



Bank ownership and lending patterns during the 2008–2009 financial crisis: Evidence from Latin America and Eastern Europe[☆]



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ABSTRACT

This paper examines the impact of bank ownership on credit growth in developing countries before and during the 2008–2009 crisis. Using bank-level data for countries in Eastern Europe and Latin America, we analyze the growth of banks' total gross loans as well as the growth of corporate, consumer, and residential mortgage loans. While domestic private banks in Eastern Europe and Latin America contracted their loan growth rates during the crisis, there are notable differences in foreign and government-owned bank credit growth across regions. In Eastern Europe, foreign bank total lending fell by more than domestic private bank credit. These results are primarily driven by reductions in corporate loans. Furthermore, government-owned banks in Eastern Europe did not act counter-cyclically. The opposite is true in Latin America, where the growth of government-owned banks' corporate and consumer loans during the crisis exceeded that of domestic and foreign banks. Contrary to the case of foreign banks in Eastern Europe, those in Latin America did not fuel loan growth prior to the crisis. Also, there are less pronounced and robust differences in the behavior of foreign and domestic banks during the crisis in Latin America.

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1. Introduction

During the last decade, the ownership structure of banking sectors in developing countries changed substantially: most developing countries witnessed a sharp increase in foreign bank participation and a decline in government bank ownership. Between 1999 and 2009, on average, the share of bank assets held by foreign banks in developing countries rose from 26% to 46%, while government bank ownership declined from 28% to 19%.¹ These changes in banking structure were in part motivated by increasing evidence that while foreign bank participation brought

many benefits to developing countries, especially in terms of competition and banking sector efficiency,² government bank ownership was often detrimental to the financial sector.³

The recent global financial crisis has reignited the debate on the ownership structure of the banking sector and its consequences for financial intermediation. Some have pointed to the presence of foreign banks in developing countries as a key mechanism for transmitting the 2008–2009 crisis from advanced to developing countries (e.g., IMF, 2009). At the same time, developing countries like Brazil, China, and India, where government-owned banks are systemically important, recovered quickly from the crisis, generating interest in the potential mitigating role that these banks can play during periods of financial distress.⁴

Using bank-level data from 2004 to 2009, this paper examines the impact of bank ownership on credit growth before and during the recent crisis. We analyze the growth of banks' overall loan portfolios, as well as changes in corporate, consumer, and residential mortgage loans. In particular, we compare results for a sample of countries from two regions: Latin America (Argentina, Brazil,

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¹ These data come from the World Bank Regulation and Supervision Surveys. See <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,contentMDK:20345037~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html>.

² See Cull and Martínez Pería (2010) for a review of the literature on the drivers and the impact of foreign bank participation.

³ Arguably, the seminal paper on the negative implications of government bank ownership is La Porta et al. (2002).

⁴ See for example the discussion in the following articles: "They Must Be Giants," *The Economist*, May 15, 2010. "Falling in Love with the State Again," *The Economist*, April 3, 2010. "Not Just Straw Men," *The Economist*, June 20, 2009.

Chile, Colombia, Mexico and Peru) and Eastern Europe (Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovakia, and Slovenia). We selected these regions because they have important similarities, but also interesting differences. Both regions include middle-income countries that have among the highest levels of foreign bank participation in developing countries (Claessens and van Horen, forthcoming). However, there are also contrasts in the types of foreign banks that entered the two regions and in the role and size of state-owned banks. In Latin America the dominant foreign players are Spanish banks, who typically fund most of their operations in those countries with local deposits, and extend most of their loans in local currency (Kamil and Rai, 2010).⁵ Also, Spanish banks yield substantial independence to their foreign subsidiaries. As described by Fiechter et al. (2011) not only are subsidiaries self-sufficient in their funding, but also in their governance and risk management.⁶

On the other hand, in Eastern Europe, banks from nearby Western European nations (such as Austria, Germany, Italy, and the Netherlands) are the key foreign financial institutions. These foreign banks resorted to foreign currency denominated wholesale funding from non-local sources to fund their operations before the crisis. Furthermore, in contrast to the Spanish subsidiaries in Latin America, these other European banks' subsidiaries were not independently managed. Allen et al. (2011) find that a significant share of the board members of the foreign banks that operated in Eastern Europe was composed of senior members in the parent banks. With regard to government-owned banks, though both regions entered the 1990s with sizable government bank participation, governments in Eastern Europe had divested their shareholdings more fully than those in Latin America by the late 2000s.⁷

Our paper is related to studies that explore the reasons why different bank ownership types (in particular foreign versus domestic banks) may differ in terms of lending behavior. One strand of this literature argues that informational barriers between loan officers and borrowers might affect banks' lending behavior. In comparing the behavior of foreign and domestic banks, the argument is that the former, by virtue of being outsiders, have less access to or ability to interpret "soft" information (i.e., information garnered through direct knowledge of the borrower and its interactions with clients, suppliers, and the community in general). Hence, foreign banks are less likely to lend to certain borrowers (such as SMEs) for which most of the information available on them tends to be soft (see e.g., Berger et al., 2001).

A related strand of the literature emphasizes the hierarchical structure of multinational banks and the implications for their lending behavior. In particular, studies such as Aghion and Tirole (1997) and Stein (2002) suggest that greater distance between

the top management of the bank at headquarters and the overseas branch or subsidiary could lead to less reliance on soft information and, therefore, lower lending to opaque borrowers. Using data from a large multinational bank, Liberti and Mian (2009) show that as hierarchical distance within a multinational bank increases between loan officers, who collect information on applicants, and loan approving officers there is less (more) reliance on subjective (objective) information in lending decisions. Micro-evidence from a sample of 80,000 loans in Pakistan from 1996 to 2002 also shows that as geographic distance and cultural dissimilarities between the headquarters of a foreign bank and its branches in the host country widen, lending is increasingly based on hard information (Mian, 2006).

Cross-country evidence also indicates that proximity between home and host country and a common language and legal framework are associated with higher levels of foreign bank participation (Galindo et al., 2003; Buch, 2003; Buch and DeLong, 2004). Supporting institutions can however mitigate the informational difficulties faced by foreign banks, as indicated by positive links between foreign bank participation levels and the quality of credit reporting (Tsai et al., 2011), low levels of corruption and greater adherence to the rule of law (Galindo et al., 2003) and greater judicial efficiency (Focarelli and Pozzolo, 2000) in a host country.

The behavior of foreign banks during host country-grown crisis episodes has been well-studied and generally indicates that foreign banks are a stabilizing force in terms of credit supply during host country crises. For example, a number of studies focusing on the Tequila and Brazilian crises of the 1990s have shown that foreign banks did not pull back from host countries such as Argentina, Brazil and Mexico in the face of the crises, but rather viewed these episodes as opportunities to become more firmly rooted in these economies (Peek et al., 2000; Crystal et al., 2001, 2002). Similar evidence has been found for foreign banks in the context of Eastern European crises that took place during the 1990s and early 2000s (see de Haas and van Lelyveld, 2006, 2010).

No doubt in response to the global scope and severity of the 2008–2009 crisis, there has been a proliferation of studies analyzing credit growth during this recent episode.⁸ There is evidence that foreign banks reduced their lending earlier and faster than domestic banks during the crisis (Claessens and van Horen, forthcoming; de Haas and van Lelyveld, forthcoming), in particular within Eastern Europe (de Haas et al., 2012; Mihaljek, 2011).⁹ Regarding the behavior of government banks, the evidence from non-crisis periods is quite negative. Cross-country studies show that greater government participation in bank ownership tends to be associated with lower levels of financial development (Barth et al., 2001, 2004; La Porta et al., 2002), more politically motivated lending (Dinc, 2005; Micco et al., 2007), lower banking sector outreach (Beck et al., 2008), wider intermediation spreads and slower economic growth (La Porta et al., 2002), and greater financial instability (La Porta et al., 2002; Caprio

⁵ In our sample, Eastern European banks actually had higher ratios of deposits to total liabilities than Latin American banks. This could stem from the subset of Eastern European countries that we focus on. One concern is that heavy reliance on deposits denominated in local currency and loans extended in foreign currencies produced mismatches that resulted in mechanical reductions in the value of loan portfolios in countries with depreciating currencies. Ours is a comparison between bank ownership types, and so we note that domestic banks in Eastern Europe also relied heavily on deposit funding in local currency and extended a large share of their loans in foreign currencies. Unfortunately, we are unable to disaggregate our data on loans or liabilities by currency, and so we cannot test directly whether banks with the most pronounced mismatches reduced their lending more than others. Country-year dummy variables are included in our regressions to control in part for any reductions in loan growth attributable to currency depreciation.

⁶ See Appendix I of Fiechter et al. (2011) which describes the key features of the cross-border Spanish banking model. <http://www.imf.org/external/pubs/ft/sdn/2011/sdn1104.pdf>.

⁷ The average share of assets held by government-owned banks in the 8 Eastern European countries we focus on fell from 71% in 1995 to 10% in 2010, while among the 6 Latin American countries, average government bank ownership dropped from 41% to 19%.

⁸ Additional relevant evidence from the recent crisis comes from studies of capital flows. For example, Cetorelli and Goldberg (2011) analyze bank flows during the recent crisis and compare it to other types of capital flows. They find that banking sector flows accounted for a dominant share of the overall decline in capital flows to developing countries. Furthermore, they find that the decline in bank flows was driven both by a drop in cross-border loans and by a reduction in internal capital-market lending within global banks. However, the cross-border component of bank flows exhibited the more dramatic decline. Using quarterly data on capital inflows across 75 countries, Milesi-Ferretti and Tille (2011) also confirm that the contraction during the first year of the crisis was concentrated in banking flows. In addition, countries that were more financially integrated through banking ties and had large net liabilities in debt instruments suffered sharper declines in capital inflows. And countries with large fiscal deficits and deteriorating banking sector performance suffered steeper reductions in cross-border lending (Herrmann and Mihaljek, 2011).

⁹ Evidence is from bank-level regressions for 1275 banks in Eastern Europe and Central Asia in de Haas et al. (2012) and from a survey of central bank governors in Mihaljek (2011).

Table 1
Variable definitions and descriptive statistics.

Variables	Definitions	Eastern Europe		Latin America	
		Average	Standard deviation	Average	Standard deviation
Growth rate of gross loans	% Annual change in total gross loans (in dollars)	25.37	29.248	25.56	38.071
Growth rate of corporate loans	% Annual change in corporate loans (in dollars)	24.68	30.404	25.55	42.468
Growth rate of consumer loans	% Annual change in consumer loans (in dollars)	32.83	51.82	35.03	59.034
Growth rate of residential mortgage loans	% Change in residential mortgage loans (in dollars)	36.13	39.576	22.61	53.938
Foreign	Dummy equal to 1 if bank is foreign-owned	0.70	0.461	0.35	0.476
Government	Dummy equal to 1 if banks is government-owned	0.06	0.246	0.11	0.317
Size	Log of total assets	13.97	1.650	13.52	2.016
Equity ratio	Equity to asset ratio (%)	11.87	7.933	19.93	17.452
Profitability	Return on assets (%)	1.04	1.450	1.75	3.705
Liquidity ratio	Ratio of liquid to total assets (%)	28.27	16.465	27.91	19.518
Deposit funding ratio	Ratio of customer deposits to total liabilities (%)	64.55	25.444	51.09	26.465
Parent size	Log of total assets of parent of foreign subsidiary or branch	18.59	1.866	19.50	1.914
Parent equity ratio	Equity to asset ratio of parent of foreign subsidiary or branch (%)	7.12	5.226	9.80	15.654
Parent profitability	Return on assets of parent of foreign subsidiary or branch (%)	0.83	1.043	1.29	2.793
Parent liquidity ratio	Ratio of liquid to total assets of parent of foreign subsidiary or branch (%)	29.50	15.050	28.47	13.796
Parent deposit funding ratio	Ratio of customer to total deposits of parent of foreign subsidiary or branch (%)	42.53	21.227	48.20	22.289

and Martínez Pería, 2002). Detailed within-country studies that are less susceptible to endogeneity concerns and are better able to identify the impact of government ownership than cross-country studies provide evidence consistent with the bulk of the cross-country literature (see Khwaja and Mian, 2005; Cole, 2009a,b; Carvalho, forthcoming).

In times of crises, when private banks are likely to reduce their supply of credit, government-owned banks could potentially play a crucial stabilizing role. During financial crises in Asia and Latin America in the 1990s, government-owned banks did in fact expand credit faster (or cut it less) than domestic and foreign private banks (Hawkins and Mihaljek, 2001). And, in the recent crisis, government banks in some of the former Soviet Union economies were better able to maintain credit growth rates than private banks, especially foreign-owned ones (de Haas et al., 2012).

Given the literature summarized above, the contribution of our paper is to compare the growth of local lending by domestic private, government- and foreign-owned banks before and during the recent financial crisis, using the same data sources and econometric models for two regions – Eastern Europe and Latin America – that have both similarities and differences. Within the econometric models, we are able to control simultaneously not only for ownership, but also for the size, profitability, liquidity, capital adequacy, and reliance on deposits as a source of funding of both local affiliates and parent banks. Importantly, and to our knowledge not done before in the literature, we are also able to study whether banks' lending behavior differed across the consumer, corporate, and residential mortgage sectors.

Our estimations reveal that while domestic private banks both in Eastern Europe and Latin America experienced a sharp contraction in lending during the 2008–2009 crisis, there are important differences across these regions in the behavior of foreign and government-owned banks. In Eastern Europe, loan growth by foreign banks fell more than that of domestic private banks during the crisis, driven largely by a steep reduction in corporate loans. Prior to the crisis, lending to corporate entities by foreign banks grew more swiftly than that of domestic private banks. The loan growth of government-owned banks in Eastern Europe was similar to that of domestic private banks during the crisis, and was not counter-cyclical. The opposite is true in Latin America, where government-owned banks' lending growth during the crisis exceeded that of domestic private and foreign-owned banks. This pattern is true for the overall loan portfolio as well as for the growth of corporate

and consumer loans. Furthermore, and contrary to the case of Eastern Europe, foreign banks in Latin America did not appear to fuel loan growth prior to the crisis. Also, there are less pronounced and robust differences in the behavior of foreign and domestic private banks during the crisis in Latin America. These results suggest that the link between loan growth and bank ownership is not homogenous across developing countries.

The rest of the paper is organized as follows. Section 2 describes our estimation approach to study the role of bank ownership in explaining loan growth in Eastern Europe and Latin America. Section 3 discusses the data used. Section 4 presents our empirical results. Finally, Section 5 offers concluding remarks.

2. Empirical methodology

Our baseline empirical model to examine the impact of bank ownership on credit growth follows equation:

$$\begin{aligned} \Delta L_{i,t,j} = & \text{Foreign}_{i,j} + \text{Government}_{i,j} + \text{Crisis_2008}_t \\ & + \text{Crisis_2009}_t + \text{Crisis_2008}_t \times \text{Foreign}_{i,j} \\ & + \text{Crisis_2008}_t \times \text{Government}_{i,j} + \text{Crisis_2009}_t \\ & \times \text{Foreign}_{i,j} + \text{Crisis_2009}_t \times \text{Government}_{i,j} + X_{i,t-1j} \\ & + \alpha_j + u_{i,t,j} \end{aligned} \quad (1)$$

where $\Delta L_{i,t,j}$ is the growth of total gross loans (or of corporate, consumer, or residential mortgage loans) for bank i at time t in country j .¹⁰ Loans are expressed in dollars.¹¹ We use a variety of fixed effects models estimated with robust standard errors. In particular, we conduct estimations with country fixed effects, with country-year fixed effects, and with bank fixed effects.

Foreign and *Government* are dummies that take the value of one for foreign and government-owned banks, respectively.¹²

¹⁰ To minimize the influence of outliers, we drop observations in the top 5% and bottom 1% of the loan growth series. Our main results on the impact of bank ownership do not change as a result.

¹¹ Our main results do not change significantly if we express loans in constant local currency.

¹² While in practice bank ownership can change throughout our sample, there is practically no time variation in ownership for the banks in our sample. There are only four banks in Eastern Europe and three banks in Latin America that change ownership status during our period of analysis. Hence, we do not include a "t" subscript on the ownership dummy variables.

Crisis_2008 and *Crisis_2009* are dummies that equal one during 2008 and 2009, respectively. Both dummies are zero in all other periods. The foreign and government bank dummies summarize the differential rate of growth of each of these types of banks vis-à-vis domestic private banks before the crisis. The interactions of the ownership dummies with the crisis dummies capture the impact of government and foreign bank ownership during the crisis, relative to the lending behavior of domestic private banks throughout this episode. X_{it-1j} is a matrix of bank characteristics that can also impact loan growth (such as size, capital, liquidity, profitability, funding structure) lagged one period. We lack strong priors about how particular balance sheet characteristics would affect loan growth across different types of loans (or ownership types). Our hope is that the regressions will reveal patterns for the balance sheet variables that make it easier for us to interpret why some banks were more likely to slow lending growth for some types of loans. Finally, α_j are country fixed effects included in our baseline estimations.

We estimate different versions of Eq. (1) for banks operating in Eastern Europe and, separately, in Latin America.¹³ We incorporate country \times year fixed effects in some models to control for macro characteristics (e.g., macroeconomic growth, exchange rate changes, etc.) that might be changing across countries and over time that can affect loan growth. Furthermore, in some specifications, we allow for interactions of the crisis dummies with bank characteristics to control for the possibility that bank-level variables other than ownership have different effects in crisis and non-crisis episodes.¹⁴

3. Data

Our main source of bank-level data is Bankscope, a comprehensive commercial database of banks' financial statements produced by Bureau Van Dijk. In particular, for the period 2004–2009, we collect information from this source on bank ownership, total loan volumes, and loan amounts by type of loan (corporate, consumer, and residential mortgages).¹⁵ We also gather data on bank size, capitalization, liquidity, profitability, and funding structure. Table 1 contains definitions of all the variables we include in our analysis along with descriptive statistics.¹⁶

We classify banks into foreign, government-owned, and domestic private banks depending on whether 50% or more of banks' shares are owned by foreigners, central or local governments, or domestic private actors, respectively.¹⁷ On average, between 2004 and 2009, 70% of banks in Eastern Europe were foreign-owned and foreign banks accounted for 81% of total bank assets over this period. Only 6% of banks were government-owned in Eastern Europe,

¹³ As a robustness check, we pool observations from the two regions and add interactions between the explanatory variables and a regional dummy variable to the regression. The results, available upon request, do not change.

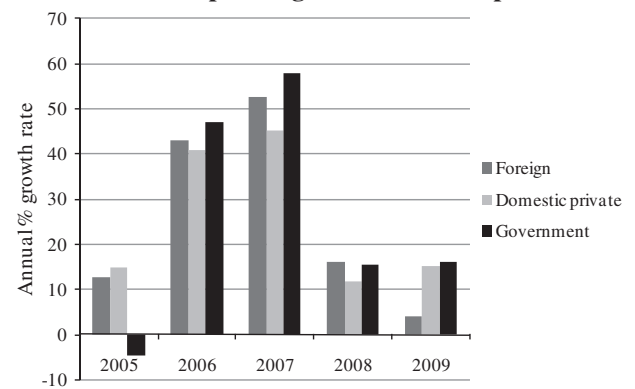
¹⁴ In some estimations, we drop the ownership dummies and we replace them with bank fixed effects. This does not change our main results. We prefer to include the foreign and government ownership dummies in our baseline regressions rather than the bank fixed effects because these dummies allow us to assess the extent to which foreign and government bank lending grew faster than domestic private bank lending prior to the crisis.

¹⁵ We tried to create as balanced a panel of bank-years as possible and therefore focused on 2004–2009. Missing observations and difficulties in coding ownership for some banks made the 2001–2003 data problematic. Also, banking sector volatility, particularly in some Latin American countries from 2001 to 2003 made those years less attractive for establishing baseline lending patterns to compare with the 2008–2009 crisis.

¹⁶ Appendix Table A.1 presents descriptive statistics for each type of bank (foreign, domestic private, and government-owned) for the period before and during the crisis. We also computed correlations between all bank-level variables; all were 0.6 or smaller. To conserve space, we do not present those correlation matrices in the Appendix.

¹⁷ The only exceptions are two Slovenian banks with 33% and 42% government ownership, respectively, which we classified as being government-owned because they are effectively under government control.

Panel A: Banks operating in Eastern Europe



Panel B: Banks operating in Latin America

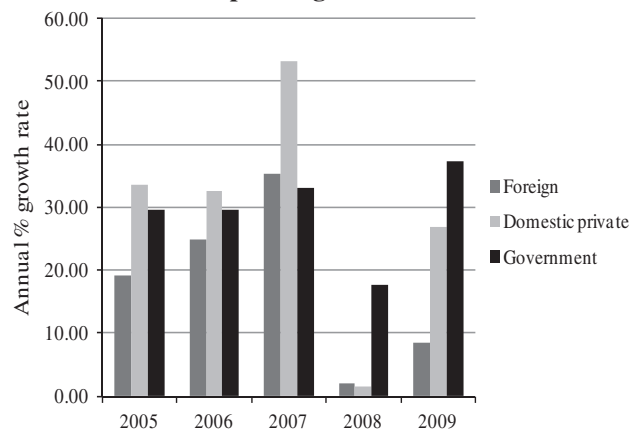


Fig. 1. Growth of gross loans.

accounting for 11% of total assets. In Latin America, 35% of banks were foreign-owned and they represented, on average, 38% of banking system assets. Government-owned banks in Latin America made up 11% of the banks in the system, and they accounted for 19% of banking system assets.¹⁸

Gross loan growth averaged 25% in Eastern Europe during 2004–2009 and 26% in Latin America. We also distinguish between consumer, corporate, and residential mortgage loan growth rates in both regions. Consumer loan growth in Eastern Europe averaged 33%, while it averaged 35% in Latin America. On average, corporate loans grew at a rate of 25% in Eastern Europe and 26% in Latin America. Finally, the average rate of growth of residential mortgages was 36% for Eastern Europe and 23% for Latin America.

Average loan growth rates within regions mask important differences in lending patterns over time and across bank groups. For example, Fig. 1 shows the average growth rate of gross loans for domestic private, government, and foreign-owned banks during the period 2005–2009. Panel A presents the data for banks operating in Eastern Europe, while panel B shows the same graph for banks operating in Latin America. In Eastern Europe before the crisis (2006–2007), foreign bank loan growth exceeded domestic loan growth. On the other hand, while lending growth by all three types of banks collapsed during the crisis, foreign bank lending growth dropped most, especially in 2009. In Latin America prior to the

¹⁸ We restricted the sample to banks that had non-zero deposits, and thus some development banks that rely solely on government funding are absent from the Latin American sample (e.g., BNDES in Brazil, FIDES, Nafin in Mexico). Despite the absence of some of these “pure” development banks from our sample, in what follows we still find strong counter-cyclical lending patterns among the government banks in Latin America that are in our sample.

Table 2
Determinants of the growth of total gross loans – Baseline estimations.

Variables	Eastern Europe			Latin America		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign	2.651 [0.558]	3.830 [0.986]	4.040 [0.956]	−11.098** [−6.293]	−10.403** [−6.014]	−9.320** [−4.705]
Government	−1.338 [−0.248]	0.174 [0.030]	1.207 [0.203]	−8.660 [−1.779]	−8.576 [−1.694]	−9.833 [−1.765]
Size	−0.670 [−1.639]	−0.539 [−1.195]	−0.741 [−0.978]	−1.055* [−2.377]	−1.038** [−2.845]	−2.295*** [−6.435]
Equity ratio	−0.292 [−1.257]	−0.238 [−1.199]	−0.388* [−1.946]	−0.148 [−0.859]	−0.154 [−0.728]	−0.644* [−2.379]
Liquidity ratio	−0.028 [−0.350]	0.033 [0.395]	0.031 [0.218]	0.008 [0.179]	0.015 [0.339]	0.028 [0.226]
Profitability	−0.167 [−0.174]	−0.259 [−0.275]	0.348 [0.260]	0.778 [1.711]	0.890* [2.197]	1.359 [1.637]
Deposit funding ratio	0.005 [0.147]	0.001 [0.032]	0.023 [0.722]	0.014 [0.628]	0.016 [0.590]	0.029 [0.374]
Crisis_2008	−22.540** [−3.360]			−39.508** [−3.102]		
Crisis_2009	−19.179* [−2.063]			−11.747 [−0.867]		
Foreign × Crisis_2008	2.499 [0.574]	1.909 [0.384]	1.830 [0.377]	11.431* [2.267]	11.375* [2.091]	8.793 [1.450]
Foreign × Crisis_2009	−14.394** [−3.048]	−13.504* [−2.120]	−15.562** [−2.648]	−7.336 [−0.508]	−10.269 [−0.754]	−10.006 [−0.994]
Government × Crisis_2008	4.677 [0.605]	2.303 [0.302]	0.318 [0.057]	27.569*** [8.882]	27.648*** [5.441]	27.926*** [4.778]
Government × Crisis_2009	−1.249 [−0.153]	−3.244 [−0.386]	−4.989 [−0.599]	14.954 [1.411]	14.831* [2.222]	20.421 [1.945]
Size × Crisis_2008			−0.371 [−0.327]			3.169* [2.495]
Size × Crisis_2009			1.429* [1.983]			2.867* [2.351]
Equity ratio × Crisis_2008			0.424 [0.899]			0.737** [3.867]
Equity ratio × Crisis_2009			0.573 [1.412]			1.343** [3.727]
Liquidity ratio × Crisis_2008			0.071 [0.255]			0.042 [0.174]
Liquidity ratio × Crisis_2009			−0.084 [−0.453]			−0.188 [−0.655]
Profitability × Crisis_2008			−2.607 [−1.021]			−0.602 [−0.366]
Profitability × Crisis_2009			−0.855 [−0.562]			−1.200 [−1.523]
Deposit funding × Crisis_2008			−0.026 [−0.382]			−0.083 [−0.581]
Deposit funding × Crisis_2009			−0.078 [−1.069]			0.052 [0.473]
Constant	47.285*** [7.362]	17.877** [2.372]	20.015 [1.606]	53.932*** [13.125]	48.121*** [11.527]	70.439*** [15.072]
Country-year interactions	No	Yes	Yes	No	Yes	Yes
Observations	770	770	770	878	878	878
R-squared	0.210	0.540	0.544	0.170	0.311	0.326

The dependent variable is the annual percentage change in total gross loans. Variable definitions and descriptive statistics are in Table 1. Note that all bank characteristics other than ownership are lagged one period. Robust *t*-statistics are in brackets.

* Significance at 10%.

** Significance at 5%.

*** Significance at 1%.

crisis, domestic bank lending growth exceeded that for other types of banks, especially in 2007. During the crisis, both domestic and foreign bank loan growth rates dropped substantially, while in 2009 growth in government bank lending increased relative to pre-crisis levels. Of course, these figures do not control for any other bank characteristics that could impact loan growth across banks and regions such as size, capitalization, liquidity, profitability, and funding structure. Such evidence is presented in Section 4.

We control for bank size by including the log of assets. Bank assets averaged \$3.7 billion in Eastern Europe and \$5.6 billion in Latin America. Our indicator of bank capital is bank equity as a share of total assets. This ratio averaged close to 20% for banks in Latin America and 12% for Eastern Europe. Bank liquidity, which is captured by the ratio of liquid assets (cash and cash equivalent assets)

to total assets, averaged 28% in both Eastern Europe and Latin America. We measure profitability by the return on assets ratio. Profitability averaged 1% in Eastern Europe and almost 2% in Latin America. We account for differences in bank funding structure using data on customer deposits as a share of total liabilities. This ratio averaged 65% within Eastern Europe and 51% in Latin America during the period 2005–2009.

In the case of foreign banks, we not only collect data on the characteristics of their local operations in Eastern Europe and Latin America, but also we gather data on the parent banks.¹⁹ The

¹⁹ Studies such as Kamil and Rai (2010) and de Haas and van Lelyveld (forthcoming) show that parent bank characteristics can have an impact on foreign bank lending in developing countries.

Table 3
Determinants of the growth of total loans – Robustness checks.

Variables	Eastern Europe		Latin America	
	Total lending in local currency units (1)	Including bank fixed effects (2)	Total lending in local currency units (3)	Including bank fixed effects (4)
Foreign	3.266 [1.186]		–8.620*** [–6.386]	
Government	–2.324 [–0.507]		–9.597 [–1.875]	
Size	0.070 [0.094]	–22.123*** [–3.552]	–2.142* [–3.941]	–35.330*** [–4.476]
Equity ratio	–0.130 [–0.728]	0.828 [1.530]	–0.385** [–3.325]	–0.037 [–0.091]
Liquidity ratio	–0.028 [–0.187]	0.370** [2.922]	0.063 [0.537]	0.126 [0.850]
Profitability	–0.532 [–0.496]	–0.053 [–0.030]	1.164* [2.321]	0.567 [0.744]
Deposit funding ratio	0.010 [0.455]	–0.05 [–0.413]	–0.019 [–0.198]	–0.408*** [–2.623]
Foreign × Crisis_2008	0.607 [0.155]	2.443 [0.543]	8.908 [1.664]	9.689 [1.447]
Foreign × Crisis_2009	–13.410** [–3.236]	–13.578** [–2.537]	–14.243* [–2.057]	–10.678 [–1.470]
Government × Crisis_2008	4.308 [1.049]	2.749 [0.504]	24.849*** [4.801]	25.244*** [3.755]
Government × Crisis_2009	1.465 [0.192]	2.491 [0.409]	22.639* [2.436]	19.692** [2.369]
Size × Crisis_2008	–0.487 [–0.377]	–1.278 [–0.919]	3.011** [3.768]	1.298 [0.845]
Size × Crisis_2009	1.164 [1.194]	–1.13 [–0.609]	3.634*** [5.232]	1.221 [0.669]
Equity ratio × Crisis_2008	0.225 [0.572]	0.835** [2.044]	0.757** [3.700]	0.421 [0.783]
Equity ratio × Crisis_2009	0.078 [0.175]	0.717 [1.134]	0.571 [1.995]	0.906* [1.788]
Liquidity ratio × Crisis_2008	0.027 [0.093]	0.088 [0.446]	0.089 [0.522]	0.152 [0.777]
Liquidity ratio × Crisis_2009	–0.129 [–1.506]	–0.195 [–0.918]	–0.402 [–1.769]	–0.135 [–0.466]
Profitability × Crisis_2008	–1.676 [–0.907]	–2.177 [–1.017]	–0.798 [–0.529]	0.264 [0.186]
Profitability × Crisis_2009	0.199 [0.113]	0.873 [0.463]	–0.265 [–0.344]	–0.293 [–0.170]
Deposit funding × Crisis_2008	0.000 [0.006]	–0.046 [–0.628]	–0.057 [–0.423]	–0.036 [–0.284]
Deposit funding × Crisis_2009	–0.126* [–2.123]	–0.071 [–0.718]	0.101 [0.549]	0.072 [0.574]
Constant	–0.450 [–0.057]	298.929*** [3.339]	47.871*** [8.865]	524.728*** [4.796]
Bank fixed effects	No	Yes	No	Yes
Country-year interactions	Yes	Yes	Yes	Yes
Observations	783	770	902	878
R-squared	0.608	0.689	0.345	0.427

The dependent variable is the annual percentage change in total gross loans expressed in constant local currency units in columns 1 and 3 and expressed in dollars in columns 2 and 4. Columns 2 and 4 also include bank fixed effects. Variable definitions and descriptive statistics are in Table 1. Note that all bank characteristics other than ownership are lagged one period. Robust *t*-statistics are in brackets.

* Significance at 10%.

** Significance at 5%.

*** Significance at 1%.

parents of foreign banks operating in Eastern Europe averaged \$395 billion in assets and those of Latin American banks averaged \$733 billion. The equity ratio averaged close to 10% among parents of Latin American banks and 7% among parents of Eastern European banks. On average, return on assets was 1.3% among parents of Latin American banks and 0.8% among those of Eastern European banks. Liquidity averaged 28% for parents of Latin American affiliates and almost 30% for those operating in Eastern Europe. On average, the ratio of deposits to liabilities was 48% among parents of Latin American affiliates and 43% among those of Eastern European affiliates.

4. Results

4.1. The growth of total gross loans

Table 2 shows the results of estimating Eq. (1) for the growth of total gross loans for banks in Eastern Europe (columns 1–3) and Latin America (columns 4–6). While we find that domestic bank lending growth fell both in Eastern Europe and Latin America during the crisis (as reflected in the negative coefficients on the crisis dummy variables in models 1 and 4), there are interesting differences in the behavior of foreign and government-owned banks

Table 4
Determinants of the growth of corporate loans.

Variables	Eastern Europe				Latin America			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Foreign	11.605** [2.905]	8.302** [3.122]	4.790* [1.924]		-5.681 [-0.954]	-2.759 [-0.451]	0.605 [0.099]	
Government	14.284 [0.969]	5.310 [0.396]	0.581 [0.041]		-10.601* [-2.521]	-12.800* [-2.579]	-14.271** [-3.864]	
Size	-1.628 [-1.000]	-1.754 [-1.036]	1.000 [0.432]	-14.962 [-1.138]	0.312 [0.297]	0.274 [0.283]	0.270 [0.206]	-18.317* [-1.817]
Equity ratio	-0.486 [-0.574]	-0.329 [-0.446]	0.067 [0.123]	0.317 [0.510]	-0.085 [-0.463]	-0.091 [-0.560]	-0.391*** [-5.464]	-0.450 [-0.632]
Liquidity ratio	-0.001 [-0.007]	0.141 [1.061]	0.374* [2.154]	0.228 [1.014]	0.052 [0.905]	0.011 [0.104]	0.052 [0.514]	0.233 [0.910]
Profitability	2.038 [0.828]	1.464 [0.644]	1.268 [1.251]	-3.842 [-1.367]	-0.847 [-0.592]	-0.589 [-0.399]	1.012 [0.509]	0.624 [0.455]
Deposit funding ratio	0.036 [0.276]	0.038 [0.302]	-0.029 [-0.255]	0.088 [0.422]	0.064 [0.832]	0.083 [0.954]	0.046 [0.249]	0.040 [0.155]
Crisis_2008	-17.764** [-4.019]				-34.665** [-2.739]			
Crisis_2009	-2.751 [-0.265]				-20.739*** [-5.905]			
Foreign × Crisis_2008	-5.532 [-0.755]	1.003 [0.186]	8.320** [2.694]	6.698 [0.965]	9.340 [1.087]	1.481 [0.237]	-5.989 [-0.846]	-7.488 [-0.870]
Foreign × Crisis_2009	-34.891** [-3.930]	-30.048** [-2.915]	-27.072*** [-3.959]	-22.724*** [-2.643]	-4.053 [-0.741]	-8.951 [-1.767]	-10.421** [-2.630]	-15.582 [-1.782]
Government × Crisis_2008	-2.484 [-0.167]	6.856 [0.529]	15.022 [0.985]	12.325 [0.976]	22.264** [2.993]	31.516*** [8.405]	34.980*** [8.699]	29.689** [2.407]
Government × Crisis_2009	-16.325 [-0.714]	-11.027 [-0.563]	-2.418 [-0.124]	0.614 [0.046]	19.568 [0.815]	21.849 [0.899]	25.783 [1.413]	19.669 [1.345]
Size × Crisis_2008			-5.832* [-1.895]	-6.805** [-2.251]			-0.118 [-0.052]	-0.387 [-0.154]
Size × Crisis_2009			-3.011 [-0.778]	-3.089 [-0.745]			0.827 [1.141]	1.573 [0.585]
Equity ratio × Crisis_2008			0.317 [0.250]	0.144 [0.160]			0.701 [1.122]	0.529 [1.191]
Equity ratio × Crisis_2009			0.065 [0.091]	-0.125 [-0.195]			0.923** [4.131]	0.771 [1.575]
Liquidity ratio × Crisis_2008			-0.670** [-4.534]	-0.176 [-0.578]			-0.001 [-0.004]	0.175 [0.523]
Liquidity ratio × Crisis_2009			-0.378 [-1.596]	0.136 [0.351]			-0.366** [-3.357]	-0.074 [-0.235]
Profitability × Crisis_2008			-5.985 [-1.512]	-1.582 [-0.360]			-5.648 [-1.536]	-3.738* [-1.873]
Profitability × Crisis_2009			2.401 [0.891]	4.032 [1.100]			-0.094 [-0.074]	1.205 [0.619]
Deposit funding × Crisis_2008			0.344** [2.496]	0.227* [1.666]			-0.029 [-0.295]	-0.060 [-0.265]
Deposit funding × Crisis_2009			-0.024 [-0.150]	-0.079 [-0.440]			0.269 [0.800]	0.216 [0.937]
Constant	51.779* [2.131]	24.286 [1.029]	-18.188 [-0.599]	205.526 [1.108]	33.659 [1.761]	27.997 [1.425]	30.862 [1.167]	282.250* [1.904]
Country-year interactions	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Bank fixed-effects	No	No	No	Yes	No	No	No	Yes
Observations	356	356	359	359	714	714	714	714
R-squared	0.248	0.548	0.581	0.678	0.095	0.200	0.232	0.286

The dependent variable is the annual percentage change in corporate loans. Variable definitions and descriptive statistics are in Table 1. Note that all bank characteristics other than ownership are lagged one period. Robust t-statistics are in brackets.

* Significance at 10%.

** Significance at 5%.

*** Significance at 1%.

across regions. Foreign bank loan growth in Eastern Europe fell more (between 14% and 16% points more) than domestic bank loan growth. The finding is consistent with that of other studies that find that foreign banks reduced their lending earlier and faster than domestic banks during the recent crisis, especially in Eastern Europe (de Haas et al., 2012; Claessens and van Horen, forthcoming). For Latin America, we find no difference in the loan growth of domestic and foreign banks.²⁰

²⁰ That is, no significant differences at $p = .05$ level. There are some differences at the 10% significance level. However, those coefficients indicate that the loan growth of foreign banks in Latin America was greater than that of domestic banks in 2008, in stark contrast to the result for foreign banks' credit growth in Eastern Europe in 2009.

While government banks' loan growth in Latin America exceeded domestic bank lending during the crisis (by approximately 28% points), there is no evidence that government banks in Eastern Europe stepped up their lending relative to domestic banks. The finding is consistent with research using firm-level data indicating that government ownership in the banking sector in Eastern Europe and Central Asia was not associated with less severe financial constraints for firms during the crisis (Clarke et al., 2012).

Prior to the crisis, bank size was negatively correlated with loan growth in Eastern Europe and in Latin America (though the relationship was significant only for Latin America). However, this relationship reversed during the crisis and we find that the interaction between bank size and the 2009 dummy variable was positive

Table 5
Determinants of the growth of consumer loans.

Variables	Eastern Europe				Latin America			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Foreign	-7.225 [-0.814]	-13.610 [-1.048]	-12.166 [-1.126]		-3.721 [-0.706]	-0.628 [-0.132]	-2.247 [-0.356]	
Government	-1.206 [-0.096]	-17.175 [-1.875]	-17.344 [-1.711]		-16.020 [-1.792]	-14.903 [-1.822]	-19.410 [-2.360]	
Size	-1.397 [-0.525]	0.268 [0.119]	-0.085 [-0.024]	-1.313 [-0.047]	-0.314 [-0.976]	0.087 [0.168]	1.127 [1.469]	-12.282 [-0.676]
Equity ratio	-0.587 [-0.623]	-0.365 [-0.438]	-0.899 [-0.659]	-1.183 [-0.867]	-0.581** [-2.816]	-0.586** [-2.988]	-0.818** [-2.673]	-0.659 [-0.486]
Liquidity ratio	0.442 [1.028]	0.622 [1.355]	1.102 [1.717]	1.762*** [3.119]	0.168 [1.560]	0.184 [1.860]	0.210 [1.803]	0.453 [1.492]
Profitability	-1.392 [-0.244]	-2.793 [-0.487]	-0.719 [-0.096]	-0.512 [-0.070]	0.209 [0.621]	0.545 [1.369]	-0.481 [-0.425]	0.491 [0.208]
Deposit funding ratio	0.309** [2.740]	0.248 [1.587]	0.505** [2.445]	0.382 [0.730]	-0.113 [-1.495]	-0.093 [-1.126]	-0.247 [-1.982]	-0.725*** [-2.724]
Crisis_2008	-43.819*** [-3.822]				-51.529*** [-3.914]			
Crisis_2009	-44.339*** [-2.433]				-33.637 [-1.847]			
Foreign × Crisis_2008	15.702 [2.122]	20.689 [1.344]	8.911 [0.810]	11.992 [0.742]	1.348 [0.080]	-1.309 [-0.097]	4.233 [0.332]	9.363 [0.771]
Foreign × Crisis_2009	7.821 [0.753]	19.714 [1.061]	23.086 [1.603]	39.250** [2.388]	-24.253 [-1.819]	-26.851* [-2.152]	-21.153 [-1.842]	-20.924* [-1.722]
Government × Crisis_2008	-7.469 [-0.370]	13.125 [0.522]	20.843 [0.772]	29.588 [1.570]	25.261** [2.838]	21.737* [2.023]	37.722*** [4.067]	31.153*** [2.479]
Government × Crisis_2009	-13.366 [-0.640]	3.282 [0.186]	9.613 [0.454]	31.532* [1.933]	22.551 [1.307]	18.699 [1.897]	25.696** [3.946]	28.315*** [2.946]
Size × Crisis_2008			4.398 [0.685]	10.842 [1.600]			-3.024 [-1.704]	-4.586 [-1.430]
Size × Crisis_2009			-0.724 [-0.724]	8.032 [1.086]			-1.522 [-0.936]	-2.192 [-0.496]
Equity ratio × Crisis_2008			-0.006 [-0.003]	1.302 [0.733]			1.734*** [4.811]	0.154 [0.206]
Equity ratio × Crisis_2009			1.929 [1.427]	3.712 [1.643]			0.791 [1.798]	0.575 [0.804]
Liquidity ratio × Crisis_2008			-1.393** [-2.576]	-1.144 [-1.235]			-0.107 [-0.643]	0.087 [0.274]
Liquidity ratio × Crisis_2009			-0.849 [-0.793]	-0.873 [-0.990]			-0.118 [-0.342]	-0.125 [-0.363]
Profitability × Crisis_2008			-13.493* [-1.913]	-12.370 [-1.049]			0.810 [0.575]	3.927 [1.587]
Profitability × Crisis_2009			1.302 [0.170]	-0.980 [-0.118]			2.451 [1.094]	2.813 [0.879]
Deposit funding × Crisis_2008			-0.831 [-1.757]	-0.620 [-1.375]			0.266 [1.885]	0.170 [0.797]
Deposit funding × Crisis_2009			-0.187 [-0.689]	0.394 [0.886]			0.618* [2.187]	0.618** [2.063]
Constant	51.351 [1.371]	10.022 [0.301]	-16.484 [-0.274]	-10.796 [-0.027]	70.426*** [8.951]	61.634*** [7.337]	61.249*** [4.762]	255.107 [0.973]
Country-year interactions	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Bank fixed-effects	No	No	No	Yes	No	No	No	Yes
Observations	305	305	305	305	598	598	599	599
R-squared	0.220	0.367	0.413	0.488	0.167	0.298	0.311	0.382

The dependent variable is the annual percentage change in consumer loans. Variable definitions and descriptive statistics are in Table 1. Note that all bank characteristics other than ownership are lagged one period. Robust *t*-statistics are in brackets.

* Significance at 10%.

** Significance at 5%.

*** Significance at 1%.

and significant (models 3 and 6), indicating that larger banks maintained more robust loan growth than smaller ones. Because the positive coefficients on the interaction are larger (in absolute value) than the negative coefficients for the size variable, bank size was positively related to loan growth in both regions during the crisis.²¹

²¹ However, we cannot reject the hypothesis that the sum of the size and size × Crisis_2009 coefficients is equal to zero for Latin America. Still, this indicates that large banks' loan growth was no slower than other Latin American banks during the crisis, in contrast to the pre-crisis period. And we can reject that the sum of the size and size × Crisis_2009 coefficients is equal to zero for Eastern Europe.

In the case of Latin America, we also find that more solvent banks were able to grow their loan portfolios faster during the crisis than banks with low equity ratios, as indicated by the significant large positive coefficients for the interactions between the equity ratio and the crisis year dummy variables in model 6.

As a robustness check, Table 3 presents two variants of the results presented in Table 2. First, columns (1) and (3) show results for the growth of total loans expressed in constant local currency (as opposed to dollars) for banks operating in Eastern Europe and Latin America, respectively. Second, columns (2) and (4) show results where we introduce bank fixed effects, and thus we drop

the foreign and government owned dummies (i.e., these variables now only appear interacted with the crises dummies).²² Neither of these variants produces qualitatively different results from those reported above. While in Eastern Europe foreign bank lending growth was slower than that for domestic private banks during the crisis, in Latin America there is no strong nor robust evidence that foreign banks retrenched their lending significantly faster than domestic private banks. In contrast, we continue to observe that in Latin America, government-owned bank loan growth exceeded that of other bank types during the crisis. This did not occur in Eastern Europe.

4.2. Corporate, consumer, and residential mortgage loan growth

In what follows we discuss results from regressions replacing the growth of total gross loans with the growth of corporate, consumer, and mortgage loans, respectively. As shown in Appendix Table A.2, the number of banks that report information on the breakdown of loans is smaller than those included in the gross loans regressions reported so far. Nonetheless, perhaps with the exception of mortgage loans, the regressions by loan type capture the larger banks in the system and, hence, are likely to be representative of the volume of loans of each type.

Table 4 shows regressions for the growth rate of corporate loans among banks in Eastern Europe (columns 1–4) and Latin America (columns 5–8). In Eastern Europe, before the crisis, loan growth among foreign banks exceeded that for domestic banks by between 5% and 12% points, depending on the specification. But during the crisis, foreign bank corporate loan growth fell more sharply, by between 23% and 35% points.

In the case of Latin America, there is no significant difference in corporate loan growth for foreign and domestic private banks before the crisis. During the crisis, there is some evidence that foreign banks might have contracted corporate lending more than domestic banks in 2009, but these results are smaller and less robust than those found for Eastern Europe.

Government bank lending in Latin America was slower than that for domestic banks before the crisis (by between 10% and 14% points), but the reverse was true during the crisis, when government bank corporate loan growth exceeded that for domestic banks by between 22% and 35% points, depending on the specification. In other words, government banks stepped up their lending to corporations in Latin America during the crisis, relative to both other banks and to their pre-crisis lending. No such pattern is visible in the case of government banks in Eastern Europe.

During the crisis, we also observe that banks in Latin America with high equity ratios were able to grow their corporate loan portfolio faster than other banks.²³ On the other hand, in both Eastern Europe and Latin America, we find that banks with higher shares of liquid assets (perhaps a sign of risk averseness) had slower corporate loan growth during the crisis relative to others.²⁴ Again, we acknowledge that we had no strong priors about how those variables would affect lending patterns during the crisis. Finally, for banks in Eastern Europe, we find that those whose liabilities consisted mainly

of customer deposits (which were more stable than wholesale funds during the crisis) were able to grow their corporate loan portfolios at a faster rate during the early phase of the crisis (2008) than banks that relied less on deposits.

Table 5 presents regressions on the growth rate of consumer loans for banks in Latin America and Eastern Europe. Domestic banks' consumer loan growth fell significantly during the crisis both in Eastern Europe and Latin America (see coefficients for crisis dummy variables in models 1 and 5). For Eastern Europe, there are no significant differences in foreign and government banks' consumer loan growth relative to domestic banks, before the crisis. During the crisis period, there is some evidence that foreign bank consumer lending might have increased relative to lending by domestic banks. But results are not robust across specifications. In Latin America, there is weak evidence of decline in consumer lending by foreign banks relative to domestic banks in 2009. Lending by government banks to consumers was slower than that of private domestic banks prior to the crisis, but relatively more swift during the crisis.

Banks with high equity ratios and, *ceteris paribus*, those with high ratios of customer deposits to liabilities in Latin America were able to lend to consumers at a faster rate than those with lower levels of solvency and customer deposits during the crisis (model 7). Prior to the crisis, Latin American banks with high equity ratios lent to consumers at a slower rate than those with low ratios. In the case of banks in Eastern Europe, we find that banks with higher liquidity and profitability ratios lent at a slower rate to consumers during the crisis than those with lower ratios.

Table 6 shows estimations for residential loan growth rates for banks in Eastern Europe and Latin America. Residential mortgage loan growth by domestic banks fell in both regions during the crisis (see crisis dummy variables in models 1 and 5). In neither region do we observe a significant consistent difference in terms of foreign and government bank mortgage loan growth during the crisis relative to that for domestic banks.

Overall, we find that while domestic banks' loan growth in both Eastern Europe and Latin America contracted during the crisis, there were notable differences in the behavior of foreign and government-owned banks across regions. Government-owned banks in Latin America stepped up their lending, relative to other banks and to their own pre-crisis lending pace, to corporations and consumers during the crisis. This did not occur in Eastern Europe, where government-owned banks behaved no differently than domestic private banks. On the other hand, foreign banks in Eastern Europe fueled loan growth prior to the crisis and contracted their lending more severely than domestic banks during the crisis in overall lending and in corporate lending, specifically. In contrast, we find less pronounced and robust differences in the behavior of foreign and domestic banks during the crisis in Latin America.

4.3. Explaining differences in lending patterns across regions

What explains the different lending behavior of foreign and government-owned banks across regions? It is hard to provide a definitive answer to this question, but here we consider a number of possible explanations. One obvious possibility is that the structure of the banking sectors in the respective regions had an impact on the role the foreign and government banks played during the crisis. In general, the Eastern European banking sectors had high shares of foreign ownership and low government ownership shares, while in Latin America government ownership shares tended to be higher (and foreign ownership shares lower) than in Eastern Europe (see Table 1). Thus, Eastern Europe was more exposed to potential de-leveraging by foreign banks and its government banks were less able to counteract a lending downturn. While there is some truth to that straightforward interpretation

²² In unreported regressions (available upon request) we examine the growth of bank lending in Latin America, separating out Spanish banks from the remaining foreign banks. Overall, we find that the result that foreign banks in Latin America did not retrench their lending more than private banks holds for both Spanish and non-Spanish foreign banks.

²³ The equity ratio is also positively associated with corporate loan growth for Eastern Europe, though the coefficient does not achieve significance in the crisis period (or prior to it).

²⁴ The sum of the coefficients for the liquidity ratio and the liquidity \times crisis year interaction (2008 for Eastern Europe, 2009 for Latin America) is also negative and significant for both regions indicating that effects of liquidity on corporate loan growth was significantly less than zero during the crisis.

Table 6
Determinants of the growth of residential mortgage loans.

Variables	Eastern Europe				Latin America			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Foreign	15.922 [1.382]	18.859 [1.245]	10.014 [0.578]		-0.099 [-0.006]	5.223 [0.347]	5.351 [0.325]	
Government	31.744** [2.509]	9.158 [0.642]	25.275 [1.167]		3.988 [0.272]	5.473 [0.451]	4.244 [0.301]	
Size	-6.154 [-0.639]	-8.882 [-0.594]	-21.140 [-1.161]	-21.650 [-0.555]	-2.500* [-2.250]	-2.418 [-1.900]	-2.085 [-0.827]	4.283 [0.184]
Equity ratio	-0.228 [-0.065]	1.343 [0.286]	-2.996 [-0.585]	-8.325 [-0.726]	-0.594** [-5.961]	-0.832** [-3.426]	-1.331** [-3.760]	3.332 [1.619]
Liquidity ratio	0.485 [1.296]	0.018 [0.046]	-0.009 [-0.006]	-0.974 [-0.498]	0.200 [0.985]	0.247 [1.291]	0.308 [1.028]	0.405 [0.862]
Profitability	0.540 [0.044]	-0.885 [-0.058]	19.018 [1.577]	-3.521 [-0.118]	0.169 [0.122]	2.776** [4.406]	4.026** [3.253]	2.758 [0.949]
Deposit funding ratio	-0.191 [-0.855]	0.176 [0.467]	-0.107 [-0.221]	2.977** [2.528]	-0.087 [-0.599]	-0.074 [-0.415]	0.018 [0.081]	-0.720 [-1.529]
Crisis_2008	-50.603* [-2.159]				-24.464* [-3.858]			
Crisis_2009	-46.927* [-2.150]				-22.496* [-3.442]			
Foreign × Crisis_2008	21.007 [1.008]	10.462 [0.797]	12.192 [0.421]	15.475 [0.388]	-19.786 [-1.106]	-17.387 [-0.900]	-17.050 [-0.606]	-28.286* [-1.774]
Foreign × Crisis_2009	-6.689 [-0.316]	-10.855 [-0.830]	10.658 [0.391]	40.040 [0.918]	7.176 [0.295]	-2.939 [-0.124]	-0.282 [-0.013]	-17.773 [-1.081]
Government × Crisis_2008	-4.126 [-0.366]	-5.487 [-0.363]	-43.174 [-1.421]	-35.780 [-1.533]	3.219 [0.702]	2.325 [0.498]	1.574 [0.213]	0.753 [0.041]
Government × Crisis_2009					16.820 [0.915]	2.596 [0.726]	9.172* [2.459]	6.951 [0.353]
Size × Crisis_2008			13.642 [1.154]	-3.874 [-0.290]			1.179 [0.236]	1.437 [0.329]
Size × Crisis_2009			37.695* [2.126]	32.006** [2.056]			-1.442 [-0.415]	1.062 [0.189]
Equity ratio × Crisis_2008			9.775 [0.913]	0.532 [0.044]			-0.328 [-0.658]	0.858 [0.520]
Equity ratio × Crisis_2009			6.885 [0.863]	10.695 [0.814]			2.107** [3.356]	3.381 [1.450]
Liquidity ratio × Crisis_2008			-0.287 [-0.171]	0.457 [0.210]			-0.403 [-0.424]	0.311 [0.455]
Liquidity ratio × Crisis_2009			-0.104 [-0.074]	1.145 [0.467]			-0.003 [-0.006]	0.267 [0.420]
Profitability × Crisis_2008			-34.513 [-1.337]	13.124 [0.466]			-1.887 [-0.983]	-7.944 [-1.197]
Profitability × Crisis_2009			-43.821 [-1.580]	-39.226 [-1.300]			-4.479 [-1.665]	-7.706 [-0.887]
Deposit funding × Crisis_2008			0.980 [1.366]	-0.799 [-1.023]			-0.322* [-2.137]	-0.100 [-0.271]
Deposit funding × Crisis_2009			-0.047 [-0.099]	-0.525 [-0.695]			-0.071 [-0.431]	0.228 [0.565]
Constant	148.388 [0.863]	135.385 [0.510]	366.199 [1.091]	217.083 [0.380]	75.319*** [5.269]	75.399*** [4.521]	68.353 [2.273]	-28.382 [-0.082]
Country-year interactions	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Bank fixed-effects	No	No	No	Yes	No	No	No	Yes
Observations	87	87	87	87	379	373	373	373
R-squared	0.444	0.720	0.766	0.906	0.076	0.196	0.207	0.243

The dependent variable is the annual percentage change in residential mortgage loans. Variable definitions and descriptive statistics are in Table 1. Note that all bank characteristics other than ownership are lagged one period. Robust *t*-statistics are in brackets.

* Significance at 10%.

** Significance at 5%.

*** Significance at 1%.

(as we discuss below), we note that Mexico's lending patterns were more similar to its Latin American neighbors than to Eastern European countries despite its high foreign and low government shares of banking sector assets. It seems unlikely, therefore, that banking sector structure can account for all of the differences in lending patterns that we find across the regions. We, therefore, explore additional possibilities, focusing mainly on the nature of the ties between parents and affiliates and the role of government banks and their relationship with the government in the two regions.

To explore the ties between foreign bank parents and their affiliates, Appendix Table A.3 presents the roster of foreign banks operating in each region. This table shows that most of the banks operating in Eastern Europe were Western European banks with

a regional focus. On the other hand, banks operating in Latin America were more diverse (mostly from Spain, US, UK and Canada). It is possible – though impossible to verify with the data we have – that parents' banks proximity to their subsidiaries implied greater transmission of shocks and less independence in management for the Eastern European affiliates relative to the operations of foreign banks in Latin America.²⁵ The view that the Eastern European

²⁵ One way to test this would be to compare the lending patterns of the Eastern European and Latin American affiliates of the same parent bank. However, as shown in Table A.3, only a handful of parent banks had affiliates in both Eastern Europe and Latin America, and those that did (Citibank, GE capital) were not reflective of the parent banks that de-leveraged in Eastern Europe.

Table 7
Determinants of foreign and government bank lending during the 2008–2009 crisis.

Variables	Foreign bank lending	Government bank lending
Size	4.752 [*] [1.861]	-1.011 [-2.152]
Equity ratio	0.533 ^{**} [4.432]	-2.100 ^{**} [-7.467]
Liquidity ratio	0.338 [0.798]	-0.194 [-0.432]
Profitability	-0.748 [-0.399]	2.440 ^{**} [3.964]
Deposit funding ratio	-0.417 [*] [-2.271]	-0.305 ^{**} [-5.908]
Size × Eastern Europe	-6.258 [*] [-2.101]	-6.746 [-1.480]
Equity ratio × Eastern Europe	-0.150 [-0.410]	-0.919 [-0.936]
Liquidity ratio × Eastern Europe	-0.305 [-0.652]	0.036 [0.075]
Profitability × Eastern Europe	-2.456 [-0.759]	-3.983 [-0.722]
Deposit funding ratio × Eastern Europe	0.505 ^{**} [2.595]	-0.543 ^{**} [-4.881]
Parent size	-1.772 [-0.808]	
Parent equity ratio	-0.38 [-0.419]	
Parent liquidity	-0.587 [*] [-2.341]	
Parent profitability	1.171 [0.240]	
Parent deposit funding ratio	-0.166 [-1.087]	
Parent size × Eastern Europe	-0.345 [-0.133]	
Parent equity ratio × Eastern Europe	-1.285 [-1.208]	
Parent liquidity × Eastern Europe	0.959 ^{***} [3.151]	
Parent profitability × Eastern Europe	4.251 [0.820]	
Parent deposit funding ratio × Eastern Europe	0.134 [0.609]	
Constant	44.350 [*] [1.962]	129.971 ^{***} [4.032]
Observations	220	63
R-squared	0.159	0.179

The dependent variable is the annual percentage change in total gross loans during 2008–2009. Variable definitions and descriptive statistics are in Table 1. Note that all bank characteristics other than ownership are lagged one period. Robust *t*-statistics are in brackets.

^{*} Significance at 10%.

^{**} Significance at 5%.

^{***} Significance at 1%.

subsidiaries of foreign banks tended to be centrally managed is supported by evidence collected by Allen et al. (2011). These authors find that a significant share of the board members of the foreign banks that operated in Eastern Europe was composed by senior members in the parent banks.

To further examine potential differences in the behavior of foreign banks across regions, we estimate a regression for the determinants of foreign bank lending where we combine data for the foreign banks operating in Eastern Europe and Latin America and we interact each of the variables with a dummy which identifies foreign banks operating in Eastern Europe (Table 7). We find that among foreign banks operating in Latin America the size and equity ratio of subsidiaries have a positive impact on lending growth, while, surprisingly, funding structure (i.e., greater deposits as a share of total liabilities) has a negative effect. In the case of foreign banks in Eastern Europe, the net effect of each of the subsidiary characteristics is not different from zero. The variables that drive foreign bank lending in Eastern Europe are parent liquidity and parent profitability.²⁶ This

suggests that as the crisis unfolded in developed countries and the condition of the parent banks deteriorated, foreign banks in Eastern Europe were more affected and, hence, curtailed their lending more significantly relative to domestic banks.

To analyze the role of government banks and their relationship with the government in Eastern Europe and Latin America, Appendix Table A.4 shows the roster of government banks operating in both regions along with their size (in terms of assets), their market share in the local banking system, and the percentage of bank shares owned by the government. It is clear from this table that there are fundamental differences between the government-owned banks that operate in Eastern Europe and those in Latin America. In particular, banks in Eastern Europe are generally smaller (in absolute and relative terms) and the share of their capital owned by the government is lower. Hence, government-owned banks in Eastern Europe might not have been well-suited to provide lending support on a large scale during the crisis.

In terms of the drivers of government bank lending across regions, which we examine by combining the data for government banks in both regions and interacting each variable with a dummy for Eastern Europe, we do find some similarities (see Table 7). In

²⁶ Note that the sum of the coefficients for parent profitability and parent profitability × Eastern Europe is positive and significantly different from zero.

Table A.1
Descriptive statistics across regions by bank-ownership type.

Banks	Period	Statistic	Growth gross loans	Growth corporate loans	Growth rate consumer loans	Growth residential mortgage loans	Size (assets in billions)	Equity ratio	Profitability	Liquidity ratio	Deposit funding ratio
<i>Eastern Europe</i>											
Domestic Private Banks	Pre-crisis	Average	33.9	29.3	57.2	47.1	0.9	12.0	0.9	30.6	72.9
		Std. dev.	28.6	25.8	64.4	31.1	1.2	8.2	1.4	14.3	27.0
	Crisis	Average	13.5	17.5	9.1	32.8	2.0	11.6	1.1	23.1	72.8
		Std. dev.	19.2	25.9	29.4	50.9	2.3	6.8	1.1	13.6	27.7
Foreign banks	Pre-crisis	Average	35.7	39.0	48.8	64.4	3.3	12.1	1.1	30.9	64.3
		Std. dev.	31.5	32.5	52.3	46.4	5.4	8.0	1.5	17.1	23.5
	Crisis	Average	10.1	8.7	11.7	23.5	5.7	11.5	1.0	23.4	59.5
		Std. dev.	17.8	21.0	38.5	27.8	8.4	7.8	1.6	15.0	23.5
Government-owned banks	Pre-crisis	Average	34.1	32.8	59.4		5.0	13.8	1.0	35.2	59.9
		Std. dev.	38.4	37.3	53.3		8.3	9.8	0.8	20.6	32.9
	Crisis	Average	15.8	22.6	3.9	15.5	7.5	11.8	0.8	30.8	54.2
		Std. dev.	23.1	27.5	19.1	2.9	12.0	10.5	1.2	19.2	32.2
<i>Latin America</i>											
Domestic Private Banks	Pre-crisis	Average	39.7	38.9	52.9	30.7	3.1	19.5	2.6	24.8	53.6
		Std. dev.	37.6	44.5	58.6	59.3	10.6	15.6	3.8	18.1	26.1
	Crisis	Average	14.1	13.4	17.4	8.9	5.8	19.0	1.9	24.3	53.9
		Std. dev.	39.0	43.9	59.0	41.6	23.9	14.5	3.9	17.1	25.0
Foreign banks	Pre-crisis	Average	26.4	32.0	43.8	26.7	3.9	24.6	0.3	33.4	49.4
		Std. dev.	38.4	41.1	57.5	66.5	9.5	22.1	4.1	22.9	29.1
	Crisis	Average	5.4	9.3	0.5	6.7	6.5	22.2	1.4	29.1	43.0
		Std. dev.	32.5	37.0	39.9	51.5	15.1	21.0	3.1	19.4	28.5
Government-owned banks	Pre-crisis	Average	30.7	31.5	46.5	38.1	10.3	11.8	1.8	35.5	49.8
		Std. dev.	21.7	38.2	40.4	56.8	25.6	9.0	1.8	19.6	20.2
	Crisis	Average	26.7	27.0	27.3	23.6	17.1	12.1	2.2	30.7	54.2
		Std. dev.	31.6	40.7	39.0	41.3	46.5	8.5	1.2	16.2	20.4

particular, larger and better capitalized government owned banks in both regions tended to exhibit slower loan growth. This is also the case for banks that were funded primarily via deposits. On the other hand, we find a significant difference on the impact of profitability. This seemed to matter only for government owned banks operating in Latin America.²⁷ We are reluctant to conclude that greater profitability for government banks in Latin America directly enabled them to increase their lending during the crisis. If anything, we view this result as evidence that government banks in Latin America were different in nature than those in Eastern Europe.²⁸

5. Conclusions

The 2008–2009 crisis led to a significant decline in bank lending both in Eastern Europe and in Latin America. This paper analyzed the role of bank ownership in explaining lending patterns in both regions before and during the recent crisis episode. We studied the growth of total gross bank credit and, separately, we examined growth in corporate, consumer, and residential mortgage loans.

Though we found that private banks both in Eastern Europe and Latin America experienced a sharp contraction in lending growth rates during the recent crisis, we uncovered significant differences across these regions in the behavior of foreign and government-owned banks relative to domestic private banks. In Eastern Europe, foreign bank total loan growth fell more than domestic private bank credit growth during the crisis. These results appear to be driven by reductions in corporate lending. At the same time, govern-

ment-owned bank lending growth in Eastern Europe did not differ significantly from that of domestic private banks. In general, government-owned banks in Eastern Europe did not mitigate the impact of the crisis on credit. The opposite is true in Latin America where government-owned banks' lending growth during the crisis exceeded that of domestic and foreign banks. Contrary to the case of Eastern Europe, foreign banks in Latin America did not appear to fuel loan growth prior to the crisis. Furthermore, we found less pronounced and robust differences in the behavior of foreign and domestic private banks during the crisis in Latin America.

Identifying what is at the heart of the differences in bank behavior across regions is difficult. We offer some tentative explanations based on the evidence we were able to gather. We argue that parents' banks proximity to their subsidiaries implied greater transmission of shocks and less independence in management for the Eastern European affiliates relative to the operations of foreign banks in Latin America. Consistent with this explanation, we found that foreign bank lending in Eastern Europe was driven by parent characteristics, while subsidiary solvency was important in the case of Latin America. We speculate that this might explain why foreign bank lending declined more relative to domestic bank loan growth in Eastern Europe. At the same time, we suggest that the closer ties between the government and government-owned banks in Latin America, along with their larger size and larger profits might explain why government bank lending in this region was more resilient to the crisis. Overall, our results caution against making sweeping generalizations about the behavior of foreign and government-owned banks during the recent crisis, and point to the need for more research to better understand what is driving the differences we document.

Appendix A

See Tables A.1–A.4.

²⁷ The coefficient on the interaction between the Eastern Europe dummy and the profitability variable is not significant, and the sum of this coefficient and that of the baseline profitability variable is not significantly different from 0.

²⁸ Appendix Table A.1 confirms that profitability was much higher among government-owned banks in Latin America – in 2008–2009 average return on assets for government-owned banks in Latin America was 2.2% compared with 0.8% in Eastern Europe.

Table A.2

Banks entering the gross loan, corporate, consumer and mortgage regressions.

Country/region	Total number of banks in gross loan regressions	Number of banks that enter the regressions for the following type of loans			Share of assets out of total captured by banks in the regressions for the following type of loans		
		Corporate	Consumer	Mortgage	Corporate (%)	Consumer (%)	Mortgage (%)
Argentina	53	52	50	40	99.40	98.39	95.98
Brazil	84	49	45	11	90.24	84.82	53.80
Chile	21	21	20	14	100.00	99.42	83.94
Colombia	15	15	14	10	100.00	99.47	72.34
Mexico	25	23	19	15	100.00	96.18	96.82
Peru	13	13	5	3	98.63	35.53	30.87
Latin America-Average	35	29	26	16	98.04	85.63	72.29
Bulgaria	25	18	18	6	82.12	88.27	49.05
Croatia	31	18	17	1	47.14	47.43	0.04
Czech Rep.	22	4	4	4	47.12	47.88	50.49
Hungary	21	5	6	2	68.80	79.04	36.16
Poland	35	22	11	5	61.39	51.75	43.14
Romania	27	15	16	3	77.96	83.89	12.35
Slovakia	15	6	5	5	54.55	53.99	68.60
Slovenia	16	8	8	3	41.47	41.47	14.05
Eastern Europe-Average	24	12	11	4	60.07	61.72	34.23

Table A.3

Roster of foreign banks.

Name	Branch (B) or Subsidiary (S)	Parent bank	Parent country
<i>Bulgaria</i>			
Piraeus Bank Bulgaria AD	S	PIRAEUS BANK SA	Greece
Bulgarian-American Credit Bank	S	ALLIED IRISH BANKS PLC	Ireland
ProCredit Bank (Bulgaria) AD	S	PROCREDIT HOLDING AG	Germany
DSK Bank Plc	S	OTP BANK PLC	Hungary
Raiffeisenbank (Bulgaria) EAD	S	RAIFFEISEN BANK INTERNATIONAL AG	Austria
NLB Banka Sofia AD	S	NLB DD-NOVA LJUBLJANSKA BANKA D.D.	Slovenia
International Asset Bank AD	S	<i>Unknown shareholders, including companies and individuals</i>	
Eurobank EFG Bulgaria AD (Postbank)	S	EFG EUROBANK ERGASIAS SA	Greece
United Bulgarian Bank – UBB	S	NATIONAL BANK OF GREECE SA	Greece
MKB Unionbank AD	S	BAYERISCHE LANDESBANK	Germany
UniCredit Bulbank AD	S	UNICREDIT BANK AUSTRIA AG-BANK AUSTRIA	Austria
Societe Generale Expressbank	S	SOCIÉTÉ GÉNÉRALE	France
Allianz Bank Bulgaria AD	S	ALLIANZ SE	Germany
D Commerce Bank AD	S	FUAT GYUVEN	Turkey
Emporiki Bank – Bulgaria EAD	S	EMPORIKI BANK OF GREECE SA	Greece
<i>Croatia</i>			
Hypo Alpe-Adria-Bank dd	S	HYPO ALPE-ADRIA BANK INTERNATIONAL AG	Austria
Volksbank dd	S	VOLKSBANK INTERNATIONAL AG	Austria
Raiffeisenbank Austria d.d., Zagreb	S	RAIFFEISEN BANK INTERNATIONAL AG	Austria
BKS Bank d.d.	S	BKS BANK AG	Austria
OTP banka Hrvatska dd	S	OTP BANK PLC	Hungary
Wuestenrot Stambena Stedionica dd	S	BAUSPARKASSE WUESTENROT	Austria
Societe Generale – Splitska Banka dd	S	SOCIÉTÉ GÉNÉRALE	France
Erste & Steiermärkische Bank dd	S	ERSTE GROUP BANK AG	Austria
Zagrebacka Banka dd	S	UNICREDIT BANK AUSTRIA AG-BANK AUSTRIA	Austria
Raiffeisen Stambena Stedionica dd	S	RAIFFEISEN BANK INTERNATIONAL AG	Austria
Banco Popolare Croatia dd	S	BANCO POPOLARE	Italy
Primorska Banka dd	S	<i>Various shareholders</i>	Italy
Podravska Banka	S	<i>Various shareholders</i>	Italy
Veneto Banka d.d.	S	VENETO BANCA SCPA	Italy
Privredna Banka Zagreb d.d.	S	INTESA SANPAOLO HOLDING INTERNATIONAL S.A.	Luxembourg
<i>Czech Republic</i>			
Modra Pyramida Stavebni Sporitelna as	S	SOCIÉTÉ GÉNÉRALE	France
Raiffeisen Stavebni Sporitelna AS	S	RAIFFEISEN BANK INTERNATIONAL AG	Austria
J&T Banka as	S	TECHNO PLUS	Slovakia
Unicredit Bank Czech Republic AS	S	UNICREDIT BANK AUSTRIA AG-BANK AUSTRIA	Austria
Calyon Bank S.A., organizacni slozka	B	CRÉDIT AGRICOLE SA	France
Evropsko-Ruska banka As	S	FIRST CZECH-RUSSIAN BANK, LLC	Russian Federation
PPF Banka a.s.	S	PPF GROUP N.V.	Netherlands
Ceska Sporitelna a.s.	S	ERSTE GROUP BANK AG	Austria
Komerčni Banka	S	SOCIÉTÉ GÉNÉRALE	France
GE Money Bank as	S	GENERAL ELECTRIC COMPANY	United States

(continued on next page)

Table A.3 (continued)

Name	Branch (B) or Subsidiary (S)	Parent bank	Parent country
LBBW Bank CZ a.s	S	LANDESBANK BADEN-WÜRTTEMBERG	Germany
Raiffeisenbank Akciova spolecnost	S	RAIFFEISEN BANK INTERNATIONAL AG	Austria
Banco Popolare Ceska republika, a.s	S	BANCO POPOLARE	Italy
Ceskoslovenska Obchodni Banka A.S. – CSOB	S	KBC BANK NV	Belgium
Volksbank CZ as	S	VOLKSBANK INTERNATIONAL AG	Austria
<i>Hungary</i>			
Volksbank Hungary-Magyarorszag Volksbank Rt	S	VOLKSBANK INTERNATIONAL AG	Austria
K&H Bank Zrt	S	KBC BANK NV	Belgium
Bank of China (Hungária) Hitelintézet Rt	S	BANK OF CHINA LIMITED	China
Sopron Bank Burgenland	S	HYPO-BANK BURGENLAND AG	Austria
Raiffeisen Bank Zrt	S	RAIFFEISEN BANK INTERNATIONAL AG	Austria
Porsche Bank Hungaria	S	PORSCHER BANK AG	Austria
Allianz Bank Zrt	S	FHB MORTGAGE BANK PLC-FHB JELZALOGBANK NYRT.	HU
Banco Popolare Hungary Bank Zrt	S	BANCO POPOLARE	Italy
CIB Bank Ltd-CIB Bank Zrt	S	INTESA SANPAOLO	Italy
MKB Bank Zrt	S	BAYERISCHE LANDESBANK	Germany
UniCredit Bank Hungary Zrt	S	UNICREDIT BANK AUSTRIA AG-BANK AUSTRIA	Austria
Erste Bank Hungary Nyrt	S	ERSTE GROUP BANK AG	Austria
Budapest Hitel-és Fejlesztési Bank Nyrt	S	GENERAL ELECTRIC CAPITAL CORPORATION	United States
Granit Bank Zrt	S	WESTLB AG	Germany
Commerzbank Zrt	S	COMMERZBANK ZRT AG	Germany
Deutsche Bank ZRT	S	DEUTSCHE BANK AG	Germany
<i>Poland</i>			
Allianz Bank Polska SA	S	GETIN HOLDING SA	Poland
Volkswagen Bank Polska	S	VOLKSWAGEN BANK GMBH	Germany
Mercedes-Benz Bank Polska S.A.	S	DAIMLER AG	Germany
Alior Bank Spółka Akcyjna	S	ALIOR LUX SARL & CO S.C.A.	Luxembourg
Fortis Bank Polska SA	S	FORTIS BANK SA/ NV-BNP PARIBAS FORTIS	Belgium
Fiat Bank Polska	S	FGA CAPITAL SPA	Italy
BRE Bank Hipoteczny SA	S	COMMERZBANK ZRT AG	Germany
Bank BPH SA	S	GE INVESTMENTS POLAND SP. Z O.O.	Poland
Lukas Bank SA	S	CRÉDIT AGRICOLE S.A.	France
Bank Dnb NORD Polska SA	S	BANK DNB NORD A/S	Denmark
RCI Bank Polska SA	S	RCI BANQUE	France
Euro Bank SA	S	SOCIÉTÉ GÉNÉRALE	France
Raiffeisen Bank Polska SA	S	RAIFFEISEN BANK INTERNATIONAL AG	Austria
Invest-Bank SA	S	POLARIS FINANCE B.V.	Netherlands
ING Bank Slaski S.A.	S	ING BANK NV	Netherlands
Bank Millennium	S	BANCO COMERCIAL PORTUGUÊS, SA-MILLENNIUM BCP	Portugal
Kredyt Bank SA	S	KBC BANK NV	Belgium
Bank Handlowy w Warszawie S.A.	S	CITIGROUP INC	United States
DZ Bank Polska SA	S	DZ BANK AG-DEUTSCHE ZENTRAL-GENOSSENSCHAFTSBANK	Germany
Deutsche Bank PBC SA	S	DEUTSCHE BANK PRIVAT-UND GESCHAFTSKUNDEN AG	Germany
Bank Polska Kasa Opieki SA-Bank Pekao SA	S	UNICREDIT SPA	Italy
Deutsche Bank Polska S.A.	S	DEUTSCHE BANK AG	Germany
Rabobank Polska SA	S	RABOBANK NEDERLAND – RABOBANK GROUP	Netherlands
Polski Bank Przedsiębiorczosci Spolka Akcyjna	S	WESTLB AG	Germany
HSBC Bank Polska SA	S	HSBC BANK PLC	United Kingdom
RBS Bank (Polska) SA	S	ROYAL BANK OF SCOTLAND NV (THE)-RBS NV	Netherlands
Nordea Bank Polska SA	S	NORDEA BANK AB (PUBL)	Sweden
AIG Bank Polska SA	S	SANTANDER CONSUMER BANK SA	Poland
Bank Zachodni WBK S.A.	S	ALLIED IRISH BANKS PLC	Ireland
BRE Bank SA	S	COMMERZBANK AG	Germany
<i>Romania</i>			
Alpha Bank Romania	S	ALPHA BANK AE	Greece
Banca Comerciala Romana SA	S	ERSTE GROUP BANK AG	Austria
Raiffeisen Bank SA	S	RAIFFEISEN ZENTRALBANK OESTERREICH AG – RZB	Austria
Marfin Bank (Romania) SA	S	MARFIN EGNATIA BANK SA	Greece
UniCredit Tiriac Bank SA	S	UNICREDIT BANK AUSTRIA AG-BANK AUSTRIA	Austria
BCR Banca Pentru Locuinte	S	ERSTE GROUP BANK AG	Austria
Bancpost SA	S	EFG EUROBANK ERGASIAS SA	Greece
Volksbank Romania	S	VOLKSBANK INTERNATIONAL AG	Austria
Credit Europe Bank (Romania) SA	S	FINANSBANK	Turkey
ProCredit Bank S.A	S	PROCREDIT HOLDING AG	Germany
Bank Leumi Romania	S	BANK LEUMI LE ISRAEL BM	Israel
Intesa Sanpaolo Romania SA	S	INTESA SANPAOLO	Italy
MKB Romexterra Bank S.A.	S	BAYERISCHE LANDESBANK	Germany
Piraeus Bank Romania	S	PIRAEUS BANK SA	Greece
Banca Romaneasca S.A.	S	NATIONAL BANK OF GREECE SA	Greece
OTP Bank Romania SA	S	OTP BANK PLC	Hungary
Banca CR Firenze Romania SA	S	CASSA DI RISPARMIO DI FIRENZE SPA	Italy
RBS Bank (Romania) SA	S	ROYAL BANK OF SCOTLAND NV (THE)-RBS NV	Netherlands

Table A.3 (continued)

Name	Branch (B) or Subsidiary (S)	Parent bank	Parent country
Emporiki Bank – Romania SA	S	EMPORIKI BANK OF GREECE SA	Greece
BRD-Groupe Societe Generale SA	S	SOCIÉTÉ GÉNÉRALE	France
<i>Slovakia</i>			
OTP Banka Slovensko, as	S	OTP BANK PLC	Hungary
CSOB Stavebna Sporitelna	S	KBC BANK NV	Belgium
Tatra Banka a.s.	S	RAIFFEISEN BANK INTERNATIONAL AG	Austria
VOLKSBANK Slovensko, as	S	VOLKSBANK INTERNATIONAL AG	Austria
Ceskoslovenska obchodna banka CSOB	S	KBC BANK NV	Belgium
Vseobecna Uverova Banka a.s.	S	INTESA SANPAOLO HOLDING INTERNATIONAL S.A.	Luxembourg
Slovenska Sporitel'na as-Slovak Savings Bank	S	ERSTE GROUP BANK AG	Austria
UniCredit Bank Slovakia a.s.	S	UNICREDIT BANK AUSTRIA AG – BANK AUSTRIA	Austria
Dexia banka Slovensko a.s.	S	DEXIA CRÉDIT LOCAL SA	France
Komerčni Banka Bratislava a.s.	B	KOMERCNI BANKA	Czech Republic
Citibank Europe Plc, pobočka zahraničnej banky	B	CITIGROUP INC	United States
Prva Stavebna Sporitelna as	S	ERSTE GROUP BANK AG	Austria
<i>Slovenia</i>			
BAWAG Banka dd	S	BANK FÜR ARBEIT UND WIRTSCHAFT UND ÖSTERREICHISCHE POSTSPARKASSE AKTIENGESELLSCHAFT	Austria
Hypo Alpe-Adria-Bank dd	S	HYPO ALPE-ADRIA BANK INTERNATIONAL AG	Austria
Banka Koper d.d.	S	INTESA SANPAOLO	Italy
UniCredit Banka Slovenija d.d.	S	UNICREDIT BANK AUSTRIA AG-BANK AUSTRIA	Austria
SKB Banka DD	S	SOCIÉTÉ GÉNÉRALE	France
Raiffeisen Banka dd	S	RAIFFEISEN BANK INTERNATIONAL AG	Austria
Volksbank-Ljudska Banka – d.d. LATIN AMERICA	S	VOLKSBANK INTERNATIONAL AG	Austria
<i>Argentina</i>			
Banco B.I. Creditanstalt S.A.	S	UNICREDIT BANK AUSTRIA AG-BANK AUSTRIA	Austria
BBVA Banco Frances SA	S	BANCO BILBAO VIZCAYA ARGENTARIA SA	Spain
Banco Santander Rio S.A.	S	BANCO SANTANDER SA	Spain
JP Morgan Chase Bank	B	JP MORGAN CHASE BANK, NA	United States
ABN Amro Bank	B	RBS HOLDINGS NV	Netherlands
Standard Bank Argentina	S	STANDARD BANK LONDON HOLDINGS PLC	United Kingdom
Citibank NA	B	CITIBANK NA	United States
Banco do Brasil SA	B	BANCO DO BRASIL S.A.	Brazil
Banco Itau Argentina SA	S	BANCO ITAU UNIBANCO SA	Brazil
Bank of America NA	B	BANK OF AMERICA, NATIONAL ASSOCIATION	United States
BNP Paribas	B	BNP PARIBAS	France
Banco Republica Oriental del Uruguay	B	BANCO DE LA REPUBLICA ORIENTAL DEL URUGUAY	Uruguay
American Express Bank Ltd. SA	S	AMERICAN EXPRESS COMPANY	United States
Banco Cetelem Argentina SA	S	BNP PARIBAS PERSONAL FINANCE	France
Banco de Servicios Financieros SA	S	CARREFOUR SA	France
Banco Bradesco Argentina SA	S	BANCO BRADESCO SA	Brazil
Banco Cofidis SA	S	COFIDIS PARTICIPATIONS SA	France
Deutsche Bank SA	S	DEUTSCHE BANK AG	Germany
<i>Brazil</i>			
Banco Credit Suisse (Brasil) SA	S	CREDIT SUISSE AG	Switzerland
Banco WestLB do Brasil SA	S	WESTLB AG	Germany
Banco CNH Capital SA	S	CNH GLOBAL N.V.	Netherlands
Banco Credit Agricole Brasil S.A	S	CREDIT AGRICOLE CORPORATE AND INVESTMENT BANK	France
HSBC Bank Brasil SA/ Banco Multiplo	S	HSBC HOLDINGS PLC	United Kingdom
Banif – Banco Internacional de Funchal	S	BANIF COMERCIAL, SGPS, S.A.	Portugal
Banco de la Nacion Argentina	B	BANCO DE LA NACION ARGENTINA	Argentina
Banco Santander (Brasil) S.A.	S	BANCO SANTANDER SA	Spain
Banco de la Republica Oriental del Uruguay	B	BANCO DE LA REPUBLICA ORIENTAL DEL URUGUAY	Uruguay
Banco BTG Pactual SA	S	UBS AG	Switzerland
ING Bank N.V.	B	ING BANK NV	Netherlands
Banco Morgan Stanley Dean Witter	S	MORGAN STANLEY LATIN AMERICA INC	United States
Banco de Lage Landen Brasil SA	S	RABOBANK NEDERLAND-RABOBANK GROUP	Netherlands
Goldman Sachs do Brasil	S	GOLDMAN SACHS GLOBAL HOLDINGS LLC	United States
Lemon Bank Banco Multiplo SA	S	Unknown shareholders	
Banco BNP Paribas Brasil S.A.	S	BNP PARIBAS	France
Banco Sumitomo Mitsui Brasileiro SA	S	SUMITOMO MITSUI BANKING CORPORATION	Japan
Banco ABC – Brasil SA	S	ARAB BANKING CORPORATION BSC	Bahrain
Banco Citibank	S	CITIGROUP INC	United States
Banco JP Morgan SA	S	JP MORGAN INTERNATIONAL FINANCE, LTD.	United States
BPN Brasil Banco Multiplo SA	S	BANCO PORTUGUES DE NEGOCIOS, SA-BPN SA	Portugal
Banco GMAC S.A.	S	ALLY FINANCIAL INC	United States
Banco de Tokyo-Mitsubishi UFJ Brasil	S	THE BANK OF TOKYO-MITSUBISHI UFJ LTD	Japan
Banco Rabobank International Brasil	S	RABOBANK NEDERLAND-RABOBANK GROUP	Netherlands

(continued on next page)

Table A.3 (continued)

Name	Branch (B) or Subsidiary (S)	Parent bank	Parent country
Banco Ford S.A.	S	Unknown shareholders	
Dresdner Bank Brasil/Banco Multiplo	S	COMMERZBANK AG	Germany
Citibank NA	B	CITIBANK NA	United States
Banco KEB do Brasil SA	S	KOREA EXCHANGE BANK	Rep. of Korea
NBC Bank Brasil SA	S	NUEVO BANCO COMERCIAL SA	Uruguay
Deutsche Bank SA – Banco Alemão	S	DEUTSCHE BANK AG	Germany
Banco Cargill SA	S	CARGILL, INCORPORATED	United States
Banco Societe General Brasil SA	S	SOCIÉTÉ GÉNÉRALE	France
Banco Toyota do Brasil S.A.	S	TOYOTA FINANCIAL SERVICES CORPORATION	Japan
<i>Chile</i>			
Scotiabank Chile	S	BANK OF NOVA SCOTIA (THE) – SCOTIABANK	Canada
Banco Itau Chile	S	ITAU UNIBANCO HOLDINGS	Brazil
Banco de la Nacion Argentina	B	BANCO DE LA NACION ARGENTINA	Argentina
Banco do Brasil S.A.	B	BANCO DO BRASIL	Brazil
Deutsche Bank (Chile) SA	S	DEUTSCHE BANK AG	Germany
HSBC Bank (Chile)	S	HSBC HOLDINGS PLC	United Kingdom
JP Morgan Chase Bank	S	JP MORGAN CHASE BANK, NA	United States
Rabobank Chile	S	RABOBANK NEDERLAND-RABOBANK GROUP	Netherlands
Banco Sudamericano	S	ROYAL BANK OF SCOTLAND NV (THE)-RBS NV	Netherlands
Bank of Tokyo – Mitsubishi UFJ	B	THE BANK OF TOKYO-MITSUBISHI UFJ LTD	Japan
Banco Santander Chile	S	BANCO SANTANDER SA	Spain
<i>Colombia</i>			
Banco Santander Colombia SA	S	BANCO SANTANDER SA	Spain
Banco GNB Sudameris SA	S	GILEX HOLDING B.V.	Netherlands
Scotiabank Colombia SA	S	ROYAL BANK OF SCOTLAND NV (THE)-RBS NV	Netherlands
BBVA Colombia SA	S	BANCO BILBAO VIZCAYA ARGENTARIA SA	Spain
<i>Mexico</i>			
Bank of America (Mexico)	S	BANK OF AMERICA CORPORATION	United States
Scotiabank Inverlat SA	S	BANK OF NOVA SCOTIA (THE) – SCOTIABANK	Canada
Banco Walt-Mart de Mexico Adelante, S.A.	S	WALT-MART STORES, INC	United States
Banco Nacional de Mexico, SA – BANAMEX	S	CITIGROUP INC	United States
BBVA Bancomer S.A.	S	BANCO BILBAO VIZCAYA ARGENTARIA SA	Spain
Banco Santander (Mexico) SA	S	BANCO SANTANDER SA	Spain
HSBC Mexico, SA	S	HSBC HOLDINGS PLC	United Kingdom
Royal Bank of Scotland Mexico SA (The)	S	ROYAL BANK OF SCOTLAND NV (THE)-RBS NV	Netherlands
ING Bank (Mexico)	S	ING BANK NV	Netherlands
Deutsche Bank (Mexico)	S	DEUTSCHE BANK AG	Germany
<i>Peru</i>			
Scotiabank Peru SAA	S	BANK OF NOVA SCOTIA (THE) – SCOTIABANK	Canada
Banco Santander Peru	S	BANCO SANTANDER SA	Spain
HSBC Bank Peru SA	S	HSBC HOLDINGS PLC	United Kingdom
Banco Interamericano de Finanzas S.A. – BIF	S	LANDY SA	Uruguay
Banco Financiero del Peru	S	BANCO PICHINCHA C.A.	Ecuador
Citibank	S	CITIBANK NA	United States
Banco de Credito del Peru	S	CREDICORP LTD.	Bermuda

Table A.4

Roster, size, market share and ownership of government owned banks.

Country	Bank name	Total assets of the bank as of December 2007 (in billions of dollars)	Size of the bank relative to the system (% of bank assets relative to total bank assets in the country)	% Of government ownership during crisis (2008–2009)
Argentina	Banco Municipal de Rosario	0.08	0.09	100.00%
	Banco Provincia de Tierra del Fuego	0.15	0.16	100.00%
	Banco Provincia del Neuquén SA	0.50	0.55	95.00%
	Banco de Corrientes SA	0.30	0.33	95.69%
	Banco de La Nacion Argentina	21.22	23.27	100.00%
	Banco de la Ciudad de Buenos-Aires	3.42	3.75	100.00%
	Banco de la Pampa	0.72	0.79	78.09%
	Banco de la Provincia de Buenos Aires	8.24	9.03	100.00%
	Banco de la Provincia de Cordoba	1.43	1.56	99.00%
	Banco del Chubut S.A.	0.44	0.48	90.00%
	Nuevo Banco del Chaco SA	0.41	0.45	70.07%
Brazil	BRB – Banco de Brasília S.A.	2.43	0.20	96.85%

Table A.4 (continued)

Country	Bank name	Total assets of the bank as of December 2007 (in billions of dollars)	Size of the bank relative to the system (% of bank assets relative to total bank assets in the country)	% Of government ownership during crisis (2008–2009)
	Banco de Desenvolvimento do Espirito Santo	0.31	0.03	100%
	Banco do Brasil S.A.	207.35	17.43	65.60% in 2008–53.65% in 2009
	Banco do Estado de Sergipe	0.93	0.08	89.87%
	Banco do Estado do Espirito Santo S.A.	4.33	0.36	91.95%
	Banco do Estado do Para SA	0.79	0.07	99.98%
	Banco do Estado do Rio Grande do Sul	11.55	0.97	99.59%
	Banco do Nordeste do Brazil S.A.	7.99	0.67	94.21% in 2008–96.10% in 2009
	Caixa Economica Federal	143.18	12.03	100.00%
Colombia	Banco Agrario de Colombia SA*	5.01	6.44	99.99% (since 2008)
Peru	Caja Municipal de Ahorro y Credito Trujillo	0.29	0.71	100.00%
Bulgaria	Bulgarian Development Bank AD*	0.17	0.43	99.99% in 2008–100.00% in 2009
	Municipal Bank Plc*	0.76	1.87	67.00%
Croatia	Croatia Banka dd*	0.34	0.47	100.00%
	Hrvatska Postanska Bank DD	2.92	4.11	51.46%
Czech Republic	Ceskomoravska Zrucni a Rozvojova Banka a.s.–Czech Moravian Guarantee and Development Bank	3.16	1.60	72.33%
	Czech Export Bank-Ceska Exportni Banka	1.90	0.96	75.00% in 2008–72.90% in 2009
Poland	Bank Gospodarstwa Krajowego-National Economy Bank	11.36	4.04	100.00%
	Powszechna Kasa Oszczednosci Bank Polski SA – PKO BP SA*	43.26	15.41	51.49% in 2008
Romania	CEC Bank SA	4.10	4.23	100.00%
Slovenia	NLB dd-Nova Ljubljanska Banka d.d.*	20.49	33.84	33.10%
	Nova Kreditna Banka Maribor d.d.*	6.21	10.26	41.50%
	SID – Slovene Export and Development Bank, Inc, Ljubljana** – SID Bank, Inc-SID – Slovenska izvozna in razvojna banka, dd, Ljubljana – SID Banka, dd	1.84	3.04	100%

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