

Anti-corruption and Bank Lending

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Favorable Lending Terms to SOEs in Developing Countries

- ▶ State-owned enterprises (SOEs) in developing countries have been criticized for dominating the credit market, obtaining distorted loans with favorable terms (e.g., Sapienza (2004))
- ▶ Inefficient capital allocations among SOEs and non-SOEs (e.g., Song, Storesletten and Zilibotti (2011))
- ▶ Explanations given by existing literature
 - ▶ **Financial:** easier to get money back/safer to lend to SOEs (Faccio and Lang (2002), Faccio (2006))
 - ▶ **Political:** connections and favoritism (Dinc (2005), Carvalho (2014))

Problem with Existing Literature

- ▶ Data issue: SOEs concentration in industry/firm size/geographical location, difficult to generalize results
- ▶ But more importantly, the effect of **corruption** (bribery, embezzlement, power-for-money deals, etc.) is difficult to identify
 - ▶ Difficult to disentangle corruption from favoritism (e.g., political connections) due to data limitation
 - ▶ Corruption data rarely observed/measured directly

This Paper

- ▶ Unique micro-level loan data set covering all industry sectors, firm sizes and geographic locations within China
 - ▶ More comprehensive understanding of relationship between lending and ownership in developing countries
- ▶ A quasi-experiment: the anti-corruption campaign in China
 - ▶ Separates the effect of corruption from political connection on bank lending
 - ▶ Overcomes the problem of not being able to measure corruption directly

Theoretical Model

- ▶ We construct a two-period model with the bank and two types of cashless borrowers: SOE and Non-SOE.
- ▶ Both types seek funds from the bank to finance their projects.
- ▶ The government will offer subsidy to SOE borrowers in general and bail out SOE borrowers if they are on the edge of bankruptcy.
- ▶ We use private benefit to denote the government intervention.
- ▶ Main prediction
 - ▶ We find that the SOE borrowers will get loan contracts with a lower interest rate and a larger credit, and they are less likely to default.
 - ▶ When the private benefit drops, the gap on interest rate and credit will shrink.
 - ▶ The default rate on SOE loans will increase.

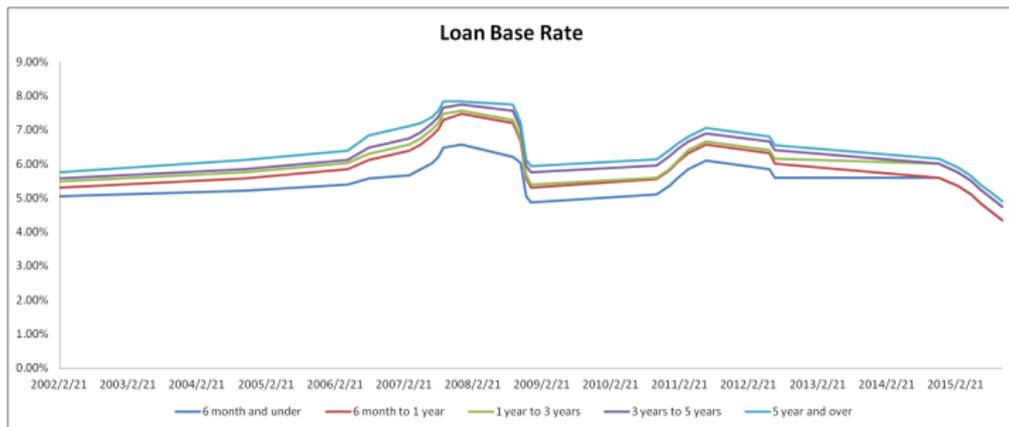
Empirical Analysis

- ▶ We use China's Anticorruption Movement as a quasi-experiment to examine our prediction.
 - ▶ It is an unexpected cut on private benefit since 2013.
- ▶ We exploit loan level data from one of the five biggest national state-owned banks from 2012 to 2016.
 - ▶ It provides information on credit amount, interest rate, duration, basic firm characteristics and loan outcomes.
 - ▶ We focus on three dimensions of loan contracts, including the credit amount, the interest rate and the duration.
 - ▶ We examine how the Anti-corruption Campaign intersects with the borrower's ownership, and how the loan contracts will be affected correspondingly.

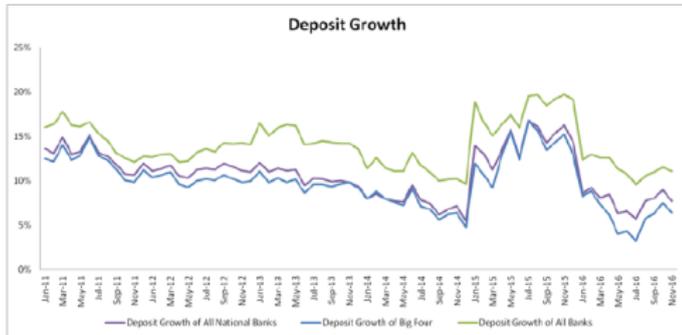
Results

- ▶ The SOE borrowers will get loan contracts with a lower interest rate and a larger credit.
 - ▶ During our sample period, the SOE borrower will get 40.6% more credit, at 0.282 percent lower spread, with 16% longer duration.
 - ▶ Before the Anticorruption movement, the SOE borrower will get 49.1% more credit, at 0.525 percent lower spread, with 23% longer duration.
 - ▶ After the Anticorruption movement, the SOE borrower will get 38.8% more credit, at 0.229 percent lower spread, with 14.5% longer duration.
 - ▶ Before the Anticorruption movement, the SOE borrower is 0.03% less likely to default.
 - ▶ After the Anticorruption movement, the SOE borrower is 0.07% more likely to default.

PBC's Loan Base Rate



China's Banking Sector



Anti-corruption Campaign

- ▶ The Anti-corruption campaign was an unprecedented organized anti-graft effort.
 - ▶ It took place after President Xi Jinping officially took office in October 2012.
- ▶ The Anti-corruption campaign served as a quasi-experiment.
 - ▶ It is unexpected and comes directly from the top.
 - ▶ Commercial loans, government contracts and transactions on state-owned asset have been carefully investigated.
 - ▶ The campaign is targeting direct briberies, gift givings, expensive business dinners and other standard channels.
 - ▶ The government officials, executives of state-owned enterprises and loan officers from state-owned national banks steered away from being personally involved in any business decision.

The Baseline Model

- ▶ We consider a two-period game with a risk-neutral bank and two types of risk-neutral borrowers.
- ▶ Timing
 - ▶ In the first period, the bank may offer a loan contract to a firm according to its ownership and the characteristics of its project.
 - ▶ In the second period, the firm pays back the principle and interest rate based on the contract using the return on the project.
- ▶ The bank's payoff depends on both the project return and the corresponding private benefit from the local government.

$$\begin{aligned} \max_{p_s, p_n, r_s, r_n} \quad & b(1 - p_s) + (r_s + b) \int_{\frac{1+r_s-b}{R}}^1 dp_{s,i} + \int_{p_s}^{\frac{1+r_s-b}{R}} (Rp_{s,i} - 1) dp_{s,i} \\ & + (r_n - b) \int_{\frac{1+r_n}{R}}^1 dp_{n,j} + \int_{p_n}^{\frac{1+r_n}{R}} (Rp_{n,j} - 1) dp_{n,j} \quad (1) \end{aligned}$$

- ▶ We obtained a data set covering all the commercial loans to corporate borrowers between 2012 to 2016 from the sample bank.
 - ▶ Their total loans represented 9% of the whole banking sector.
 - ▶ The Non-Performing Loans (NPLs) is between 1% and 1.5%.
 - ▶ The final sample data set comprises 817,334 loans from this bank to corporate borrowers between 2012 and 2016.
 - ▶ Loans in 2012 are treated as the before shock observations, and loans after 2012 are the after shock observations.

Summary Statistics

	Mean	SD	Median	p25	p75
Interest Rate Spread	0.87	0.93	0.72	0.06	1.50
Duration	21.24	28.06	18.00	13.00	18.00
Borrower from A Richer City	0.01				
SOE	0.10				
Listed Firm	0.03				
Internal Rating	5.43	3.85	4.00	3.00	6.00
ln(Credit Amount)	15.32	1.61	15.32	14.51	16.12
ln(Duration)	2.82	0.54	2.89	2.56	2.89
ln(Employees)	4.81	1.55	4.65	3.69	5.74
ln(Capital)	16.43	2.26	16.12	14.91	17.73
ln(Deposit)	12.43	3.88	12.99	9.91	15.21
ln(Local GDP)	11.10	0.48	11.14	10.76	11.48
Anticorruption	0.84				

Baseline Regressions with Firm Characteristics

	ln(Credit Amount)	Interest Rate Spread	ln(Duration)
SOE	0.406*** (16.86)	-0.282*** (-17.82)	0.160*** (19.09)
Borrower from A Richer City	0.146*** (4.38)	-0.100*** (-4.83)	0.146*** (10.48)
ln(Employees)	0.274*** (49.42)	-0.081*** (-15.71)	-0.031*** (-18.55)
Listed Firm	0.093*** (4.30)	-0.016 (-1.56)	-0.122*** (-19.87)
ln(Capital)	0.233*** (70.03)	-0.075*** (-18.85)	0.036*** (26.37)
ln(Deposit)	0.022*** (13.08)	-0.023*** (-15.36)	0.003*** (7.87)
Internal Rating	-0.016*** (-6.53)	0.018*** (7.87)	-0.002*** (-4.43)
ln(Local GDP)	0.175*** (13.94)	-0.092*** (-7.90)	0.015*** (3.31)
Industry Fixed Effect	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes
Month Fixed Effect	Yes	Yes	Yes

Dif in Dif Tests of the Anti-corruption Campaign

- ▶ Difference in Difference tests on dimensions of loan contracts

$$y_{i,t} = \alpha + \beta_1 \text{SOE}_{i,t} + \beta_2 \text{Anti-corruption}_{i,t} + \beta_3 \text{SOE}_{i,t} * \text{Anti-corruption}_{i,t} + \gamma \text{Firm Controls}_{i,t} + \text{Fixed Effects} + \epsilon_{i,t}$$

$y_{i,t}$ is $\ln(\text{Credit Amount}_{i,t})$, $\text{Spread}_{i,t}$, or $\ln(\text{Duration}_{i,t})$

- ▶ Difference in Difference tests on loan outcomes

$$\text{Default}_{i,t} = \beta_1 \text{SOE}_{i,t} + \beta_2 \text{Anti-corruption}_{i,t} + \beta_3 \text{SOE}_{i,t} * \text{Anti-corruption}_{i,t} + \beta_4 \ln(\text{Credit Amount}_{i,t}) + \beta_5 \text{Spread}_{i,t} + \beta_6 \ln(\text{Duration}_{i,t}) + \gamma \text{Firm Controls}_{i,t} + \text{Fixed Effects} + \epsilon_{i,t}$$

Dimensions of Loan Contracts

	ln(Credit Amount)		Interest Rate Spread		ln(Duration)	
Anticorruption	0.133*** (12.59)	0.089*** (7.07)	-1.096*** (-119.90)	-1.041*** (-110.91)	0.093*** (22.79)	0.062*** (15.43)
SOE	1.740*** (28.43)	0.491*** (8.51)	-0.996*** (-25.05)	-0.525*** (-11.86)	0.291*** (10.68)	0.230*** (9.74)
Anticorruption*SOE	-0.141** (-2.15)	-0.103* (-1.72)	0.306*** (4.91)	0.296*** (5.00)	-0.088*** (-2.93)	-0.085*** (-3.16)
Borrower from A Richer City		0.145*** (4.35)		-0.098*** (-4.82)		0.145*** (10.50)
ln(Employees)		0.274*** (49.39)		-0.081*** (-15.84)		-0.031*** (-18.48)
Listed Firm		0.093*** (4.26)		-0.014 (-1.37)		-0.123*** (-19.98)
ln(Capital)		0.233*** (70.05)		-0.075*** (-18.83)		0.036*** (26.54)
ln(Deposit)		0.022*** (13.13)		-0.023*** (-15.21)		0.003*** (7.81)
Internal Rating		-0.016*** (-6.53)		0.018*** (7.88)		-0.002*** (-4.45)
ln(Local GDP)		0.175*** (13.94)		-0.092*** (-7.85)		0.015*** (3.27)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Loan Outcomes

	Dep Var: Non Performing Loan		
Anticorruption	0.228*** (26.70)	0.244*** (14.48)	0.750*** (20.78)
SOE	-0.595*** (-7.63)	-0.243* (-1.89)	-0.417*** (-3.15)
Anticorruption*SOE	0.161* (1.79)	0.286** (2.10)	0.261* (1.91)
ln(Credit Amount)			0.120*** (9.52)
Interest Rate Spread			-0.041*** (-2.69)
ln(Duration)			0.041*** (9.73)
Borrower from A Richer City		-0.268 (-1.35)	0.060 (0.30)
ln(Employees)		0.104*** (4.66)	0.072*** (5.08)
Listed Firm		0.163 (1.63)	0.156 (1.38)
ln(Capital)		0.044*** (2.80)	0.046*** (4.51)
ln(Deposit)		-0.069*** (-21.25)	-0.069*** (-30.12)
Internal Rating		0.122*** (19.85)	0.173*** (19.38)
ln(Local GDP)		-0.209*** (-3.99)	-0.121*** (-3.07)
Industry, Province & Month Fixed Effects	Yes	Yes	Yes

Conclusion

- ▶ We study how anti-corruption measures affect banks' lending decisions to SOEs and non-SOEs.
- ▶ We find that SOEs received much more favorable borrowing terms than non-SOEs.
- ▶ We use the Anti-corruption Campaign enacted as a quasi-experiment to identify the marginal effect of anti-corruption measures on bank lending to SOEs and non-SOEs.
- ▶ After the Anti-corruption Movement, non-SOEs receives borrowing contracts with larger credit amounts, lower interest rates and longer durations.