

Bank loan forbearance: evidence from a million restructured loans

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Disclaimer

The opinions expressed herein are those of the authors and do not necessarily reflect those of the Central Bank of Brazil.

Loan forbearance

- What is it?
 - “*forbearance is a concession granted to a counterparty for reasons of financial difficulty that would not be otherwise considered by the lender*”. (BCBS, 2016)

Loan forbearance

- “Good” forbearance

the borrower has **good payment capacity** but is facing a **temporary liquidity problem**

- prevents a viable business from closing;
- **reduces potential losses** with troubled loans;
- **avoids costs** with the process of seizing and selling the collateral.

Loan forbearance

- “Bad” forbearance:

conceived to **hide expected losses** from debtor with solvency problems

- **easing the terms** of the loan **will not suffice**: borrower unlikely to honor the new obligations in the future
 - value of collateral, if any, is likely to decrease over time
-
- **Real effects of pervasive bad forbearance**
 - **Zombie lending** affects economic growth (Hoshi and Kashyap, 2004)

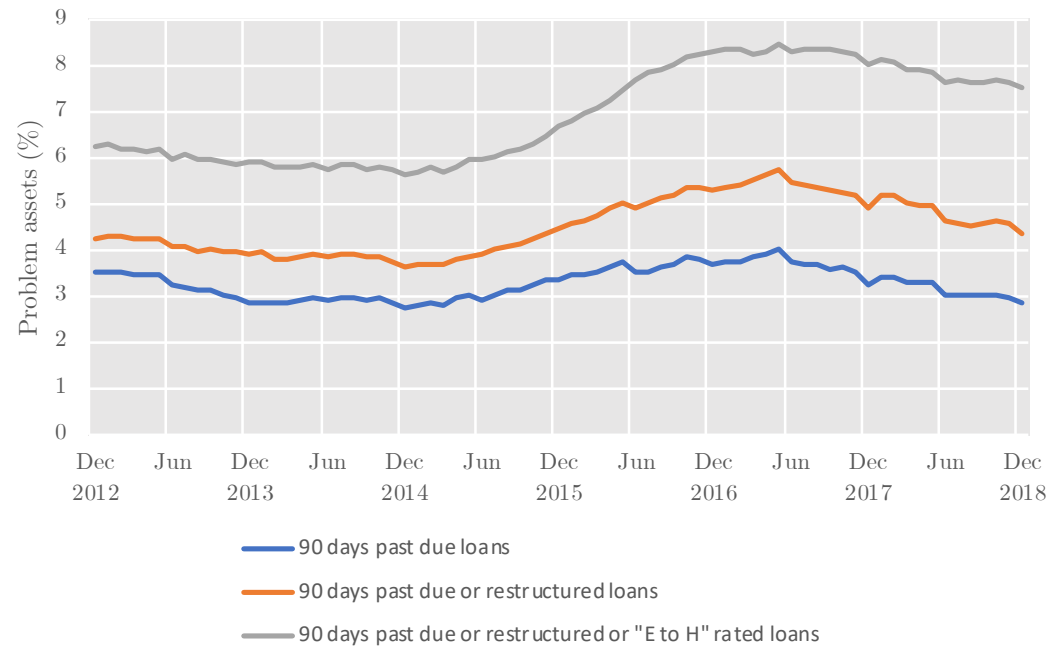
Motivation

Never paid loan (\$10,000; 2% p.m. interest)

		Period							
		0	1	2	3	4	5	6	7
<u>Panel A</u>									
loan is not forborne	Days Past Due	0	30	60	90	120	150	180	210
	Rating	B	B	C	D	E	F	G	H
	Provision (%)	1%	1%	3%	10%	30%	50%	70%	100%
	Provision (\$)	100	102	312	1,040	3,121	5,202	7,283	10,404
	Interest Earned	-	200	204	-	-	-	-	-
	Provision expenses	100	2	210	728	2,081	2,081	2,081	3,121
	Acumulated Profit	(100)	98	92	(636)	(2,717)	(4,798)	(6,879)	(10,000)
<u>Panel B</u>									
loan is forborne every 60 days	Days Past Due	0	30	60	30	60	30	60	30
	Rating	B	B	C	C	C	C	C	C
	Provision (%)	1%	1%	3%	3%	3%	3%	3%	3%
	Provision (\$)	100	102	312	312	312	312	312	312
	Interest Earned	-	200	204	-	-	-	-	-
	Provision expenses	100	2	210	-	-	-	-	-
	Acumulated Profit	(100)	98	92	92	92	92	92	92

Motivation

- Delinquency ratio “culture”
 - Bradesco 1Q2019 press release
- Forbearance Impact
 - FSR (BCB, 2019)



Motivation

- Resolution 2,682 (CMN, 1999) in Brazil
 - Minimum rating and provision based on number of days past due

Rating	Days Past Due	Minimum Provision
AA	---	---
A	---	0.5%
B	15 to 30	1%
C	31 to 60	3%
D	61 to 90	10%
E	91 to 120	30%
F	121 to 150	50%
G	151 to 180	70%
H	more than 180	100%

- All loans issued to a borrower must be classified in the same category as the riskiest loan

What is novel in this paper?

- Renegotiation of Financial Contracts
 - Gilson et al. (JFE, 1990); Roberts & Sufi (JFE, 2009); Demiroglu & James (JFE, 2015); Roberts (JFE, 2015); Campello et al. (RF, 2019)
 - larger sample (loan-level data)
 - characteristics not explored before

What is novel in this paper?

- Law and Finance - Creditor rights, collateral, and firm financing
 - Vig (JF, 2013); Assunção et al. (RFS, 2014); Campello & Larrain (RFS, 2016)
 - how increase in creditors' rights affects forbearance
- Financial Stability
 - Rojas-Suarez & Weisbrod (1996); OECD (2001); Kanaya & Woo (2000); Peek & Rosengren (2005); Gunther & Moore (2003)
 - successive forbearances (zombie lending)
 - regulation incentives

Data

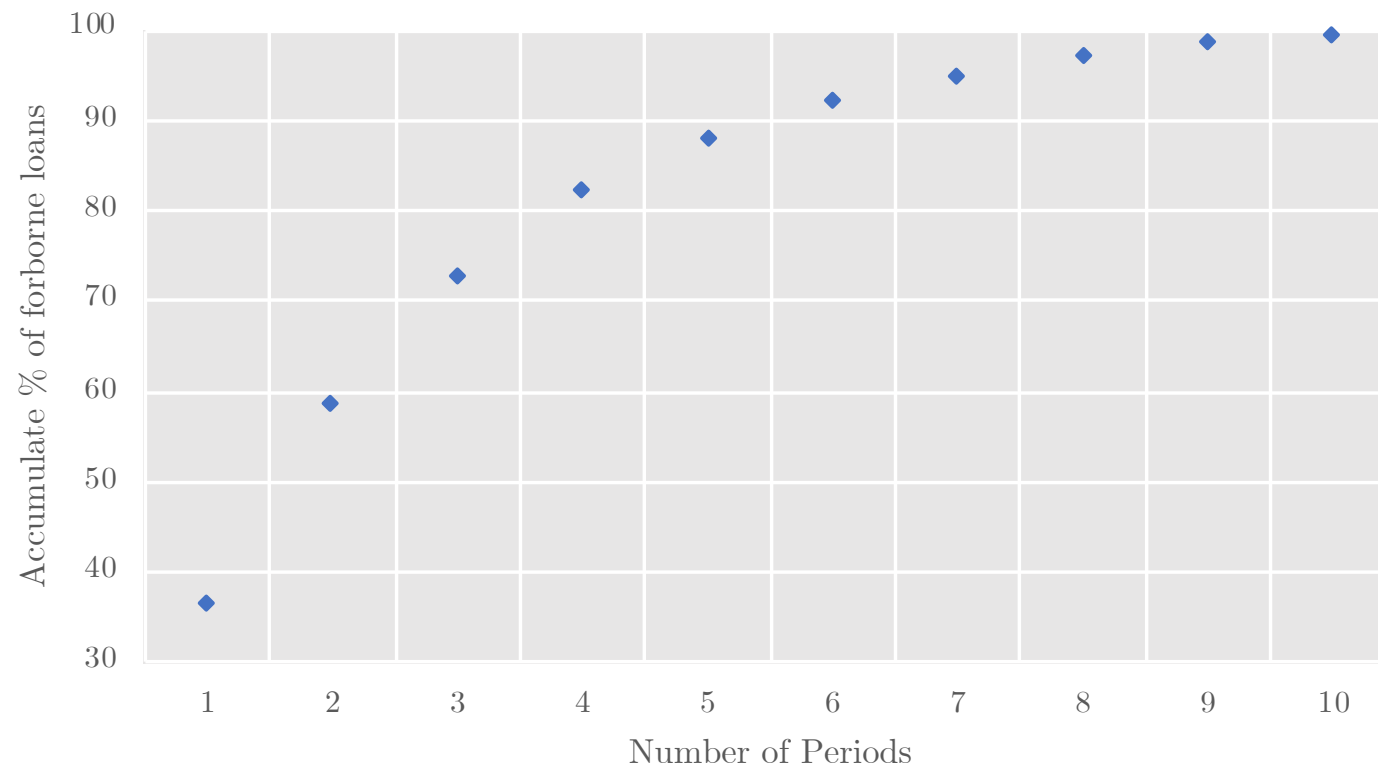
- Period: April 2012 to October 2018
- Loans
 - Almost 13 Million non-accrual loans
 - + 1 Million forborne loans
 - + 1,000 financial institutions
 - + 2M non-financial firms
- Forborne Measure
 - Covers all loans
 - Loan-level data
 - Does not rely on subjective judgement (other measures)

Other Measurements of forbearance or zombie lending in the literature

- Peek & Rosengren (2005)
 - increase of loans to firms with poor performance variables
- Caballero, Hoshi & Kashyap (2008)
 - loans to firms with subsidized interest rate
- Arrowsmith et al. (2013)
 - surveys with banks about loans to specific firms
- Homar, Kick & Salleo (2015)
 - comprehensive asset quality review
- Bonfim et al. (WP, 2019)
 - Loans to firms with negative equity

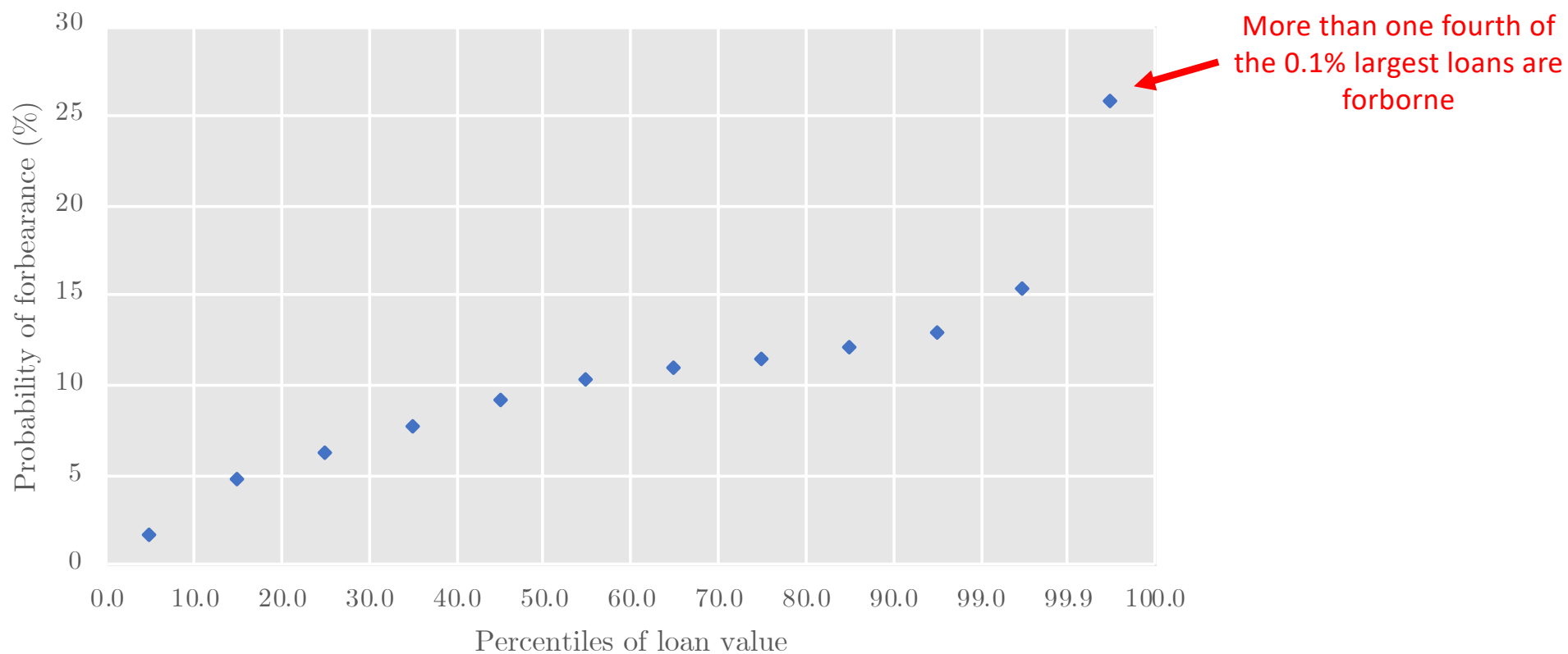
Univariate Analysis

Time to forbear in months



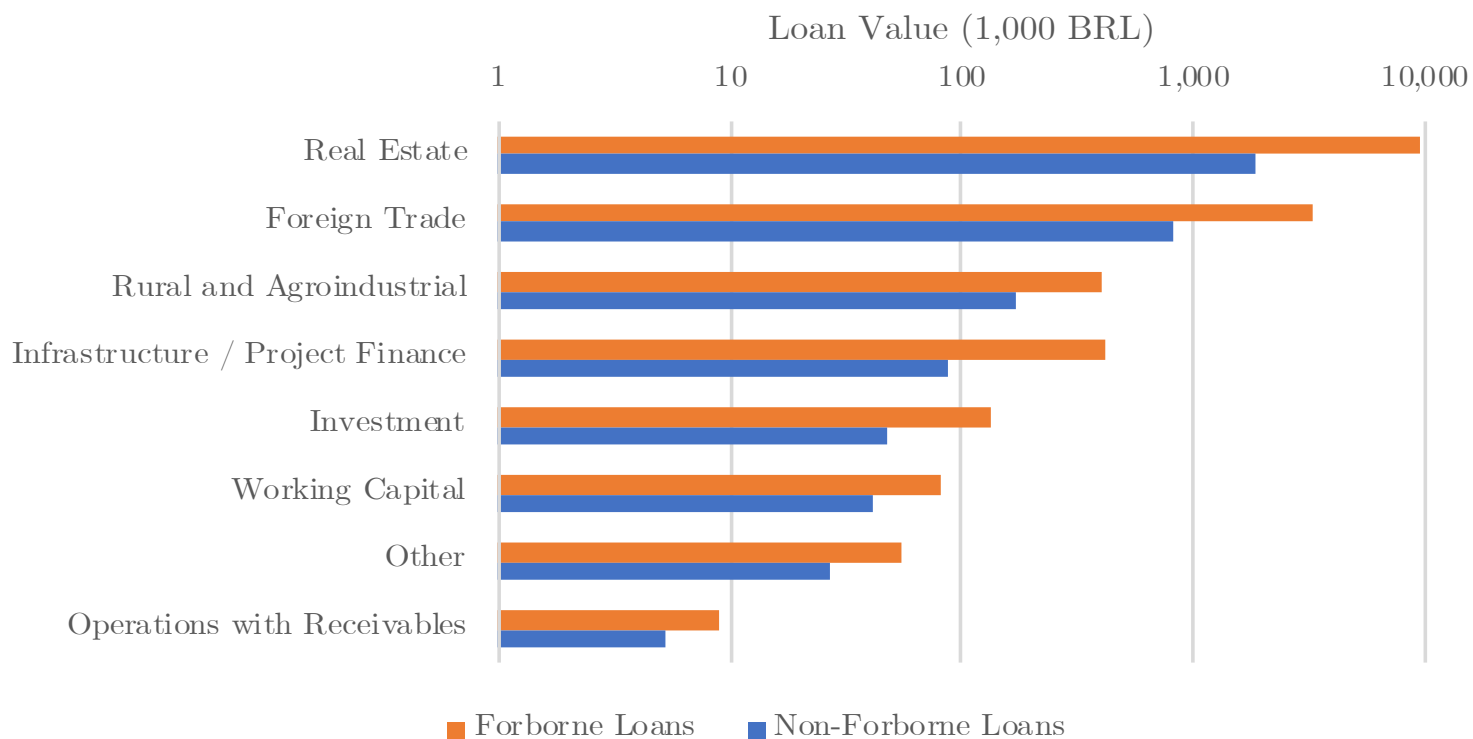
Univariate Analysis

Unconditional probability of forbearance x loan size



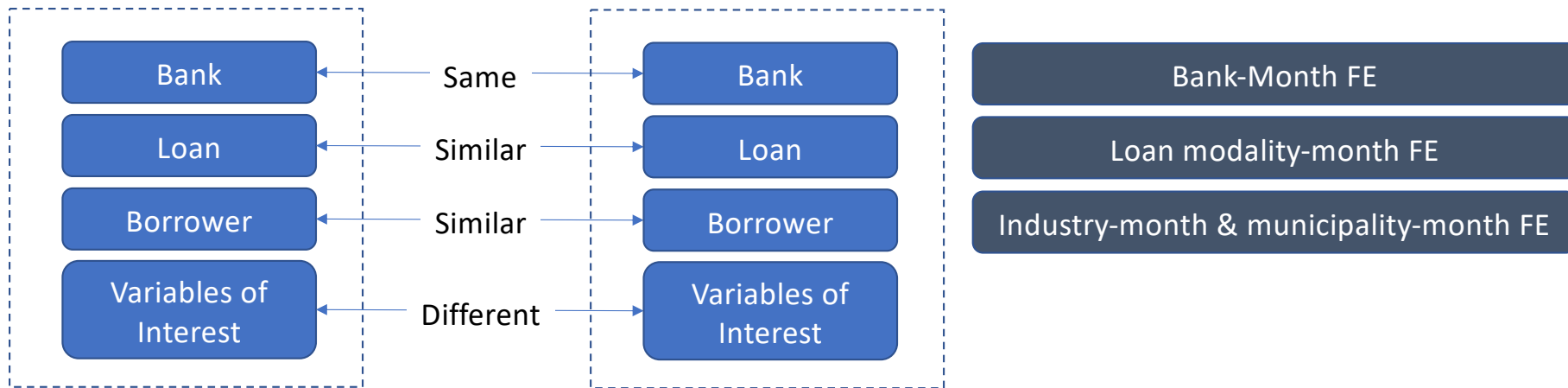
Larger loans

are more likely to be forborne across all modalities



What drives loan forbearance?

$$\begin{aligned}
 \text{Forborne}_{i,j,k} = & \alpha + \beta_1 \text{Has Performing}_{i,j,k} + \Lambda' \text{Guarantee Type}_{i,j,k} \\
 & + \beta_3 \text{Previous Forbearances}_{j,k} + \beta_4 \log(\text{Number of Periods}_{i,j,k}) \\
 & + \beta_5 \log(\text{Loan Value}_{i,j,k} + 1) + \Gamma' X_{i,j,k} + \varepsilon_{i,j,k} \tag{2.1}
 \end{aligned}$$



Forbear or not?

What drives loan forbearance?

Forborne Status

	(1)	(2)	(3)	(4)	(5)
Has Performing Loan	0.0100 ** (0.0040)	0.0111 *** (0.0040)	0.0113 *** (0.0038)	0.0104 ** (0.0047)	0.0102 ** (0.0044)
Guarantee Type					
Lien	-	-	-	-	-
Mortgage	0.0292 (0.0206)	0.0312 (0.0206)	0.0301 (0.0206)	0.0367 ** (0.0147)	0.0362 ** (0.0165)
Other	0.0483 *** (0.0131)	0.0497 *** (0.0133)	0.0491 *** (0.0129)	0.0385 *** (0.0121)	0.0360 *** (0.0114)
Prev. Forb. (# Months)	0.0150 *** (0.0050)	0.0130 ** (0.0052)	0.0118 ** (0.0051)	0.0083 * (0.0043)	0.0084 * (0.0044)
Ln(Number of Periods)	-0.0832 *** (0.0075)	-0.0849 *** (0.0080)	-0.0845 *** (0.0081)	-0.0839 *** (0.0082)	-0.0858 *** (0.0090)
Ln(Loan Value + 1)	0.0164 *** (0.0029)	0.0161 *** (0.0030)	0.0162 *** (0.0030)	0.0164 *** (0.0035)	0.0166 *** (0.0035)
Month FE	No	Yes	Yes	Yes	No
Municipality FE	No	No	Yes	Yes	No
Bank FE	No	No	No	Yes	No
Bank-Month FE	No	No	No	No	Yes
Industry-Month FE	No	No	No	No	Yes
Municipality-Month FE	No	No	No	No	Yes

Results / Takeaways

Forborne Status	
(5)	
Has Performing Loan	0.0102 ** (0.0044)
Guarantee Type	
Lien	- -
Mortgage	0.0362 ** (0.0165)
Other	0.0360 *** (0.0114)
Prev. Forb. (# Months)	0.0084 * (0.0044)
Ln(Number of Periods)	-0.0858 *** (0.0090)
Ln(Loan Value + 1)	0.0166 *** (0.0035)
Observations	12,776,251
Adj. Within R-Sq	0.0852

- Having a performing loan increases forbearance
- Creditor rights decrease forbearance
- Suggests successive “bad” forbearances
- Decision of forbearance made quickly
- Loans of higher values are more prone to be forborne

Next steps

- **Bank relationship**
 - Does it affect likelihood and terms of forbearance?
 - What is the effect of multiple relationships
- **Are weak banks more likely to forbear?**
 - If so, what is the causal direction?
 - What is the channel? Capital requirements? Income smoothing?
- **What happens after forbearance?**
 - Are loans paid? Defaulted again?
 - Are there observable features driving repayment or new default?
- **Real effects of forbearance**
 - What are the long run effects for firms' employment and investment?
 - Does forbearance induce moral hazard?

Thank you

