composition and characteristics of the database, by region

Region	No. of banks	No. of dev. banks	No. of foreign banks	No. of public banks	Total assets, 2014 (bil. USD)	Growth of lending (%)[1]	Real GDP growth (%)	Real interest rate (%)[2]	CPI inflation (%)	Ex. rate growth, per USD (%)[3]	Return on equity (%)	Capital ratio (%)[4]	NPL ratio (%)[5]	Liquidity ratio (%)[6]
Caribbean	65	4	27	4	26.9	8.0	2.5	3.4	6.0	2.4	13.5	13.4	6.6	19.8
Central America	99	3	51	4	626.5	11.4	4.2	4.7	5.7	1.9	12.2	11.7	3.5	15.7
South America	172	7	56	23	3270.5	12.9	4.3	1.4	9.2	5.3	14.4	11.4	5.8	17.4
Average/sum*	336*	14*	134*	31*	3923.9*	10.8	3.7	3.2	7.0	3.2	13.4	12.1	5.3	17.6

Note : The sample per region is over the period 1995-2014. Caribbean includes AG, AI, AW, BB, BS, BZ, DO, GD, GY, HT, JM, KN, LC, SR, SV, TT, and VC; South America includes AR, BO, BR, CL, CO, EC, PE, UY, and VE; and Central America is CR, GT, HN, PA, and MX. Average/sum indicates unweighted averages or sums over countries. [1] In national currency and deflated by the consumer price index (CPI). [2] Money market interest rate minus CPI inflation (if not available lending rate minus CPI inflation). [3] National currency per USD. [4] Equity and reserves divided by total assets. [5] NPL ratio denotes non-performing loans divided by total loans. [6] Cash and due from banks plus loans and advances to banks divided by total assets.

Sources: BankScope, IMF-IFS, World Bank WDI, Claessens and Van Horen (2015), authors' calculations.

Table 2: Bank-specific characteristics across bank types

Bank type	National development banks	Foreign banks	Domestic private banks	Local public banks	All banks
Number of banks	14	134	157	31	336
Total assets, end-2014	424	994	1448	1058	3924
Interest income on loans/loans	11.34	20.56	15.95	15.41	17.55
Non-interest income/income	13.04	20.31	21.42	29.45	21.60
Return on equity	5.21	12.59	14.28	16.13	13.49
Liquidity ratio	8.17	18.76	16.18	18.02	17.16
Government securities/assets	16.56	12.30	13.47	22.14	14.22
Lending growth, normal times	3.42	11.72	14.42	6.06	11.93
Lending growth, crisis	10.33	9.42	12.31	15.36	11.46
Loans/assets	58.76	55.37	53.85	43.51	53.44
Mortgages/loans	8.58	11.98	14.69	17.10	13.82
Commercial loans/loans	60.49	51.93	53.21	45.64	51.90
Other consumer loans/loans	8.10	25.96	26.57	29.08	25.98
Non-performing loans/loans	3.99	4.56	4.88	8.03	5.08
Deposits/assets	30.03	66.82	62.05	56.45	62.21
Long-term funding/assets	26.78	6.81	7.10	5.48	7.75
Capital ratio	15.28	11.72	11.98	10.22	11.79

Note: In percentages. The sample includes annual data of 336 banks operating in 31 countries from Latin America and the Caribbean over the period 1995-2014. The crisis dummy takes a value of 1 if there was either a banking crisis, currency crisis or during 2008-12, and zero otherwise. Development banks are state-owned and neither multilaterally-owned, nor foreign-owned, nor retail deposit-taking banks. Foreign and public banks are banks that are majority-owned by a foreign holding company or by a local government, respectively.
Sources: BankScope, IMF-IFS, World Bank WDI, Claessens and Van Horen (2015), Leaven and Valencia (2013), authors' calculations.

Table 3: Summary statistics of the regression variables

Variable	Description	Obs.	Mean	Std. dev	Min	Max
Lending growth	Annual, domestic currency, deflated	2733	11.7	24.5	-90.7	223.8
Real GDP growth	Annual, real GDP index	2733	4.0	3.3	-18.4	20.3
Interest rate	Annual, real (money market and lending rate minus CPI inflation)	2733	1.8	8.5	-38.9	50.4
Inflation	Annual CPI inflation	2733	7.5	6.7	-2.4	40.6
Depreciation	Annual growth, domestic currency per USD	2733	4.5	23.3	-25.5	232.2
Development banks, α_{DB}	Dummy=1, if development bank	2733	0.0	0.2	0	1
Foreign banks, α_{FB}	Dummy=1, if foreign-owned	2733	0.4	0.5	0	1
Public banks, α_{PB}	Dummy=1, if government-owned	2733	0.1	0.3	0	1
Crisis, α^{*}	Dummy=1, if banking, currency and fin. crisis	2733	0.4	0.5	0	1
Development banks*crisis, α^{*}_{DB}	Crisis interaction	2733	0.0	0.1	0	1
Foreign banks*crisis, α^{*}_{FB}	Crisis interaction	2733	0.2	0.4	0	1
Public banks*crisis, α^{*}_{PB}	Crisis interaction	2733	0.0	0.2	0	1
Bank size (t-1)	Logarithm of total assets	2733	14.1	1.9	9.2	20.1
ROE (t-1)	Return on equity	2733	13.0	12.8	-77.1	50.1
Capital ratio (t-1)	Equity/total assets	2733	11.8	7.3	1.7	98.8
NPL ratio (t-1)	Non-performing loans/loans	2733	5.6	7.3	0.0	75.3
Liquidity ratio (t-1)	Liquid assets/total assets	2733	17.3	11.3	0.0	75.7

Note: In percentages. The sample includes annual data of 336 banks operating in 31 countries from Latin America and the Caribbean over the period 1995-2014 (see Table 1 for further information). The crisis dummy takes a value of 1 if there was either a banking crisis, currency crisis or during 2008-12, and zero otherwise. Development banks are state-owned and neither multilaterally-owned, nor foreign-owned, nor retail deposit-taking banks. Foreign and public banks are banks that are majority-owned by a foreign holding company or by a local government, respectively.

Sources: BankScope, IMF-IFS, World Bank WDI, Claessens and Van Horen (2015), Leaven and Valencia (2013), authors' calculations.

Table 5: Regression results – total loans

	Dependent variable: Growth rate of lending							
	Macro model		Bank type model		Bank-specific model		Pooled OLS	
	(I)		(II)		(III)		(IV)	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
Lending growth (t-1)	0.160***	0.031	0.158***	0.030	0.142***	0.030	0.148***	0.027
Real GDP growth	1.061***	0.188	1.026***	0.186	1.362***	0.165	1.300***	0.156
Interest rate	-0.325***	0.109	-0.324***	0.109	-0.269**	0.106	-0.196**	0.083
Inflation	0.031	0.111	0.030	0.106	-0.148	0.107	-0.002	0.090
Depreciation (t-1)	-0.317***	0.042	-0.314***	0.042	-0.240***	0.037	-0.217***	0.039
α	6.704***	1.330	9.362***	1.634	9.359***	1.561	7.903***	1.432
α_{DB}			-10.31**	4.157	-6.153*	3.586	-7.636**	3.218
α_{FB}			-3.398**	1.406	-2.962**	1.291	-1.920	1.256
α_{PB}			-5.456***	2.033	-3.377*	1.952	-4.513***	1.653
α^{*}			-3.259**	1.407	-3.190**	1.364	-2.324*	1.398
α^{*}_{DB}			13.10***	4.215	10.60**	4.212	8.716**	4.127
α^{*}_{FB}			2.818	2.157	2.090	1.996	-0.005	1.891
α^{*}_{PB}			10.29***	2.662	6.663***	2.324	6.909***	2.215
Bank size (t-1)					-0.659*	0.347	-0.253	0.264
ROE (t-1)					0.216***	0.055	0.240***	0.046
Capital ratio (t-1)					0.172	0.161	0.023	0.096
NPL ratio (t-1)					-0.060	0.086	-0.068	0.095
Liquidity ratio (t-1)					-0.002	0.065	-0.062	0.044
Observations	2733		2733		2733		2733	
Banks	336		336		336		336	
Hansen	0.155		0.146		0.205		$R^2 = 0.138$	
AR2	0.730		0.701		0.591			

Note : The sample includes annual data of 336 banks operating in 31 countries from Latin America and the Caribbean over the period 1995-2014. There are 157 domestic, 134 foreign, 31 public, and 14 development banks. Robust standard errors are reported. Specifications (I)-(III) are estimated with the System GMM panel methodology, while specification (IV) is estimated with pooled OLS. (***,**,*) denote significance on the 1, and 10 percent level, respectively.

Table 6: Regression results – corporate and commercial loans

	Dependent variable: Growth rate of commercial lending							
	Macro model		Bank type model		Bank-specific model		Pooled OLS	
	(I)		(II)		(III)		(IV)	
	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error	Coeff.	Std. error
Com. loan growth (t-1)	-0.048	0.049	-0.053	0.050	-0.049	0.048	0.024	0.041
Real GDP growth	0.715*	0.366	0.854**	0.394	0.808**	0.383	0.737*	0.408
Interest rate	0.425	0.401	0.432	0.382	0.167	0.422	-0.230	0.284
Inflation	0.381	0.360	0.336	0.357	0.211	0.355	0.023	0.247
Depreciation (t-1)	-0.235***	0.059	-0.228***	0.058	-0.236***	0.055	-0.257***	0.057
α	10.07***	3.111	11.79***	4.135	12.91***	3.984	17.02***	4.172
α_{DB}			-11.08	7.240	-10.04	8.051	-12.47**	5.623
α_{FB}			-2.056	4.019	-1.574	3.546	-2.787	3.645
α_{PB}			-13.33**	5.433	-13.88***	5.179	-12.97**	5.251
α^*			-1.415	3.230	-1.607	3.230	-3.923	3.343
α^*_{DB}			23.80**	11.15	21.05*	12.33	24.93**	12.04
α^*_{FB}			0.328	3.887	-0.606	3.925	1.474	4.647
α^*_{PB}			23.13**	9.264	24.43**	9.547	19.09***	6.620
Bank size (t-1)					0.177	0.891	0.148	0.654
ROE (t-1)					0.232**	0.117	0.198*	0.116
Capital ratio (t-1)					0.290	0.301	0.337	0.353
NPL ratio (t-1)					0.119	0.285	0.346	0.316
Liquidity ratio (t-1)					-0.180	0.197	-0.208	0.192
Observations	1294		1294		1294		1294	
banks	132		132		132		132	
Hansen	0.334		0.173		0.164		$R^2 =$ 0.057	
AR2	0.354		0.395		0.210			

Note : The sample includes annual data of 132 banks operating in 11 countries from Latin America and the Caribbean over the period 2001-2014. There are 52 domestic, 50 foreign, 20 public, and 10 development banks. Robust standard errors are reported. Specifications (I)-(III) are estimated with the System GMM panel methodology, while specification (IV) is estimated with pooled OLS. (***,**,*) denote significance on the 1, and 10 percent level, respectively.

Figure 1: Lending activity across bank types
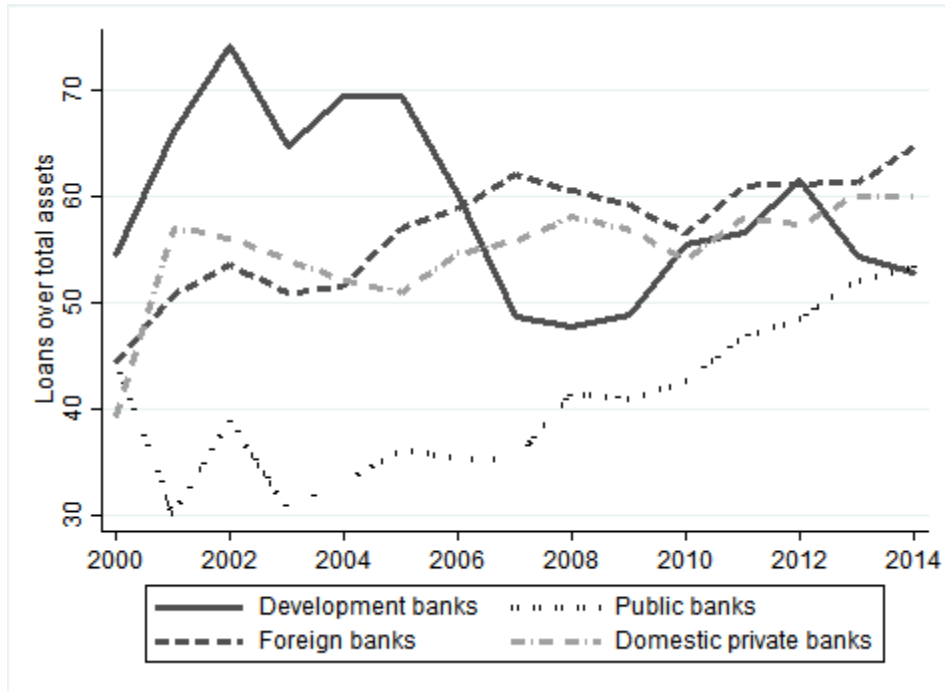
Note : Unweighted averages across banks and years. The sample includes annual data of 336 banks operating in 31 countries from Latin America and the Caribbean over the period 2000-2014. There are 157 domestic, 134 foreign, 31 public, and 14 development banks.