Banks' Business Model and their Impact on the Chilean Bank Lending Channel[*]

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Abstract

During the Global Financial Crisis, banks suffered losses on a scale not witnessed since the Great Depression, partly due to two major structural developments in the banking industry; deregulation combined with financial innovation. In the aftermath of the financial crisis, the regulatory response concentrated on the Basel III recommendations, raising core capital requirements for banking institutions; affecting their business model and funding patterns. Consequently, these changes have had significant implications on how banks grant loans, how they react to monetary policy shocks, and on how they respond to the occurrence of external shocks. In this paper we find evidence of significant interactions between the bank lending channel and both monetary and global shocks. Also, our results indicate that the only publicly-owned bank has had a significant role in reshaping the bank lending channel in Chile in the past three decades.

Keywords: bank lending channel, global financial crisis, monetary policy
JEL Codes: E40, E44, E51, E52, E58, G21

1   Introduction

During the Global Financial Crisis (GFC) banks suffered losses on a scale not witnessed since the Great Depression (Altunbas et al. (2012)), partially due to two major structural developments in the banking industry, namely deregulation and financial innovation. In the aftermath of the financial crisis the regulatory response concentrated on the Basel III recommendations to raise core capital levels of banking institutions, affecting banks' business models and funding patterns (Altunbas et al.; Gambacorta and Marques-Ibanez (2011); Roengpitya et al. (2014)). In view of these events it is natural to expect that these changes have had implications on how banks grant credit and react to monetary policy. This paper has three objectives; first, we explore how the GFC and other external shocks have affected the Chilean banks' business models. Second, whether these changes have reshaped the bank lending channel of monetary policy. Third, how relevant has been the role a large publicly-owned bank has played in all of the above. Our results suggest that local banks shifted towards alternative sources of income and funding after the GFC. We find evidence of significant changes in the business model of banks after the onset of the financial crisis, and we also report changes in the way external shocks and monetary policy interact with the granting of loans (bank lending channel). In particular, our results point towards a weakening of the bank lending channel in Chile and also a shift in the business model of banks towards alternative sources of income (such as trading and fees and commission activities).

Since most of the existent literature that has studied the change in banks' business models has focused on advanced economies (Altunbas et al.; Gambacorta and Marques-Ibanez; Roengpitya et al.), there is lack of evidence for emerging economies, especially in Latin America. This paper focuses in the case of Chile, we study the occurrence of changes in the local banks' business models as a consequence of external shocks (including the GFC period), and also whether these changes have affected the bank lending channel of the Chilean monetary policy previously documented in the literature (Alfaro et al. (2005); Fernández (2005); Catão and Pagan (2010)).

As previously mentioned, most of the literature studying the changes in banks' business model due to the financial crisis has focused on advanced economies (Gambacorta and Marques-Ibanez; Roengpitya et al.), finding that banks' business model and market funding patterns have changed, affecting the monetary policy transmission (bank lending channel). For instance, Gambacorta and Marques-

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Ibanez, focusing on Europe and the United States for the period between the first quarter of 1999 and the fourth quarter of 2009 finds significant changes in the functioning of the bank lending channel of monetary policy transmission as result of financial innovation and changes in banks' business model. Most of the literature on emerging markets, in spite of having well documented evidence of the existence of a bank lending channel in different countries -Aban (2013) in the Philippines, Xiong (2013) in China, Ananchotikul and Seneviratne (2015) for a group of selected Asian countries, Lerskullawat (2017) for a group of Asean countries, etc.)- has not studied the changes in banks' business model as a consequence of the global financial crisis.

Among the more general contributions mentioned above, Ananchotikul and Seneviratne examine, in a group of Asian economies, how individual bank characteristics such as, ownership structure of the banking system, and financial conditions affect the bank lending channel of domestic monetary policy. They find that the aggregate response to monetary policy may mask significant variation of responses at the individual banks level, i.e. that banks with different ownership structures react differently to monetary policy changes, they also report that monetary policy in host countries could become less effective, and that bank credit responds not only to changes in domestic monetary policy but also to external financial conditions. Subsequently, Lerskullawat, for a group of Asian countries (Indonesia, Malaysia, the Philippines, Thailand and Singapore), finds evidence of the bank lending channel, with banks' characteristics either weakening (the higher the bank capitalization and liquidity) or strengthening (the greater the size of banks) the bank lending channel, and with the banking sector development in terms of banking activities and capital market development also weakening the bank lending channel.

In Chile, to the best of our knowledge, only a recent study by Alegría et al. (2017) studies the effects of changes in Chilean banks' business model on the effectiveness of monetary policy transmission (bank lending channel). Additionally, results supporting the existence of the bank lending channel have been documented by Alfaro et al., Fernández and Catão and Pagan.

Regarding the contribution by Alegría et al., these authors assess the existence of spillovers from the financial crisis on the cost and structure of cross-border funding of Chilean banks, using data on individual debt transactions between Chilean banks and their foreign counterparties for the period 2008-2016, the authors find that: (i) during the financial crisis Chilean banks saw a significant deterioration in their access to funds from foreign banks; (ii) in the aftermath of the financial crisis

Chilean banks modified their sources of funding, turning toward higher levels of bond funding and to new lending counterparties.

On the other hand, Alfaro et al., Fernández and Catão and Pagan, all find evidence of the existence of the bank lending channel in Chile using both different periods of study and alternative methodologies. First, Alfaro et al. studies the period 1990-2002 with data from both the banking and corporate sectors, concluding that the bank lending channel have operated in Chile, as a monetary policy transmission mechanism, with significant impact on the country's' macroeconomic activity. Moreover, Fernández using data for nineteen banks operating in Chile, between January 1999 and December 2002, also finds evidence supporting the existence of a bank lending channel, though presenting asymmetric responses to monetary shocks depending on banks' characteristics, such as size, liquidity and efficiency. More recently, Catão and Pagan using a structural approach and macroeconomic data for the period between the first quarter of 1999 and the first quarter of 2009 argues that changes in the monetary policy rate have an impact on credit growth.

The rest of this paper includes four sections, besides this introduction. Section 2 presents an overview of the Chilean banking sector and a characterization of the Chilean banks' business model. A more formal analysis of the relation between banks' specific characteristics and lending over time, based on banks' specific characteristics and macroeconomic data, and an econometric model is included in Section 3. In Section 4 our results are summarized and discussed. Finally, Section 5 concludes.

2   Chilean Banking System

This section includes a brief overview of the Chilean banking sector and characterizes the country banks' business model, using the methodology proposed by Roengpitya et al..

The Chilean banking sector has historically shown high levels of concentration. Currently three (out of twenty) banks hold half of the system's total assets (Figure 1). Lending is the main source of revenue, with corporate loans comprising more than half of the joint portfolio (Figure 5). In terms of liabilities, the share of long-term funding has been steadily growing in recent years, driven in part by access

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to lower interest rates abroad. Finally, regarding credit risk, after a sharp increase around the onset of the GFC, followed by a protracted decline, default rates have stabilized in low levels for all types of loans (Figure 7).

The local banking system comprises 25 institutions, mostly oriented towards firm and household credit. Regarding the classification proposed by Roengpitya et al., most of these banks fit into the retail-funded category. As of 2017, and without major changes since 2008, over 40 percent of total liabilities were concentrated in deposits of firms and individuals. Beyond this deposit share, Chilean banks have historically maintained a diversified set of funding sources, including local (e.g. other local banks, pension and mutual funds) and external agents (e.g. bonds and loans) (Figure 2).

Since the onset of the Global Financial Crisis, banks established in Chile modified their sources of funding. In particular, after 2008 they have relied more heavily on external bond issuance and less on loans from banks abroad. Regarding the former, in 2009 external bonds were a negligible fraction of total cross-border funding, by 2015 this component had risen to more than 50 percent of total external borrowing. During the same time span, due to adverse financial conditions, maturities were reduced, which in turn translated into an increasing share of short term liabilities in the banks' balance sheets.

As stated in Alegría et al., during the GFC Chilean banks saw a significant deterioration in the terms at which they accessed funds from foreign banks -both for trade and for general funding (this was also the case for most banks in other jurisdictions). Borrowing costs increased significantly, as base rates (such as Libor and Euribor) and spreads charged above these rates to Chilean banks, increased following the collapse of Lehman Brothers in late 2008.

2.1   Banco Estado

Banco Estado (BE), is the only publicly-owned commercial bank in Chile. It was created by government decree in 1953. Banco Estado provides financial services to households and firms, with a focus on national coverage in terms of geography and social sectors and a particular emphasis on the unbanked and small and medium firms, although it serves all types of businesses. It is the country's largest mortgage originator and largest issuer of debit cards. In addition, Banco Estado

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performs all of the Chilean government's financial activities through a single account managed by the General Treasury of the Republic of Chile.

Historically, it has played a central role in the implementation of public policies such as providing loans and collateral to small firms, and in promoting home-ownership by granting mortgage loans subsidized by the government. During the Global Financial Crisis, as argued in Lagos and Tapia (2014) and Mullins and Toro (2018b), Banco Estado was capitalized by the government[1], which permitted it to act countercyclically by increasing its growth rate of loans granted, while the rest of the banks were either reducing or maintaining the pace at which they originated loans. This credit expansion was mostly directed towards firms. In particular, as pointed out in Lagos and Tapia, Banco Estado's response was fast and affected aggregate credit, though its scope was limited by the bank's scale. Banco Estado's credit expanded more rapidly in segments with larger loans, suggesting that a significant share of the new credit ended up in large firms. These policies ultimately contributed towards reducing the overall credit contraction, and ended up increasing Banco Estado's market share while keeping it profitable.

Provided Banco Estado had such a relevant role during the recent financial crisis, it seems natural to analyze how sensitive our results are to this countercyclical policy. The results of this sensitivity exercise will be presented and discussed later on in Section 4.

3   Empirical Strategy

In this section we discuss the data and econometric models used to study whether the Chilean banks' characteristics shape the bank lending channel. We are also interested in assessing the relevance of these changes over the interaction with local monetary shocks, and evaluate whether the impact of global factors/external conditions change the way bank-specific characteristics affect the supply of credit. In

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[1]In December 2008 two policies were implemented in order to maintain credit readily available. First, it increased the level of public guarantees on private credit to small firms (FOGAPE) as well as making larger firms temporarily eligible, the effects of this policy are studied by Mullins and Toro (2018a). Second, Banco Estado was instructed to make a special effort to provide credit to firms and households. To keep the bank financially sound and its capital-to-loans ratio in line with the supervisor's requirement, Banco Estado was capitalized with USD 500 million (increasing the bank's capital by 50%).

order to do so, we use data on banks' specific characteristics and macroeconomic data for the period spanned between 1990 and 2016. We build on the econometric specification used in Gambacorta and Marques-Ibanez (2011) and Jimenez et al. (2012).

3.1 Data and Variables

We use both balance sheet and credit registry data in quarterly frequency for the period spanned between 1990:Q1 and 2016:Q4. Table 1 presents descriptive statistics for the variables we included in the estimated specifications. For our dependent variable, we use credit registry data at the loan level for each bank-firm pair and time period. Both administrative and banks' balance sheet data are used for completing our set of regressors.

The variables presented in Table 1 include the supply of credit growth as dependent variable, and bank specific characteristics that can be classified depending on the following five categories: (i) bank lending channel standard indicators (ln(total assets), bank capital ratio, bank liquidity ratio); (ii) risk profile (loan-loss provisions as a share of total loans); (iii) revenue mix (share of net fees and commission income, share of trading income, retail loans as a share of total loans); (iv) funding (share of short-term funding, share of funding in foreign currency); (v) and profitability (return on assets).

3.2 Baseline Model

Our empirical strategy for analyzing the evolution of the banks' business models and their interaction with the bank lending channel, borrows from Gambacorta and Marques-Ibanez and Jimenez et al.. With a baseline model that can be written as:

$$\Delta \log L_{fbt} = \beta X_{b,t-1} + bank_b + firm_f \times t + \varepsilon_{fbt} \tag{1}$$

where L_{fbt} denotes amount lent by bank b to firm f at time t, $X_{b,t-1}$ is a vector of bank b characteristics at time $t-1$, $bank_b$ is a vector of time-invariant bank b fixed-effects, $firm_f$ is a vector of firm-level fixed effects[2], and ε_{fbt} is an error

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[2]All specifications use interactive bank $\times$ time clustered errors.

term. For this specification we are mostly interested in $\hat{\beta}$, which tells about the interaction between a particular bank set of characteristics and their loan granting process.

3.3 Bank Lending Channel

For the question on how monetary shocks have affected the supply of credit, and to determine the role that bank-specific features have had in strengthening or weakening the bank lending channel, we extend the baseline model as follows:

$$\Delta \log L_{fbt} = \beta X_{b,t-1} + \sum_{j=0}^{3} \delta_j(\Delta i_{t-j} \times X_{b,t-1}) + bank_b + firm_f \times t + \varepsilon_{fbt} \quad (2)$$

In this specification Δi_{t-j} represents the quarterly change in the monetary policy rate at time $t-j$. In general, we are mainly interested in the sign and size of the δ_j estimated coefficients, which correspond to the interaction between monetary policy and bank characteristics.

3.4 Impact of Global Factors

In order to assess the impact that external conditions (global factors) could have had on the way bank-specific characteristics interact with credit supply. We estimate the following specification that once again builds upon our base specification:

$$\Delta \log L_{fbt} = (\beta + \gamma C)X_{b,t-1} + bank_b + firm_f \times t + \varepsilon_{fbt} \quad (3)$$

Where C corresponds to a global characteristic. For the purpose of this exercise we have considered five alternative sources of global shocks and their corresponding alternative definitions for C:

(i) global financial uncertainty proxied with the CBOE volatility index, VIX;

(ii) global liquidity measured by the Wu-Xia shadow rate for the US monetary policy, as in Wu and Xia (2016);

(iii) economic political uncertainty approximated with the Baker, Bloom and Davis index, as in Baker et al. (2016);

(iv) global commodity prices measured by a commodity price index; and

(v) Global Financial Crisis, represented by a dummy variable that takes the value of 1 during the 2008:Q3-2009:Q4 period, and zero otherwise.

In this particular case, we are mostly interested in the significance, sign and magnitude of the estimated γ coefficients.

4 Results

As previously discussed, we are interested in how changes in banks' characteristics may have affected bank lending. And, in turn, how these banks' characteristics and hence the supply of credit, are affected by monetary policy shocks and global economic conditions, particularly regarding commodity prices. In addition, and due to its importance in the Chilean banking system as discussed above, we investigate the role of the publicly-owned bank (Banco Estado) regarding the previous questions. The results pertaining to these issues are summarized in this Section.

4.1 Baseline Specification

To answer the question about the interaction between changes in banks' characteristics and credit supply, we estimated the baseline model in equation (1). Results are shown in Table 2. Our estimates indicate that there is a negative relationship between the past loan-loss provisions as a share of total loans and credit growth. This finding, documented in the literature (e.g. Bouvatier and Lepetit (2012)) relates to the backward-looking adjustment process carried out by banks in order to comply with loan-loss provision requirements. Whenever a loan is granted, provisions are constituted, therefore a negative sign of this term is a signal of portfolio adjustments made by the banks to maintain credit risk under control.

We also find a positive relationship between past retail loans as a share of total loans and credit growth is found. This is consistent with the findings in Blundell-Wignall and Roulet (2013), and also with the fact that a business model based

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more on retail would provide a more stable funding base, which in turn will foster lending.

With respect to the banks' funding strategy, we find evidence of a positive relationship between the past share of short-term funding and credit growth. Since the 2000s there has been a global trend of increasing short-term leverage in banks' balance sheets, mostly due to abundant liquidity. This trend constituted a change, prior to this banks used to rely on long-termed sources of funding, such as bonds and deposits. This finding is in line with the literature, in particular Perotti and Suarez (2009) suggest that short-term funding reduces the fraction of actively monitoring intermediaries, enabling lax credit choices, therefore increasing credit growth.

4.2 Bank Lending Channel and Monetary Policy

Regarding the bank lending channel and monetary policy transmission, our results obtained from estimating equation (2) and summarized in Table 3. Incorporating the monetary policy stance in our specification does not translate into major changes in our results summarized in Table 2. Consequently we still find a significant inter-temporal effect between the provisions ratio and credit growth. We also find a significant positive effect between credit expansion and the lagged retail loans and short-term funding ratios. This reinforces the findings reported above for the baseline model.

Regarding the interactions with the monetary policy term. A monetary policy tightening (an increase in Δi_{t-1}) only affects bank capital ratios contemporarily, without significant spillover effects over credit supply. The way this mechanism works is that during periods of tight monetary policy, only those banks with relatively higher capital ratios will have room for expanding their lending base and still be able to comply with capital requirements.

4.3 Impact of Global Factors

This subsection evaluates whether the impact of global economic conditions could affect banks' specific characteristics, and then the supply of credit. Hence, building upon our baseline model, we investigate the influence over the bank lending channel of five alternative global economic conditions (namely, global financial

uncertainty, global liquidity, economic political uncertainty, global commodity prices, and the Global Financial Crisis). Among these global economic conditions, the most relevant factor corresponds to commodity prices. This finding is not surprising provided Chile is a net exporter of several commodities (most notably, copper).

As mentioned above, we estimated the specification in equation (3), Table 4 contains the results due to changes in the commodity price index. The results from the interactions between the banks' specific characteristics and the global financial uncertainty, global liquidity, economic political uncertainty, and Global Financial Crisis, are reported in Tables 6, 7, 8, and 9, respectively.

Besides the fact that, once again, our results for the baseline model are robust to the inclusion of the global factor variable C. There are two additional results arising from our estimation of the relationship between changes in the global commodity price index and banks' specific characteristics. First, the lagged retail loans ratio has a slightly negative relationship with an increase in commodity prices. Every time there is an increase in commodity prices, those banks with high shares of retail loans will slightly cut back lending with respect to the other banks with lower shares. This result in line with what is reported in Agarwal et al. (2018), the authors find that that a fall in commodity prices reduces bank lending, although this effect is confined to low-income countries and driven by commodity price busts. Banks with relatively lower deposits and poor asset quality transmit commodity price changes to lending more aggressively, supporting the hypothesis that the overall credit response to commodity prices works also through the credit supply channel.

Second, in our results we also encounter evidence indicating that those banks with larger returns over assets are more willing to increase lending when facing higher commodity prices, which also coincides with the findings in Agarwal et al.. Among all of the above results, the only one that significantly impacts credit supply is the one between commodity prices and retail loans ratio, where an increase in commodity prices reduces both the retail loans ratio and credit growth.

4.4   Banco Estado

In order to assess the relevance Banco Estado has in the local financial market, and how it might have shaped the bank lending, monetary and global factors channels.

We exclude Banco Estado from our sample, and compare our estimates to the ones previously obtained with our baseline model using the full sample (which includes Banco Estado). The results obtained when excluding the publicly-owned bank are summarized in Table 5. There is little evidence on the effects of government ownership over bank lending. To the best of our knowledge, the only works covering this relationship are Sapienza (2004) and Iannotta et al. (2013), covering the relationship between government ownership, and lending and risk, respectively.

The comparison between the results in Tables 2 and 5 yields several interesting results. First, all variables found to be statistically significant under the full-sample baseline estimation are still significant with the ex-Banco Estado sub-sample. This points towards the robustness of our results, and is reassuring that our findings are not driven by Banco Estado and its countercyclical behavior.

Second, all coefficients estimated when excluding BE are larger (in absolute value) than those obtained with the full sample. This finding in sensible, considering the fact that Banco Estado does not necessarily operate as a private bank. Therefore, it does not come as a surprise that once BE is removed from the sample, all the interactions between private banks' characteristics and the bank lending channel are increased and reinforced since all the banks in the pool are more alike.

Third, the term corresponding to the past share of net fees and commission income becomes significant with a negative estimated coefficient. There is substantial evidence indicating that during bust periods, banks must adapt and resort to alternative sources of income. As pointed out in ECB (2016), one way for banks to compensate for compressed net interest margins could be to adapt their business models, moving towards more fee and commission-generating activities. As banks are forced to substitute their usual sources of income for alternatives such as fees and commissions, it is sensible to find a negative sign on this coefficient. It is also sensible that this effect arises only after removing Banco Estado from the sample, provided it was capitalized during the GFC and therefore it did not need to resort to alternative sources of income as commercial banks.

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5 Final Remarks

There are three objectives underlying this document. First, to study the interaction between changes in banks' characteristics and the supply of credit. Second, to analyze how these interactions are shaped by monetary policy. And third, to assess how sensitive these results are to changes in global conditions.

We find that there is a negative relationship between the level of loan-loss provisions and credit growth. We also find a positive relationship between both retail loans and short-term funding and credit growth. All of these results are consistent with the related literature and consistent across different specifications. Regarding the interaction with monetary policy, a tightening only affects bank capital ratios contemporarily, without significant spillover effects over credit supply.

With respect to global conditions, every time there is an increase in commodity prices, those banks with high shares of retail loans will slightly cut back lending with respect to the other banks with lower shares. Banks with relatively lower deposits and poor asset quality transmit commodity price changes to lending more aggressively.

Finally, with respect to the role the only Chilean publicly-owned bank has played in terms of bank lending channel. Our results indicate that all of our results are robust to the exclusion of this government-owned bank. However, when removing BE from the sample all the interactions between private banks' characteristics and the bank lending channel are increased and reinforced since all the banks in the pool are more alike. Regarding sources of income, BE was capitalized during the GFC, so it could behave countercyclically and maintain credit growth. The effect of banks resorting to fees and commissions as a source of income only arises after removing BE from the sample, which is in line with the particular mandate the publicly-owned bank has.

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Tables

Table 1: Descriptive Statistics

Variables	Units	Observations	Min	25th percentile	Median	Average	75th percentile	Max
Dependent Variable								
Δ Log credit	log (CLP)	7,794,210	-4.5336	-0.1448	-0.0180	-0.0097	0.0532	4.7116
Independent Variables								
Bank lending channel standard indicators								
ln (total assets)	log (CLP)	1,453	17.0530	17.0530	17.8465	18.1782	19.0672	21.0371
Bank capital ratio	Ratio	1,453	0.0501	0.0798	0.0983	0.1067	0.1444	0.1444
Bank liquidity ratio	Ratio	1,453	0.0625	0.1308	0.2227	0.2408	0.4010	0.4010
Risk profile								
Loan-loss provisions as a share of total loans	Ratio	1,453	0.0111	0.0138	0.0193	0.0213	0.0261	0.0421
Revenue mix								
Share of net fees and comission income	Ratio	1,453	0.0375	0.0491	0.0794	0.0889	0.1183	0.2086
Share of trading income	Ratio	1,453	0.0000	0.0169	0.0750	0.1306	0.1968	0.4146
Retail loans as a share of total loans	Ratio	1,453	0.0214	0.0214	0.1805	0.2109	0.3785	0.5411
Funding								
Share of short-term funding	Ratio	1,453	0.7426	0.9099	0.9701	0.9451	1.0000	1.0000
Share of funding in foriegn currency	Ratio	1,453	0.0359	0.1225	0.1754	0.1725	0.2419	0.2704
Other								
Other bank-specific characteristics used (ROA)	Ratio	1,453	-0.0019	0.0010	0.0027	0.0025	0.0043	0.0069
Other controls								
Firm specific characteristiscs (dummy variable indicating NPLs)	Ratio	5,191,931	0.0000	0.0000	0.0000	0.0711	0.0000	1.0000

Source: Own elaboration based on SBIF data.

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Table 2: Baseline Model

Δ Log credit	(1)	(2)	(3)	(4)	(5)	(6)
ln (Total assets) (t-1)	-0.032	-	-	-	-	-0.014
	(0.077)*	-	-	-	-	(0.433)
Bank capital ratio (t-1)	0.140	-	-	-	-	-
	(0.407)	-	-	-	-	-
Bank liquidity ratio (t-1)	0.005	-	-	-	-	-
	(0.959)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1)	-	-1.300	-	-	-	-1.648
	-	(0.022)*	-	-	-	(0.002)*
Share of net fees and comission income (t-1)	-	-	-0.197	-	-	-
	-	-	(0.291)	-	-	-
Share of trading income (t-1)	-	-	0.036	-	-	-
	-	-	(0.357)	-	-	-
Retail loans as a share of total loans (t-1)	-	-	0.188	-	-	0.201
	-	-	(0.007)*	-	-	(0.002)*
Share of short-term funding (t-1)	-	-	-	0.266	-	0.300
	-	-	-	(0.004)*	-	(0.001)*
Share of funding in foreign currency (t-1)	-	-	-	-0.160	-	-0.079
	-	-	-	(0.086)*	-	(0.442)
Return on assets (t-1)	-	-	-	-	3.888	2.869
	-	-	-	-	(0.075)*	(0.194)
Number of debtors	104 109	104 109	104 109	104 109	104 109	104 109
Number of banks	36	36	36	36	36	36
Observations	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902
R-squared	0.414	0.414	0.414	0.414	0.414	0.414
Adjusted R-squared	0.062	0.062	0.062	0.062	0.062	0.062

Note: (1) Main indicators, (2) Risk profile, (3) Revenue mix, (4) Funding, (5) Profitability, (6) All, $p < 0.1$

Source: Own elaboration based on SBIF data.

Table 3: Credit Supply and Monetary Policy

△ Log credit	(1)	(2)	(3)	(4)	(5)	(6)
Bank-specifc characteristics						
ln (Total assets) (t-1)	-0.032	-	-	-	-	-0.014
	(0.085)*	-	-	-	-	(0.465)
Bank capital ratio (t-1)	0.153	-	-	-	-	0.079
	(0.370)	-	-	-	-	(0.637)
Bank liquidity ratio (t-1)	0.013	-	-	-	-	-
	(0.895)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1)	-	-1.281	-	-	-	-1.660
	-	(0.023)*	-	-	-	(0.001)*
Share of net fees and comission income (t-1)	-	-	-0.216	-	-	-
	-	-	(0.229)	-	-	-
Share of trading income (t-1)	-	-	0.032	-	-	-
	-	-	(0.368)	-	-	-
Retail loans as a share of total loans (t-1)	-	-	0.187	-	-	0.211
	-	-	(0.007)*	-	-	(0.000)*
Share of short-term funding (t-1)	-	-	-	0.253	-	0.302
	-	-	-	(0.007)*	-	(0.002)*
Share of funding in foriegn currency (t-1)	-	-	-	-0.154	-	-
	-	-	-	(0.101)	-	-
Return on assets (t-1)	-	-	-	-	3.896	2.563
	-	-	-	-	(0.075)*	(0.231)
Interaction between MP stance and BSC						
ln (Total assets) (t-1) *Δi(t-1)	-0.001	-	-	-	-	0.005
	(0.706)	-	-	-	-	(0.402)
Bank capital ratio (t-1) *Δi(t-1)	0.153	-	-	-	-	0.296
	(0.015)*	-	-	-	-	(0.002)*
Bank liquidity ratio (t-1) *Δi(t-1)	-0.037	-	-	-	-	-
	(0.511)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1) *Δi(t-1)	-	0.118	-	-	-	0.432
	-	(0.736)	-	-	-	(0.220)
Share of net fees and comission income (t-1) *Δi(t-1)	-	-	-0.076	-	-	-
	-	-	(0.361)	-	-	-
Share of trading income (t-1) *Δi(t-1)	-	-	-0.041	-	-	-
	-	-	(0.318)	-	-	-
Retail loans as a share of total loans (t-1) *Δi(t-1)	-	-	-0.025	-	-	-0.046
	-	-	(0.353)	-	-	(0.250)
Share of short-term funding (t-1) *Δi(t-1)	-	-	-	0.101	-	0.044
	-	-	-	(0.267)	-	(0.620)
Share of funding in foriegn currency (t-1) *Δi(t-1)	-	-	-	0.055	-	-
	-	-	-	(0.440)	-	-
Return on assets (t-1) *Δi(t-1)	-	-	-	-	0.335	-0.176
	-	-	-	-	(0.874)	(0.908)
Number of debtors	104 109	104 109	104 109	104 109	104 109	104 109
Number of banks	36	36	36	36	36	36
Observations	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902
R-squared	0.414	0.414	0.414	0.414	0.414	0.414
Adjusted R-squared	0.062	0.062	0.062	0.062	0.062	0.062

Note: (1) Main indicators, (2) Risk profile, (3) Revenue mix, (4) Funding, (5) Profitability, (6) All, p < 0.1

Source: Own elaboration based on SBIF data.

Table 4: Credit Supply and Commodity Prices

△ Log credit	(1)	(2)	(3)	(4)	(5)	(6)
Bank-specifc characteristics						
ln (Total assets) (t-1)	-0.031	-	-	-	-	-
	(0.111)	-	-	-	-	-
Bank capital ratio (t-1)	0.089	-	-	-	-	-
	(0.604)	-	-	-	-	-
Bank liquidity ratio (t-1)	0.008	-	-	-	-	-
	(0.929)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1)	-	-1.301	-	-	-	-1.632
	-	(0.021)*	-	-	-	(0.001)*
Share of net fees and comission income (t-1)	-	-	-0.231	-	-	-
	-	-	(0.207)	-	-	-
Share of trading income (t-1)	-	-	0.030	-	-	-
	-	-	(0.412)	-	-	-
Retail loans as a share of total loans (t-1)	-	-	0.208	-	-	0.236
	-	-	(0.002)*	-	-	(0.000)*
Share of short-term funding (t-1)	-	-	-	0.272	-	0.339
	-	-	-	(0.001)*	-	(0.000)*
Share of funding in foriegn currency (t-1)	-	-	-	-0.184	-	-0.088
	-	-	-	(0.032)*	-	(0.342)
Return on assets (t-1)	-	-	-	-	2.722	1.695
	-	-	-	-	(0.205)	(0.401)
Interaction between global factor and BSC						
ln (Total assets) (t-1) *C	0.000	-	-	-	-	-
	(0.620)	-	-	-	-	-
Bank capital ratio (t-1) *C	0.009	-	-	-	-	-
	(0.108)	-	-	-	-	-
Bank liquidity ratio (t-1) *C	-0.001	-	-	-	-	-
	(0.651)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1) *C	-	-0.005	-	-	-	0.018
	-	(0.735)	-	-	-	(0.182)
Share of net fees and comission income (t-1) *C	-	-	0.003	-	-	-
	-	-	(0.435)	-	-	-
Share of trading income (t-1) *C	-	-	-0.001	-	-	-
	-	-	(0.634)	-	-	-
Retail loans as a share of total loans (t-1) *C	-	-	-0.002	-	-	-0.002
	-	-	(0.072)*	-	-	(0.015)*
Share of short-term funding (t-1) *C	-	-	-	0.002	-	0.001
	-	-	-	(0.365)	-	(0.779)
Share of funding in foriegn currency (t-1) *C	-	-	-	0.005	-	0.003
	-	-	-	(0.081)*	-	(0.069)*
Return on assets (t-1) *C	-	-	-	-	0.112	0.106
	-	-	-	-	(0.036)*	(0.011)*
Number of debtors	104 109	104 109	104 109	104 109	104 109	104 109
Number of banks	36	36	36	36	36	36
Observations	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902
R-squared	0,414	0,414	0,414	0,414	0,414	0,415
Adjusted R-squared	0,062	0,062	0,062	0,062	0,062	0,062

Note: (1) Main indicators, (2) Risk profile, (3) Revenue mix, (4) Funding, (5) Profitability, (6) All, $p < 0.1$

Source: Own elaboration based on SBIF data.

Table 5: Credit Supply and Banco Estado

Δ Log credit	(1)	(2)	(3)	(4)	(5)	(6)
Bank-specific characteristics						
ln (Total assets) (t-1)	-0.031	-	-	-	-	-
	(0.100)					
Bank capital ratio (t-1)	0.141	-	-	-	-	-
	(0.427)					
Bank liquidity ratio (t-1)	0.009	-	-	-	-	-
	(0.927)					
Loan-loss provisions as a share of total loans (t-1)	-	-1.405	-	-	-	-1.870
		(0.027)*				(0.000)*
Share of net fees and comission income (t-1)	-	-	-0.302	-	-	-0.289
			(0.075)*			(0.067)*
Share of trading income (t-1)	-	-	0.020	-	-	-
			(0.631)			
Retail loans as a share of total loans (t-1)	-	-	0.208	-	-	0.242
			(0.001)*			(0.000)*
Share of short-term funding (t-1)	-	-	-	0.256	-	0.316
				(0.006)*		(0.000)*
Share of funding in foriegn currency (t-1)	-	-	-	-0.172	-	-0.094
				(0.075)*		(0.334)
Return on assets (t-1)	-	-	-	-	3.095	-
					(0.165)	
Number of debtors	104 109	104 109	104 109	104 109	104 109	104 109
Number of banks	35	35	35	35	35	35
Observations	4 342 815	4 342 815	4 342 815	4 342 815	4 342 815	4 342 815
R-squared	0.438	0.438	0.438	0.438	0.438	0.438
Adjusted R-squared	0.062	0.062	0.062	0.062	0.062	0.062

Note: (1) Main indicators, (2) Risk profile, (3) Revenue mix, (4) Funding, (5) Profitability, (6) All, $p < 0.1$

Source: Own elaboration based on SBIF data.

Table 6: Credit Supply and Global Financial Uncertainty

△ Log credit	(1)	(2)	(3)	(4)	(5)	(6)
Bank-specifc characteristics						
ln (Total assets) (t-1)	-0.041	-	-	-	-	-0.027
	(0.055)*	-	-	-	-	(0.268)
Bank capital ratio (t-1)	0.258	-	-	-	-	-
	(0.418)	-	-	-	-	-
Bank liquidity ratio (t-1)	0.076	-	-	-	-	-
	(0.460)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1)	-	0.438	-	-	-	0.407
	-	(0.556)	-	-	-	(0.709)
Share of net fees and comission income (t-1)	-	-	-0.567	-	-	-0.767
	-	-	(0.020)*	-	-	(0.053)*
Share of trading income (t-1)	-	-	0.021	-	-	-
	-	-	(0.869)	-	-	-
Retail loans as a share of total loans (t-1)	-	-	0.232	-	-	0.183
	-	-	(0.021)*	-	-	(0.007)*
Share of short-term funding (t-1)	-	-	-	-0.001	-	-
	-	-	-	(0.995)	-	-
Share of funding in foriegn currency (t-1)	-	-	-	-0.174	-	-
	-	-	-	(0.255)	-	-
Return on assets (t-1)	-	-	-	-	1.448	-
	-	-	-	-	(0.742)	-
Interaction between global factor and BSC						
ln (Total assets) (t-1) *C	0.000	-	-	-	-	-0.000
	(0.411)	-	-	-	-	(0.610)
Bank capital ratio (t-1) *C	-0.005	-	-	-	-	-
	(0.742)	-	-	-	-	-
Bank liquidity ratio (t-1) *C	-0.004	-	-	-	-	-
	(0.372)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1) *C	-	-0.080	-	-	-	-0.088
	-	(0.001)*	-	-	-	(0.015)*
Share of net fees and comission income (t-1) *C	-	-	0.018	-	-	0.025
	-	-	(0.122)	-	-	(0.193)
Share of trading income (t-1) *C	-	-	0.001	-	-	-
	-	-	(0.899)	-	-	-
Retail loans as a share of total loans (t-1) *C	-	-	-0.002	-	-	-0.000
	-	-	(0.432)	-	-	(0.931)
Share of short-term funding (t-1)*C	-	-	-	0.014	-	-
	-	-	-	(0.161)	-	-
Share of funding in foriegn currency (t-1) *C	-	-	-	0.000	-	-
	-	-	-	(0.968)	-	-
Return on assets (t-1) *C	-	-	-	-	0.108	-
	-	-	-	-	(0.523)	-
Number of debtors	104 109	104 109	104 109	104 109	104 109	104 109
Number of banks	36	36	36	36	36	36
Observations	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902
R-squared	0.414	0.414	0.414	0.414	0.414	0.414
Adjusted R-squared	0.062	0.062	0.062	0.062	0.062	0.062

Note: (1) Main indicators, (2) Risk profile, (3) Revenue mix, (4) Funding, (5) Profitability, (6) All, p < 0.1

Source: Own elaboration based on SBIF data.

Table 7: Credit Supply and Global Liquidity

△ Log credit	(1)	(2)	(3)	(4)	(5)	(6)
Bank-specifc characteristics						
ln (Total assets) (t-1)	-0.033	-	-	-	-	-0.023
	(0.064)*	-	-	-	-	(0.271)
Bank capital ratio (t-1)	0.013	-	-	-	-	0.109
	(0.943)	-	-	-	-	(0.458)
Bank liquidity ratio (t-1)	-0.049	-	-	-	-	-
	(0.618)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1)	-	-1.434	-	-	-	-1.839
	-	(0.023)*	-	-	-	(0.001)*
Share of net fees and comission income (t-1)	-	-	-0.163	-	-	-
	-	-	(0.422)	-	-	-
Share of trading income (t-1)	-	-	0.043	-	-	-
	-	-	(0.363)	-	-	-
Retail loans as a share of total loans (t-1)	-	-	0.168	-	-	0.191
	-	-	(0.024)*	-	-	(0.027)*
Share of short-term funding (t-1)	-	-	-	0.257	-	0.301
	-	-	-	(0.004)*	-	(0.002)*
Share of funding in foriegn currency (t-1)	-	-	-	-0.199	-	-0.102
	-	-	-	(0.029)*	-	(0.353)
Return on assets (t-1)	-	-	-	-	3.861	3.009
	-	-	-	-	(0.093)*	(0.256)
Interaction between global factor and BSC						
ln (Total assets) (t-1) *C	0.001	-	-	-	-	0.000
	(0.170)	-	-	-	-	(0.872)
Bank capital ratio (t-1) *C	0.101	-	-	-	-	0.027
	(0.048)*	-	-	-	-	(0.667)
Loan-loss provisions as a share of total loans (t-1) *C	-	0.163	-	-	-	0.230
	-	(0.181)	-	-	-	(0.095)*
Share of net fees and comission income (t-1) *C	-	-	-0.033	-	-	-
	-	-	(0.452)	-	-	-
Share of trading income (t-1) *C	-	-	-0.003	-	-	-
	-	-	(0.871)	-	-	-
Retail loans as a share of total loans (t-1) *C	-	-	0.010	-	-	-0.007
	-	-	(0.246)	-	-	(0.645)
Share of short-term funding (t-1) *C	-	-	-	0.026	-	-0.002
	-	-	-	(0.349)	-	(0.937)
Share of funding in foriegn currency (t-1) *C	-	-	-	0.039	-	0.029
	-	-	-	(0.034)*	-	(0.090)*
Return on assets (t-1) *C	-	-	-	-	0.021	-0.375
	-	-	-	-	(0.964)	(0.602)
Number of debtors	104 109	104 109	104 109	104 109	104 109	104 109
Number of banks	36	36	36	36	36	36
Observations	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902
R-squared	0.414	0.414	0.414	0.414	0.414	0.414
Adjusted R-squared	0.062	0.062	0.062	0.062	0.062	0.062

Note: (1) Main indicators, (2) Risk profile, (3) Revenue mix, (4) Funding, (5) Profitability, (6) All, p < 0.1

Source: Own elaboration based on SBIF data.

Table 8: Credit Supply and Economic Policy Uncertainty

△ Log credit	(1)	(2)	(3)	(4)	(5)	(6)
Bank-specifc characteristics						
ln (Total assets) (t-1)	-0.018	-	-	-	-	-
	(0.309)	-	-	-	-	-
Bank capital ratio (t-1)	0.965	-	-	-	-	0.455
	(0.008)*	-	-	-	-	(0.123)
Bank liquidity ratio (t-1)	0.253	-	-	-	-	0.165
	(0.069)*	-	-	-	-	(0.194)
Loan-loss provisions as a share of total loans (t-1)	-	-0.555	-	-	-	-
	-	(0.618)	-	-	-	-
Share of net fees and comission income (t-1)	-	-	-0.539	-	-	-0.476
	-	-	(0.052)*	-	-	(0.057)*
Share of trading income (t-1)	-	-	-0.142	-	-	-0.133
	-	-	(0.240)	-	-	(0.200)
Retail loans as a share of total loans (t-1)	-	-	0.208	-	-	0.193
	-	-	(0.011)*	-	-	(0.022)*
Share of short-term funding (t-1)	-	-	-	0.215	-	-
	-	-	-	(0.393)	-	-
Share of funding in foriegn currency (t-1)	-	-	-	0.143	-	0.204
	-	-	-	(0.466)	-	(0.356)
Return on assets (t-1)	-	-	-	-	0.491	-
	-	-	-	-	(0.928)	-
Interaction between global factor and BSC						
ln (Total assets) (t-1) *C	-0.000	-	-	-	-	-
	(0.414)	-	-	-	-	-
Bank capital ratio (t-1) *C	-0.007	-	-	-	-	-0.003
	(0.003)*	-	-	-	-	(0.235)
Bank liquidity ratio (t-1) *C	-0.002	-	-	-	-	-0.001
	(0.012)*	-	-	-	-	(0.097)*
Loan-loss provisions as a share of total loans (t-1) *C	-	-0.006	-	-	-	-
	-	(0.478)	-	-	-	-
Share of net fees and comission income (t-1) *C	-	-	0.003	-	-	0.003
	-	-	(0.109)	-	-	(0.027)*
Share of trading income (t-1) *C	-	-	0.002	-	-	0.002
	-	-	(0.095)*	-	-	(0.077)*
Retail loans as a share of total loans (t-1) *C	-	-	-0.000	-	-	-0.000
	-	-	(0.635)	-	-	(0.426)
Share of short-term funding (t-1) *C	-	-	-	0.000	-	-
	-	-	-	(0.857)	-	-
Share of funding in foriegn currency (t-1) *C	-	-	-	-0.003	-	-0.003
	-	-	-	(0.062)*	-	(0.096)*
Return on assets (t-1) *C	-	-	-	-	0.032	-
	-	-	-	-	(0.438)	-
Number of debtors	104 109	104 109	104 109	104 109	104 109	104 109
Number of banks	36	36	36	36	36	36
Observations	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902
R-squared	0.414	0.414	0.414	0.414	0.414	0.414
Adjusted R-squared	0.062	0.062	0.062	0.062	0.062	0.062

Note: (1) Main indicators, (2) Risk profile, (3) Revenue mix, (4) Funding, (5) Profitability, (6) All, $p < 0.1$

Source: Own elaboration based on SBIF data.

Table 9: Credit Supply and Global Financial Crisis

△ Log credit	(1)	(2)	(3)	(4)	(5)	(6)
Bank-specific characteristics						
ln (Total assets) (t-1)	-0.040	-	-	-	-	-0.026
	(0.035)*	-	-	-	-	(0.298)
Bank capital ratio (t-1)	0.212	-	-	-	-	-
	(0.225)	-	-	-	-	-
Bank liquidity ratio (t-1)	0.020	-	-	-	-	-
	(0.819)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1)	-	-1.211	-	-	-	-1.638
	-	(0.029)*	-	-	-	(0.001)*
Share of net fees and comission income (t-1)	-	-	-0.243	-	-	-0.273
	-	-	(0.185)	-	-	(0.145)
Share of trading income (t-1)	-	-	0.028	-	-	-
	-	-	(0.499)	-	-	-
Retail loans as a share of total loans (t-1)	-	-	0.172	-	-	0.185
	-	-	(0.019)*	-	-	(0.009)*
Share of short-term funding (t-1)	-	-	-	0.270	-	0.280
	-	-	-	(0.004)*	-	(0.004)*
Share of funding in foriegn currency (t-1)	-	-	-	-0.162	-	-0.056
	-	-	-	(0.091)*	-	(0.609)
Return on assets (t-1)	-	-	-	-	3.524	-
	-	-	-	-	(0.145)	-
Interaction between global factor and BSC						
ln (Total assets) (t-1) *C	0.019	-	-	-	-	0.004
	(0.000)*	-	-	-	-	(0.670)
Bank capital ratio (t-1) *C	-0.199	-	-	-	-	-
	(0.575)	-	-	-	-	-
Bank liquidity ratio (t-1) *C	-0.014	-	-	-	-	-
	(0.886)	-	-	-	-	-
Loan-loss provisions as a share of total loans (t-1) *C	-	-0.944	-	-	-	-0.953
	-	(0.364)	-	-	-	(0.378)
Share of net fees and comission income (t-1) *C	-	-	0.358	-	-	0.218
	-	-	(0.008)*	-	-	(0.106)
Share of trading income (t-1) *C	-	-	0.081	-	-	-
	-	-	(0.410)	-	-	-
Retail loans as a share of total loans (t-1) *C	-	-	0.048	-	-	-0.006
	-	-	(0.346)	-	-	(0.907)
Share of short-term funding (t-1) *C	-	-	-	-0.050	-	-0.175
	-	-	-	(0.819)	-	(0.377)
Share of funding in foriegn currency (t-1) *C	-	-	-	0.062	-	-0.136
	-	-	-	(0.751)	-	(0.337)
Return on assets (t-1) *C	-	-	-	-	2.536	-
	-	-	-	-	(0.439)	-
Number of debtors	104 109	104 109	104 109	104 109	104 109	104 109
Number of banks	36	36	36	36	36	36
Observations	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902	4 629 902
R-squared	0.414	0.414	0.414	0.414	0.414	0.414
Adjusted R-squared	0.062	0.062	0.062	0.062	0.062	0.062

Note: (1) Main indicators, (2) Risk profile, (3) Revenue mix, (4) Funding, (5) Profitability, (6) All, p < 0.1
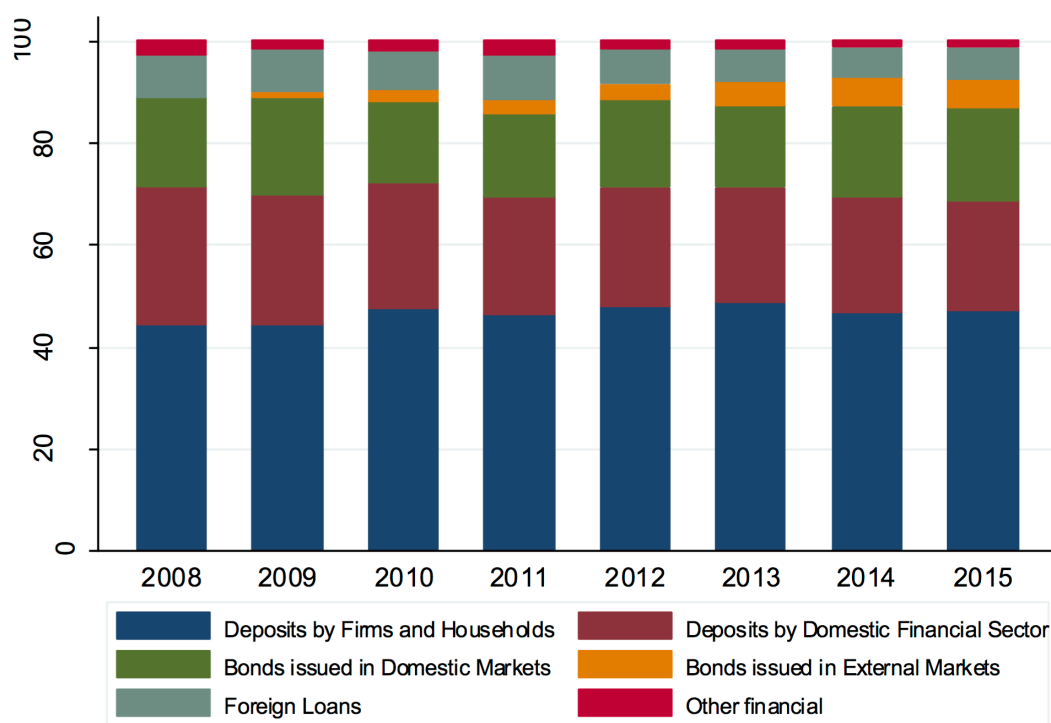
Source: Own elaboration based on SBIF data.
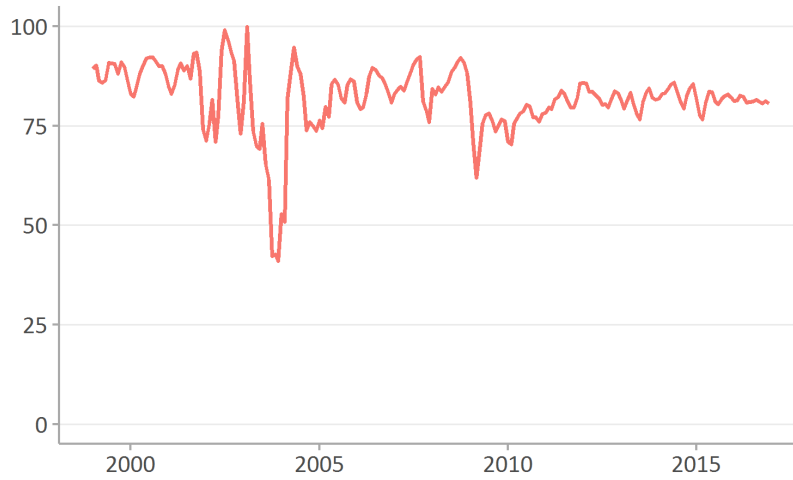
Figures

Figure 1: Assets by institution, billions of USD
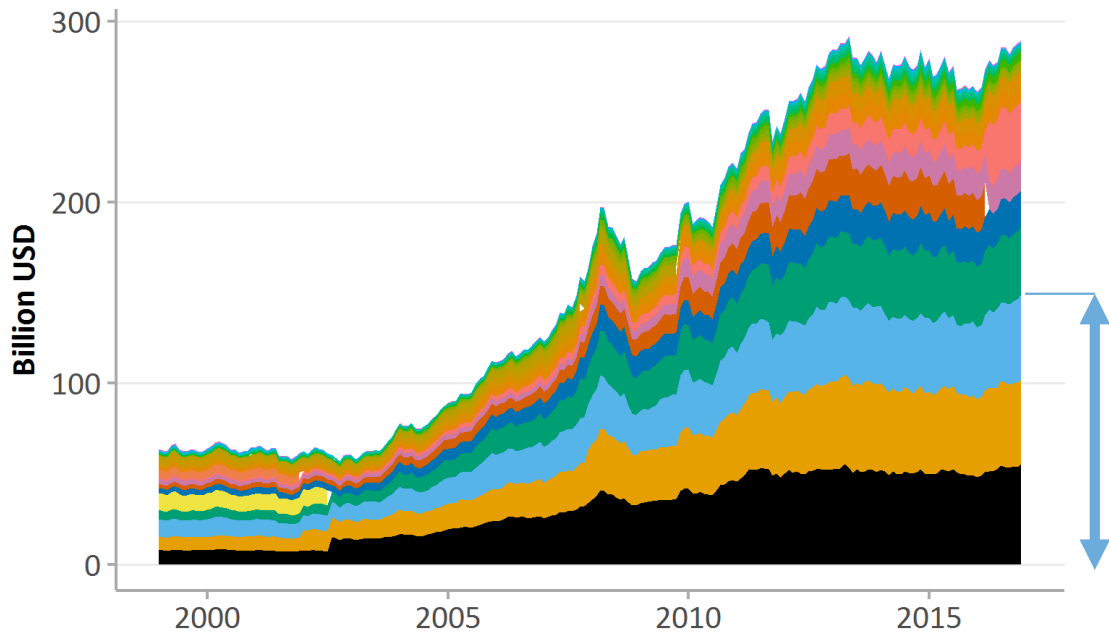
Source: Own elaboration based on SBIF data.

Figure 2: Composition of liabilities in the Chilean banking system, percentage

Legend:
- Deposits by Firms and Households
- Deposits by Domestic Financial Sector
- Bonds issued in Domestic Markets
- Bonds issued in External Markets
- Foreign Loans
- Other financial

Source: Alegría et al. (2017)

Figure 3: Share of interest income in total revenue, percentage

Figure 4: Composition of bonds by currency, percentage
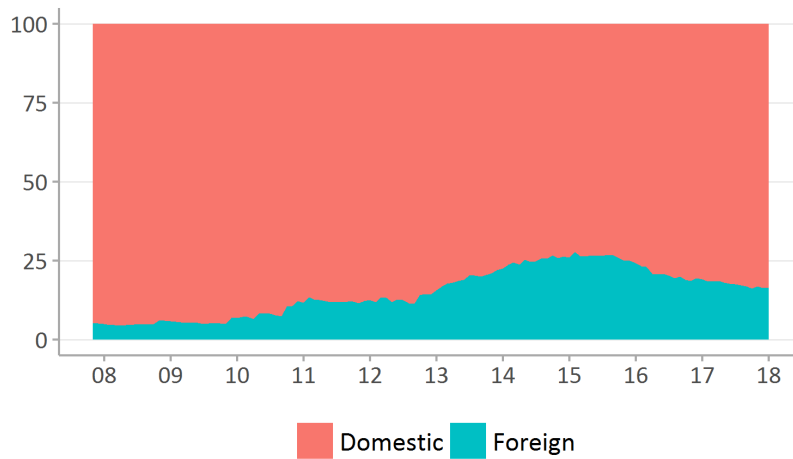
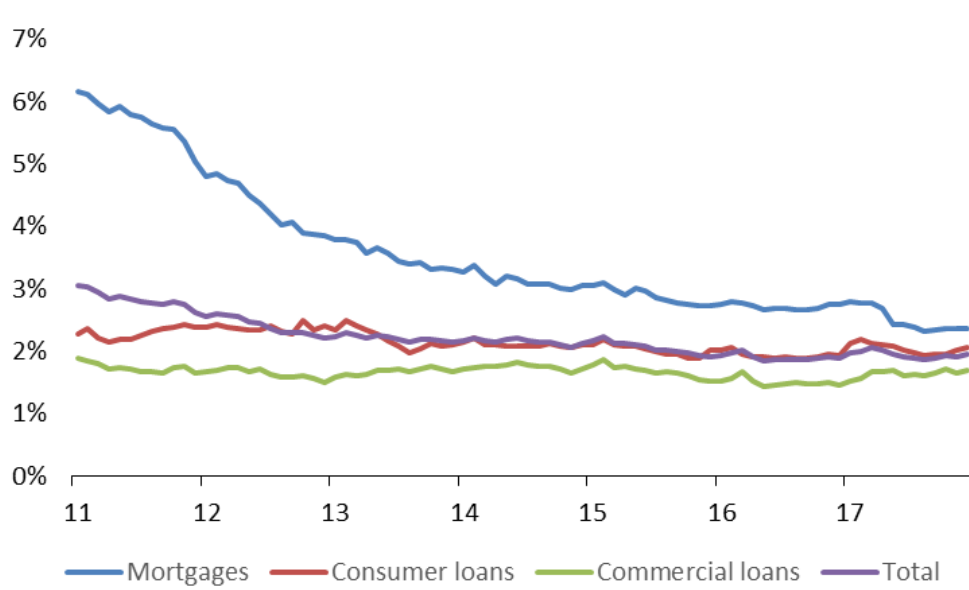Figure 5: Debt stock composition, percentage
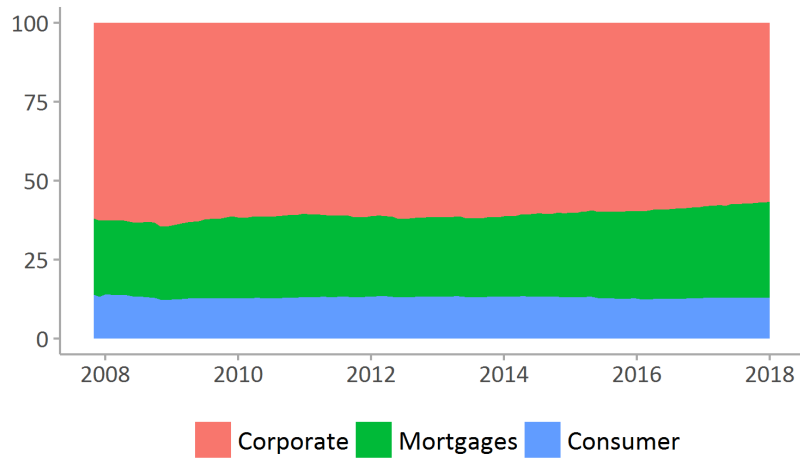
Source: Own elaboration based on SBIF data.

Figure 6: Real annual growth rate of the stock of debt, percentage
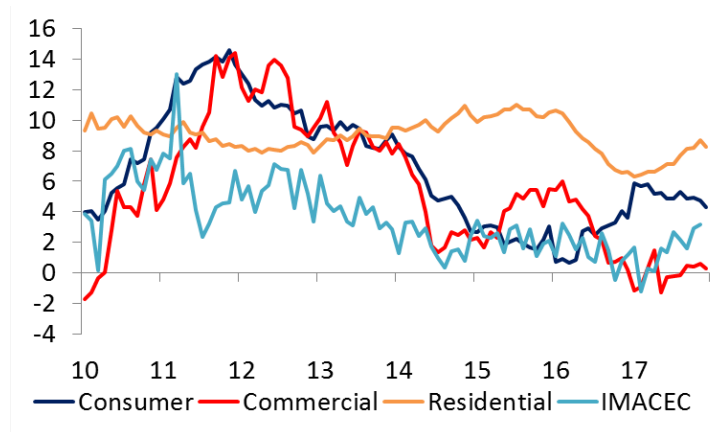
Source: Own elaboration based on SBIF data.

Figure 7: Default rate by type of loan, percentage

Source: Own elaboration based on SBIF data.