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Teléfono: (56-2) 3882475; Fax: (56-2) 3882231

## **CREDIT STABILIZATION THROUGH PUBLIC BANKS: THE CASE OF BANCOESTADO\***

Luis Felipe Lagos  
Instituto Libertad y Desarrollo

Matías Tapia  
Universidad Católica de Chile

### **Abstract**

This paper analyzes the role played by BancoEstado in providing credit during the 2008-2009 financial crisis. An analysis of the data shows that BancoEstado increased its credit significantly, particularly in terms of loans to firms, increasing its market share and remaining profitable. A large share of BancoEstado's credit expansion was directed to large firms. While this was probably efficient in terms of maximizing the bank's long-term value, it might have been at odds with the ultimate objective of stabilizing the credit contraction for firms facing liquidity constraints. We find no evidence of BancoEstado's credit expansion on the credit decisions of private banks.

### **Resumen**

Este trabajo analiza el rol que jugó BancoEstado como proveedor de crédito durante la crisis financiera de 2008-2009. Un análisis de los datos muestra que BancoEstado aumentó su crédito de manera significativa, en particular en términos de préstamos a empresas, aumentando su participación en el mercado y manteniéndose rentable. Una alta proporción de la expansión de crédito de BancoEstado se dirigió a empresas grandes. Aun cuando esto era probablemente eficiente en términos de maximizar el valor de largo plazo del banco, puede haber estado en contradicción con el objetivo último de estabilizar la contracción del crédito para aquellas empresas que enfrentaban restricciones de liquidez. No se encuentra evidencia de la expansión de crédito de BancoEstado en las decisiones de crédito de los bancos privados.

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## 1. INTRODUCTION

A novel element in the policy mix that responded to the 2008-2009 financial crisis was the explicit role given to BancoEstado, a publicly-owned commercial bank, to alleviate the contraction in domestic credit provided by the banking sector. In order to aid its mission, BancoEstado was capitalized by 500 million dollars in 2009, ensuring that it would not be bounded by its loans to capital ratio.

While this, in a sense, is quasi fiscal policy (with the public sector channeling resources to *potentially* credit-constrained firms) and could thus be seen as similar to policies adopted in the US at the same time, credit was not provided directly by the government, but through a bank that competes directly and successfully within the banking sector. While publicly owned, BancoEstado operates as a (constrained) profit-maximizing institution that tries to attain certain public policy objectives (like providing access to banking in remote areas) while still being competitive and profitable.

The use of a bank as an instrument has several advantages. Banks, in contrast to the government, enjoy economies of scale associated with their distribution networks and their previous investments in monitoring and information, and have informational advantages in dealing with potential clients. In that sense, a bank is probably more efficient than the government in creating credit rapidly and profitably, and in identifying firms and households that, while still viable as debtors, have become credit constrained in the private sector.

However, there might be an agency problem, in which banks' own objective function is at odds with the general purpose of the policy. Given a general mandate to provide credit, and the capital needed to do so without risking its financial stability, BancoEstado had the incentives to fulfill this mission in the most profitable way. That is, BancoEstado may have chosen to provide those loans that are the most profitable from a private perspective. The point, however, is that those types of credits, and the firms associated with them, might not be the ones that the public policy intended to help in the first place as a gap between private and public returns may exist. For example, BancoEstado might choose financial profitability and provide credit to firms that have high risk-adjusted rates of return, and who are not credit constrained in any significant way in the private market. Alternatively, BancoEstado might have seen its mission as an opportunity to grow as a bank, either in terms of market share or in reputation by establishing new credit relationships. Newly capitalized, and set to provide a significant amount of credit, BancoEstado may have chosen to target firms that were attractive as clients, given its own private incentives, even if they were not subject to any significant constraint in credit. Although the available data does not allow us to provide a definite conclusion regarding this issue, we will try to provide some evidence that may point in this direction.

Another significant channel through which BancoEstado may have had an impact of overall credit is through its effect on the actions of private banks. At a time in which most banks were constraining credit, BancoEstado expanded its credit creation aggressively. How did this affect other private banks? Did the credit provided by BancoEstado substitute private credit, or did it generate a competitive pressure which forced other banks to respond?

This paper studies the role played by this particular aspect of the policy mix during the 2008-2009 crisis, mainly focusing on the behavior of credit directly provided to firms. In order to do so, we use data from several databases collected by the Superintendence of Banks and Financial Institutions (SBIF) as well as data provided directly by BancoEstado.<sup>1</sup>

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<sup>1</sup> Unfortunately, potentially richer databases at the individual borrower level ended up being incomplete or rendered unusable by inconsistencies and mistakes. This made some empirical exercises , unfeasible.

On a first order approach, we document the behavior of BancoEstado at an aggregate scale and describe the speed and relative significance of its response. We then focus on the composition of credit, looking in more detail at how the behavior of BancoEstado and the private banks differed among several sectors and credit sizes. Finally, we empirically test the effect of BancoEstado's actions on the behavior and valuation of the remaining banks in the market.

Our main empirical results are the following. In line with the program's main purpose, BancoEstado expanded its credit significantly, particularly in commercial loans. BancoEstado's actions on aggregate credit were clearly countercyclical, expanding credit when commercial banks were either contracting credit or creating new loans at a slower rate. BancoEstado's response was fast and affected aggregate credit, though its scope was limited by the bank's scale. BancoEstado's credit expanded more rapidly in segments with larger loans, suggesting that a significant share of the new credit ended up in large firms. There is no robust evidence of significant impact from BancoEstado's capitalization or its policy actions on private banks over the relevant period

The paper is organized as follows. Section 2 provides an overall discussion of the crisis in the US, its implications in Chile, and the policy response of the monetary and fiscal authorities. Section 3 provides an overview on BancoEstado. Section 4 provides a descriptive analysis of the evolution of different types of credit provided by BancoEstado and the private sector. Section 5 provides a regression analysis. Section 6 concludes.

## **2. AN OVERVIEW OF THE 2008-2009 FINANCIAL CRISIS**

### **2.1 The Aftermath of Lehman Brothers**

The collapse of Lehman Brothers in September 2008 pushed financial markets over the edge, intensifying runs against banks and financial institutions at the same time that market liquidity virtually dried up. Uncertainty about the stability and solvency of financial institutions severely hit credit both domestically and internationally. The problems in the financial sector soon spread to the real economy with a contraction in trade, drops in output, and large increases in unemployment.

Starting in October 2008, the Federal Reserve and the European Central Bank responded with aggressive reductions in the monetary policy interest rate. However, two obstacles hampered the effects of this policy. First, uncertainty about creditworthiness led private banks to contract credit to firms and households and, instead, choose to hoard liquidity. Secondly, firms and households increased their demand for assets perceived as safe and liquid. Both effects intensify the contraction in credit provided to the real economy, and can make interest rate reduction sterile.

As a consequence, the Federal Reserve relied on a toolbox of non-conventional policies. In the initial stage, the Fed bought massive amounts of long term treasuries, providing large amounts of liquidity through money creation (quantitative easing). The second stage initiated even though the payment system was in no clear danger, involved *credit easing*: massive, direct buyouts of paper debt from non-banking institutions. The second policy implied that the monetary authority took patrimonial (quasi-fiscal) risk. Credit easing does not require money creation, but a reshuffling of the Fed's balance sheet, typically towards a riskier position. Moreover, it is highly discretionary as the Fed retains the right to lend to specific agents. In that sense, credit easing can be seen as a potentially effective device to unblock the credit channel as it ensures that funds are received directly by the selected firms.

Monetary policy actions were complemented by fiscal measures. For example, the US and the UK increased deposit insurance in an attempt to boost confidence and guarantee the stability of Banks by preventing potential runs. This, however, was not enough to prevent a

flight to safety from British savers. As a result, the National Savings and Investments, a public bank whose deposits are fully guaranteed by the government, received a record number of deposits in the last quarter of 2008 (Warwick-Ching, 2009).

## **2.2 The Crisis in Chile: Effects on Financial Markets and Policy Responses**

### **2.2.1 Effects on financial markets**

Borrowing costs for domestic banks began increasing as early as September 2007, peaking with the downfall of Lehman Brothers a year later (Garcia, 2009). The sub-prime crisis generated a reduction of foreign financial flows, different from FDI during 2009-2010, equal to 6% of GDP that generated a reversion in the current account deficit. However, this contraction was concentrated in pensions and mutual funds, and was relatively small for banks (2.5%), lasting only a couple of months during 2009. In fact, foreign liabilities of the banking system actually increased in 2008, most likely as a precautionary measure. Foreign debt spreads peaked for the banking sector at the end of 2008, but have declined steadily ever since. Foreign debt typically had shorter maturities, especially in the second part of 2008, but by the end of 2009, the maturity structure was converging to its pre-crisis values. A significant change occurred in the sources of external financing as the share of credit provided by the three main foreign banks dropped from 53% to 29% (Informe de Estabilidad Financiera, 2009). This suggests that, while banks did suffer tighter conditions on foreign credit with credit lines on foreign banks being cut in September 2008, the restriction was not as severe as previous episodes, and was relatively short-lived. By the middle of 2009, access to foreign credit for trade and private firms was mostly restored, and corporate bonds were sold in international markets.

Thus, the banking sector, while not immune to the crisis, remained relatively unscathed. No bank was under significant financial stress; foreign credit was restored rapidly and, although domestic credit slowed down for a relatively long period, it did so to a smaller extent than in previous crises (Fuentes and Saravia, 2011).

Regarding the corporate sector, large firms with access to foreign credit saw reductions in the size of loans and higher interest rates, which increased their demand for credit (bonds and bank loans) in the domestic market.

### **2.2.2 Policy responses**

At the time of the severe contraction of credit that occurred after the collapse of Lehman Brothers, inflation in Chile was accelerating due to a rise in the price of raw materials, energy and food. In response, the Central Bank increased the monetary policy interest rate during 2008, and the nominal rate was kept high at 8.25% as late as January 2009, several months after the aggressive rate cuts in most of the world. At that time, when the severity of the crisis was clear and inflation expectations had collapsed, the Central Bank reacted strongly, slashing rates 600 basis points in two months, and reaching a historic lower bound of 0.5% in August 2009.

Although the Central Bank kept rates high during the last quarter of 2008, it also took several measures to increase short-term liquidity in pesos and dollars. Among other measures, the Central Bank, collaborating closely with the Ministry of Finance, offered swap operations in foreign exchange, extended the period for liquidity provision, engaged in repo operations, and opened a medium run liquidity facility. All these operations were done directly with commercial banks, and arguably had an effect on satisfying the system's demand for liquidity, rather than on the creation of loans to households and firms. In this context, Chile's institutional framework constrained the set of potential actions for the Central Bank. Unlike the Federal Reserve and the

European Central Bank, the Central Bank of Chile is legally restrained from pursuing credit-easing operations that could be directed to specific segments of the financial market.

Fiscal policy was strongly countercyclical, with a significant deficit that was financed with the large savings that the public sector had made in previous years. Among many other measures, and closer to the issues discussed in the paper, the policy package included transitory (later permanent) reductions in taxes on credit operations as well as measures targeted to reduce the short-run tax burden on firms, especially small and medium ones.

To directly impact credit provision, the Ministry of Finance implemented two policies, which were approved by Congress in December 2008: First, it increased the level of public guarantees on private credit to small firms (FOGAPE) as well as making larger firms temporarily eligible. Second, and central to our study, it instructed BancoEstado to make a special effort to provide credit to firms and households. To keep the bank's financial stability and its capital-to-loans ratio in line with private banks, BancoEstado received a capital injection of US\$ 500 million (increasing the bank's capital by 50%) and, in the words of the Minister of Finance Andres Velasco, was expected to provide US\$ 2.5 billion in loans.

### **3. BANCOESTADO AND ITS ROLE IN THE 2008-2009 CRISIS: AN OVERVIEW**

State participation in the banking sector in Chile is among the lowest in Latin America (Levy-Yeyati, Micco, and Panizza, 2007). BancoEstado is the only state-owned bank currently active in the financial sector and was created (as Banco del Estado de Chile) in 1953 through the merger of several smaller public financial institutions that provided credit and received savings from different economic sectors. In the increasingly centralized and state-regulated economy of the 1960s and the early 1970s, Banco del Estado de Chile enjoyed its heyday as it became the country's largest bank. While its relative size has diminished since, it still remains an important actor in Chile's banking sector and is especially important in specific credit segments such as housing loans and credit to small firms. On its institutional website,<sup>2</sup> BancoEstado claims that it aims to offer all the mainstream banking services, targeting all population segments, with priority to "high social impact activities" such as access to financial services and entrepreneurship. At the same time, it wants to offer competitive terms and prices as well as achieving the average rate of return of the financial sector.

BancoEstado is not a development bank that offers subsidized loans or systematically funds projects that are not privately profitable. BancoEstado aims to be competitive and profitable, and its public role is more related to its relative specialization in specific segments rather than on the type of credit policies it follows. In fact, its rate of return compares favorably to that of the private sector: between 2002 and 2007 the BancoEstado return on equity systemically exceeded average return in the banking system. All profits are reinvested in the bank. BancoEstado has consistently enjoyed solid credit ratings, largely because of its individual strength and because it seems to be perceived by rating agencies as being implicitly guaranteed by the Chilean state, rather than solely on its own capital (Standard and Poors, 2009). However, estimates from BancoEstado show that, in the absence of the 2009 capitalization, their credit expansion program in 2009 would have put the bank dangerously close to violating Basel II's capital adequacy standards. While investors did not perceive the bank to be in a risky position, formally, the bank would have fallen under the scrutiny of regulatory agents in Chile and the US (the bank has a New York office).

Figure 1 summarizes the market share of BancoEstado for different types of loans between 2006 and 2011. Over the years, BancoEstado has provided roughly 15% of the banking

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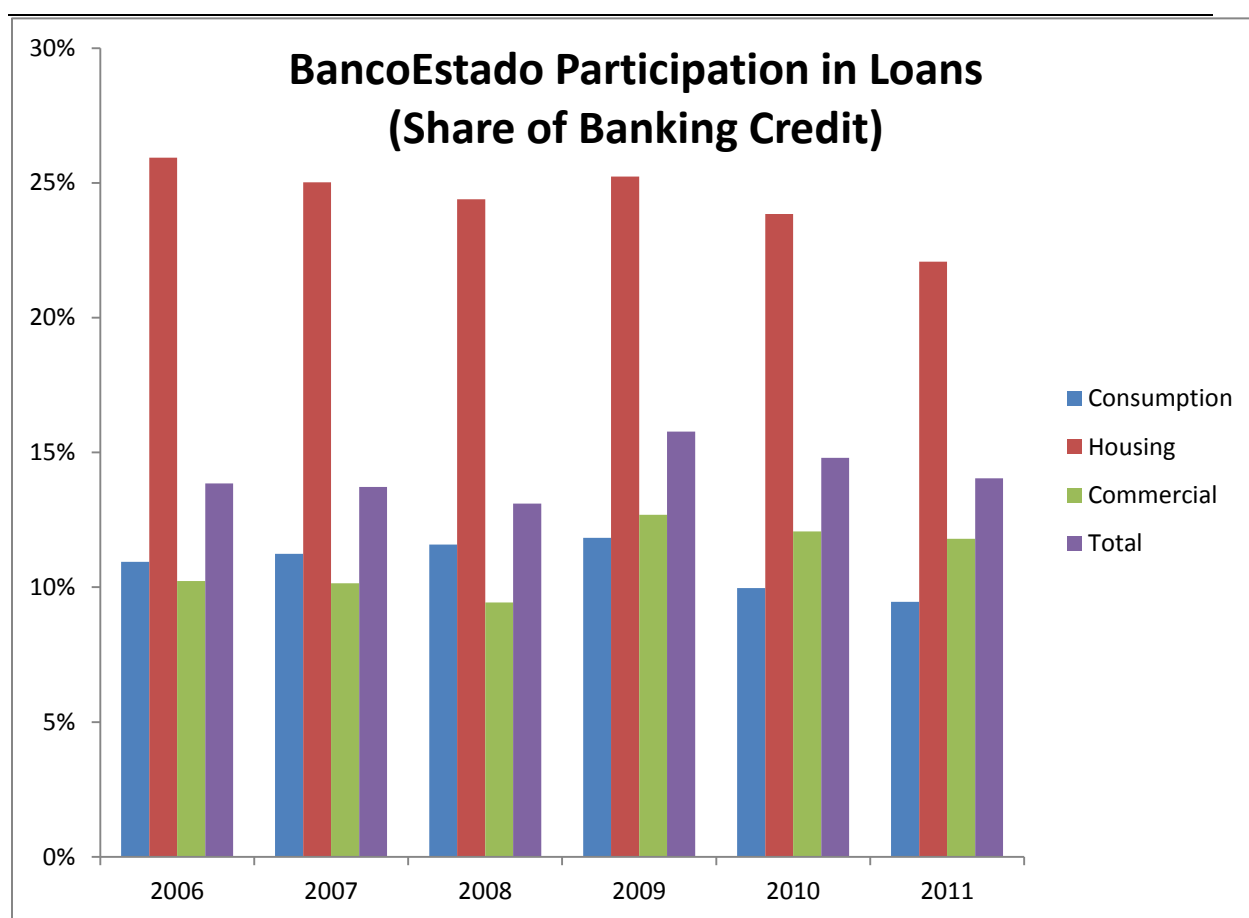
<sup>2</sup> [www.bancoestado.cl](http://www.bancoestado.cl)



sector's total credit stock, placing it as the third largest bank in the market, with its two largest banks taking approximately 20% of total credit, each. Participation in total loans peaked in 2009, reflecting BancoEstado's countercyclical credit policy when private credit was contracting.

BancoEstado's market share differs markedly across types of credit. It is by large the main actor in mortgages, while it is a relatively smaller participant in commercial credit, where it provided less than 10% of the banking sector loans between 2006 and 2007. Participation in both mortgages and commercial credit grew in 2009. The increase in the market share in commercial credit was particularly impressive as BancoEstado gained 4 percentage points in a year, roughly increasing its participation in the segment by 40%. At first glance, it is clear that BancoEstado's credit policy, especially in commercial credit, was extremely countercyclical, fulfilling (at least on first order terms) the policy intended by the Ministry of Finance.

**Figure 1**  
**BancoEstado's Market Share in Loans**



Source: SBIF

The credit behavior of BancoEstado was qualitatively similar to the one assumed by public banks in other Latin-American countries, although the extent of its credit expansion (in percentage terms) was the largest, comparable only to the behavior of banking in Brazil and Colombia. Both countries are cases of interest as they indeed followed a similar policy approach to the one taken in Chile with BancoEstado. In the case of Brazil, capital was also injected into the main public banks, which have larger market participation than BancoEstado and they

adopted targeted lending programs. In a similar spirit, the Colombian government also relied on public banks to provide credit during the crisis, targeting loans specifically to small and medium firms.

## 4. CREDIT BY BANCOESTADO AND THE PRIVATE SECTOR DURING THE 2008-09 CRISIS

### 4.1 Data Sources

Most of our data comes from SBIF, the Superintendence of Banks and Financial Institutions. Our analysis relies mainly on the D30 database,<sup>3</sup> which provides daily information on new loans by banks in the Metropolitan Area, where 60% of the nationwide credit is provided. This dataset has been empirically validated by SBIF, and upon aggregation, the results are consistent with system level data obtained from other sources. There is no information on individual loans, but on aggregates by different size and type categories. We focus our attention on commercial credit, which cannot be identified directly, but by the difference from subtracting consumption credits from the total credit. As the remaining loans include commercial credit as well as mortgages, we only look at credits in pesos (thus excluding credits in UF), as they are seldom associated with mortgages. Our measure of commercial credit, while somehow noisy, still allows looking at credit in different size categories by individual banks. The data separates credit into 21 size segments, which we reduce to three: credits below 1,000 UF (“small loans”), credits between 1,000 and 10,000 UF (“medium loans”), and credits above 10,000 UF (“large loans”).<sup>4</sup> The data does not allow additional distinctions between credits above 10,000 UF. As way of comparison under this definition, large credits are those loans that roughly exceed US\$400,000 at the time of the crisis. We are aware that this upper category is very broad and contains credits potentially reaching a large spectrum of firms. However, we think that our classification still allows us to provide a distinction between credits arguably associated from micro to small firms; small to medium sized firms; and medium to large (some very large) sized firms. Our sample starts in January 2006 and ends in December 2011, though we focus most of the analysis from January 2007 to December 2010. On average, across all banks, small loans represent 21% of all commercial credit, with large loans taking the lion’s share with 64%. BancoEstado is relatively more concentrated on large loans, with total loans in the upper category accounting for 76% of new credit.

We complement this database with information from D11, a monthly census on credit stocks that provides information on the amount of total credit held by individual agents (firms and households). The database separates credit by characteristics such as bank and type and thus can also be used to characterize the distribution of credit held by each bank at each moment in time. With somehow unfortunate timing, the first month available for D11 is January 2009, when it replaced a similar (not identical) database, C01, which existed until December 2008.<sup>5</sup> This implies that direct comparisons between 2008 and 2009 at this disaggregated level are

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<sup>3</sup> Initially, we started our work with database D32. This was an ideal database to study the behavior of BancoEstado and other banks during the crisis in detail, as it is meant to provide a census of all new individual credit transactions, identifying credits by bank and type as well as providing information on size, maturity, and interest rates. Moreover, as the database also identifies the firm or household taking each credit, it could be potentially combined with other databases to obtain information on the demand side for each loan. Unfortunately, the database proved unreliable with problems in data collection and processing that made the microeconomic information for 2008 and 2009 entirely inconsistent with the (correct) aggregate data.

<sup>4</sup> Recall that we focus on loans issued in nominal pesos although the size categories are defined in the dataset in terms of the indexed UF.

<sup>5</sup> In fact, with which was, ex post, a very unfortunate timing, SBIF chose to redefine several statistical procedures at the end of 2008, which complicates the analysis of the crisis period.

troublesome and results on D11 must be taken with a grain of salt as the database has some inconsistencies on its first month of operation.

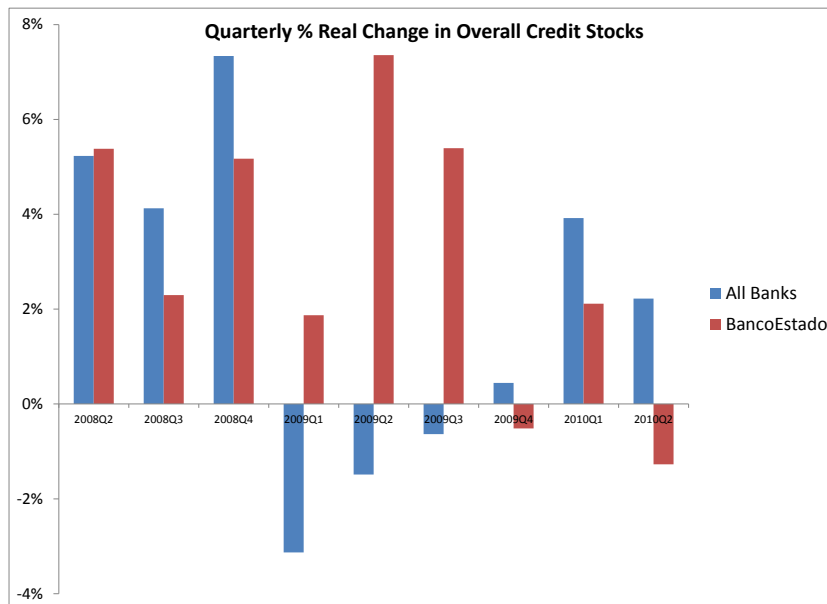
Finally, we also use more aggregated information available on the SBIF website on credit stocks by bank, which identify total loans to different economic sectors.

We begin our analysis by looking at aggregate data, and then build our way towards a more detailed analysis.

## 4.2 Aggregate Credit Stocks

Figure 2 depicts the percentage change in the overall stock of credit during the crisis period. BancoEstado expanded credit during most of 2009 while the banking sector as a whole contracted moderately the first three semesters of that year. As discussed below, the reduction in aggregate credit is basically given by a contraction on commercial growth while BancoEstado's large expansion in the second quarter of 2009 is mainly driven by commercial credit and, to a lesser extent, by consumption loans.

**Figure 2**  
**Change in Total Loans, 2008-2010**



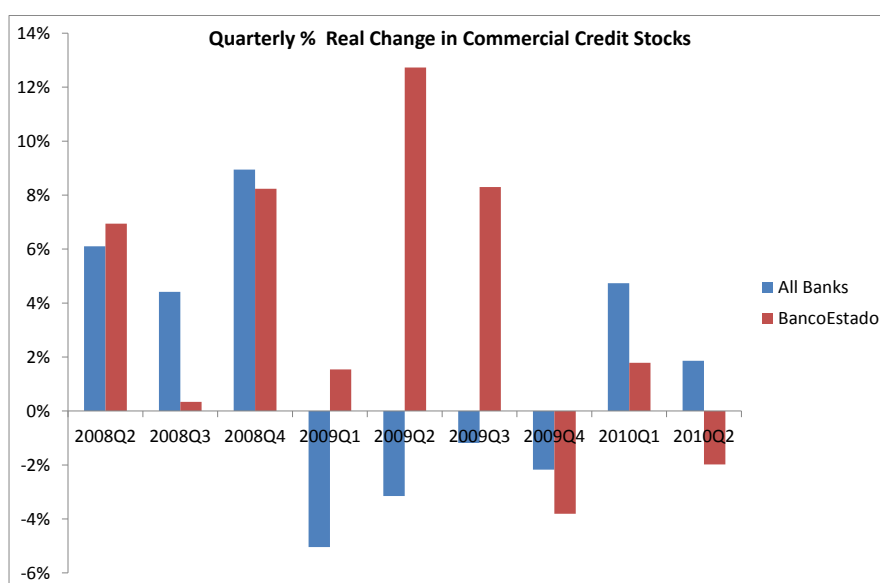
Source: Seasonally adjusted data from SBIF.

Figures 3 to 5 show the expansion of different types of credit measured as the quarterly change in credit stocks throughout the financial crisis. The countercyclical stance adopted by BancoEstado is clear in all 3 types of credit. Average credit growth for 2009 is larger for BancoEstado in commercial loans, consumption loans, and mortgages. Commercial credit, our

main focus in this paper, is the most interesting case here. While the growth in commercial loans is very similar across banks in the second half of 2008, the picture for 2009 is radically different. While aggregate credit falls throughout all quarters in 2009, loans by BancoEstado increase dramatically in the first half of 2009, with stocks growing at rates that exceed 10%. The large increase in BancoEstado's market share in this segment is easy to understand with these figures. Shifts are less dramatic in the other categories. Consumption credit never drops for the banking sector as a whole, and while BancoEstado still leans against the wind, loans grow at a smaller rate in this segment. Finally, the growth in mortgages falls across all banks in 2009, though it never becomes negative. Differences between the behavior of BancoEstado and the rest of the banks are smaller in this case.

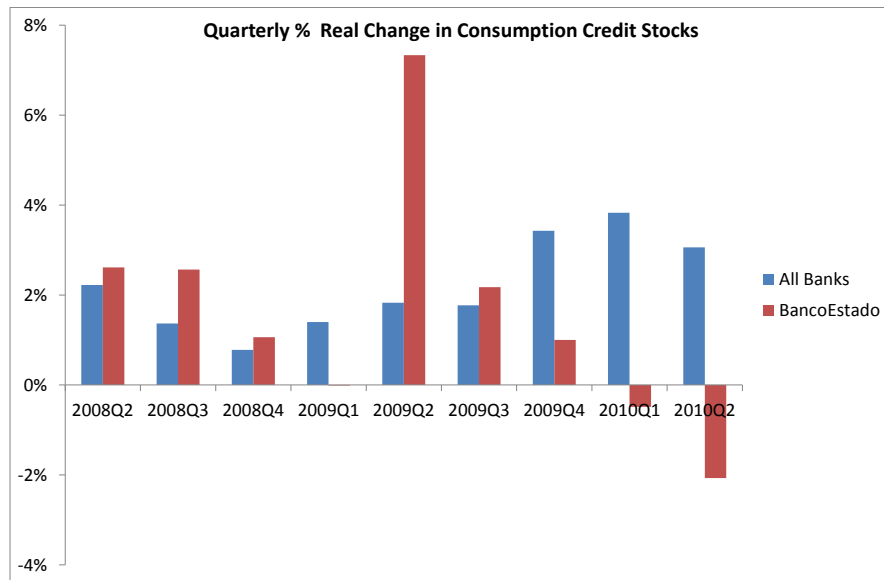
**Figure 3**

**Change in Commercial Loans, 2008-2010**



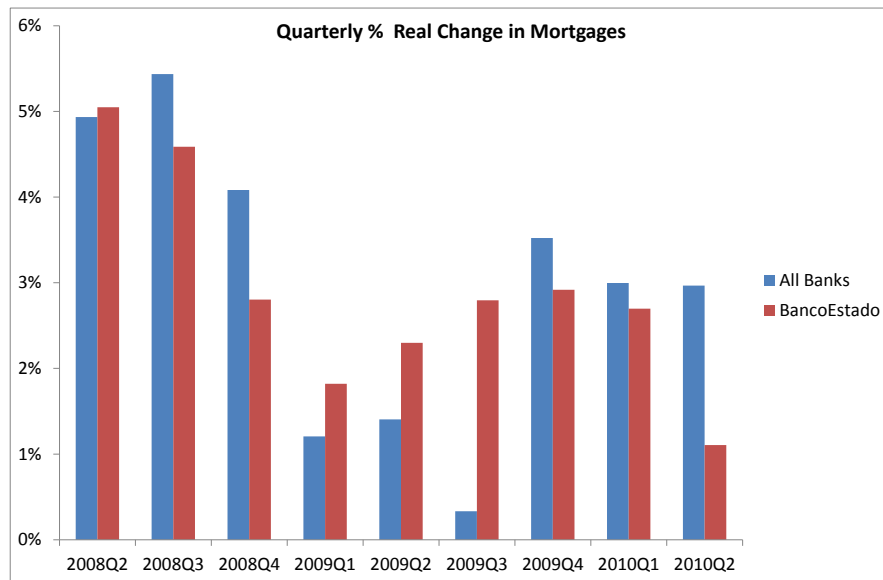
Source: Seasonally adjusted data from SBIF.

**Figure 4**  
**Change in Consumption Loans, 2008-2010**



Source: Seasonally adjusted data from SBIF.

**Figure 5**  
**Change in Mortgages, 2008-2010**



Source: Seasonally adjusted data from SBIF.

The direct potential impact of BancoEstado's credit policy upon overall credit supply in the economy is obviously limited by the bank's market participation. The large increases in

BancoEstado's loans seen in the data should be associated with modest expansions in total credit, all else being constant, as BancoEstado has only a moderate market share.

Of course, this does not mean that the credit provided by BancoEstado did not attain what the policymakers intended. For instance, even small expansions in credit can have large social marginal returns if, for example, they allow profitable firms subject to a credit crunch to remain viable. In the context of high uncertainty in which private banks typically decided to hoard liquidity and restrict credit, a recapitalized BancoEstado may have provided credit to firms that were cut off from the private sector, but which, to a large degree of certainty, were still profitable firms. Moreover, the actions of BancoEstado can also indirectly affect overall credit by changing the behavior of other banks. Here, at least a couple of hypotheses may exist.

On one hand, the aggressive credit stance by BancoEstado may have forced other banks to follow, as otherwise they faced losing valuable clients, reducing their market shares. Similarly, providing credit to credit-constrained firms could have had a positive impact on other firms related to them, strengthening their balance sheets and allowing them to receive more credit from the private sector in the near future. Somehow, more pessimistically, BancoEstado could have ended with the banking sector's lemons as private banks might have used the opportunity to reshuffle their credit portfolios, allowing their least attractive clients to move to BancoEstado while providing better conditions and more credit to their most favored clients, and looking for new profitable clients such as the larger firms who faced tougher conditions in the international financial market. While our data will not allow us to verify any of these hypotheses directly, we try to provide evidence that highlights the direct effects of BancoEstado's actions over different margins as well as their indirect impact on private banks.

We begin by looking at the first-order direct effect on financial markets in this section, and provide a more detailed look at the composition of credit and its effects on private banks in the next section. From an *ex ante* perspective, the expected direct effect of BancoEstado's credit expansion on total credit can be approximated by the rate of growth in credit weighted by BancoEstado's market share in the credit market. We show this exercise in table 1. For 2009, we can see that the effect of BancoEstado's large credit expansion was equivalent to a 3.3% expansion in total commercial credit, larger than its contribution to overall credit in previous years. Relative to itself, BancoEstado increased its loans dramatically. However, the absolute size of that expansion is not that large; BancoEstado is a relatively modest actor and its overall contribution is of limited scale. This, again, does not mean that the effect is negligible as overall credit would have decreased, assuming everything else being constant, significantly more than it did in the absence of BancoEstado.

**Table 1**  
**Maximum Potential Impact**  
**(12 month change in credit stocks)**

	Commer cial	Consumption	Housing
2001	1,5%	1,9%	3,0%
2002	0,5%	5,5%	2,6%
2003	-0,2%	4,4%	4,1%
2004	2,3%	2,9%	3,3%
2005	1,6%	1,9%	4,7%
2006	2,0%	1,9%	3,6%
2007	1,2%	1,9%	4,7%
2008	1,5%	0,8%	3,7%
2009	3,3%	1,2%	2,4%
2010	0,4%	-0,5%	1,2%
Difference between 2009 and the 2003-07 average	1,9%	-1,4%	-1,7%

Source: Constructed using data on stocks from SBIF.

### 4.3 Effects in Credit by Size and Economic Sectors

We now look at more disaggregated data to better understand the behavior of credit at BancoEstado and the private banks. We focus exclusively on commercial credit, first looking at credit stocks across economic sectors, and then at credit flows by different loan sizes. While the data on economic sectors relies on aggregate quarterly data on stocks, the information on credit flows is constructed by aggregating, at the monthly level, micro data on credit given in the Metropolitan Region as reported in the D30 database.



### 4.3.1 Credit by Sectors

Tables 2 and 3 present the variation in credit stocks across economic sectors between 2009 and 2008 both in absolute terms and as percentage change relative to the 2008 stock.

Table 2 shows that the amount of credit provided by BancoEstado is equivalent to 17% of the overall reduction in commercial credit. Interestingly, the composition across sectors of the credit reductions at the aggregate level and credit expansions at BancoEstado differs greatly. At the aggregate level, 60% of the reduction in loans was concentrated in two sectors, manufacturing and wholesale/retail trade. The increment in credit at BancoEstado is very small in Manufacturing (only 3% of the aggregate reduction) and non-existent in trade, where credit by BancoEstado falls in line with the other banks. BancoEstado does 50% of its expansion in Construction, where it actually reverses a reduction by the remaining banks, and expands significantly in Agriculture and Personal Services.

**Table 2**

#### **Change in Commercial Loans by Economic Sectors**

**(Variation in Stocks between Dec. 2009 and Dec. 2008. 2009 million pesos)**

	<b>Banking Sector</b>	<b>Share of Overall Credit Reduction</b>	<b>Banco Estado</b>	<b>Share of Overall Credit Expansion</b>	<b>Expansion in BE relative to aggregate reduction</b>
Agriculture	-340,066	<b>7%</b>	143,879	17%	42%
Wholesale/Retail Trade	-1,848,757	<b>36%</b>	-7,1538	--	-4%
Construction	230,088	<b>---</b>	444,418	53%	100%
Financial Services	-1,140,633	<b>22%</b>	109,249	12%	10%
Manufacturing	-1,218,214	<b>24%</b>	31,581	3.6%	3%
Mining	-356,735	<b>7%</b>	-5,109	---	-1%
Personal Services	-205,505	<b>4%</b>	153,629	18%	75%
Transportation	-7,878	<b>0%</b>	58,495	7%	742%
Utilities	-195,917	<b>4%</b>	-21,008	--	-11%
<b>TOTAL</b>	<b>-5,083,617</b>	<b>100%</b>	<b>843,593</b>		<b>17%</b>

Source: Constructed using seasonally adjusted data from SBIF

**Table 3**

#### **Percentage Change in Commercial Loans by Economic Sectors**

**(Variation in Stocks between Dec. 2009 and Dec. 2008)**

	<b>Banking Sector</b>	<b>BancoEstado</b>	<b>BancoEstado (relative to banking sector stock)</b>
Agriculture	-9%	76%	4%
Wholesale and Retail Trade	-22%	-5%	-1%
Construction	4%	25%	7%
Financial Services	-12%	63%	1%
Manufacturing	-26%	21%	1%
Mining	-39%	-51%	-1%
Personal Services	-2%	28%	2%
Transportation	0%	46%	2%
Utilities	-15%	-29%	-2%
<b>TOTAL</b>	<b>-11%</b>	<b>19%</b>	<b>2%</b>

Source: Constructed using seasonally adjusted data from SBIF.

Table 3 shows, as discussed earlier, that BancoEstado expanded its commercial credit by 19% between December 2008 and December 2009 while the banking sector as a whole contracted by 11%. The reduction in credit to trade and manufacturing was not only large in absolute terms, but also represented a significant drop, roughly a quarter, of the stock of loans in each sector. Thus, both sectors appear to be hit hard by the crisis. BancoEstado expanded its credit significantly in manufacturing, but only made a small dent on the aggregate stock, due to its minimal market share in that segment

In summary, the reduction in credit was far from homogeneous across sectors with trade and manufacturing bearing most of the burden. In the absence of more detailed information on firms, disentangling supply and demand is not feasible, and the reduction in credit on a specific sector could reflect restrictions on supply, a contraction in demand, or both.

BancoEstado did not compensate in any significant way for the reduction of credit to wholesale/retail trade and manufacturing. This is coherent with an interpretation in which the credit contraction in those sectors was demand-driven, but with an interpretation in which BancoEstado decided to place its efforts on other sectors, which were relatively more profitable, either from the bank's private perspective, or from a public policy stance.

#### 4.3.2 Credit by Size

We now analyze the behavior of commercial credit by size, which we interpret as a proxy of the size of the firms receiving loans. As mentioned before, we rely on two sources of data. First, the D30 database contains data, by bank, on new loans in the Metropolitan Region, in which data on loans in pesos can be identified with a good degree of confidence as commercial loans. For each bank, we identify the total amount of new loans at the monthly level in three size categories: loans below 1,000 UF (\$40,000 dollars in 2008), credits between 1,000 and 10,000 UF, and credits above 10,000 UF. As a caveat, recall we are dealing with a specific definition of credit that approximates commercial loans, which is additionally defined in a particular geographic area. Moreover, this is new credit and, thus, does not take into account changes in the valorization, outflows, or conditions on the stock of existing credit. Thus, comparisons with the results of aggregate stocks presented previously are not straightforward.

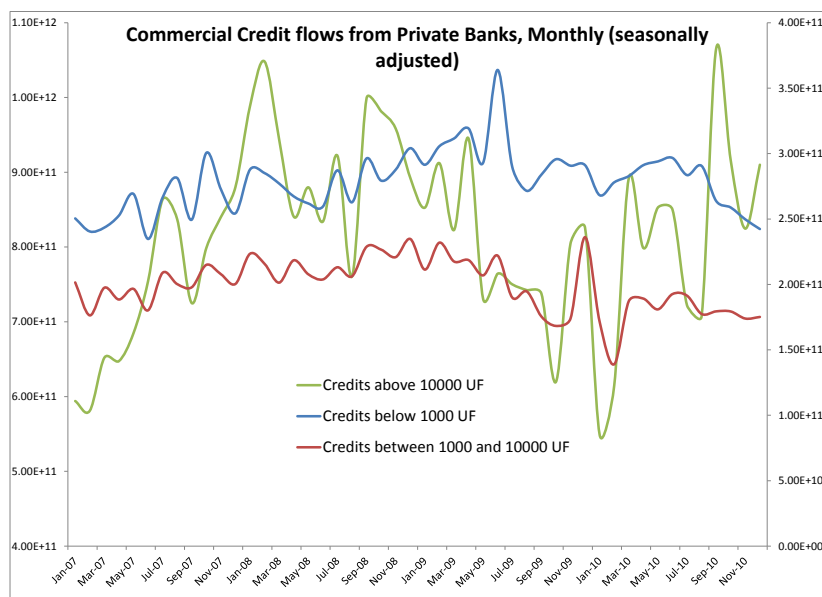
Figure 6 shows the evolution of new commercial credit (gross flows) at private banks (the scale for the small and medium lines is on the right hand axis). Surprisingly, we can see that the creation of credit in small and medium sizes seems to be resilient to the crisis, although one must take into consideration that we are looking at a particular definition of credit in a specific geographic region. However, the creation of larger credits does slow down, as gross credit flows after the first quarter are significantly smaller (of course, the stock can still fall with positive inflows if outflows are larger, as seems to be the case here). New credit never dries up, but it becomes weaker in 2009, recovering strongly in 2010.

Figure 7 shows the same data for the case of BancoEstado. BancoEstado provides a significant amount of large new loans, and keeps issuing new credit on that segment during the next few months at a faster pace than 2009. New large credits become smaller in the second half of 2009. The provision of mid-sized credit, on one hand, seems to follow a similar pattern to the expansion in 2008. New credits to small firms, on the other hand, become significant in the second half of 2009, a pattern that does not resemble what is observed across private banks.

The differences in behavior between BancoEstado and the rest of the banks can be seen more clearly when looking at the evolution across time of the share of new credit provided by BancoEstado in each segment (figure 8). BancoEstado increases its share in new “large” loans significantly during 2009, particularly in the second quarter. As loans above 10,000 UF represent roughly two-thirds of total commercial credit, it is not surprising that this larger share in this segment is consistent with the larger market share in commercial credit observed in the data on stocks. BancoEstado’s share does not seem to change significantly in the other segments, suggesting that its strongest stabilizing role was played in (relatively) large loans, possibly given to medium-to-very large firms. New credit for small-to-medium firms does not appear to have been as responsive, though again, information at this level of aggregation does not allow us disentangle demand and supply effects.

**Figure 6**

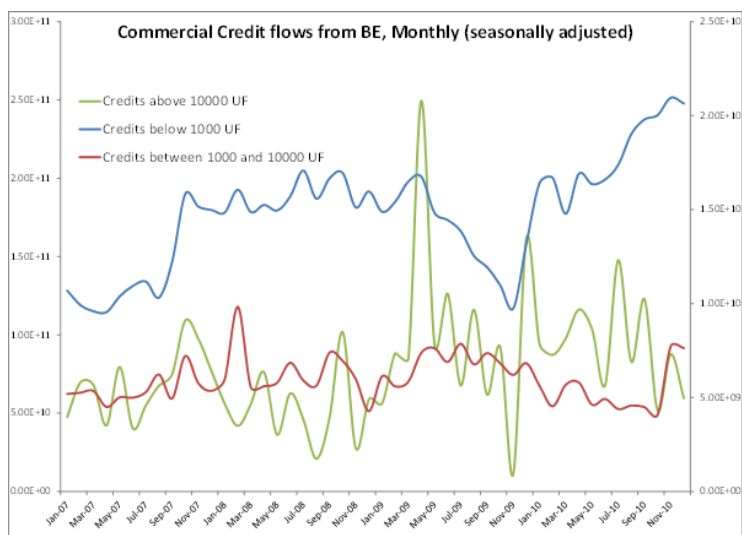
**New Commercial Loans from Private Banks in Region Metropolitana, Constant Pesos**



Source: Constructed by the authors using data from SBIF.

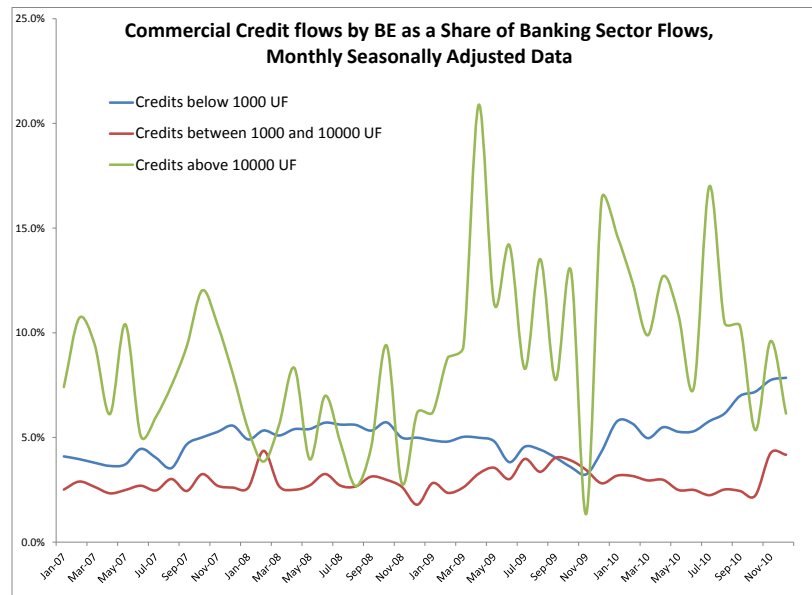
**Figure 7**

**New Commercial Loans from Banco Estado in Region Metropolitana, Constant Pesos**



**Figure 8**

**Share of BancoEstado in New Commercial Loans**



Source: Constructed by the authors using data from SBIF.

We complement the data on new credit flows with data from a detailed census on borrowers (C11 database). On this database we can identify the amount of commercial credit associated with each individual agent as well as the bank that issued the loan. This provides a richer picture in terms of the distribution of credits of different sizes than any of the other databases used so far. Unfortunately, the database's first month is January 2009, and comparisons with the database it replaces, the D01, are not as straightforward, as some of the definitions of the variables are not identical. Moreover, the reliability of the database is allegedly imperfect in its first months of operation, so the results presented below should be taken with caution.

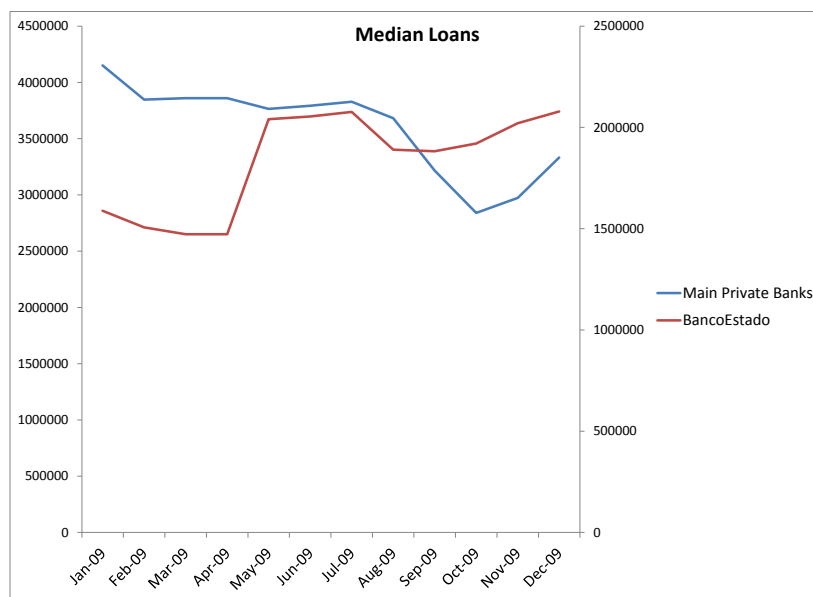
We use the database for two empirical exercises. First, we try to assess the evolution of the distribution of credit for BancoEstado and all other stocks by looking at the size of the median loan across time<sup>6</sup> (figure 9). The data suggests that BancoEstado increased the size of its median loans (and did the same for other quintiles) during 2009, while median loans decreased in private banks. This suggests that BancoEstado shifted its portfolio towards larger credits, while other banks did the reverse (once again, we have few data points and no directly comparable data for 2008).

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<sup>6</sup> We perform a similar exercise for other quintiles, getting qualitatively similar results.

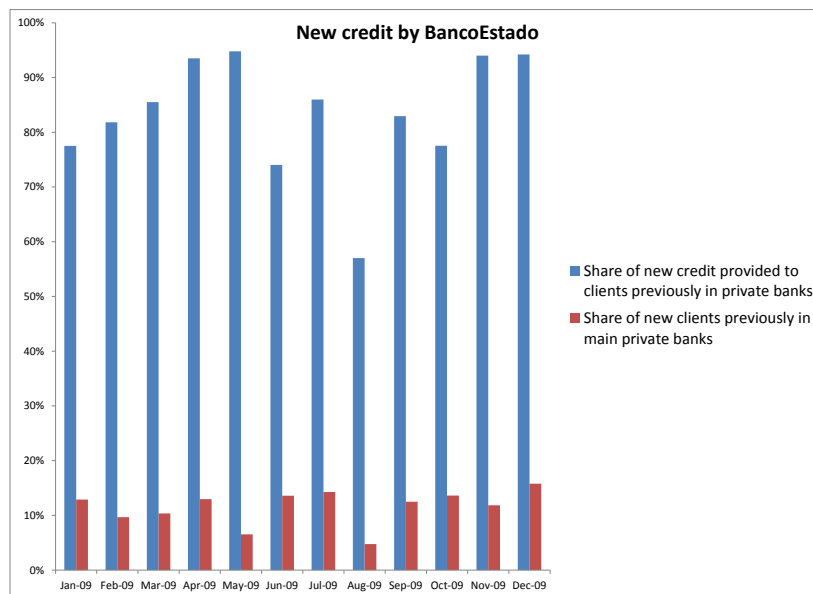
**Figure 9**

**Size of the Median Loan in Commercial Credit Stocks, 2009**



Source: Constructed using data from SBIF.

**Figure 10**



Source: Constructed using data from SBIF.

Figure 10 tries to look again at the behavior of new credit provided by BancoEstado but, this time, focuses specifically on new clients (agents who did not have a loan from BancoEstado in the

past). While only 10% of BancoEstado's new loan recipients had a loan with the private sector in the past month, they account for 80% of the credit provided to new loan recipients. This suggests some large clients migrated from private banks to BancoEstado.

The results in this section suggest that BancoEstado's credit effort was relatively more intensive towards larger firms. This does not imply that BancoEstado did not make an effort to expand credit to small and medium firms, as some of its announcement and credit programs were specifically targeted towards that segment. Moreover, there are various reasons that might explain the asymmetry.

For example, the demand for credit in small firms may have been relatively more affected by the crisis so, even if BancoEstado wanted to, expanding credit more in that segment was not viable. Although we do not have firm-level data to assess this issue, an indirect measure can be obtained by looking at the bank's perceptions on credit demand surveyed by the Central Bank (figure 11). While more of an ordinal measure (in which negative numbers indicate the extent to which the surveyed banks indicate that demand has fallen relative to the previous month), there does not appear to be a clear difference in the reduction of credit demand between both types of firms. Similarly (figure 12), banks' perceptions on credit supply also suggests that the banking sector as a whole was restricted in a similar fashion among all types of firms.

Alternatively, the difference might be associated to the technology of credit provision for each segment and their demand elasticities.<sup>7</sup> Namely, credit creation for small firms might be a slower process as it is more prone to information asymmetries and relies more on local distribution networks, while (given adequate capital) credit to large firms is much more elastic as information on them is much more readily available and fast decisions can be made at a central level.

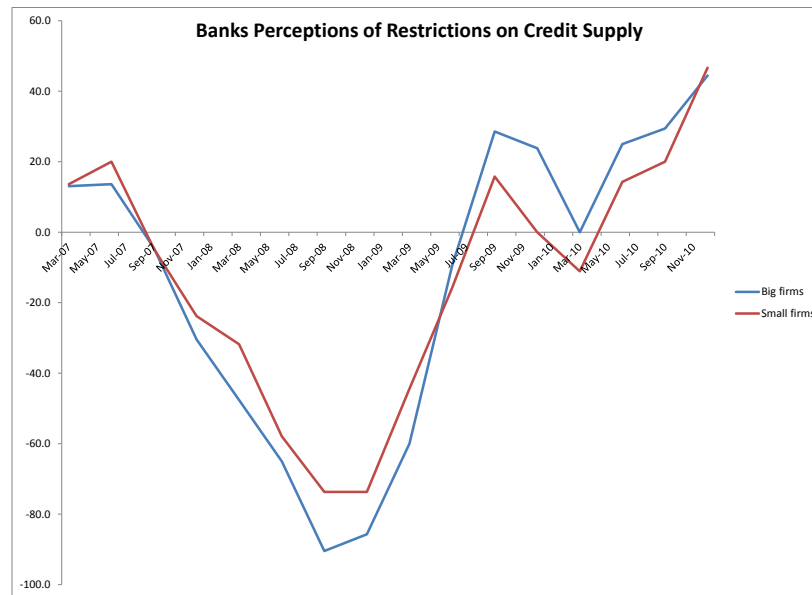
A third explanation is that, in terms of profitability, either directly or indirectly, through the possibility of building up a reputation by establishing relationships with new clients, large firms were on the margin, more attractive. In fact, evidence in profitability across time suggests that BancoEstado did not lose money with its credit expansion. In that sense, it suggests that it did not shift to a portfolio filled mainly with lemons dropped by the private banks as some critics might have suggested, and no public resources were lost.

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<sup>7</sup> This argument was received in conversations with managers at BancoEstado.

**Figure 11**

**Evolution of Perceived Restrictions on Credit Supply**



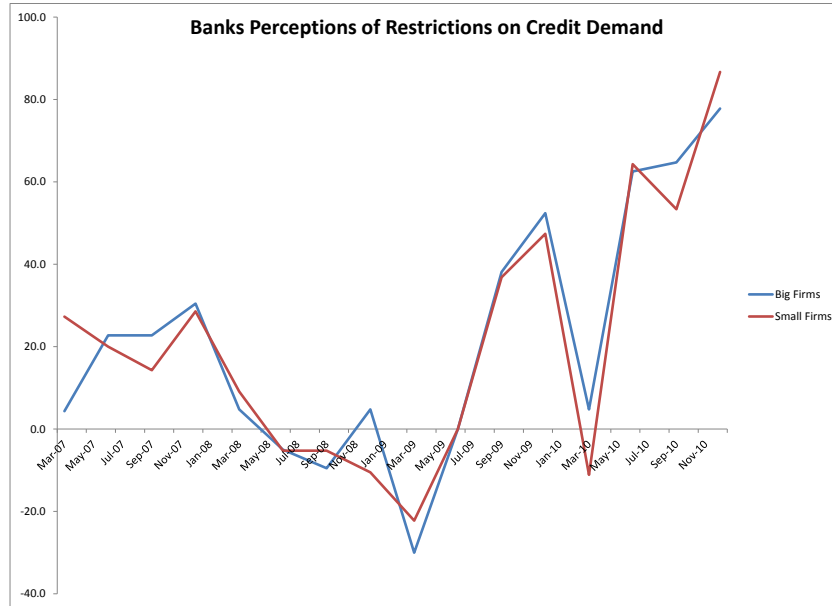
Source: Central Bank of Chile

Note: Negative numbers indicate that restrictions are perceived as tighter, relative to the previous month.



**Figure 12**

**Evolution of Perceived Restrictions on Credit Supply**



Source: Central Bank of Chile.

Note: Negative numbers indicate that restrictions are perceived as tighter, relative to the previous month.

## 5. REGRESSION ANALYSIS

We conclude our analysis by looking at the potential impact of BancoEstado's policy decisions in 2008-2009 on the behavior of its private competitors. We analyze two potential channels. First, we see whether the impact of BancoEstado's credit creation on private banks had a differential effect during the period of application of the policy. Second, we determine whether the announcement of BancoEstado's crisis-contingent credit policy (and the subsequent bank's capitalization) had a direct impact on private banks.

Data is once again taken from the D31 database. We construct bank-level monthly observations of credit flows between 2006 and 2011 for BancoEstado and the nine main private banks in Chile.<sup>8</sup> All credit variables are measured in logs.

Tables 4 to 6 show bank-level regressions for different types of loans. All regressions include controls for macroeconomic conditions,<sup>9</sup> which are not reported for sake of brevity as well as individual bank fixed effects. In each regression, new credits in the Metropolitan Region are regressed on BancoEstado's own (lagged) credit creation, an interaction of that variable with the

<sup>8</sup> Banco de Chile, Banco Santander, Corpbanca, BCI, Banco Security, BBVA, Banco Falabella, Itau, and Scotiabank.

<sup>9</sup> Lagged activity growth (IMACEC growth), monetary policy conditions (the Central Bank of Chile's policy rate), and a measure of turmoil in the international markets (the VIX index).

period in which the special credit policy was implemented,<sup>10</sup> interactions with each bank's market share,<sup>11</sup> and dummies for BancoEstado's capitalization announcement and its lags.

Table 4 focuses on total loans, separating them by different sizes using the same classifications for size as the one in the previous section. The creation of credit by BancoEstado has a negative significant effect on all types of credit, with the larger impact on medium-sized loans. While the sign on the interaction with the policy period is positive, suggesting that the impact of BancoEstado's credit creation on overall credit (private plus BE) was larger in the policy period, the effect is non-significant. Recalling that by controlling for macroeconomic conditions, we try to isolate the effect of the capitalization announcement, the time dummy for December 2008 is positive, but non-significant. Lags that try to account for the fact that banks might have needed time to adjust their lending strategies to respond to the new scenario are also non-significant.<sup>12</sup>

Results are, on average, similar for table 5, which focuses on commercial credit, and Table 6, which analyzes credit at different maturities, although there is evidence of a negative, economically significant impact of the capitalization announcement on both large and small commercial credits.

For the case of maturities, it appears that the impact of BancoEstado's new loans was different depending on the specific maturity during the impact of the capitalization announcement.

Thus, on average, results seem to suggest that the impact of BancoEstado's policy was limited., although it was significant and negative for certain types of commercial credit, suggesting to some extent that BancoEstado substituted private credit creation.

However, as results are not robust across different types of credit, the overall effect on banking outcomes does not seem to be strong. This seems consistent with the evolution of private banking stocks before and after the capitalization announcement. If BancoEstado's capitalization had a significant effect on its private competitors, reducing their profits by giving BancoEstado a competitive edge, the impact on the banks' valuation should be reflected in stock prices, a result that is not supported by the data.

One final consideration is that average effects across banks might be hiding significant heterogeneity, with different banks –with different size, portfolios, market niches, etc.– being affected in different ways. We explore this in tables 7 and 8, presented in the appendix. Tables 8 and 9 add interactions between the capitalization announcements and specific bank dummies, and the regressions on commercial credit and maturities. The results suggest that, as expected, BancoEstado's policies affected banks differently at different margins.

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<sup>10</sup> We define this period as ranging from December 2008 to October 2009, based on the descriptive analysis of the previous section as well as BancoEstado's public announcements.

<sup>11</sup> Market share is measured as the bank's average market participation on each specific segment in the last two quarters.

<sup>12</sup> Regressions without lags, or with only lag, were also estimated, and yielded qualitatively similar results.

**Table 4****Effects on BancoEstado 2008-09 Policies on Total Private Loans****Bank-level fixed effects, 2006-2011, 9 private banks**

	Total loans	Large Loans	Medium loans	Small loans
Lagged BE credit	-0.681 (8.20)**	-0.508 (6.05)**	-0.938 (12.33)**	-0.591 (3.88)**
Lagged BE credit*policy period dummy	0.091 (0.67)	0.096 (0.68)	0.287 (1.64)	-0.122 (0.86)
Lagged BE credit*Bank market share	39.564 (10.19)**	28.979 (6.83)**	56.425 (15.81)**	36.884 (4.52)**
Lagged BE credit*Bank market share*policy period dummy	-6.845 (0.70)	-7.325 (0.72)	-21.393 (1.71)	8.706 (0.85)
Capitalization	0.018 (0.17)	0.119 (0.81)	0.104 (1.36)	0.098 (1.12)
Capitalization t-1	-0.053 (0.56)	-0.298 (1.82)	-0.126 (1.60)	0.041 (0.35)
Capitalization t-2	-0.005 (0.04)	0.112 (0.59)	-0.137 (1.64)	-0.012 (0.13)
Capitalization t-3	0.118 (1.43)	-0.014 (0.10)	0.103 (1.46)	0.098 (1.43)
Constant	28.377 (18.76)**	27.461 (22.29)**	26.624 (25.07)**	23.294 (16.67)**
Observations	585	520	520	571
Adjusted R-squared	0.94	0.75	0.92	0.96

Robust *t* statistics are in parentheses.

\* Significant at 5%; \*\* significant at 1%.

**Note:** All regressions include macroeconomic controls (lags of Imacec growth, Central Bank policy rate, VIX) as well as individual bank fixed effects.

**Table 5****Effects on BancoEstado 2008-09 Policy on Commercial Private Loans****Bank-level fixed effects, 2006-2011, 9 private banks**

	Commercial loans	Large commercial loans	Medium commercial loans	Small commercial loans
Lagged BE credit	-0.318 (2.55)*	-0.383 (3.25)**	-0.262 (2.38)*	0.137 (0.76)
Lagged BE credit*policy period dummy	-0.143 (1.33)	-0.152 (1.31)	-0.297 (1.12)	-0.295 (1.68)
Lagged BE credit*Bank market share	19.818 (3.67)**	17.207 (2.57)*	28.488 (5.59)**	18.727 (1.73)
Lagged BE credit*Bank market share*policy period dummy	10.128 (1.32)	10.587 (1.28)	21.243 (1.12)	21.190 (1.67)
Capitalization	0.027 (0.18)	-0.305 (1.65)	-0.093 (0.77)	0.149 (1.37)
Capitalization t-1	-0.019 (0.16)	0.191 (1.28)	0.019 (0.17)	-0.183 (2.14)*
Capitalization t-2	-0.052 (0.55)	-0.314 (2.20)*	-0.045 (0.45)	0.101 (1.49)
Capitalization t-3	0.005 (0.07)	0.050 (0.46)	0.074 (0.85)	-0.075 (1.55)
Constant	24.498 (13.78)**	25.846 (13.91)**	20.126 (12.00)**	15.544 (6.11)**
Observations	575	498	515	581
Adjusted R-squared	0.93	0.80	0.88	0.88

Robust *t* statistics are in parentheses.

\* Significant at 5%; \*\* significant at 1%

All regressions include macroeconomic controls (lags of Imacec growth, Central Bank policy rate, VIX) as well as individual bank fixed effects.

**Table 6****Effects on BancoEstado 2008-09 Policies on Loans of Different Maturity****Bank-level fixed effects, 2006-2011, 9 private banks**

	Loans 0-30 days	Loans 30 to 90 days	Loans 90 days to 1 year	Loans longer than a year
Lagged BE credit	-0.376 (4.28)**	-0.431 (3.94)**	-0.666 (8.48)**	-0.546 (4.85)**
Lagged BE credit*policy period dummy	-0.048 (0.44)	-0.320 (2.80)**	-0.125 (0.97)	0.342 (2.68)**
Lagged BE credit*Bank market share	24.897 (3.94)**	21.147 (3.68)**	43.510 (11.45)**	37.213 (5.62)**
Lagged BE credit*Bank market share*policy period dummy	3.507 (0.44)	23.174 (2.88)**	8.918 (0.96)	-24.606 (2.68)**
BE Capitalization	0.164 (0.67)	-0.142 (0.61)	-0.107 (1.08)	-0.337 (0.76)
BE Capitalization t-1	-0.163 (0.62)	0.192 (1.30)	0.015 (0.18)	0.438 (1.18)
BE Capitalization t-2	-0.005 (0.02)	-0.165 (0.88)	-0.084 (1.16)	-0.287 (1.14)
BE Capitalization t-3	0.116 (0.63)	0.218 (1.38)	0.060 (0.88)	0.343 (1.98)*
Constant	25.981 (17.10)**	25.065 (16.50)**	24.730 (21.13)**	41.890 (20.49)**
Observations	556	556	585	585
Adjusted R-squared	0.88	0.91	0.95	0.77

Robust *t* statistics in parentheses

\* Significant at 5%; \*\* significant at 1%

Note: All regressions include macroeconomic controls (lags of Imacec growth, Central Bank policy rate, VIX) as well as individual bank fixed effects.

## 6. CONCLUSIONS

This paper analyzed the role played by BancoEstado in providing credit during the 2008-2009 financial crisis.

An analysis of the data shows that, as intended by the Ministry of Finance, BancoEstado increased its credit significantly, particularly in terms of loans to firms. While the overall impact of this expansion on total credit was limited by BancoEstado's scale, BancoEstado played a significant role, smoothing the contraction on credit by private banks. Its response was relatively fast (though not automatic, as credit really didn't begin to pick up until well into 2009). Moreover, BancoEstado remained profitable, suggesting that the additional capital the government put in the bank was put to good, productive use.

In terms of size, a large share of BancoEstado's credit expansion was directed to large firms. This is not only due to the fact that larger loans have a larger share of the bank's portfolio, but because the rate of growth in credit in those segments was larger. While this was probably efficient in terms of maximizing the bank's long-term value, it might have been at odds with the ultimate objective of stabilizing the credit contraction for firms facing liquidity constraints. It can be argued that larger firms, while also restricted relative their pre-crisis position, still had multiple sources of funding both domestically and internationally. It seems likely, at least on the margin, that BancoEstado provided better conditions for firms that already had access to credit, rather than providing credit to profitable firms that had been cut off.<sup>13</sup> Unfortunately, providing a more specific answer is not possible with the available data.

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<sup>13</sup> Informal conversations with BancoEstado executives have indicated that, when providing loans to large firms, BancoEstado asked them to reciprocate by providing better conditions to their own debtors. Following that logic, credit to large firms would end up benefiting small firms, who would face looser conditions on their own contracts with the credit recipients. However, BancoEstado's capacity of enforce this policy is questionable.

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## APPENDIX

**Table 7**

### Effects on BancoEstado's Capitalization on Total Private Loans

(Monthly panel regression 2006-2011, 9 private banks)

	Commercial loans	Large commercial loans	Medium commercial loans	Small commercial loans
Lagged BE credit	-0.300 (2.31)*	-0.368 (3.02)**	-0.253 (2.22)*	0.148 (0.79)
Lagged BE credit*policy period dummy	-0.138 (1.05)	-0.171 (1.17)	-0.421 (1.30)	-0.269 (1.39)
(Lagged BE credit*Bank market share)	18.398 (3.21)**	15.980 (2.28)*	28.012 (5.16)**	18.179 (1.60)
(Lagged BE credit*Bank market share*policy period dummy)	9.819 (1.04)	11.917 (1.14)	30.111 (1.30)	19.312 (1.39)
Capitalization				
Bank 1	0.126 (1.37)	-0.053 (0.33)	0.011 (0.13)	0.150 (2.31)*
Bank 2	0.013 (0.12)	-0.123 (0.49)	0.142 (1.38)	-0.027 (0.43)
Bank 3	0.135 (1.15)	-0.021 (0.11)	0.135 (1.62)	0.019 (0.31)
Bank 4	0.041 (0.21)	-0.119 (0.35)	-0.731 (5.15)**	-0.068 (0.57)
Bank 5	-0.086 (0.71)	-0.293 (1.83)	0.056 (0.47)	-0.059 (0.87)
Bank 6	-0.203 (1.78)	-0.575 (2.67)**	-0.091 (0.75)	0.058 (0.86)
Bank 7	-0.237 (1.87)	-0.516 (3.29)**	-0.086 (0.53)	0.201 (1.68)
Bank 8	0.946 (4.97)**	0.000 (.)	0.000 (.)	0.990 (5.92)**
Bank 9	-0.605 (3.81)**	-1.016 (3.74)**	-0.210 (2.45)*	0.037 (0.49)
Capitalization t-1				
Bank 1	0.093 (2.60)**	0.321 (3.62)**	0.233 (5.99)**	-0.168 (5.64)**
Bank 2	0.074 (1.02)	0.409 (1.64)	-0.009 (0.19)	-0.150 (5.17)**
Bank 3	0.107 (1.38)	0.206 (1.24)	0.011 (0.19)	-0.036 (1.25)
Bank 4	0.025 (0.44)	0.138 (1.41)	-0.393 (2.99)**	-0.076 (2.42)*
Bank 5	0.064 (0.59)	0.182 (1.74)	-0.020 (0.25)	-0.039 (1.19)
Bank 6	0.136 (1.44)	0.385 (1.88)	0.199 (2.95)**	-0.128 (2.90)**



Bank 7	0.015 (0.33)	0.124 (2.30)*	-0.069 (0.77)	-0.077 (1.86)
Bank 8	-0.533 (2.78)**	0.000 (.)	0.000 (.)	-0.619 (3.17)**
Bank 9	-0.019 (0.12)	0.113 (0.40)	0.163 (2.90)**	-0.301 (5.90)**
Capitalization t-2				
Bank 1	0.013 (0.29)	-0.003 (0.03)	-0.099 (2.36)*	0.038 (1.17)
Bank 2	-0.245 (3.12)**	-0.717 (2.91)**	0.069 (0.98)	0.070 (2.02)*
Bank 3	0.119 (1.43)	0.093 (0.55)	0.089 (1.96)	0.071 (2.25)*
Bank 4	-0.366 (2.05)*	-1.183 (3.74)**	-0.318 (4.57)**	-0.032 (0.30)
Bank 5	0.008 (0.07)	-0.102 (0.92)	0.111 (1.25)	0.057 (1.45)
Bank 6	-0.152 (1.58)	-0.334 (1.62)	-0.099 (1.20)	-0.010 (0.21)
Bank 7	-0.059 (0.93)	-0.248 (3.48)**	0.111 (1.12)	0.253 (3.82)**
Bank 8	0.398 (2.04)*	0.000 (.)	0.000 (.)	0.428 (2.22)*
Bank 9	-0.383 (2.38)*	-0.575 (2.05)*	-0.233 (4.45)**	-0.045 (0.82)
Capitalization t-3				
Bank 1	0.028 (0.52)	0.174 (1.69)	0.252 (5.87)**	-0.176 (4.03)**
Bank 2	-0.069 (0.95)	-0.088 (0.37)	-0.221 (4.37)**	-0.113 (3.20)**
Bank 3	-0.119 (1.46)	-0.133 (0.88)	-0.222 (2.43)*	-0.060 (1.46)
Bank 4	0.004 (0.61)	0.000 (.)	0.471 (2.74)**	0.000 (.)
Bank 5	0.154 (1.64)	0.215 (2.19)*	0.147 (1.79)	0.057 (1.45)
Bank 6	0.058 (0.68)	0.105 (0.60)	0.069 (0.82)	-0.016 (0.37)
Bank 7	-0.134 (1.68)	-0.164 (1.98)*	-0.066 (0.56)	-0.175 (2.45)*
Bank 8	-0.005 (0.03)	0.000 (.)	0.000 (.)	-0.109 (0.65)
Bank 9	0.060 (0.42)	0.066 (0.27)	0.200 (2.77)**	-0.041 (0.80)
Constant	24.487 (13.40)**	25.862 (13.63)**	20.101 (11.63)**	15.463 (5.87)**
Observations	575	498	515	581
Adjusted R-squared	0.92	0.80	0.87	0.88

Robust *t* statistics are in parentheses.

\* Significant at 5%; \*\* significant at 1%.

Note: All regressions include macroeconomic controls (lags of Imacec growth, Central Bank policy rate, VIX) as well as individual bank fixed effects.

**Table 8****Effects on BancoEstado's Capitalization on Loans of Different Maturities**

(Monthly panel regression 2006-2011, 9 private banks)

	Loans 0-30 days	Loans 30 to 90 days	Loans 90 days to 1 year	Loans longer than a year
Lagged BE credit	-0.406 (4.46)**	-0.438 (3.73)**	-0.664 (8.21)**	-0.541 (4.70)**
Lagged BE credit*policy period dummy	0.003 (0.02)	0.234 (3.33)**	0.401 (11.09)**	0.415 (5.45)**
(Lagged BE credit*Bank market share)	27.008 (4.11)**	24.725 (2.57)*	6.379 (0.53)	-24.622 (2.70)**
(Lagged BE credit*Bank market share*policy period dummy)	-0.012 (0.00)	-0.343 (2.50)*	-0.090 (0.54)	0.342 (2.70)**
Capitalization				
Bank 1	0.099 (0.46)	-0.293 (1.10)	0.062 (0.74)	0.367 (4.45)**
Bank 2	0.636 (2.21)*	-0.627 (2.10)*	0.224 (2.02)*	-0.344 (3.12)**
Bank 3	-1.018 (4.62)**	0.182 (0.73)	-0.032 (0.32)	-0.048 (0.44)
Bank 4	-0.076 (0.32)	-0.397 (1.45)	-0.186 (1.81)	0.155 (0.80)
Bank 5	0.081 (0.51)	-0.074 (0.33)	-0.095 (0.86)	0.119 (0.78)
Bank 6	-0.195 (1.25)	-0.136 (0.52)	-0.182 (0.94)	0.237 (2.50)*
Bank 7	0.663 (3.30)**	-0.018 (0.08)	-0.182 (2.28)*	0.066 (0.69)
Bank 8	0.524 (1.45)	-0.195 (0.53)	-0.086 (0.54)	0.709 (3.14)**
Bank 9	0.781 (3.20)**	0.316 (1.01)	-0.482 (3.10)**	-4.288 (4.21)**
Capitalization t-1	-0.313 (1.84)	0.046 (0.34)	-0.027 (0.64)	0.003 (0.10)
Bank 1	0.122 (0.46)	0.792 (3.20)**	0.007 (0.07)	-0.144 (1.74)
Bank 2	0.216 (1.23)	-0.044 (0.37)	-0.036 (0.55)	0.310 (3.49)**
Bank 3	-0.896 (4.20)**	0.078 (0.36)	0.097 (1.75)	-0.203 (0.95)
Bank 4	-0.064 (0.87)	-0.468 (6.24)**	-0.071 (0.72)	0.259 (1.63)
Bank 5	-0.225 (4.13)**	0.397 (2.02)*	0.405 (1.85)	0.086 (1.29)
Bank 6	-1.539 (9.92)**	0.292 (2.09)*	-0.044 (1.26)	0.191 (2.81)**
Bank 7	1.336 (7.68)**	0.411 (2.04)*	-0.024 (0.15)	-0.053 (0.20)
Bank 8	-0.095 (0.44)	0.234 (0.80)	-0.156 (0.98)	3.492 (2.81)**
Bank 9				

Capitalization t-2				
Bank 1	0.222 (1.26)	0.155 (1.03)	0.085 (1.94)	0.195 (4.72)**
Bank 2	-0.478 (1.75)	-1.544 (5.68)**	-0.231 (2.61)**	-0.349 (3.90)**
Bank 3	-0.678 (3.52)**	-0.048 (0.35)	0.127 (1.82)	-0.155 (1.64)
Bank 4	-0.555 (2.46)*	0.343 (1.45)	-0.163 (2.66)**	0.393 (1.82)
Bank 5	-0.339 (3.46)**	-0.010 (0.08)	0.020 (0.20)	-0.191 (1.18)
Bank 6	-0.695 (8.00)**	-0.276 (1.26)	-0.330 (1.49)	0.137 (1.86)
Bank 7	1.957 (11.55)**	-0.186 (1.09)	0.042 (1.06)	-0.098 (1.32)
Bank 8	0.129 (0.55)	0.093 (0.48)	-0.172 (1.08)	0.058 (0.22)
Bank 9	0.425 (1.81)	0.007 (0.02)	-0.130 (0.81)	-2.571 (2.07)*
Capitalization t-3				
Bank 1	0.542 (2.98)**	0.291 (1.37)	-0.201 (2.80)**	0.146 (3.50)**
Bank 2	0.010 (0.04)	0.998 (4.56)**	0.257 (1.95)	-0.436 (5.17)**
Bank 3	-0.318 (1.91)	-0.332 (1.74)	-0.149 (1.91)	0.526 (6.30)**
Bank 4	-0.174 (0.91)	0.235 (1.18)	0.175 (2.44)*	0.205 (1.14)
Bank 5	0.189 (2.28)*	-0.167 (1.76)	0.159 (1.82)	0.416 (3.10)**
Bank 6	0.152 (1.76)	0.613 (3.50)**	0.187 (1.02)	0.185 (2.91)**
Bank 7	-0.628 (4.18)**	0.402 (3.07)**	0.025 (0.54)	0.044 (0.67)
Bank 8	1.419 (4.03)**	0.240 (0.66)	-0.017 (0.13)	0.524 (2.44)*
Bank 9	-0.115 (0.57)	-0.294 (1.15)	0.125 (0.88)	1.472 (1.45)
Constant	25.958 (16.63)**	25.038 (16.00)**	24.709 (20.59)**	41.879 (20.10)**
Observations	556	556	585	585
Adjusted R-squared	0.88	0.91	0.94	0.82

Robust *t* statistics are in parentheses.

\* Significant at 5%; \*\* significant at 1%

Note: All regressions include macroeconomic controls (lags of Imacec growth, Central Bank policy rate, VIX) as well as individual bank fixed effects.

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