

Banking liberalization, rent seeking, and credit allocation: firm-level evidence

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Research question

Does banking liberalization in a transition economy improve efficiency in credit *allocation*?

- In theory: probably yes
 - private ownership forces managers to focus on performance
 - market competition fosters better, relationship lending
- In reality: not sure
 - the process is often led by government
 - politicians' rent-seeking incentive, to implement their own agenda

Literature review

- Most focus on banks' *operational* efficiency, contingent on
 - Foreign / private ownership: Berger et al (2009), Ferri (2009), Lin and Zhang (2009), Shen and Lin (2012)...
 - Competition: Fungáčová et al. (2013), Chong et al. (2013)
- Political connections and re-election: Khwaja and Mian (2005), Dinç (2005), Agarwal et al. (2016), Agarwal et al. (2018)
- Much has been left unanswered:
 - Where did the money go?
 - Did the money go to places where it is better used? *Allocational* efficiency!

In this paper

- Using a crucial step in China's banking liberalization, i.e. establishment of city commercial banks (CCB) in municipalities, as a quasi-natural experiment
- Combined with Chinese firms' registry over 16 years, and a wide range of municipal level macro variables
- We ask:
 - Who have been winners and losers throughout the liberalization?
 - How municipal officials' rent-seeking incentives (possibly) bias credit allocation?

Main findings

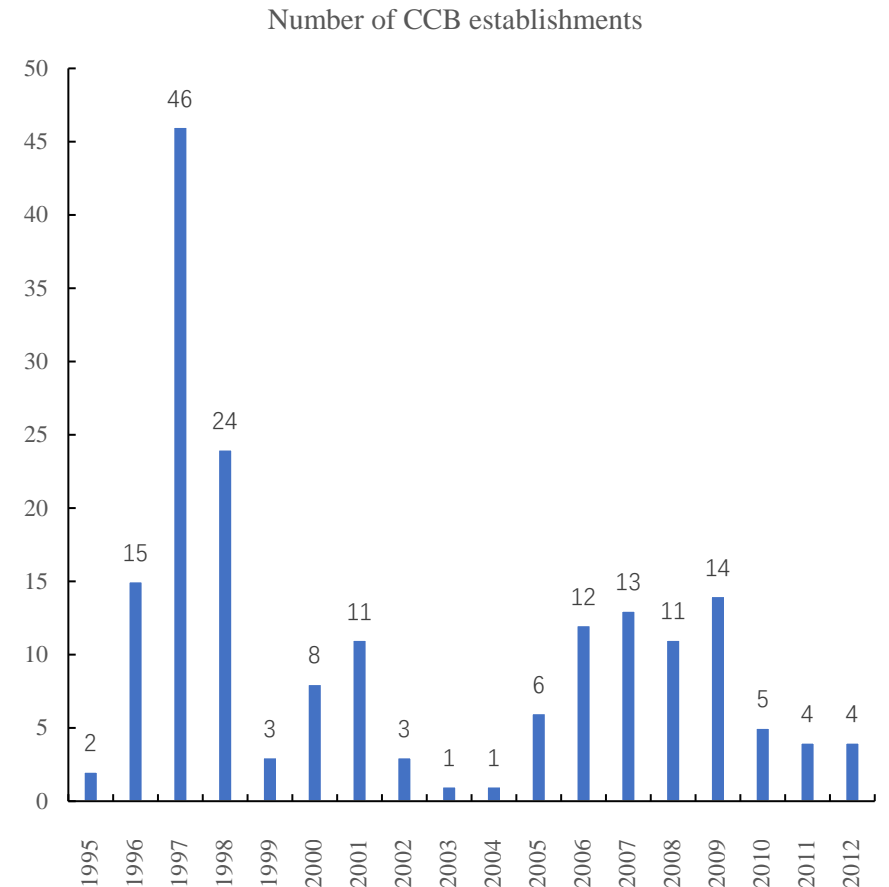
- Overall, losers are
 - CCBs lead to 14-17% fall in credit supply and ~200bps rise in loan rates for private firms
 - Similar effects not observed among state-owned firms (SOEs)
- However, the winners are
 - 9% rise in credit supply to private infrastructure firms, 20%+ rise in local real estate investments
- Allocation efficiency?
 - Credit quality of those winners significant inferior to that of the losers
 - Performance of local private firms not improved by the investments in infrastructure
- In line with GDP-oriented promotion standard for local officials, encouraging GDP-enhancing, socially wasteful investments

Banking in people's republic: a mini history

- Before 1978: mono-bank PBoC
- 1978-1995: separation
 - PBoC as the central bank
 - State-owned commercial banks “big five”
- 1994: tax-sharing reform, reducing local governments' fiscal income
- 1995: law of commercial banks, then
 - Joint-stock, national commercial banks
 - Municipal CCBs, via transforming former urban credit cooperatives
- CCBs today (2019q4): 134 banks, 5.325 trillion USD total assets (16% of all commercial banks), one of the three pillars in banking system

Our data

- 3 million+ financial statements of all firms with sales revenue > 5 million CNY (1998-2010) / 20 million CNY (2011-2013), matched on municipal level
- 183 CCB establishments
- 1998-2013 macro data on the level of 337 municipalities: GDP, population density, total loans and deposits from financial institutions, total investment on fixed assets, public expenditure, revenue from land sales, etc



Our methodology

- Multi-period difference-in-difference (diff-in-diff)

- $$y_{ijct} = \alpha + \beta ccb_{ct} + \eta x_{ijct} + \lambda z_{ct} + \gamma_c + \delta_j + \theta_t + \varepsilon_{ijct}$$

- y_{ijct} : log loan supply / loan rate for firm i industry j municipality c year t
- ccb_{ct} : dummy, CCB establishments
- x_{ijct} : firm-level controls
- z_{ct} : municipality-level controls
- $\gamma_c / \delta_j / \theta_t$: municipal / industry / year fixed effect

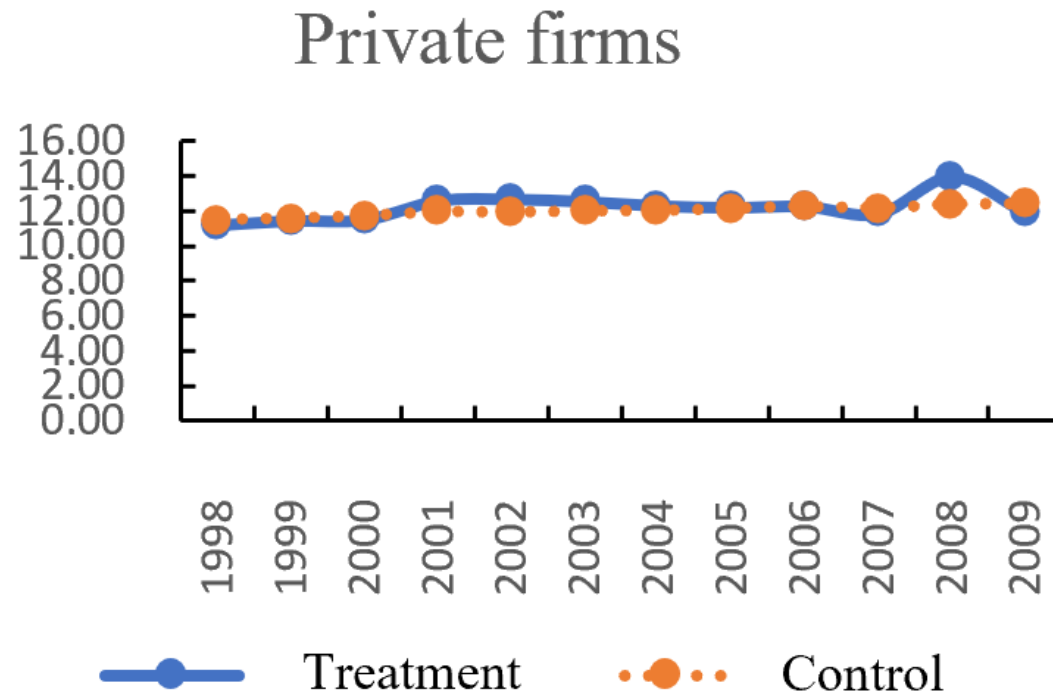
Baseline results: loan supply / loan rate for private firms

	loan supply		loan rate	
	(1)	(2)	(3)	(4)
CCB establishment	-0.1781***	-0.1438***	0.0181***	0.0118***
	(0.0466)	(0.0383)	(0.0050)	(0.0038)
No. of obs.	2,449,933	2,333,052	1,766,261	1,727,384
R-squared	0.7744	0.7867	0.0996	0.2023
controls	no	yes	no	yes
municipality FE	yes	yes	yes	yes
industry FE	yes	yes	yes	yes
year FE	yes	yes	yes	yes

However, effects on loan supply / loan rate **not** observed for SOEs.

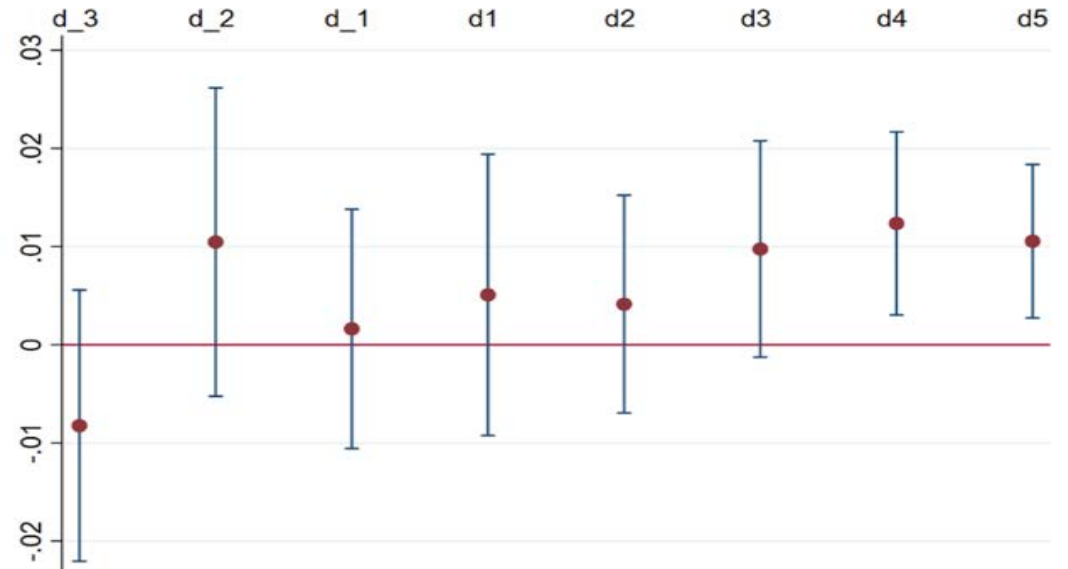
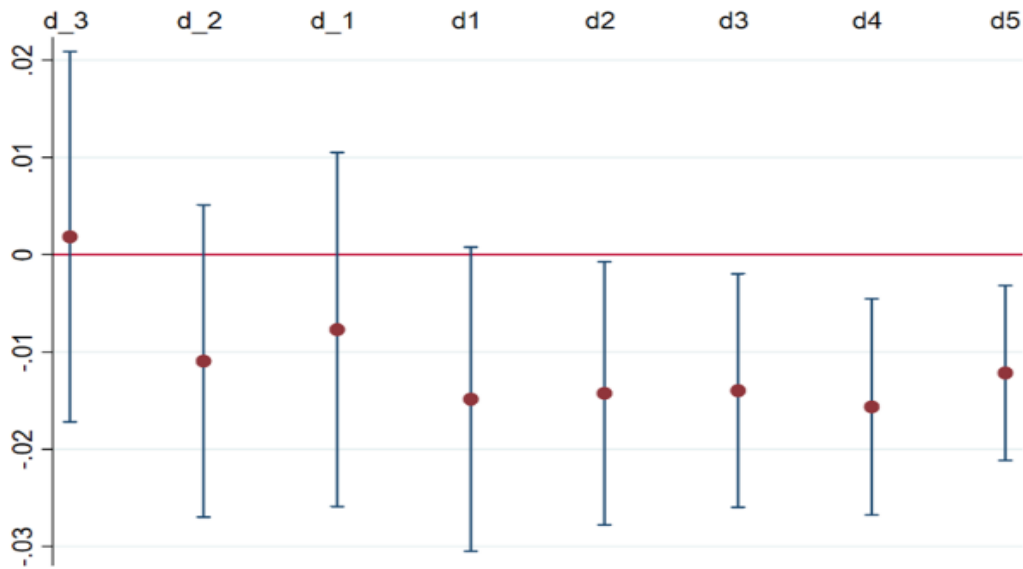
Is multi-period diff-in-diff valid? (1)

- Trends in log loan supply: private firms in treatment / control



Is multi-period diff-in-diff valid? (2)

- Dynamics in loan supply: private firms versus SOEs



Is multi-period diff-in-diff valid? (3)

- Are dynamics of private firms' credit supply driven by any municipal-level unobservable variables that coincide with CCB establishments? Placebo test
 - In each year, randomly pick up municipalities that never had CCBs (placebos) and that have CCBs (treatments)
 - Swap placebos and treatments, then re-run the regression and repeat the procedure for 100 times

	Private firms
Percentage with positive estimated coefficients	51%
Percentage with negative estimated coefficients	49%
Average of coefficients	0.0040
Average of t-statistic	0.163
Standard error calculated from the coefficients	0.0516
Calculated t-statistics	0.0784

Who are the winners, then?

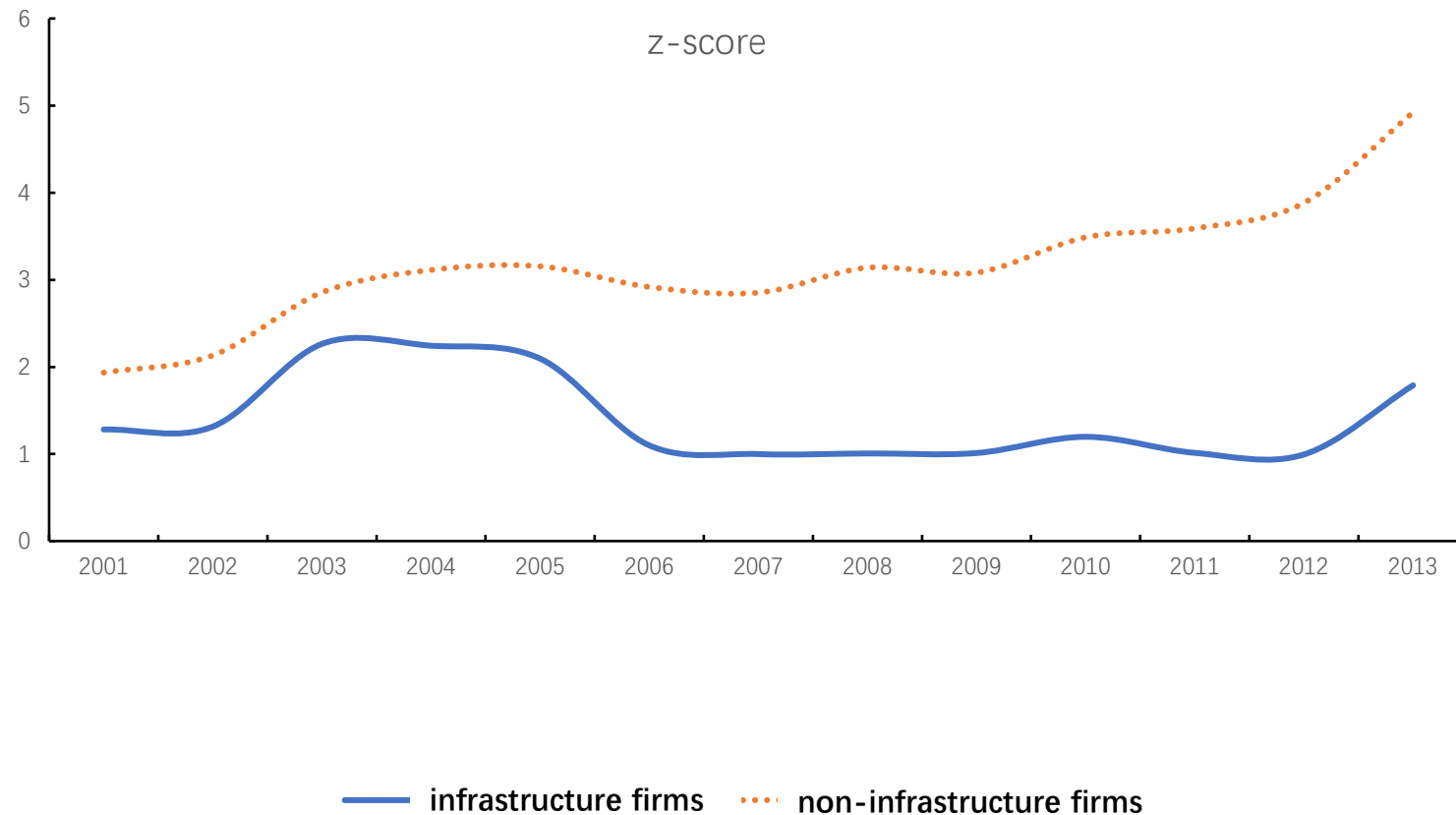
	loan supply to private infrastructure firms		local real estate investments	
	(1)	(2)	(3)	(4)
CCB establishment	0.0951***	0.0885***	0.150***	0.213***
	(0.0308)	(0.0287)	(0.0287)	(0.0434)
No. of obs.	33,671	29,824	5,746	2,183
R-squared	0.950	0.951	0.936	0.957
controls	no	yes	no	yes
municipality FE	yes	yes	yes	yes
firm FE	yes	yes	/	/
year FE	yes	yes	yes	yes

What does that mean, for losers?

	loan supply to	
	all non-infrastructure private firms	
	(1)	(2)
CCB * municipal real estate dependence	-0.0763***	-0.0497***
	(0.0218)	(0.0169)
No. of obs.	2,449,929	2,333,048
R-squared	0.7742	0.7866
controls	no	yes
municipality FE	yes	yes
industry FE	yes	yes
year FE	yes	yes

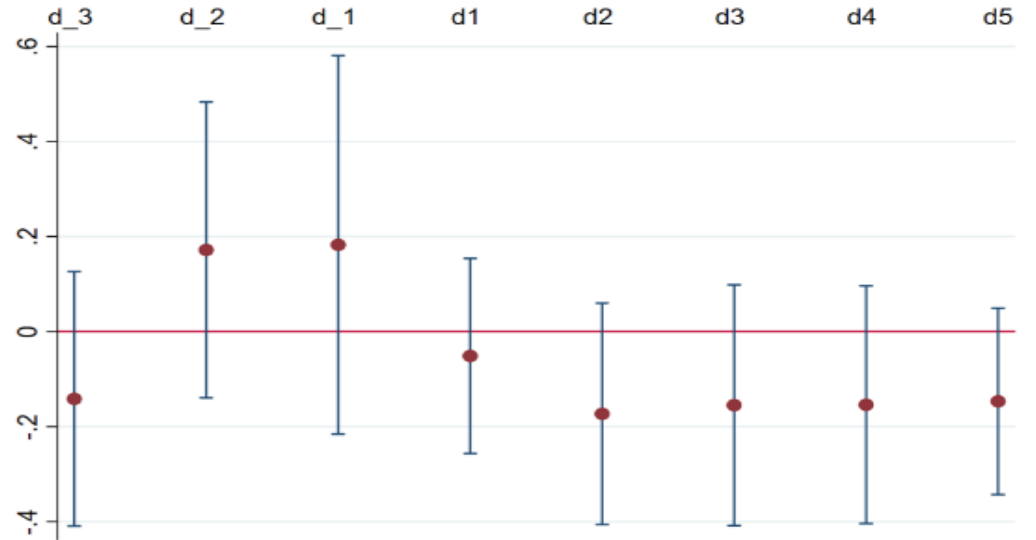
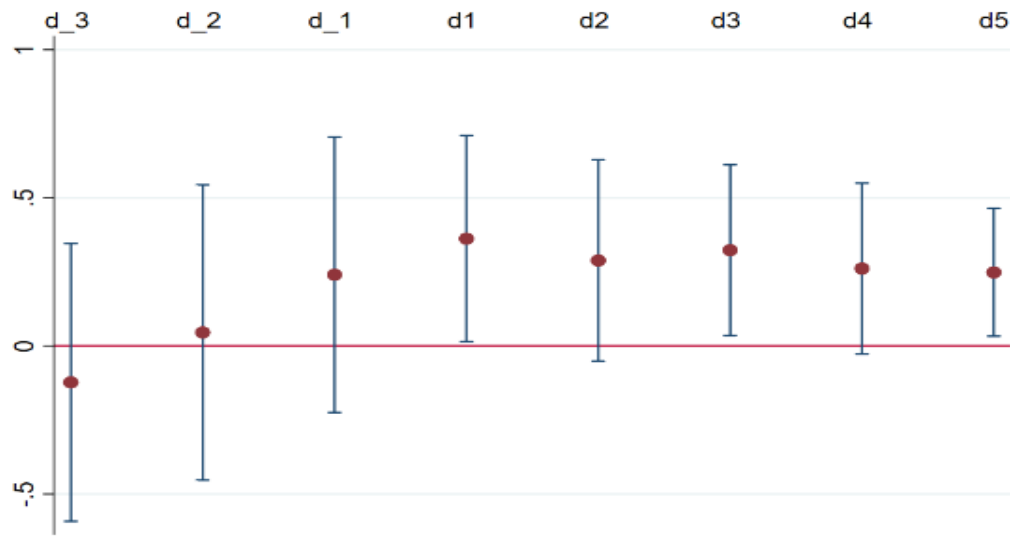
Are infrastructure firms better borrowers?

- Trends in z-scores



Are infrastructure firms better borrowers?

- Dynamics in z-scores: non-infrastructure versus infrastructure



Do private firms benefit in performance?

	all non-insrastructure private firms		
	ROA	ROE	GPM
	(1)	(2)	(3)
CCB establishment	-0.00938	-0.0273**	-0.00536**
	(0.00744)	(0.0116)	(0.00226)
No. of obs.	2,324,707	2,324,707	2,333,048
R-squared	0.453	0.350	0.240
controls	yes	yes	yes
municipality FE	yes	yes	yes
industry FE	yes	yes	yes
year FE	yes	yes	yes

How do we interpret the results?

- Municipal governments are major share holders, often appoint senior bank managers (Hung et al. 2017)
- GDP-oriented promotion: incentive for officials to favor GDP-enhancing (albeit socially wasteful) projects (Li and Zhou 2005, Zhou 2007)
- Loss in tax reform -> exploiting financial instruments to stimulate local GDP
- Crowding out relatively more efficient private firms (causality puzzle, Chang 2010, de-privitization puzzle, Cong et al. 2019)

To-do list

- Fiscal pressure of municipal government versus exploitation on CCB credit allocation
- Explore the impact of local infrastructure investments through the lens of local firms' productivity
- Better understand the impact of municipal governments on CCB credit allocation, using CCBs' public listings as quasi-natural experiments
- For robustness purpose, constructing treatments and controls by matching municipalities, e.g., PSM-DID

Conclusions

- We document the firm-level evidence of credit (mis-) allocation in a government-led financial liberalization exercise
- We propose channels through which officials achieve their own interests through the credit allocation channel, investing excessively in GDP-enhancing, but socially wasteful projects