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The impact of Government-driven loans in the Monetary Tramsmission Mechanism: what can we learn from firm level data?

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Abstract

Government-driven credit had been expanding in Brazil since the financial crisis of 2007/2008, reaching almost half of the total credit in 2012. While this large participation may buffer the banking system from external shocks, it undoubtedly affects the transmission of monetary policy. Using a huge repository of corporate loan contracts, composing an unbalanced panel of almost 300,000 non-financial firms between 2006 and 2012, this paper investigates its impact on the monetary transmission mechanism. Our results show that the credit channel of monetary policy is less effective for firms with government-driven loans access. This effect is shown in the smaller variation both in the total amount of loans and in the lending rate charged by private banks on free loan market. Merging loans database with employment data from RAIS, we also investigate the effects of monetary policy rate on employment. Our results indicate that changes in policy rate have smaller effect on the level of employment for firms with more access to earmarked and government-owned banks loans. Additionally, we examine whether firms with larger fraction of government-driven loans are better able to insulate themselves from the effects of external shocks, with resulting attenuated impact of those shocks on loans growth, interest rate on private loans and employment growth. The evidence we found confirms this hypothesis.

Keywords: monetary transmission, credit channel, bank ownership, earmarked loans

JEL Classification: E51, E52, G21, H81

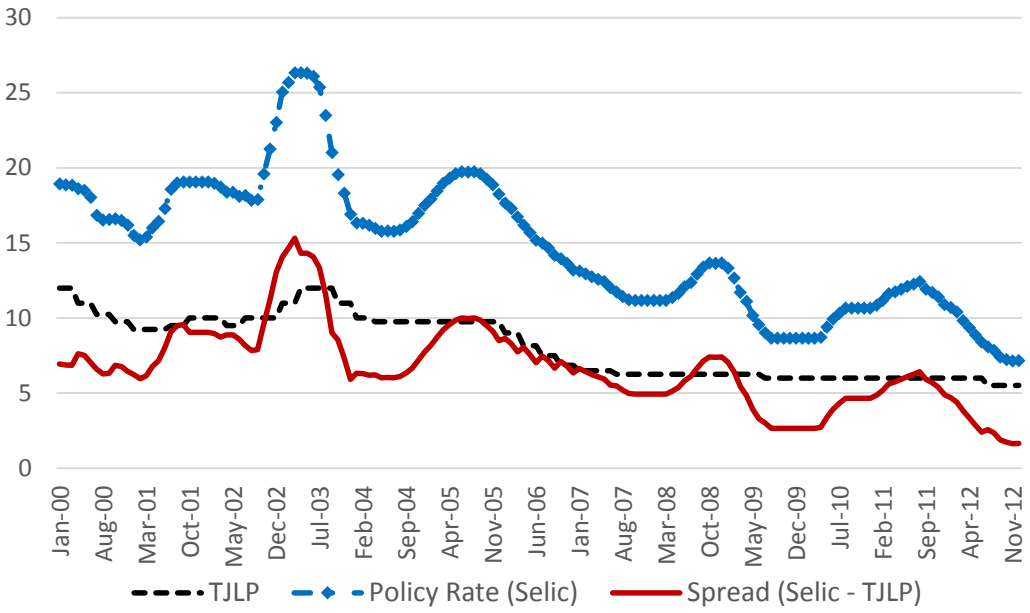
1. Introduction

Government-driven credit expansion had an important role in countervailing the non-earmarked private credit crunch in Brazil triggered by the international financial crisis in 2007/2008. However, earmarked and government-owned banks credit concessions have not receded after the crisis, but continued to expand reaching much higher levels than the ones prevailing before the crisis (47.66% of the total credit in December 2012, as compared to 34.27% in September 2008). If this large participation of government-driven loans tends to insulate the economy from external shocks, it raises concerns that it negatively affects the transmission of monetary policy for several reasons.

First, the insensitiveness of the earmarked loans rate to changes in the monetary policy rate should also imply low responsiveness of average loans rate to interest rate policy. Figure 1 shows the evolution of policy rate (SELIC) and its difference from the rate used in most of earmarked corporate loans (the long-term interest rate - TJLP). Second, as pointed out by La Porta et al. (2002) and Sapienza (2004), since government-owned banks are not as profit-oriented, their loans may not be entirely linked with its funding costs and with firm's balance sheet as well. Additionally, explicit public guarantee eliminates market discipline towards government-owned banks, altering their incentives to take risks and generating resources misallocation in the banking industry[1]. Moreover, the equilibrium response of lending to monetary policy may also be affected by how competition moves relationship banking, where competition with outside lenders may result in the reallocation of credit among the bank's borrowers.

[1] Implicit public guarantee associated with TBTF (Too Big to Fail) banks may also distort market discipline (see Stern and Feldman, 2009).

Figure 1: Policy RAte (SELIC) vs Long-term Interest Rate (TJLP)



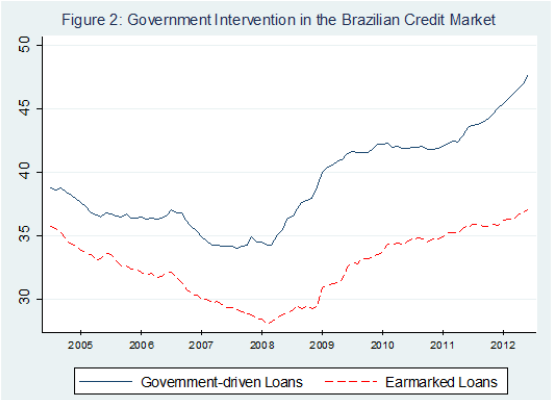
Source: BCB

This paper investigates the impact of government-driven loans on the monetary transmission mechanism using a huge repository of corporate loan contracts, composing an unbalanced panel of almost 300,000 non-financial firms between 2006 and 2012 from the Brazilian Public Credit Register[2]. Employment data from RAIS (Social Information Annual Report)[3] was also matched with this data set. Thus, it enables us to investigate, through panel regressions at firm level, the impact of earmarked and government-owned bank loans access in the transmission of monetary policy rate to loans, lending rates and employment. We also examine whether government-driven loans attenuate the transmission of external shocks (as proxied by shocks to Brazilian CDS) through the banking system.

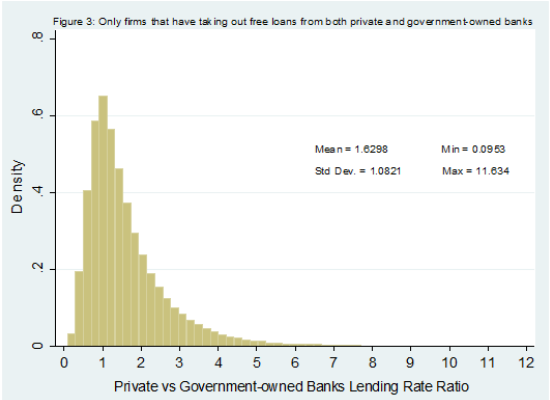
[2] A confidential loan level database, protected by Brazilian banking privacy law, provides detailed information on all loans granted after January 2004, such as loan amount, loan maturity, interest rates and default rates. However it contains little borrower level information.

[3] All employers in Brazil are required to report annually information about their employees (RAIS) to the Ministry of Labor.

Government intervention in the credit market in Brazil is done through government-owned banks and earmarked loans (see Figure 2). Firms may receive earmarked loans through programs designed to stimulate investment, exports or agriculture, among others. Those loans are either directly granted by government-owned banks or channeled through private banks. Earmarked loans for investment and exports are either granted directly by the Brazilian National Development Bank (BNDES) or channeled to commercial banks, which select their recipients. Agricultural credit is financed mainly by Banco do Brasil (a government-owned commercial bank)[4]. Interest rates charged on those loans are regulated and are substantially lower than those charged in the non-regulated loans market[5]. Government-owned banks also participate in the non-regulated loans market, but, on average, charge lower rates than their private competitors. This is documented in Figure 3, which shows the distribution of the ratio between the average interest rate paid by each firm on free market loans from private and government-owned banks [6].



Source: BCB (SCR)



Source: BCB (SCR)

4 Another large government-owned commercial bank, Caixa Econômica Federal, is the main operator of the mortgage system, where borrowers are individuals.

5 Lundberg (2011) provides a detailed account of the earmarked credit programs in Brazil.

6 The statistics is calculated for firms that borrowed in the free market from both types of banks in the same year. We exclude negative spreads (lending rate minus SELIC rate) and spreads greater than 80% to eliminate outliers.

We start by investigating whether the transmission of policy rate to loan growth rate, the interest rates charged by private banks, and to the employment growth rate of employment are attenuated by the access of firms to earmarked and government-owned banks loans[7]. We found that, for a firm without access to government-driven loans, a 1% increase in policy rate reduces the growth rate of loans to this firm by 3%. The effect would be lower by one third for firms whose all bank loans are government driven[8].

Regarding the non-regulated private loans market, our results show that earmarked loans seem to affect the monetary transmission mechanism mainly through its effect on private loans rates. While a 1% increase in policy rate is associated with a 1.15% interest rate increase for private loans to a firm with no access to earmarked loans, this effect is reduced to 0.89% for a firm where the participation of earmarked loans on its total loan debt is 50%.

Another way to assess the role of government-driven credit on monetary transmission is to look at the impact on employment. Of course, the effect of monetary policy rate on a firm's employment does not necessarily reflect its transmission through the credit markets. However, after controlling for several observable risk factors and unobservable firms' fixed effects, the differential impact for firms with government-driven credit access is likely to be related to this channel. A 1% increase in policy rate (SELIC rate) reduces the employees' growth rate for a firm without earmarked or government-owned bank loans by almost 1.2%. This effect is reduced to less than by almost 50 bps for a firm with only earmarked loans (the reduction is smaller, 22 bps for firms with government driven loans - be it earmarked or granted by government-owned public banks). Those results suggest that the credit channel is very important for the transmission of monetary policy to employment. When we repeat the analysis

[7] In our panel estimation we take into account fixed and time-varying demand effects.
[8] Based on firm level annual panels, where the cross-sectional differences between firms play an important role, our database does not allow us to be precise about the timing of the transmission mechanism.

splitting the sample according to the number of employees of the firm, we notice that policy rate has no effect for very large firms (above 500 employees), and that the effect is maximal for intermediate firms, with 10 to 50 employees.

Then we test whether government-driven loans have the beneficial effect of attenuating external shocks, by running similar panel regressions, substituting the Brazilian CDS for the SELIC rate. Although the CDS rate proxies for Brazilian sovereign risk,[9] it is negotiated at international markets and reflects both the degree of risk aversion of international markets as their assessment of the Brazilian sovereign risk. Thus, an increase in the CDS rate tends to be associated to an outflow of resources from the Brazilian financial system. Therefore, the evaluation of a CDS shock constitutes an interesting parallel analysis to that of the internal liquidity reduction associated with an increase in the policy rate.

An increase by 100% in log of CDS rate reduces in 14% the growth rate of credit for a firm without access to government driven loans, with an even larger impact on private loans. The access to earmarked loans is related to a smaller impact from the external shock, since the total credit contraction is reduced to 9.2% for a firm with only earmarked loans, with an even larger impact on private loans[10]. We also measured the effects on the employment, finding that a 100% increase in the CDS rate is associated with reduction of the employment growth rate by 5.2%. This effect is importantly attenuated by access to government driven credit: for a firm with only earmarked loans the effect on the employment growth rate is reduced by 3.8%. When the sample is split according to the number of employees, the pattern is similar to the one obtained for the policy rate effect. The effect initially increases with size, achieving a maximum

[9] Since the risk of Brazilian firms maybe correlated to the sovereign risk, one may worry about the exogeneity of the CDS shock. Notice, however that we reestimate all regressions controlling for the individual firm risk, which should attenuate this problem.

[10] For a firm with 50% of earmarked loans the effect on private loans is reduced in magnitude from -14% to -4%.

for firms with a range from 10 to 50 employees and then decreases. There is no significant direct effect of CDS rates on employment for large firms.

Finally, we pursue the question of whether monetary policy has distributive effects on credit and employment among sectors, and how access to earmarked and government-owned banks loans alters those distributive effects. In order to do that, we classify our firms in 10 sectors: education, energy, extractive, rural, basic sanitation, health, retail, construction, manufacturing and services. We conclude that monetary policy tends to affect most sectors in a homogenous way, with the insensitivity of the energy sector being the clearest exception. However, access to government-driven loans tend reduce the monetary policy impact in 5 of the 9 affected sectors, thus making turning its effect more heterogeneous. Our results do not take into account that earmarked loans are unevenly distributed among sectors, which should contribute to further increase the unequal distribution of the monetary policy effect among sectors.

Our results provide a novel evidence of the bank lending channel (Bernanke and Gertler 1995, Kashyap and Stein 1997, Kishan and Opiela 2000): that monetary policy transmission is less effective on firms that rely more on government-driven loans. Although we do not use any bank accounting data, as is common in the empirical literature (e.g. Kashyap and Stein, 2000, Kishan and Opiela 2000, Gambacorta 2005), the findings that firms' access to more stable source of bank loans reduces the impact of policy rates on loans (amount and price) is indicative of the mechanism underlying the bank-lending channel. We also provide evidence that firms' employment growth is importantly affected, which implies that they cannot easily replace the

lost loans with other substitute source of funds.[1112] Moreover, we account for demand movements through a set of time-varying observable controls and firm fixed-effects. In order to address concerns that some unobserved firm heterogeneity could still be captured by the access to government-driven loans, we perform a robustness test redoing our empirical exercises for a subsample of firms that had access to government-driven loans at least for some subperiod of our sample. Our main findings remain unaltered. Hence, by introducing a novel source of heterogeneity in credit supply, while controlling for determinants of demand, we bring additional evidence for the bank-lending channel of monetary policy transmission.

Our paper, therefore, also relates to the literature of bank lending channel in Brazil. Of course, one condition for the relevance of bank lending channel in a country is the importance of the bank intermediation. Since the banking credit penetration increased substantially in the recent period[13], the importance of this type of transmission may have changed over time. While earlier studies found no evidence for the bank lending channel in Brazil (Graminho and Bonomo, 2002, and Takeda et al. 2005), more recent studies uncovered support for this channel (de Oliveira and Neto 2008, Coelho et al. 2010, Ramos-Lousada 2015).

Our conclusion that government-owned banks loans are less responsive to monetary shocks than private banks loans is akin to the findings that foreign banks loans are also less responsive than domestic banks loans (Ashcraft 2006, Gambacorta 2005, Cetorelli and Goldberg 2008, Wu et al. 2011). However, while the reduced responsiveness of foreign banks is likely to be mainly related to their greater capacity of deploying alternative sources of finance,

[11] Most empirical studies of the bank-lending channel look for evidence that banks cannot easily substitute lost funds when there is a monetary contraction. However, the effectiveness of this channel requires that the recipients of loans cannot easily find substitute source of funds.

[12] Chodorow-Reich (2014) shows that banking relationship implies a cost of switching lenders. Thus firms that had pre-crisis relationships with less healthy lenders were more adversely affected during the 2008-9 financial crisis, reducing more their employment level.

13 Banking credit over GDP increased from 25% in 2003 to around 55% in 2013.

incentive issues related to government ownership should play a prominent role in explaining the differential loan responsiveness of government-owned banks loans (La Porta et al., 2002). Agency costs within government bureaucracy result in imperfect competition for government-driven loans, where firms cannot costless substitute private loans for earmarked or non-earmarked loans granted by government-owned banks. Our results, and in particular the real effects unveiled in the employment regressions, are in accordance to this view. They are also consonant with the existence of non-as-profit oriented banks, as in political view literature (as in Sapienza, 2004, Claessens et al. 2008, Carvalho 2014). A consequence of it is that the competitive advantages entailed by firms with access to government-driven results in misallocation of funds and asymmetric transmission of monetary policy through the credit channel.

The rest of the paper is organized as follows. The next section describes the data set and depicts some summary statistics. The third section presents the empirical methodology. Results are displayed and analyzed in the fourth section. The last section concludes.

2. Database and Summary Statistics

We make use of a huge repository of corporate loan contracts coming from the Brazilian Public Credit Register[14] (SCR - Credit Information System), a confidential loan level database protected by Brazilian banking privacy law, owned and managed by Central Bank of Brazil[15]. It provides detailed information on all loans granted after January 2004, such as loan amount,

[14] It register all loans above R$5,000 (around U$1,250). The reporting threshold was lowered in January 2012 and is currently R$1000 (around U$ 250).
[15] The collection and manipulation of individual bank agency data were conducted exclusively by the staff of the Central Bank of Brazil

loan maturity, interest rate and default rates. However, it contains little borrower-level information[16], so that we cannot appropriately control for the multifaceted aspects of borrowers' creditworthiness, neither relate a loan to the possible borrowers' actions it could induce. The number of employees of Brazilian firms from 2006 to 2012 was collected from RAIS (Annual Social Information Report) and merged into the SCR dataset.

Our database brings information on firms' total bank debt, disaggregated by the type of loan, earmarked and non-earmarked, and also by the lenders' ownership. Thus, we build two measures of firms' government-driven credit access: (1) the proportion of bank debt originated from earmarked rules, including BNDES loans and those granted by private banks, called "earmarked loans", and (2) the proportion of "government-driven" loans in the firm's bank debt; where we denominated government-driven loans, those originated by earmarked rules or granted freely by government-owned banks.

Our final sample comprises annual data from 2006 to 2012 of all firms with more than one employee (to avoid the inclusion of individuals registered as firms). Public administration, non-governmental organizations, multilateral agencies and financial firms were excluded. The whole sample is composed by 2,495,294 firm-year observations (highly unbalanced). After removing outliers, the sample fitted in the baseline model specification is composed by an unbalanced panel of 746,991 observations and 298,878 firms[17]. Table 1 presents the evolution of the number of firms, economic sectors, the amount of employees and both measures of government-driven loans access along the sample period. As mentioned before, it reflects the recent increase of financial intermediation, the strong expansion of the credit market and the

[16] Borrower-level information is restricted to firm's identity, location, age and sector.
[17] We remove outliers in the highest 99th and lowest 1st percentile for dependent variables, lending rates and the average loan amount of firms. The great reduction in the number of observations comes also from the lag structure of the models and the use of fixed effects estimators.

sharp increase of government-driven loans participation in the Brazilian credit markets since 2008.

Table 1: Summary statistics for the whole sample

Year	Number of firms	Number of sectors	Number of employees (millions)	Number of employees (by firm)	Total Real Outstanding Loans (R$bill, 2004)	Earmarked Loans (%)	Non-earmarked Private Loans (%)	Non-earmarked Official Loans (%)	Government-driven Loans (%)
2006	163,788	1,131	5.79	35.32	64	23.28%	60.94%	15.78%	39.06%
2007	197,028	1,146	6.96	35.34	81	22.80%	61.46%	15.61%	38.41%
2008	264,593	1,168	8.27	31.26	106	21.98%	60.00%	17.92%	39.91%
2009	340,770	1,183	9.25	27.13	124	23.31%	57.10%	19.52%	42.82%
2010	412,075	1,190	10.60	25.72	156	25.77%	55.38%	18.72%	44.49%
2011	504,382	1,195	12.20	24.19	189	28.15%	53.44%	18.25%	46.40%
2012	612,658	1,208	13.00	21.22	221	28.37%	49.32%	22.31%	50.68%

Table 2 displays summary statistics for key variables used in the empirical analysis. Panel A displays statistics for the whole sample, while Panel B contains only observations in the treated sample. Additionally, Panel C brings the correlation structure of main variables used in the empirical investigation.

Table 2:

Summary Statistics

This table provides descriptive statistics for the main variables used in the empirical analysis. Panel A reports summary statistics for the whole sample, while Panel B presents summary statistics for the final estimation sample. *Panel C* shows the correlation structure of the estimation sample. *Earmarked Loans Ratio* refers to all earmarked loans to total loans ratio and *Government-driven Loans Ratio* refers to earmarked plus government-owned bank loans to total loans ratio. *Lending Rate* is the lending rate charged by private banks on non-earmarked credit operations.

Panel A: Whole sample

Variable:	Obs	Mean	Std. Dev.	Min	Max
Real Outstanding Loans	2,495,294	376,775	1,021,375	2,668	3.6E+07
# of employees	1,972,774	33.42	230.15	2	116,465
Earmarked Loans Ratio	2,495,294	0.24	0.37	0	1
Government-driven Loans Ratio	2,495,294	0.47	0.44	0	1
Firm's age	2,458,212	12.77	9.42	0	81.05
Lending Rate	1,639,186	38.40	25.21	4.76	154.62

Panel B: Final estimation sample

Variable:	Obs	Mean	Std. Dev.	Min	Max
Real Outstanding Loans	746,991	667,633	1,440,986	2,668	3.4E+07
# of employees	728,159	44.21	213.78	2	108,526
Earmarked Loans Ratio	746,991	0.25	0.35	0	1
Government-driven Loans Ratio	746,991	0.52	0.40	0	1
Firm's age	746,991	16.10	9.92	0	80.37
Lending Rate	523,066	35.07	22.80	4.77	154.62

Panel C: Correlation Matrix (estimation sample)

Real Outstanding Loans					
# of employees	0.327				
Earmarked Loans Ratio	0.1403	0.0434			
Government-driven Loans Ratio	0.0987	0.0098	0.645		
Firm's age	0.1463	0.1275	-0.0036	-0.01	
Lending Rate	-0.1791	-0.0903	-0.1346	-0.0255	-0.0342

There are almost 2.5 million firm-year observations in the whole sample. Of those, firms have, on average, 24% of its bank debt originated in earmarked rules, while earmarked and non-earmarked government-owned banks loans sum up to 47% of the total. Firms have, on average, BR$376,775 (in prices of 2004) of bank debt. Table 2 also shows that, on average, firms are reasonably young, 12.8 years old, and have 33.42 employees. Furthermore, they pay, on average, 38.4% of annual interest rate on their private bank debt.

Panel B shows summary statistics for observations used in the estimation. Firms are now larger (44.21 employees), older (16.10 years), and have, on average, greater amount of bank debt (BR$667,633). Additionally, they pay, on average, 35.07% annual interest rate on its

private bank debt and have, on average, a higher proportion of earmarked (25%) and government-driven bank loans (52%).

The correlation structure reported in Panel C indicates that larger, older and less risky firms have significantly (at 1%) greater access to earmarked and government-driven bank loans.

Built on firm level data, summary statistics in Table 1 and Table 2 may be biased towards very small firms or even be influenced by sectors with a large number of firms, like the retail sector. Thus, after aggregating the database in 82 economic sectors, Table 3 reports summary statistics for the whole sample in each period, indicating how government-driven and earmarked loans access evolves from 2006 to 2012. The last two columns shows the percentage change from 2006 to 2012.

The last two columns of Panels A and B allow us to conclude that the average number of firms has increased more for non-earmarked loans granted by government-owned banks. Moreover, the average number of employees (now higher than that presented in Table 1 and Table 2) has decreased more for firms without access to government-driven and earmarked loans. It suggests that the expansion of government driven loans was part of a countercyclical policy, and that larger firms have privileged access to them. In the same direction, the average amount of loans, in real terms, has increased (decreased) for firms with (without) government-driven and earmarked loan access. Additionally, there was a huge reduction along the whole period on non-performing loans for firms with access to government-driven (earmarked) loans. The reduction was much smaller from firms without access to government-driven loans. This differential result could reflect a change on the profile of firms receiving government-driven loans towards less risky firms. The fact that firms receiving government-driven loans became relatively larger and older reinforce this interpretation. Yet, there seems to be no big difference

between the changes on private lending rate, which were, at the end of the sample, 4% smaller for firms receiving government-driven loans (7% smaller for firms receiving earmarked loans).

Table 3: Summary statistics (82 sectors)

This table reports summary statistics after aggregating the dataset on 82 sectors. "Yes" refers to firms with government-driven (Panel A) and earmarked (Panel B) loans access. "No" reports statistics for firms without access to government-driven (Panel A) and earmarked (Panel B) loans. Non-performing loans (*NPL*) is calculated by the weighted sum of loans in arrears divided by total loans for each sector and *Private Lending Rate* refers to the average rate charged by private banks on free loans for each sector.

Panel A: Government-driven Loan Access

Year (policy rate)	2006 (13.19)		2007 (11.18)		2008 (13.66)		2009 (8.65)		2010 (10.66)		2011 (10.90)		2012 (7.16)		**2012/2006 (-45.71%)**	
Gov-driven Access	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	**Yes**	**No**
Number of firms	1,186	821	1,463	969	2,005	1,245	2,683	1,472	3,267	1,757	3,797	2,353	4,707	2,764	**297%**	**237%**
Number of employees	67.31	60.81	74.72	66.02	69.56	56.05	64.15	55.48	64.46	48.33	61.91	46.72	58.31	40.21	**-13%**	**-34%**
Total Loans (R$, 2004)	683,661	387,471	679,452	415,224	713,829	384,281	679,160	378,745	734,215	362,620	753,050	322,961	815,350	282,988	**19%**	**-27%**
NPL (weighted)	6.02%	7.63%	3.91%	7.51%	4.20%	6.94%	5.01%	7.73%	3.51%	7.61%	3.45%	8.32%	4.11%	7.50%	**-32%**	**-2%**
Private Lending Rate	39.31	44.01	34.85	38.29	40.89	43.56	37.41	40.44	36.56	43.67	37.84	43.20	32.13	36.14	**-18%**	**-18%**
Firm's Age	14.27	13.79	14.48	14.03	14.21	13.67	13.68	14.00	13.99	13.69	14.54	13.04	14.70	13.25	**3%**	**-4%**

Panel B: Earmarked Loan Access

Year (policy rate)	2006 (13.19)		2007 (11.18)		2008 (13.66)		2009 (8.65)		2010 (10.66)		2011 (10.90)		2012 (7.16)		**2012/2006 (-45.71%)**	
Earmarked Access	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	**Yes**	**No**
Number of firms	823	1,185	987	1,434	1,200	2,041	1,568	2,626	1,951	3,098	2,439	3,712	2,977	4,494	**262%**	**279%**
Number of employees	65.32	65.06	69.98	69.19	71.86	60.38	73.38	52.78	78.77	48.17	73.49	46.58	65.93	42.03	**1%**	**-35%**
Total Loans (R$, 2004)	695,726	478,061	686,392	474,477	769,471	458,528	761,751	436,343	868,388	408,149	871,236	353,094	933,027	334,796	**34%**	**-30%**
NPL (weighted)	4.38%	8.41%	2.89%	7.11%	3.00%	6.80%	2.95%	8.07%	2.04%	7.22%	2.63%	7.59%	3.21%	7.25%	**-27%**	**-14%**
Private Lending Rate	38.48	43.54	34.09	38.04	37.93	44.28	32.89	41.36	33.43	43.28	34.99	43.08	29.73	36.11	**-23%**	**-17%**
Firm's Age	13.75	14.31	14.07	14.29	13.91	14.00	13.88	13.77	14.19	13.66	14.39	13.39	14.65	13.56	**7%**	**-5%**

In some sense, the statistics reported in Table 3 indicate that firm's access to government-driven and earmarked loans relates with firm's characteristics, as size, age and creditworthiness. Moreover, this linkage seems to vary with economic cycles. Following each firm along the whole period, Table 4 compares lending spreads charged by private banks on non-earmarked loans in two cases. Case 1, showed in Panel A, considers only firms whose government-driven (or earmarked) loans access have been interrupted in some point within the period. Alternatively, Case 2, presented in Panel B, represents only firms that have been granted government-driven (or earmarked) loans for the whole period or those that had not access to these loans during our sample period.

In both cases, we compare private lending rates for firms that have borrowed through government-driven (or earmarked) loans with those that have not. Despite considering the same set of firms, Case 1 refers to different sub-periods within the main period. On the other hand, despite comparing different sets of firms, Case 2 refers to the whole period for each firm.

Table 4: Lending Spreads Charged by Private Banks on Corporate Loans

This table presents summary statistics of loan spreads charged by private banks on free non-financial corporate loans. Panel A reports lending spread statistics for firms whose government-driven loan access (and earmarked access) have been interrupted in some point within the period from 2006 to 2012. "No" presents spread statistics in periods when firm's bank debt comes entirely from private lenders. "Yes" presents spread statistics in periods where firms have taken out loans from both private and government-driven (earmarked) loans. Thus, despite considering the same set of firms, statistics in Panel A refers to different sub-periods within the main period (Case 1). Panel B reports lending spread statistics for firms that have taken out government-driven (or earmarked) loans for the whole period (Yes) and for firms that have not taken these loans (No). Therefore, despite considering different sets of firms, statistics in Panel B refers to the whole period for each firm (Case 2).

Panel A: Case 1 (at least one year, but not in the whole period)

	# of firms	Mean	Std. Dev.	Min	Max
Governmnet-driven Loan Access:					
No	110,167	25.20	20.74	0.003	145.97
Yes	110,167	28.16	21.01	0.000	145.99
Earmarked Loan Access:					
No	100,366	24.61	19.58	0.004	146.05
Yes	100,366	26.48	20.19	0.000	146.09

Panel B: Case 2 (in the whole period)

	# of firms	Mean	Std. Dev.	Min	Max
Governmnet-driven Loan Access:					
No	341,686	32.24	25.46	0.000	146.10
Yes	204,635	28.75	22.77	0.004	146.10
Earmarked Loan Access:					
No	453,693	32.42	24.98	0.000	146.10
Yes	91,334	24.91	21.28	0.004	145.95

Panel A shows that, on average, private banks have charged higher spreads on free loans whenever a firm borrows from earmarked or government-owned banks as well. It could be explained by the fact that government-driven (earmarked) loans had a special role during the financial crisis of 2007/2008 (see Figure 2), revealing its importance to smooth credit cycles.

Considering different sets of firms, Panel B reveals that firms that have borrowed through government-driven (or earmarked) loans for the whole period have paid lower spreads on free private loans, on average, than those that have not taken these loans. It seems to indicate a correlation between firm's access to earmarked or government-driven loans and its characteristics.

3. Empirical Methodology

In order to discriminate among loan supply and loan demand responses to monetary policy shocks, a large literature has focused on cross-sectional differences between banks. This strategy relies on the strong assumption that certain bank-specific characteristics (as size, liquidity, capitalization and ownership) affect only loan supply movements while bank's loan demand is independent of these features. Broadly speaking, this approach ignores possible linkages between bank's balance sheet and ownership with unobserved differences in customer mix. For example, since large banks tend to concentrate their lending on loans to large firms, it is difficult to distinguish a differential response of loan demand to monetary policy across firm size from a differential response of loan supply across bank size.

In this paper we use cross-sectional and time-series variation in access to government-driven loans as another proxy for variations in the supply of credit. We also account for demand movements through a set of time-varying observable controls and firm fixed-effects. Hence, this paper contributes to the literature by adding novel evidence of the bank lending channel: that monetary policy transmission is less effective for firms that rely more on government-driven loans.

This section describes the empirical methodology used in this paper in order to identify the effects of government intervention in credit market on the transmission of monetary policy. First, we address the database limitation and econometric issues involved in disentangling demand from supply factors, arguing that our methodology and huge firm level database enable us to address them. Then, we present the model-specifications and the econometric strategy employed.

a. Database limitations and identification issues

Our database is annual and an immediate misgiving is the use of annual data to study monetary policy transmission. Although the annual data does not allow us to be precise about the timing of the transmission mechanism, it allow us to include in our data base some firm level data that is only infrequently available, as employment level. Thus, in order to take advantage of the information in our database, our empirical strategy is based on firm level panels, where the cross-sectional differences between firms play an important role.[18]

Another limitation is that we do not observe the lender identity, but ownership. Therefore, we cannot control for bank characteristics, as liquidity, capital ratio, size and credit portfolio composition. Hence, we are not able to investigate in detail issues related to bank characteristics, as identifying if the effects of government-driven loans on monetary policy transmission come from agency problems, social objectives, political connections or differences on internal cost of capital between banks. On the other hand, using firm level data allows us to control for demand effects.

There are two main obstacles for the identification of causal effect of loan characteristic (if government-driven, earmarked or non-earmarked from private banks) on the credit channel of monetary policy. The first issue refers to omitted-variable bias, as demand conditions must be properly addressed. Using bank level data, a large literature makes use of observable variables in both sides of banks' balance sheet and time effects to control for demand effects. However, it could relates with unobserved differences in customer mix. For example, the access of firms to earmarked and/or government-owned banks loans may be correlated with firm

[18] Moreover, as pointed out by Gambacorta (2005) and Ashcraft (2006), results obtained from lending equations are robust to the use of annual data.

characteristics, raising concerns on demand-driven linkages. The second topic refers to selection bias. For example, firms may prefer government-driven banks loans not only because of its observable loan conditions but also as a more stable funding source. Therefore, appropriate fixed and time-varying firm controls must be included in the regressions in order to address these issues.

Assuming that unobservable firm shocks affect relationships with all banks in the same way, some authors have used firm-specific time fixed effects, which allows them to investigate the lending behavior from different banks to the same firm (Jiménez, Ongena, Peydró, and Saurina, 2012). However, the firm-specific time fixed effects usually restrict the analyses for firms with multiple banking relationships, biasing the results towards large firms.

Our vast firm-level database allows us to check if there is an asymmetric transmission of shocks through firms with different ex-ante access to government-driven loans. In order to control for possible linkages between firm's access to government-driven loans and its characteristics, we apply the following empirical strategy. To capture fixed unobservable firm characteristics, we allows for firm-fixed effects. Time-varying firm heterogeneities are captured through industry, firm and macroeconomic observable controls. We also instrument the covariates with appropriately lagged instruments. We consider that is reasonable to assume that there is no problem of reverse causality between each firm's government-driven loans access and the monetary policy rate, which is taken as exogenous to each firm's loan market variable and employment. We make a similar assumption, when we investigate the effect of shocks in the Brazilian sovereign risk premium rate.

Hence, we argue that the effect on monetary policy transmission of the variation on loan origination (earmarked or government-owned banks) when controlled for firm level characteristics identifies the effect of variation of credit supply constraints. Thus, we claim to

identify the effect of government-driven loans on the bank-lending channel of monetary transmission.

b. Empirical specifications

In order to evaluate the effect of government-driven loans on the credit channel of monetary policy, the following model is estimated:

$$\Delta Ln(Loan_{Amount})_{i,t} = \alpha + \gamma trend_t + \eta Gov.Access_{i,t-1} + \pi \Delta Policy_{Rate_t} +$$

$$+\beta(\Delta Policy_{Rate_t} * Gov.Access_{i,t-1}) + \rho Size_{i,t-1} + \theta Age_{i,t} +$$

$$+\sigma \Delta Risk_{i,t} + \omega Risk_{i,t-1} + \sum_{s=1}^{3} \mu^s S_{i,t}^s + \sum_{k=1}^{2} \delta^k M_t^k + \vartheta_i + \varepsilon_{i,t} \quad (1)$$

where *Loan_Amount* refers to the outstanding real loans (2004 prices) borrowed by firm i at year t.

Two measures of government-driven loans access (*Gov.Access*) are considered: the proportion of earmarked and government-driven loans (total) in the firm's bank debt. *Policy_Rate* is the nominal monetary policy instrument rate adopted in Brazil (SELIC) at the end of each year. *Size* is the logarithmic of the number of employees and *Age* is the firm's age, in years.

We include three industry variables in vector *S*: (1) the non-performing loans of industry *s* at year *t;* (2) the average change in the lending spread charged by private banks on industry *s* at year *t*; and (3) the loan growth for industry *s* at year *t*[19]. Vector *M* refers to macroeconomic controls and includes GDP growths and exchange rate change. Some models also add two additional risk controls (Risk): the first difference and the lagged values of lending spread

[19] Variables (2) and (3) do not include loans taken by firm *i*, eliminating endogeneity concerns.

charged by private banks on each firm. Since some firms have borrowed only through earmarked and government-owned banks loans, the number of observations drop in those specifications.

Coefficients π and β are the parameters of most interest in (1). Coefficient π captures the effect of policy rate on the corporate loan amount, while the interaction term captured by coefficient β measures how government-driven loans access of firms alters this effect. Negative π would be consistent with the vision that banks respond to monetary tightening by cutting credit supply. Positive β would mean that firms with ex-ante greater access to government-driven loans would suffer less from monetary adverse shocks. Although a negative π would be consistent with the credit channel, it would also be consistent with the traditional channel through reduction in the credit demand. A positive β would be a more convincing evidence of the credit channel since it is unlikely that firms with more access to government-driven loans would be less affected by a monetary contraction, controlled by size, age, risk, and industry characteristics.

Movements on the corporate loan market should also be reflected in loan rates. We complement the analysis of the effect on the credit market by analyzing the transmission of policy shocks on lending rates through the following specification:

$$\Delta(Loan_{Rate})_{i,t} = \alpha + \gamma trend_t + \eta Gov.\text{Access}_{i,t-1} + \pi \Delta Policy_{Rate_t} +$$

$$+\beta(\Delta Policy_{Rate_t} * Gov.\text{Access}_{i,t-1}) + \rho Size_{i,t-1} + \theta Age_{i,t} +$$

$$+\omega \Delta LAmount_{i,t} + \sum_{s=1}^{3} \mu^s S_{i,t}^s + \sum_{k=1}^{2} \delta^k M_t^k + \vartheta_i + \varepsilon_{i,t} \quad (2)$$

where Loan_Rate is the average lending rate private banks charge a firm and Private Bank Loans is the total outstanding non-earmarked loans borrowed from private banks by the

firm. The latter is clearly endogenous and is instrumented by its own lag. The coefficient π measures the sensitivity of the private loans rate to a policy rate shock. A negative β coefficient would mean that firms with an ex-ante higher proportion of government-driven loans would suffer a lower increase in their private loans, after controlling for their characteristics, providing a forceful evidence for the credit channel of monetary transmission.

Our database integrates employment and loan data at firm level, allowing us to investigate the transmission of financial shocks to the real sector of the economy. In particular, we examine how government intervention in the credit markets interferes in the transmission of policy shocks to employment. In order to do that we estimate the following equation, which has the proportional change in firm's employment as the dependent variable:

$$\Delta Ln(Number\_Employees)_{i,t} = \alpha + \gamma trend_t + \eta Gov.\text{Access}_{i,t-1} + \pi \Delta Policy_{Rate_t} + +\beta(\Delta Policy\_Rate_t * Gov.\text{Access}_{i,t-1}) + \theta Age_{i,t} + \sum_{s=1}^{3} \mu^s S_{i,t}^s + \sum_{k=1}^{2} \delta^k M_t^k + \vartheta_i + \varepsilon_{i,t} \qquad (3)$$

As before, the coefficients of interest are π and β. π measures the semielasticity of employment with respect to the policy rate. A positive β would indicate that firms with ex-ante higher proportion of government-driven loans would face a lower reduction in employment. Because it would link supply side effect of the credit market to firm employment, it would constitute a very interesting evidence in favor of the credit lending channel of monetary transmission, because of the link it provides at firm level between the firm's supply of credit and its employment.

Besides dampening the transmission of monetary policy, the existence of government-driven loans could insulate borrowers from adverse external shocks. We also investigate the transmission of an external shock on a firm's loan amount, its interest cost on loans and on its

number of employees. We estimate the same specifications proposed above for evaluating the effect of the monetary policy rate, with the Brazilian CDS rate replacing the policy rate.

4. Results

4.1. The impact of government-driven credit on monetary policy transmission

Table 5 shows how the impact of SELIC on a firm's amount and rate is mediated by its access to earmarked and government-owned banks loans. Panel A shows the impact on total loans, while the effect on Panel B is restricted to non-earmarked private loans. We also run different regressions for the type of loan access. In the odd columns we report the effect of accessing earmarked loans (Earmarked), while the even columns show the effect of accessing both earmarked and government-owned banks loans (Total). We also ran alternative regressions with risk controls at the firm level. In those regressions we used the lagged private loan spread for the firm, and its variations as risk controls. The reason we also report the results without risk controls is because using them excludes from the sample one third of the firms that have only earmarked or government-owned banks loans.

The effect of increasing 100b.p. (or 1%) the SELIC rate for a firm with no access to either earmarked or government-owned banks loans is a reduction of 3.3% in the loans growth rate, and a reduction of 3.5% in non-earmarked private loans growth (regressions with control). The corresponding increase in non-earmarked loans interest rate is 1.09%. The access to earmarked or public loans reduces the SELIC impact: the effect on total loans is reduced by 1.3% for a firm with only government-driven loans. The contractionary effect on private loans of a 1% increase in the SELIC rate for a firm with 50% of public or earmarked loans will be reduced from 3.5% to 1.54%, but the effect on the private loans interest rate is not economically or statistically significant.

Since earmarked loans have regulated rates one might wonder if the access to those by itself would not be enough to have an important impact on the monetary transmission. A 1% increase on SELIC reduces in 3% the growth rate of loans for a firm without earmarked loans, but the growth rate is reduced by only 2% for firms with earmarked loans. The effect on the amount of private loans is not significant, while the effect on private loans interest rates is reduced from 1.15% to 0.64%. Thus, earmarked loans seem to impact the transmission of monetary policy to private loan markets mainly by attenuating the effect on private loans interest rate.

Those results suggest that the credit channel for the transmission of the monetary policy is active and important. The more important reduction in credit growth and larger increase in interest rates for firms with lower access to government-driven credit is much more likely to be driven by the supply of credit than by the demand. Since we control for firms characteristics as age, size and risk, it is unlikely that the proportion of government-driven credit is selecting for other important firm characteristics that are systematically related to the demand for credit.

[Table 5]

Another way to assess the role of public credit on monetary transmission is to look at the impact on employment. Of course, the effect of SELIC on a firm's employment does not necessarily reflect its transmission through the credit markets. However, the differential impact for firms with public credit access is likely to be related to this channel. Table 6 reports the results for the effect of variation in the SELIC rate on firms' number of employees and its differential impact for firms with public credit access. In Panel A we examine the impact of access to earmarked loans, while Panel B reports the results for the access to either earmarked or government-owned banks loans. For each panel we further separate our sample of firms according to the number of employees to assess whether the effect is stronger in smaller firms.

Another advantage of proceeding this way is to disentangle the effect of accessing government-driven loans and with variation in firms'size, since those tend to be correlated (see Bonomo, Brito and Martins, 2015).

A 1% increase in SELIC rate reduced the growth rate in the number of employees for a firm without government-driven loans 1.18%. The effect is almost identical (1.19%) for firms without earmarked loans. This is a sizeable and significant effect. However, it is reduced by the access to government-driven loans and, in special, to earmarked loans. While this effect is reduced by more than one fifth (-0.2%) for a firm with only government driven loans (be it earmarked or government-owned public bank loans), it is reduced by more than two fifths (-0.46%) for firms with 100% of earmarked loans. Those results suggest that the credit channel is very important for the transmission of monetary policy to employment.

When we repeat the analysis splitting the sample in four groups, according to the number of employees of the firm (2 to 10, 10 to 50, 50 to 500, and above 500 employees), we notice that SELIC rate has no effect for the very large firms (above 500 employees), and that the effect is maximal for intermediate firms, with 10 to 50 employees. Although the effect of policy rate on employment is not by itself indicative of the credit channel, the fact that the impact is null for large firms suggests so. The attenuating effect of the access to government-driven credit reinforces the importance of this channel: it is strong and significant for all sizes other than the very large firms.

[Table 6]

4.2. The impact on the transmission of external shocks

An advantage of having an important participation of the government in the credit market – through either public banks or regulation of some credit lines – is that the effects of external shocks tend to be attenuated. In order to test this hypothesis we run similar regressions

to the ones used to investigate the effect of SELIC, substituting the Brazilian CDS rate for the SELIC rate in the specifications above. Brazilian CDS rate reflects the market opinion about the probability of default in the Brazilian public bonds. When it increases, the risk-premium in all Brazilian credit instruments tend also to increase. In some sense, an increase in the Brazilian CDS is likely to have similar effect to an increase in the SELIC rate. Results are presented in Table 7.

An increase by 100% in log of CDS rate reduces in 14% the growth rate of the total amount of credit for a firm without access to government-driven loans. The impact on private loans is larger, being estimated at - 20% for the equation with access to earmarked and government-owned banks loans, and -14% for the one with access of earmarked loans. The estimated effect on private loans interest rate is also sizable: 5% for the equation with government-driven loans, and 5.3% for the equation with earmarked loans. The access to earmarked loans is related to a smaller impact from the external shock, since the total credit contraction is reduced to 9.2% for a firm with only earmarked loans. However, the impact on private loans is much larger: for a firm with 50% of earmarked loans (government-driven loans) the effect on private loans is reduced from -14% to -4% (-20% to -4%). Some few results are not statistically significant, as the effect of the access to government driven credit on total loans and on private loans interest rate.

Table 8 shows results for the effect of CDS on employment. A 100% increase in the log of CDS rate is associated with reduction of the employment growth rate by 5.2%. This effect is attenuated by access to government-driven credit. Although the effect is statistically significant, the magnitudes are modest. The effect on employment growth for a firm with 50% of government-driven loans is a 4.5% reduction, while for a firm with 50% of earmarked loans the employment growth rate is reduced by 4.9%. When the sample is split according to the number of employees, the pattern is similar to the one obtained for the SELIC effect. The effect initially

increases with size, achieving a maximum for firms with a range from 10 to 50 employees and then decreases. There is no significant direct effect of CDS rates on employment for large firms. Access to government-driven loans significantly reduces the impact on employment for all other sizes.

[Table 7]

[Table 8]

4.3. Sectoral impact

One important question is whether the monetary policy has distributive effects on credit and employment among sector, and how access to earmarked and government-owned banks loans alters those distributive effects. In order to assess those issues we re-estimate equations (1), (2) and (3) including sectoral dummies. More specifically, we interact the sectoral dummies with our access to government-driven loans variable (in the various versions), with the policy rate change, and with the interaction between the policy rate and the access variable. We classify our firms in 10 sectors: education, energy, extractive, rural, basic sanitation, health, retail, construction, manufacturing and services. Results for the expanded version of equations (1) and (2) are presented in Table 9, while Table (10) shows the results for the sectoral version of equation (3). For expositional reasons, the tables show only estimates for the coefficients of interest.

With base on columns (3) and (4) (with firms' risk control) of Table (9), one may notice that a change in the policy rate affects in principle the total credit for firms without government-driven loans from most sectors. The exceptions are the energy and extractive sectors. Access to earmarked loans reduces substantially the impact of monetary policy for firms from construction and service sectors. Table (10) show that the results for employment growth corroborate roughly the loans results: most sectors are affected by monetary policy, the only

exception being energy. Access to earmarked loans attenuates the effects on employment for education, extractive, retail, manufacturing and services. However, results are such that access to earmarked loans never fully counteracts the monetary policy effect. For example, an increase in 1% in the policy rate reduces employment growth rate in a firm without earmarked loans from the service sector by 1.21%, while this reduction would be 0.62% for a firm with only earmarked loans. The differential results obtained in the sections above in terms of firm size are maintained here for all sectors: large firms are never affected by monetary policy.

We can, thus, conclude that monetary policy tends to affect most sectors in a homogenous way. However, access to government-driven loans tend to reduce its impact for 5 of the 9 affected sectors, thus making its effect more heterogeneous. This does not take into account that earmarked loans are unevenly distributed among sectors, which should contribute to aggravate the unequal sectoral distribution of the monetary policy effect.

[Table 9]

[Table 10]

4.4. Robustness

The statistics presented in Table 4 shows that firms that have borrowed through government-driven (or earmarked) loans for the whole period have paid significant lower spreads on free private loans than those that have not taken these loans. It would be consistent with a correlation between firm's characteristics and its probability of accessing government-driven loans. Despite the inclusion of observable sector and firm controls, some unobserved firm heterogeneity could still be captured by the access to government-driven loans. This could cast some doubt on whether the results obtained above were due to the more stable supply of credit associated with government-driven loans or to the selection of firms characteristics

associated to the access to this type of credit. Then, in order to reduce this type of firm heterogeneity we re-estimate all regressions presented in section 3 for a subsample of firms that had access to government-driven loans for some subperiod of our sample. Thus, all firms in the sample are more similar in the following sense: all had access to government-driven loans for part of the sample period, but not for the whole period. Regression results presented in Tables 9, 10, 11 and 12 show that the main findings of the above subsections are robust to this more strict sample selection, implying that the main driver of our results is the access of government-driven loans and not the selection of firms characteristics implied by it.

[Table 11]

[Table 12]

[Table 13]

[Table 14]

5. Conclusion

Government-driven credit has been expanding since the recent financial crisis, reaching almost half the total credit in 2012. While this large participation may buffer the banking system from external shocks, it undoubtedly affects the transmission of monetary policy. This paper investigates its impact on both the transmission of monetary policy and of external shocks using a huge repository of loan contracts between banks and firms, composing an unbalanced panel of almost 300,000 firms between 2006 and 2012.

Our results show that monetary policy affects less firms with earmarked and government-driven loans access. This effect is shown in the smaller variation both in the amount of loans and in the interest rate paid on private loans. Additionally, since the loans data was

merged with employment data for RAIS, we are able to investigate the impact on employment. Our results show that changes in SELIC have smaller effect on the level of employment for firms with more access to earmarked and government-owned banks loans. We also confirm the hypothesis that firms with more access to government-driven loans have suffer a lower impact of external shocks on the loans growth rate, interest rate paid on private loans and employment growth rate.

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Table 5: Credit Channel of Monetary Policy by Firms' Government Loan Access

We apply fixed-effects instrumental variable estimator (xtivreg) in all models of this table. *Panel A* investigates the impact of government-driven loans access of firms on the transmission of monetary policy through total volume of real outstanding loans. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio and all government-driven loan to total loan ratio. *Panel B* explores the credit channel of monetary policy in the lens of non-earmarked private banking sector, both through the total real outstanding loans and the lending rates mechanism. *SELIC* is the nominal basic monetary policy instrument adopt in Brazil. *Lending Rate* and *Private Bank Loans* refers to the cost and the amount of non-earmarked loans borrowed from private banks by each firm. *Lending Spread* is the difference between lending rate and *SELIC* rate. *Gov. Access* measures the access of firms to loans driven by government policies. Some observable sector controls are also included, like Total Loans (Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. The lagged government-driven loans access of firms (*L.Gov.Access*), its interaction with *SELIC* rate, the lending spread charged by private banks and total loans borrowed from private banks are possibly endogenous in each model. The lagged values of those variables are used as instruments. Standard errors are in brackets. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: Total				**Panel B: Non-earmarked Private Loans**					
Dep.variable:	Real Outstanding Loans (Δ%)				Real Outstanding Loans (Δ%)				Lending Rate (Δ)	
Firm's risk control:	**No**		**Yes**		**No**		**Yes**		**No**	
Gov. Loan Access Type:	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Trend	-0.0682	-0.0579	-0.0815*	-0.0881*	-0.0943	-0.1082	-0.0868	-0.0713	-2.5163***	-2.5338***
	[0.0423]	[0.0422]	[0.0477]	[0.0478]	[0.0997]	[0.0999]	[0.1002]	[0.0984]	[0.9301]	[0.9299]
L.Gov. Access	-0.6213***	-0.1890***	-1.2789***	-1.3320***	2.8965***	5.0100***	2.3998***	3.4561***	-0.6187	-1.7653
	[0.0380]	[0.0472]	[0.0649]	[0.0712]	[0.1127]	[0.1356]	[0.1363]	[0.1466]	[1.3832]	[1.7800]
ΔSelic	-0.0478***	-0.0436***	-0.0301***	-0.0327***	-0.0138***	-0.0193***	-0.0264***	-0.0350***	1.1503***	1.0883***
	[0.0017]	[0.0019]	[0.0020]	[0.0022]	[0.0042]	[0.0046]	[0.0043]	[0.0045]	[0.0403]	[0.0431]
L.Gov. Access x Δselic	0.0075***	0.0021	0.0104**	0.0130***	0.0035	0.0113*	0.0140	0.0392***	-0.5186***	-0.0485
	[0.0023]	[0.0019]	[0.0047]	[0.0033]	[0.0092]	[0.0068]	[0.0098]	[0.0069]	[0.0914]	[0.0655]
L.Ln(# of employees)	-0.3778***	-0.3905***	-0.3261***	-0.2976***	-0.4648***	-0.6296***	-0.4546***	-0.5583***	-1.2631***	-1.0469***
	[0.0159]	[0.0158]	[0.0180]	[0.0185]	[0.0364]	[0.0372]	[0.0379]	[0.0381]	[0.3622]	[0.3910]
GDP Growth	0.0428***	0.0410***	0.0310***	0.0334***	0.0302***	0.0241***	0.0374***	0.0322***	-0.5485***	-0.5330***
	[0.0014]	[0.0014]	[0.0017]	[0.0017]	[0.0034]	[0.0035]	[0.0035]	[0.0035]	[0.0331]	[0.0331]
Δ Exchange Rate	0.2910***	0.2360***	0.1783***	0.1351***	-0.0508	0.1280***	0.0257	0.1347***	3.7346***	3.8118***
	[0.0132]	[0.0129]	[0.0154]	[0.0153]	[0.0313]	[0.0312]	[0.0323]	[0.0315]	[0.3010]	[0.3002]
Δ Interest spread (sector)	0.0003	-0.0002	0.0012*	0.0007	-0.0020	-0.0015	-0.0012	-0.0003	0.0957***	0.1024***
	[0.0005]	[0.0005]	[0.0006]	[0.0006]	[0.0012]	[0.0012]	[0.0013]	[0.0012]	[0.0119]	[0.0118]
Δ Ln(Total Loans - sector)	0.1231***	0.1309***	0.0874***	0.0828***	0.0736***	0.1153***	0.0575**	0.0775***	-0.3279	-0.4435*
	[0.0114]	[0.0114]	[0.0131]	[0.0132]	[0.0270]	[0.0271]	[0.0275]	[0.0271]	[0.2569]	[0.2580]
NPL (90 days, sector)	-0.4800***	-0.4470***	-0.5319***	-0.4633***	0.1284	-0.0168	-0.0139	-0.1225	2.7715	2.6083
	[0.1349]	[0.1344]	[0.1556]	[0.1560]	[0.3198]	[0.3205]	[0.3270]	[0.3211]	[3.0687]	[3.0680]
Firm's Age (in years)	-0.0168	-0.0220	-0.0038	0.0152	-0.0184	-0.0730	-0.0229	-0.0763	1.9387**	1.9954**
	[0.0423]	[0.0422]	[0.0477]	[0.0478]	[0.0997]	[0.1000]	[0.1002]	[0.0985]	[0.9304]	[0.9312]
L.Lending spread			0.0001	-0.0000			-0.0002	0.0001		
			[0.0002]	[0.0002]			[0.0003]	[0.0003]		
ΔLending spread			-0.0002	-0.0004***			-0.0008***	-0.0004		
			[0.0001]	[0.0001]			[0.0003]	[0.0003]		
Δ Ln(Private Bank Loans)									-0.3239***	-0.2498*
									[0.0781]	[0.1278]
Constant	2.0359***	2.0234***	1.8500***	1.7058***	1.9966**	2.2956**	2.1795**	2.6063***	-6.6260	-7.7131
	[0.3700]	[0.3688]	[0.4344]	[0.4359]	[0.8941]	[0.8963]	[0.9130]	[0.8972]	[8.5131]	[8.5369]
Number of Observations	746,991	746,991	442,827	442,827	538,085	538,085	442,827	442,827	427,886	427,886
Number of firms	298,878	298,878	187,379	187,379	226,440	226,440	187,379	187,379	183,431	183,431

Table 6: Credit Channel of Monetary Policy by Firms' Size and Government-driven Loan Access

We apply fixed-effects regression in all models of this table. The dependent variable is the percentage annual change of firm's total number of employees. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio (reported in Panel A) and all government-driven loan to total loan ratio (reported in Panel B). This table also reports estimates for subsamples grouped by firm's size - according to the number of their employees. SELIC is the nominal basic monetary policy instrument adopt in Brazil. Some observable sector controls are also included, like Total Loans (Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. Robust standard errors in brackets are clustered at the municipality level. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dep. variable.: Δ Ln(# of employees)

Gov. Access Measure:	Panel A: Earmarked Loans					Panel B: Total				
Number of Employees	Total	[2;10)	[10;50)	[50;500)	[500;∞)	Total	[2;10)	[10;50)	[50;500)	[500;∞)
Trend	-0.0178	0.0609**	-0.0148	-0.0554**	-0.4172	-0.0179	0.0605**	-0.0148	-0.0553**	-0.4183
	[0.0165]	[0.0301]	[0.0318]	[0.0273]	[0.3435]	[0.0166]	[0.0301]	[0.0318]	[0.0273]	[0.3436]
L.Gov. Access	0.0002	0.0009	0.0044	0.0144***	0.0058	0.0100***	0.0066	0.0168***	0.0155***	-0.0142
	[0.0023]	[0.0042]	[0.0032]	[0.0048]	[0.0140]	[0.0021]	[0.0042]	[0.0029]	[0.0047]	[0.0160]
ΔSelic	-0.0119***	-0.0059***	-0.0129***	-0.0053***	0.0037	-0.0118***	-0.0060***	-0.0129***	-0.0053***	0.0034
	[0.0010]	[0.0015]	[0.0011]	[0.0013]	[0.0030]	[0.0011]	[0.0016]	[0.0011]	[0.0013]	[0.0030]
L.Gov. Access x Δselic	0.0046***	0.0050***	0.0024***	0.0034***	0.0007	0.0020***	0.0023***	0.0010**	0.0020***	0.0011
	[0.0004]	[0.0008]	[0.0005]	[0.0008]	[0.0022]	[0.0004]	[0.0007]	[0.0004]	[0.0006]	[0.0018]
GDP Growth	0.0116***	0.0057***	0.0128***	0.0093***	-0.0003	0.0116***	0.0057***	0.0128***	0.0092***	-0.0004
	[0.0008]	[0.0012]	[0.0009]	[0.0010]	[0.0030]	[0.0008]	[0.0012]	[0.0009]	[0.0010]	[0.0030]
Δ Exchange Rate	0.0766***	0.0250**	0.0964***	0.0181*	-0.0070	0.0776***	0.0269**	0.0972***	0.0184*	-0.0077
	[0.0080]	[0.0110]	[0.0096]	[0.0101]	[0.0220]	[0.0081]	[0.0110]	[0.0095]	[0.0100]	[0.0222]
Δ Interest spread (sector)	-0.0003*	-0.0001	-0.0003	0.0003	0.0008	-0.0004**	-0.0002	-0.0004	0.0002	0.0008
	[0.0002]	[0.0004]	[0.0003]	[0.0003]	[0.0011]	[0.0002]	[0.0004]	[0.0003]	[0.0003]	[0.0011]
Δ Ln(Total Loans - sector)	0.0068*	0.0026	0.0087*	0.0024	-0.0099	0.0079**	0.0044	0.0093**	0.0028	-0.0098
	[0.0037]	[0.0091]	[0.0045]	[0.0064]	[0.0269]	[0.0037]	[0.0091]	[0.0045]	[0.0064]	[0.0270]
NPL (90 days, sector)	-0.1300***	-0.2580***	-0.0991	-0.0504	0.2381	-0.1265**	-0.2539**	-0.0963	-0.0494	0.2492
	[0.0498]	[0.0988]	[0.0665]	[0.0804]	[0.1869]	[0.0495]	[0.0988]	[0.0664]	[0.0799]	[0.1875]
Age (in years)	-0.0032	-0.0685**	-0.0085	0.0357	0.3944	-0.0033	-0.0685**	-0.0087	0.0355	0.3956
	[0.0165]	[0.0299]	[0.0314]	[0.0278]	[0.3433]	[0.0165]	[0.0299]	[0.0314]	[0.0278]	[0.3434]
Constant	0.1342	0.5257**	0.1731	-0.3672	-6.9698	0.1320	0.5234**	0.1697	-0.3666	-6.9847
	[0.1448]	[0.2056]	[0.2749]	[0.3724]	[6.2174]	[0.1453]	[0.2059]	[0.2749]	[0.3725]	[6.2190]
Number of Observations	721,880	305,866	301,107	107,329	7,625	721,880	305,866	301,107	107,329	7,625
Number of Firms	288,636	156,852	131,159	39,931	2,799	288,636	156,852	131,159	39,931	2,799

Table 7: Credit Channel of Country Risk Premium by Firms' Government Loan Access

We apply fixed-effects instrumental variable estimator (xtivreg) in all models of this table. *Panel A* investigates the impact of government-driven loans access of firms on the transmission of country risk premium through total volume of real outstanding loans. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio and all government-driven loan to total loan ratio. *Panel B* explores the credit channel of monetary policy in the lens of non-earmarked private banking sector, both through the total real outstanding loans and the lending rates mechanism. *CDS Brazil*, the Credit Default Swap for the Brazilian sovereign bonds, reflects the country risk premium. *Lending Rate* and *Private Bank Loans* refers to the cost and the amount of non-earmarked loans borrowed from private banks by each firm. *Lending Spread* is the difference between lending rate and SELIC rate. *Gov. Access* measures the access of firms to loans driven by government policies. Some observable sector controls are also included, like Total Loans (Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. The lagged government-driven loans access of firms (*L.Gov.Access*), its interaction with CDS rate, the lending spread charged by private banks and total loans borrowed from private banks are possibly endogenous in each model. The lagged values of those variables are used as instruments. Standard errors are in brackets. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: Total				**Panel B: Non-earmarked Private Loans**					
Dep.variable:	Real Outstanding Loans (Δ%)				Real Outstanding Loans (Δ%)				Lending Rate (Δ)	
Firm's risk control:	**No**		**Yes**		**No**		**Yes**		**No**	
Gov. Loan Access Type:	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Trend	-0.0822*	-0.0696*	-0.0903*	-0.0961**	-0.1002	-0.1203	-0.0955	-0.0823	-2.1842**	-2.2124**
	[0.0423]	[0.0422]	[0.0477]	[0.0478]	[0.0997]	[0.1000]	[0.1002]	[0.0984]	[0.9300]	[0.9299]
L.Gov. Access	-0.6349***	-0.2023***	-1.3000***	-1.3782***	2.9339***	5.0467***	2.4263***	3.4327***	0.3612	-1.6468
	[0.0387]	[0.0483]	[0.0652]	[0.0736]	[0.1130]	[0.1382]	[0.1371]	[0.1513]	[1.3918]	[1.8271]
Δ Ln(CDS Brazil)	-0.2198***	-0.1845***	-0.1381***	-0.1357***	-0.1032***	-0.2016***	-0.1408***	-0.2024***	5.3044***	4.9951***
	[0.0082]	[0.0097]	[0.0096]	[0.0106]	[0.0198]	[0.0227]	[0.0201]	[0.0219]	[0.1893]	[0.2112]
L.Gov. Access x Δ Ln(CDS Brazil)	0.0349***	-0.0178	0.0461*	0.012	0.2735***	0.3725***	0.2063***	0.3163***	-2.5837***	-0.209
	[0.0133]	[0.0112]	[0.0264]	[0.0191]	[0.0527]	[0.0391]	[0.0555]	[0.0393]	[0.5205]	[0.3846]
L.Ln(# of employees)	-0.3782***	-0.3911***	-0.3262***	-0.2978***	-0.4584***	-0.6220***	-0.4529***	-0.5571***	-1.2686***	-1.0502***
	[0.0159]	[0.0158]	[0.0180]	[0.0185]	[0.0364]	[0.0372]	[0.0378]	[0.0381]	[0.3620]	[0.3916]
GDP Growth	0.0151***	0.0154***	0.0136***	0.0157***	0.0227***	0.0153***	0.0227***	0.0177***	0.1080***	0.1133***
	[0.0006]	[0.0006]	[0.0007]	[0.0008]	[0.0015]	[0.0016]	[0.0016]	[0.0016]	[0.0148]	[0.0147]
Δ Exchange Rate	0.6561***	0.5645***	0.4080***	0.3584***	0.0682	0.3197***	0.2328***	0.3592***	-4.9318***	-4.7209***
	[0.0244]	[0.0241]	[0.0288]	[0.0290]	[0.0586]	[0.0589]	[0.0606]	[0.0596]	[0.5663]	[0.5689]
Δ Interest spread (sector)	0.0003	-0.0002	0.0011*	0.0006	-0.0015	-0.0013	-0.0009	-0.0003	0.0971***	0.1025***
	[0.0005]	[0.0005]	[0.0006]	[0.0006]	[0.0012]	[0.0012]	[0.0013]	[0.0012]	[0.0119]	[0.0118]
Δ Ln(Total Loans - sector)	0.1237***	0.1306***	0.0880***	0.0839***	0.0674**	0.1116***	0.0555**	0.0774***	-0.3519	-0.4453*
	[0.0114]	[0.0114]	[0.0131]	[0.0132]	[0.0270]	[0.0271]	[0.0275]	[0.0271]	[0.2567]	[0.2578]
NPL (90 days, sector)	-0.4770***	-0.4400***	-0.5302***	-0.4672***	0.1218	-0.0119	-0.0160	-0.1235	2.7051	2.6165
	[0.1349]	[0.1345]	[0.1556]	[0.1561]	[0.3199]	[0.3209]	[0.3270]	[0.3213]	[3.0686]	[3.0680]
Firm's Age (in years)	-0.0166	-0.0225	-0.0037	0.0151	-0.0161	-0.0689	-0.0219	-0.0746	1.9309**	1.9941**
	[0.0423]	[0.0422]	[0.0477]	[0.0479]	[0.0998]	[0.1001]	[0.1002]	[0.0985]	[0.9304]	[0.9312]
L.Lending spread			0.0001	0			-0.0002	0.0001		
			[0.0002]	[0.0002]			[0.0003]	[0.0003]		
ΔLending spread			-0.0002	-0.0004***			-0.0008***	-0.0004		
			[0.0001]	[0.0001]			[0.0003]	[0.0003]		
Δ Ln(Private Bank Loans)									-0.3393***	-0.2546*
									[0.0785]	[0.1302]
Constant	2.2460***	2.2247***	1.9819***	1.8461***	2.0094**	2.3180***	2.2765**	2.7165***	-11.5451	-12.5586
	[0.3702]	[0.3690]	[0.4346]	[0.4365]	[0.8949]	[0.8978]	[0.9136]	[0.8981]	[8.5176]	[8.5417]
Number of Observations	746,991	746,991	442827	442827	538,085	538,085	442,827	442,827	427,886	427886
Number of firms	298,878	298,878	187379	187379	226,440	226,440	187,379	187,379	183,431	183431

Table 8: Credit Channel of Country Risk Premium by Firms' Size and Government-driven Loan Access

We apply fixed-effects regression in all models of this table. The dependent variable is the percentage annual change of firm's total number of employees. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio (reported in Panel A) and all government-driven loan to total loan ratio (reported in Panel B). This table also reports estimates for subsamples grouped by firm's size - according to their number of employees. CDS Brazil, the Credit Default Swap for the Brazilian sovereign bonds, reflects the country risk premium. Some observable sector controls are also included, like Total Loans(Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. Robust standard errors in brackets are clustered at the municipality level. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dep. variable.: Δ Ln(# of employees)										
Gov. Access Type:	**Panel A: Earmarked Loans**					**Panel B: Total**				
Number of Employees	Total	[2;10)	[10;50)	[50;500)	[500;∞)	Total	[2;10)	[10;50)	[50;500)	[500;∞)
Trend	-0.0211	0.0591*	-0.0184	-0.0566**	-0.4174	-0.0211	0.0590*	-0.0182	-0.0566**	-0.4184
	[0.0166]	[0.0302]	[0.0320]	[0.0271]	[0.3451]	[0.0167]	[0.0302]	[0.0320]	[0.0272]	[0.3462]
L.Gov. Access	-0.0039*	-0.0033	0.0024	0.0111**	0.0054	0.0083***	0.0048	0.0159***	0.0138***	-0.0152
	[0.0023]	[0.0041]	[0.0032]	[0.0047]	[0.0141]	[0.0021]	[0.0041]	[0.0029]	[0.0047]	[0.0164]
ΔLn(CDS Brazil)	-0.0524***	-0.0260***	-0.0572***	-0.0224***	0.0222	-0.0519***	-0.0262***	-0.0561***	-0.0228***	0.0221
	[0.0046]	[0.0069]	[0.0051]	[0.0060]	[0.0137]	[0.0049]	[0.0074]	[0.0051]	[0.0059]	[0.0142]
L.Gov. Access x ΔLn(CDS Brazil)	0.0138***	0.0188***	0.0029	0.0093**	-0.0047	0.0056***	0.0084**	-0.0004	0.0064**	-0.0021
	[0.0021]	[0.0040]	[0.0026]	[0.0038]	[0.0114]	[0.0018]	[0.0035]	[0.0022]	[0.0031]	[0.0093]
GDP Growth	0.0052***	0.0028***	0.0054***	0.0066***	0.0018	0.0051***	0.0028***	0.0053***	0.0066***	0.0018
	[0.0003]	[0.0005]	[0.0004]	[0.0004]	[0.0015]	[0.0003]	[0.0005]	[0.0004]	[0.0004]	[0.0015]
Δ Exchange Rate	0.1610***	0.0617***	0.1935***	0.0520***	-0.0469	0.1616***	0.0642***	0.1935***	0.0525***	-0.0480
	[0.0155]	[0.0220]	[0.0176]	[0.0191]	[0.0411]	[0.0156]	[0.0221]	[0.0175]	[0.0189]	[0.0414]
Δ Interest spread (sector)	-0.0004**	-0.0001	-0.0004	0.0002	0.0008	-0.0004**	-0.0002	-0.0004	0.0002	0.0008
	[0.0002]	[0.0004]	[0.0003]	[0.0003]	[0.0011]	[0.0002]	[0.0004]	[0.0003]	[0.0003]	[0.0011]
Δ Ln(Total Loans - sector)	0.0074**	0.0035	0.0091**	0.0027	-0.0091	0.0080**	0.0046	0.0094**	0.0030	-0.0094
	[0.0037]	[0.0092]	[0.0045]	[0.0064]	[0.0270]	[0.0037]	[0.0092]	[0.0045]	[0.0064]	[0.0271]
NPL (90 days, sector)	-0.1268**	-0.2528**	-0.0970	-0.0505	0.2420	-0.1260**	-0.2530**	-0.0962	-0.0503	0.2512
	[0.0496]	[0.0989]	[0.0664]	[0.0800]	[0.1865]	[0.0494]	[0.0989]	[0.0664]	[0.0798]	[0.1878]
Age (in years)	-0.0031	-0.0682**	-0.0086	0.0356	0.3961	-0.0034	-0.0684**	-0.0089	0.0354	0.3973
	[0.0165]	[0.0299]	[0.0314]	[0.0278]	[0.3452]	[0.0165]	[0.0299]	[0.0313]	[0.0278]	[0.3462]
Constant	0.1835	0.5451***	0.2305	-0.3450	-7.0218	0.1816	0.5452***	0.2274	-0.3452	-7.0365
	[0.1438]	[0.2039]	[0.2716]	[0.3732]	[6.2535]	[0.1442]	[0.2042]	[0.2717]	[0.3739]	[6.2727]
Number of Observations	721,880	305,866	301,107	107,329	7,625	721,880	305,866	301,107	107,329	7,625
Number of Firms	288,636	156,852	131,159	39,931	2,799	288,636	156,852	131,159	39,931	2,799

Table 9: Credit Channel of Monetary Policy by Firms' Sector and Government Loan Access

We include sector dummies in all models presented in table 5. We apply fixed-effects instrumental variable estimator (xtivreg) in all models of this table. *Panel A* investigates the impact of government-driven loans access of firms on the transmission of monetary policy through total volume of real outstanding loans. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio and all government-driven loan to total loan ratio. *Panel B* explores the credit channel of monetary policy in the lens of non-earmarked private banking sector, both through the total real outstanding loans and the lending rates mechanism. Some observable sector controls are also included, like Total Loans (Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. The lagged government-driven loans access of firms (*L.Gov.Access*), its interaction with *SELIC* rate and sector dummies, the lending spread charged by private banks and total loans borrowed from private banks are possibly endogenous in each model. The lagged values of those variables are used as instruments. Standard errors are in brackets. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: Total				**Panel B: Non-earmarked Private Loans**					
Dep.variable:	Real Outstanding Loans (Δ%)				Real Outstanding Loans (Δ%)				Lending Rate (Δ)	
Gov. Loan Access Type:	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Δselic x l_Education	-0.0489***	-0.0426***	-0.0414***	-0.0379***	-0.0235**	-0.0242*	-0.0299***	-0.0308**	1.0153***	1.0209***
Δselic x l_Energy	-0.0694*	-0.0342	-0.0304	0.0014	0.0140	0.0971	-0.0672	0.0042	0.8980	1.2808
Δselic x l_Extractive	-0.0223**	-0.0187*	0.0011	0.0045	0.0155	0.0132	-0.0001	0.0013	0.8826***	0.8962***
Δselic x l_Rural	-0.0342***	-0.0276***	-0.0240***	-0.0197**	-0.0121	-0.0100	-0.0310*	-0.0235	1.0855***	1.1898***
Δselic x l_Basic Sanitation	-0.0403***	-0.0407***	-0.0190*	-0.0218*	0.0597***	0.0322	0.0616***	-0.0264	0.8145***	0.7859***
Δselic x l_Health	-0.0479***	-0.0422***	-0.0331***	-0.0311***	-0.0242***	-0.0251***	-0.0304***	-0.0297***	0.9304***	0.8652***
Δselic x l_Retail	-0.0422***	-0.0353***	-0.0265***	-0.0257***	-0.0096**	-0.0179***	-0.0170***	-0.0227***	1.2703***	1.2504***
Δselic x l_Construction	-0.0364***	-0.0356***	-0.0253***	-0.0269***	0.0048	-0.0032	-0.0033	-0.0099	0.9885***	0.9574***
Δselic x l_Manufacturing	-0.0433***	-0.0398***	-0.0271***	-0.0292***	-0.0133***	-0.0225***	-0.0159***	-0.0216***	1.2501***	1.1848***
Δselic x l_Services	-0.0404***	-0.0358***	-0.0254***	-0.0258***	-0.0125***	-0.0191***	-0.0191***	-0.0242***	1.0495***	1.0040***
L.Gov. Access x Δselic x l_Education	-0.0066	-0.0183	0.0435	-0.0038	-0.0013	-0.0277	-0.0919	-0.0528	-0.8702	-0.4495
L.Gov. Access x Δselic x l_Energy	0.0149	-0.0400	-0.0065	-0.0849	-0.4155**	-0.4625**	0.0216	-0.1595	-1.5941	-1.9741
L.Gov. Access x Δselic x l_Extractive	-0.0088	-0.0070	-0.0352	-0.0338	-0.0963**	-0.0735*	-0.0402	-0.0255	-0.6381	-0.5460
L.Gov. Access x Δselic x l_Rural	-0.0202**	-0.0245**	0.0011	-0.0118	0.0303	0.0050	0.0602	0.0238	-0.5589	-0.7384**
L.Gov. Access x Δselic x l_Basic Sanitation	0.0137	0.0134	-0.0115	0.0029	-0.3207***	-0.1820***	-0.2005***	0.1675***	-0.5112	-0.3002
L.Gov. Access x Δselic x l_Health	-0.0163**	-0.0183***	-0.0162	-0.0191	-0.0306	-0.0203	-0.0992**	-0.0421	-0.7879**	0.0092
L.Gov. Access x Δselic x l_Retail	-0.0152***	-0.0174***	-0.0078	-0.0060*	-0.0200**	0.0122**	-0.0217*	0.0098	-0.3981***	-0.0966
L.Gov. Access x Δselic x l_Construction	0.0137**	0.0086	0.0284***	0.0213***	-0.0664***	-0.0208	-0.0815***	-0.0233	-0.4999***	-0.2285
L.Gov. Access x Δselic x l_Manufacturing	-0.0061**	-0.0070***	-0.0063	0.0046	-0.0215**	0.0117*	-0.0619***	-0.0078	-0.3130***	0.0487
L.Gov. Access x Δselic x l_Services	0.0129***	0.0010	0.0186***	0.0134***	-0.0046	0.0065	0.0077	0.0217***	-0.3523***	-0.0918
Firms' risk controls	No	No	Yes	Yes	No	No	Yes	Yes	No	No
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	746,991	746,991	419,070	419,070	538,085	538,085	419,070	419,070	422,221	422,221
Number of firms	298,878	298,878	180,599	180,599	226,440	226,440	180,599	180,599	181,892	181,892

Table 10: Credit Channel of Monetary Policy by Firms' Sector, Size and Government-driven Loan Access

We include sector dummies in all models presented in table 6. We apply fixed-effects regression in all models of this table. The dependent variable is the percentage annual change of firm's total number of employees. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio (reported in Panel A) and all government-driven loan to total loan ratio (reported in Panel B). This table also reports estimates for subsamples grouped by firm's size - according to the number of their employees. SELIC is the nominal basic monetary policy instrument adopt in Brazil. Some observable sector controls are also included, like Total Loans (Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. Robust standard errors in brackets are clustered at the municipality level. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dep. variable.: Δ Ln(# of employees)										
Gov. Access Measure:	**Panel A: Earmarked Loans**					**Panel B: Total**				
Number of Employees	Total	[2;10)	[10;50)	[50;500)	[500;∞)	Total	[2;10)	[10;50)	[50;500)	[500;∞)
Δselic x l_Education	-0.0130***	-0.0056	-0.0147***	-0.0086***	-0.0017	-0.0135***	-0.0049	-0.0155***	-0.0090***	-0.0024
Δselic x l_Energy	0.0045	0.0336*	0.0022	-0.0065	0.0090***	0.0183	0.0833***	0.0143	-0.0004	0.0246***
Δselic x l_Extractive	-0.0139***	-0.0058	-0.0133***	-0.0066	0.0092	-0.0160***	-0.0090	-0.0164***	-0.0080	0.0005
Δselic x l_Rural	-0.0152***	-0.0112**	-0.0137***	-0.0031	0.0106	-0.0138***	-0.0129*	-0.0123**	0.0021	0.0114
Δselic x l_Basic Sanitation	-0.0096***	0.0013	-0.0094***	-0.0100*	-0.0070	-0.0087***	0.0004	-0.0050	-0.0104	-0.0099
Δselic x l_Health	-0.0138***	-0.0106***	-0.0148***	-0.0075***	0.0015	-0.0131***	-0.0096***	-0.0144***	-0.0065***	0.0019
Δselic x l_Retail	-0.0127***	-0.0060***	-0.0135***	-0.0048***	0.0067	-0.0125***	-0.0059***	-0.0134***	-0.0045***	0.0056
Δselic x l_Construction	-0.0076***	-0.0063**	-0.0094***	-0.0036	-0.0004	-0.0085***	-0.0080***	-0.0096***	-0.0056**	0.0057
Δselic x l_Manufacturing	-0.0103***	-0.0055***	-0.0120***	-0.0044***	-0.0007	-0.0104***	-0.0066***	-0.0119***	-0.0043***	-0.0011
Δselic x l_Services	-0.0121***	-0.0058***	-0.0134***	-0.0069***	0.0050*	-0.0118***	-0.0054**	-0.0132***	-0.0067***	0.0054*
L.Gov. Access x Δselic x l_Education	0.0048**	0.0098	0.0037	0.0040*	-0.0007	0.0038**	0.0033	0.0038	0.0030	0.0035
L.Gov. Access x Δselic x l_Energy	-0.0194	-0.0343	-0.0136	-0.0026		-0.0353	-0.0970***	-0.0298	-0.0109	0.0044
L.Gov. Access x Δselic x l_Extractive	0.0069*	-0.0096	0.0048	0.0087	0.0216	0.0089**	-0.0021	0.0089*	0.0094	0.0371***
L.Gov. Access x Δselic x l_Rural	-0.0016	0.0028	-0.0065	-0.0086	0.0085	-0.0034	0.0044	-0.0075	-0.0149**	0.0063
L.Gov. Access x Δselic x l_Basic Sanitation	0.0056	-0.0079	0.0078	-0.0018	0.0277	0.0022	-0.0037	-0.0030	-0.0009	0.0208
L.Gov. Access x Δselic x l_Health	0.0031	0.0057	0.0043*	0.0041*	-0.0020	0.0001	0.0019	0.0015	-0.0014	-0.0004
L.Gov. Access x Δselic x l_Retail	0.0041***	0.0037***	0.0011	0.0021	0.0061	0.0012**	0.0011	0.0003	0.0001	0.0074
L.Gov. Access x Δselic x l_Construction	0.0040	0.0097	0.0049	0.0048	0.0025	0.0047*	0.0102*	0.0032	0.0077**	-0.0098
L.Gov. Access x Δselic x l_Manufacturing	0.0038***	0.0058***	0.0023**	0.0022**	0.0081**	0.0021***	0.0046**	0.0009	0.0013	0.0080*
L.Gov. Access x Δselic x l_Services	0.0059***	0.0064***	0.0031***	0.0061***	-0.0043	0.0032***	0.0035**	0.0016*	0.0037**	-0.0021
Macro controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	721,880	305,866	301,107	107,329	7,625	721,880	305,866	301,107	107,329	7,625
Number of Firms	288,636	156,852	131,159	39,931	2,799	288,636	156,852	131,159	39,931	2,799

Table 11: Credit Channel of Monetary Policy by Firms' Government Loan Access

(only firms that have taken out government-driven loans in at least one year, but not in the whole period)

We apply fixed-effects instrumental variable estimator (xtivreg) in all models of this table. *Panel A* investigates the impact of government-driven loans access of firms on the transmission of monetary policy through total volume of real outstanding loans. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio and all government-driven loan to total loan ratio. *Panel B* explores the credit channel of monetary policy in the lens of non-earmarked private banking sector, both through the total real outstanding loans and the lending rates mechanism. *SELIC* is the nominal basic monetary policy instrument adopt in Brazil. *Lending Rate* and *Private Bank Loans* refers to the cost and the amount of non-earmarked loans borrowed from private banks by each firm. *Lending Spread* is the difference between lending rate and *SELIC* rate. *Gov. Access* measures the access of firms to loans driven by government policies. Some observable sector controls are also included, like Total Loans (Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. The lagged government-driven loans access of firms (*L.Gov.Access*), its interaction with *SELIC* rate, the lending spread charged by private banks and total loans borrowed from private banks are possibly endogenous in each model. The lagged values of those variables are used as instruments. Standard errors are in brackets. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: Total				**Panel B: Non-earmarked Private Loans**					
Dep.variable:	Real Outstanding Loans (Δ%)				Real Outstanding Loans (Δ%)				Lending Rate (Δ)	
Firm's risk control:	No		Yes		No		Yes		No	
Gov. Loan Access Type:	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Trend	-0.0551	-0.0772*	-0.0877	-0.1072**	-0.1492	-0.1270	-0.1395	-0.0889	-2.4474**	-2.7487***
	[0.0490]	[0.0463]	[0.0544]	[0.0507]	[0.1315]	[0.1147]	[0.1348]	[0.1153]	[1.0192]	[0.9739]
L.Gov. Access	-0.5840***	-0.1754***	-1.2748***	-1.3763***	2.8848***	4.9861***	2.3777***	3.4979***	-0.6057	-1.5289
	[0.0389]	[0.0469]	[0.0648]	[0.0714]	[0.1298]	[0.1457]	[0.1607]	[0.1623]	[1.3399]	[1.7927]
ΔSelic	-0.0500***	-0.0399***	-0.0302***	-0.0372***	-0.0100	-0.0111*	-0.0272***	-0.0354***	1.2562***	1.0877***
	[0.0022]	[0.0024]	[0.0027]	[0.0027]	[0.0064]	[0.0061]	[0.0067]	[0.0061]	[0.0511]	[0.0513]
L.Gov. Access x Δselic	0.0101***	0.0055**	0.0136***	0.0159***	-0.0133	-0.0010	-0.0015	0.0347***	-0.4021***	0.0215
	[0.0029]	[0.0025]	[0.0052]	[0.0038]	[0.0121]	[0.0086]	[0.0129]	[0.0087]	[0.0978]	[0.0735]
L.Ln(# of employees)	-0.3948***	-0.4049***	-0.3314***	-0.3067***	-0.4883***	-0.6536***	-0.4819***	-0.5962***	-0.5492	-0.7203*
	[0.0180]	[0.0167]	[0.0209]	[0.0198]	[0.0481]	[0.0429]	[0.0519]	[0.0450]	[0.4030]	[0.4153]
GDP Growth	0.0437***	0.0384***	0.0313***	0.0363***	0.0337***	0.0224***	0.0436***	0.0336***	-0.6455***	-0.5546***
	[0.0017]	[0.0016]	[0.0021]	[0.0019]	[0.0049]	[0.0042]	[0.0052]	[0.0043]	[0.0397]	[0.0366]
Δ Exchange Rate	0.2899***	0.1940***	0.1693***	0.1521***	-0.0974**	0.1044***	-0.0018	0.1320***	2.8261***	3.5947***
	[0.0161]	[0.0146]	[0.0192]	[0.0171]	[0.0442]	[0.0374]	[0.0477]	[0.0390]	[0.3599]	[0.3303]
Δ Interest spread (sector)	-0.0000	-0.0003	0.0010	0.0007	-0.0039**	-0.0021	-0.0027	-0.0007	0.0946***	0.1017***
	[0.0006]	[0.0006]	[0.0008]	[0.0007]	[0.0018]	[0.0015]	[0.0019]	[0.0015]	[0.0142]	[0.0129]
Δ Ln(Total Loans - sector)	0.1445***	0.1274***	0.0941***	0.0805***	0.0781**	0.1176***	0.0521	0.0741**	-0.4755	-0.6602**
	[0.0138]	[0.0128]	[0.0161]	[0.0145]	[0.0378]	[0.0321]	[0.0399]	[0.0328]	[0.3012]	[0.2790]
NPL (90 days, sector)	-0.4084**	-0.3861**	-0.5569***	-0.4872***	0.5434	0.1467	0.3759	0.0012	2.0828	1.4318
	[0.1651]	[0.1557]	[0.1944]	[0.1748]	[0.4517]	[0.3847]	[0.4819]	[0.3970]	[3.6640]	[3.3792]
Firm's Age (in years)	-0.0205	0.0004	0.0171	0.0440	0.0398	-0.0637	0.0337	-0.0653	1.9060*	2.1817**
	[0.0489]	[0.0464]	[0.0544]	[0.0508]	[0.1316]	[0.1148]	[0.1348]	[0.1154]	[1.0196]	[0.9753]
L.Lending spread			-0.0000	-0.0002			-0.0005	-0.0000		
			[0.0002]	[0.0002]			[0.0006]	[0.0005]		
ΔLending spread			-0.0002	-0.0005***			-0.0011**	-0.0004		
			[0.0002]	[0.0002]			[0.0005]	[0.0004]		
Δ Ln(Private Bank Loans)									-0.2748***	-0.2675**
									[0.0818]	[0.1340]
Constant	2.1533***	1.9265***	1.7577***	1.5564***	1.3732	2.0399**	1.6635	2.4719**	-8.4723	-10.1857
	[0.4327]	[0.4171]	[0.5077]	[0.4700]	[1.1984]	[1.0377]	[1.2585]	[1.0677]	[9.5487]	[9.0790]
Number of Observations	507,565	545,081	268,221	340,752	345,147	432,137	268,221	340,752	261,043	330,468
Number of firms	185,147	199,583	105,047	137,966	135,875	175,669	105,047	137,966	103,514	135,493

Table 12: Credit Channel of Monetary Policy by Firms' Size and Government-driven Loan Access

(only firms that have taken out government-driven loans in at least one year, but not in the whole period)

We apply fixed-effects regression in all models of this table. The dependent variable is the percentage annual change of firm's total number of employees. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio (reported in Panel A) and all government-driven loan to total loan ratio (reported in Panel B). This table also reports estimates for subsamples grouped by firm's size - according to the number of their employees. SELIC is the nominal basic monetary policy instrument adopt in Brazil. Some observable sector controls are also included, like Total Loans (Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. Robust standard errors in brackets are clustered at the municipality level. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dep. var.: Δ Ln(# of employees)										
Gov. Access Measure:	**Panel A: Earmarked Loans**					**Panel B: Total**				
Number of Employees	Total	[2;10)	[10;50)	[50;500)	[500;∞)	Total	[2;10)	[10;50)	[50;500)	[500;∞)
Trend	-0.0098	0.0956***	-0.0037	-0.0597**	-1.1151***	-0.0149	0.0851**	-0.0102	-0.0595**	-1.1388***
	[0.0188]	[0.0359]	[0.0339]	[0.0259]	[0.0313]	[0.0190]	[0.0363]	[0.0342]	[0.0267]	[0.0336]
L.Gov. Access	0.0002	0.0013	0.0053	0.0144***	0.0142	0.0094***	0.0043	0.0171***	0.0149***	-0.0125
	[0.0023]	[0.0042]	[0.0033]	[0.0048]	[0.0131]	[0.0024]	[0.0049]	[0.0032]	[0.0051]	[0.0138]
ΔSelic	-0.0086***	-0.0012	-0.0105***	-0.0027**	0.0065**	-0.0082***	-0.0011	-0.0102***	-0.0022*	0.0066*
	[0.0009]	[0.0015]	[0.0009]	[0.0013]	[0.0033]	[0.0009]	[0.0017]	[0.0010]	[0.0013]	[0.0035]
L.Gov. Access x Δselic	0.0038***	0.0044***	0.0023***	0.0023***	-0.0008	0.0012***	0.0017	0.0008	0.0007	-0.0008
	[0.0004]	[0.0009]	[0.0005]	[0.0008]	[0.0024]	[0.0005]	[0.0011]	[0.0005]	[0.0008]	[0.0022]
GDP Growth	0.0095***	0.0021*	0.0113***	0.0082***	-0.0017	0.0097***	0.0021	0.0112***	0.0081***	-0.0015
	[0.0007]	[0.0013]	[0.0009]	[0.0010]	[0.0031]	[0.0007]	[0.0013]	[0.0009]	[0.0010]	[0.0031]
Δ Exchange Rate	0.0520***	-0.0071	0.0731***	-0.0031	-0.0308	0.0549***	-0.0032	0.0758***	-0.0038	-0.0289
	[0.0065]	[0.0110]	[0.0081]	[0.0097]	[0.0212]	[0.0068]	[0.0120]	[0.0083]	[0.0098]	[0.0215]
Δ Interest spread (sector)	-0.0002	0.0001	-0.0001	0.0002	0.0006	-0.0003	-0.0003	-0.0000	0.0002	0.0006
	[0.0002]	[0.0005]	[0.0002]	[0.0003]	[0.0012]	[0.0002]	[0.0005]	[0.0003]	[0.0003]	[0.0012]
Δ Ln(Total Loans - sector)	0.0074*	0.0071	0.0079	0.0045	0.0112	0.0099**	0.0110	0.0085	0.0060	0.0106
	[0.0040]	[0.0094]	[0.0053]	[0.0071]	[0.0275]	[0.0041]	[0.0105]	[0.0055]	[0.0073]	[0.0279]
NPL (90 days, sector)	-0.0838	-0.1545	-0.1280	0.0214	0.4293***	-0.0837	-0.1871	-0.1243	-0.0361	0.4404***
	[0.0582]	[0.1245]	[0.0809]	[0.0947]	[0.1355]	[0.0592]	[0.1340]	[0.0866]	[0.0752]	[0.1356]
Age (in years)	-0.0110	-0.1015***	-0.0179	0.0406	1.0925***	-0.0064	-0.0919**	-0.0116	0.0403	1.1164***
	[0.0188]	[0.0360]	[0.0338]	[0.0261]	[0.0316]	[0.0189]	[0.0364]	[0.0340]	[0.0269]	[0.0338]
Constant	0.2208	0.7607***	0.2599	-0.4159	-19.6343***	0.1795	0.7068***	0.2003	-0.4156	-20.0577***
	[0.1662]	[0.2463]	[0.2963]	[0.3431]	[0.5780]	[0.1717]	[0.2521]	[0.3017]	[0.3549]	[0.6170]
Number of Observations	493,520	189,494	216,855	81,369	5,802	432,588	154,563	193,777	78,508	5,740
Number of Firms	180,329	91,272	89,045	28,884	2,064	151,854	72,460	77,784	27,531	2,037

Table 13: Credit Channel of Country Risk Premium by Firms' Government Loan Access

(only firms that have taken out government-driven loans in at least one year, but not in the whole period)

We apply fixed-effects instrumental variable estimator (xtivreg) in all models of this table. *Panel A* investigates the impact of government-driven loans access of firms on the transmission of country risk premium through total volume of real outstanding loans. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio and all government-driven loan to total loan ratio. *Panel B* explores the credit channel of monetary policy in the lens of non-earmarked private banking sector, both through the total real outstanding loans and the lending rates mechanism. *CDS Brazil*, the Credit Default Swap for the Brazilian sovereign bonds, reflects the country risk premium. *Lending Rate* and *Private Bank Loans* refers to the cost and the amount of non-earmarked loans borrowed from private banks by each firm. *Lending Spread* is the difference between lending rate and SELIC rate. *Gov. Access* measures the access of firms to loans driven by government policies. Some observable sector controls are also included, like Total Loans (Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. The lagged government-driven loans access of firms (*L.Gov.Access*), its interaction with CDS rate, the lending spread charged by private banks and total loans borrowed from private banks are possibly endogenous in each model. The lagged values of those variables are used as instruments. Standard errors are in brackets. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: Total				**Panel B: Non-earmarked Private Loans**					
Dep.variable:	Real Outstanding Loans (Δ%)				Real Outstanding Loans (Δ%)				Lending Rate (Δ)	
Firm's risk control:	No		Yes		No		Yes		No	
Gov. Loan Access Type:	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total	Earmarked	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Trend	-0.0694	-0.0883*	-0.0954*	-0.1146**	-0.1571	-0.1427	-0.1505	-0.1020	-2.0794**	-2.4248**
	[0.0490]	[0.0463]	[0.0544]	[0.0508]	[0.1316]	[0.1150]	[0.1348]	[0.1154]	[1.0192]	[0.9739]
L.Gov. Access	-0.6077***	-0.1865***	-1.3173***	-1.4430***	2.9671***	5.0918***	2.4429***	3.5081***	-0.0458	-1.5338
	[0.0399]	[0.0488]	[0.0658]	[0.0747]	[0.1307]	[0.1503]	[0.1631]	[0.1694]	[1.3624]	[1.8644]
ΔLn(CDS Brazil)	-0.2203***	-0.1803***	-0.1271***	-0.1363***	-0.1199***	-0.2303***	-0.1638***	-0.2316***	5.8656***	4.9667***
	[0.0107]	[0.0120]	[0.0131]	[0.0134]	[0.0309]	[0.0309]	[0.0324]	[0.0303]	[0.2460]	[0.2600]
L.Gov. Access x ΔLn(CDS Brazil)	0.0195	0.0201	0.0118	-0.0128	0.2382***	0.3995***	0.1630**	0.3294***	-2.2851***	0.1751
	[0.0166]	[0.0147]	[0.0299]	[0.0220]	[0.0702]	[0.0497]	[0.0740]	[0.0500]	[0.5624]	[0.4365]
L.Ln(# of employees)	-0.3958***	-0.4051***	-0.3316***	-0.3056***	-0.4850***	-0.6512***	-0.4820***	-0.5977***	-0.5459	-0.7212*
	[0.0180]	[0.0167]	[0.0209]	[0.0199]	[0.0480]	[0.0430]	[0.0519]	[0.0451]	[0.4032]	[0.4174]
GDP Growth	0.0154***	0.0161***	0.0143***	0.0170***	0.0271***	0.0167***	0.0277***	0.0198***	0.0658***	0.1036***
	[0.0008]	[0.0007]	[0.0009]	[0.0008]	[0.0022]	[0.0019]	[0.0023]	[0.0019]	[0.0177]	[0.0162]
ΔExchange Rate	0.6598***	0.4868***	0.3820***	0.3791***	0.0443	0.3214***	0.2437***	0.3792***	-6.6484***	-5.0677***
	[0.0298]	[0.0277]	[0.0364]	[0.0328]	[0.0835]	[0.0714]	[0.0901]	[0.0744]	[0.6807]	[0.6329]
ΔInterest spread (sector)	-0.0001	-0.0002	0.0009	0.0006	-0.0032*	-0.0020	-0.0023	-0.0007	0.0947***	0.1018***
	[0.0006]	[0.0006]	[0.0008]	[0.0007]	[0.0018]	[0.0015]	[0.0019]	[0.0015]	[0.0142]	[0.0129]
ΔLn(Total Loans - sector)	0.1458***	0.1277***	0.0960***	0.0814***	0.0698*	0.1153***	0.0489	0.0749**	-0.4975*	-0.6596**
	[0.0138]	[0.0128]	[0.0161]	[0.0145]	[0.0378]	[0.0321]	[0.0398]	[0.0328]	[0.3008]	[0.2789]
NPL (90 days, sector)	-0.3978**	-0.3857**	-0.5483***	-0.4902***	0.5190	0.1481	0.3605	0.0000	2.0093	1.4307
	[0.1652]	[0.1557]	[0.1945]	[0.1751]	[0.4519]	[0.3857]	[0.4819]	[0.3973]	[3.6636]	[3.3792]
Firm's Age (in years)	-0.0205	0.0005	0.0168	0.0437	0.0433	-0.0585	0.0353	-0.0631	1.8952*	2.1828**
	[0.0490]	[0.0464]	[0.0544]	[0.0509]	[0.1316]	[0.1151]	[0.1349]	[0.1155]	[1.0196]	[0.9753]
L.Lending spread			-0.0000	-0.0002			-0.0006	-0.0000		
			[0.0002]	[0.0002]			[0.0006]	[0.0005]		
ΔLending spread			-0.0002	-0.0005***			-0.0011**	-0.0004		
			[0.0002]	[0.0002]			[0.0005]	[0.0004]		
ΔLn(Private Bank Loans)									-0.2807***	-0.2682*
									[0.0826]	[0.1380]
Constant	2.3757***	2.0990***	1.8924***	1.7111***	1.3719	2.0424**	1.7661	2.5848**	-13.8268	-15.1109*
	[0.4331]	[0.4174]	[0.5083]	[0.4711]	[1.1996]	[1.0407]	[1.2593]	[1.0689]	[9.5531]	[9.0835]
Number of Observations	507,565	545,081	268,221	340,752	345,147	432,137	268,221	340,752	261,043	330,468
Number of firms	185,147	199,583	105,047	137,966	135,875	175,669	105,047	137,966	103,514	135,493

Table 14: Credit Channel of Country Risk Premium by Firms' Size and Government-driven Loan Access

(only firms that have taken out government-driven loans in at least one year, but not in the whole period)

We apply fixed-effects regression in all models of this table. The dependent variable is the percentage annual change of firm's total number of employees. We analyse two measures of government-driven loans access of firms: earmarked to total loans ratio (reported in Panel A) and all government-driven loan to total loan ratio (reported in Panel B). This table also reports estimates for subsamples grouped by firm's size - according to their number of employees. CDS Brazil, the Credit Default Swap for the Brazilian sovereign bonds, reflects the country risk premium. Some observable sector controls are also included, like Total Loans(Δ, in log), Lending Spread(Δ) and Nonperforming Loans (90 days of delay). Firm's age (in years) is also included to control for firm's business phase. Robust standard errors in brackets are clustered at the municipality level. Symbols *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dep. var.: Δ Ln(# of employees)										
Gov. Access Type:	**Panel A: Earmarked Loans**					**Panel B: Total**				
Number of Employees	Total	[2;10)	[10;50)	[50;500)	[500;∞)	Total	[2;10)	[10;50)	[50;500)	[500;∞)
Trend	-0.0120	0.0952***	-0.0065	-0.0602**	-1.1134***	-0.0171	0.0849**	-0.0130	-0.0600**	-1.1372***
	[0.0188]	[0.0358]	[0.0340]	[0.0259]	[0.0313]	[0.0190]	[0.0363]	[0.0343]	[0.0267]	[0.0332]
L.Gov. Access	-0.0032	-0.0024	0.0032	0.0123***	0.0150	0.0084***	0.0029	0.0164***	0.0144***	-0.0116
	[0.0023]	[0.0041]	[0.0031]	[0.0048]	[0.0131]	[0.0023]	[0.0048]	[0.0032]	[0.0050]	[0.0138]
ΔLn(CDS Brazil)	-0.0366***	-0.0029	-0.0455***	-0.0112*	0.0315**	-0.0356***	-0.0014	-0.0447***	-0.0103	0.0335**
	[0.0041]	[0.0068]	[0.0044]	[0.0060]	[0.0153]	[0.0044]	[0.0081]	[0.0048]	[0.0063]	[0.0163]
L.Gov. Access x ΔLn(CDS Brazil)	0.0103***	0.0137***	0.0037	0.0076*	-0.0074	0.0021	0.0024	0.0006	0.0031	-0.0097
	[0.0023]	[0.0048]	[0.0029]	[0.0042]	[0.0117]	[0.0022]	[0.0052]	[0.0029]	[0.0040]	[0.0107]
GDP Growth	0.0051***	0.0022***	0.0054***	0.0070***	0.0021	0.0051***	0.0021***	0.0054***	0.0070***	0.0022
	[0.0003]	[0.0005]	[0.0004]	[0.0005]	[0.0015]	[0.0003]	[0.0006]	[0.0004]	[0.0005]	[0.0015]
Δ Exchange Rate	0.1091***	-0.0102	0.1494***	0.0118	-0.0813*	0.1139***	-0.0043	0.1519***	0.0113	-0.0788*
	[0.0127]	[0.0211]	[0.0146]	[0.0181]	[0.0418]	[0.0132]	[0.0229]	[0.0151]	[0.0184]	[0.0423]
Δ Interest spread (sector)	-0.0003	0.0000	-0.0001	0.0002	0.0006	-0.0003	-0.0003	-0.0000	0.0002	0.0006
	[0.0002]	[0.0005]	[0.0002]	[0.0003]	[0.0012]	[0.0002]	[0.0005]	[0.0003]	[0.0003]	[0.0012]
Δ Ln(Total Loans - sector)	0.0080**	0.0082	0.0083	0.0047	0.0116	0.0100**	0.0112	0.0086	0.0060	0.0110
	[0.0040]	[0.0094]	[0.0053]	[0.0071]	[0.0273]	[0.0041]	[0.0105]	[0.0055]	[0.0073]	[0.0279]
NPL (90 days, sector)	-0.0802	-0.1471	-0.1257	0.0223	0.4299***	-0.0831	-0.1843	-0.1240	-0.0361	0.4410***
	[0.0580]	[0.1244]	[0.0807]	[0.0945]	[0.1357]	[0.0592]	[0.1341]	[0.0866]	[0.0752]	[0.1362]
Age (in years)	-0.0110	-0.1011***	-0.0180	0.0406	1.0927***	-0.0065	-0.0918**	-0.0117	0.0403	1.1168***
	[0.0188]	[0.0359]	[0.0338]	[0.0261]	[0.0316]	[0.0189]	[0.0364]	[0.0340]	[0.0269]	[0.0333]
Constant	0.2552	0.7579***	0.3055	-0.4058	-19.6670***	0.2146	0.7066***	0.2454	-0.4066	-20.0930***
	[0.1658]	[0.2467]	[0.2946]	[0.3432]	[0.5765]	[0.1712]	[0.2528]	[0.3000]	[0.3554]	[0.6072]
Number of Observations	493,520	189,494	216,855	81,369	5,802	432,588	154,563	193,777	78,508	5,740
Number of Firms	180,329	91,272	89,045	28,884	2,064	151,854	72,460	77,784	27,531	2,037

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