MIT GCFP | GOLUB CENTER FOR FINANCE AND POLICY

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Government Financial Products, Policies, and Institutions

September 28, 2017

The Great Wall of Debt: Real Estate, Political Risk, and Chinese Local Government Credit Spreads

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Infrastructure Development in China

High-speed railway in Hainan

Infrastructure Development in China

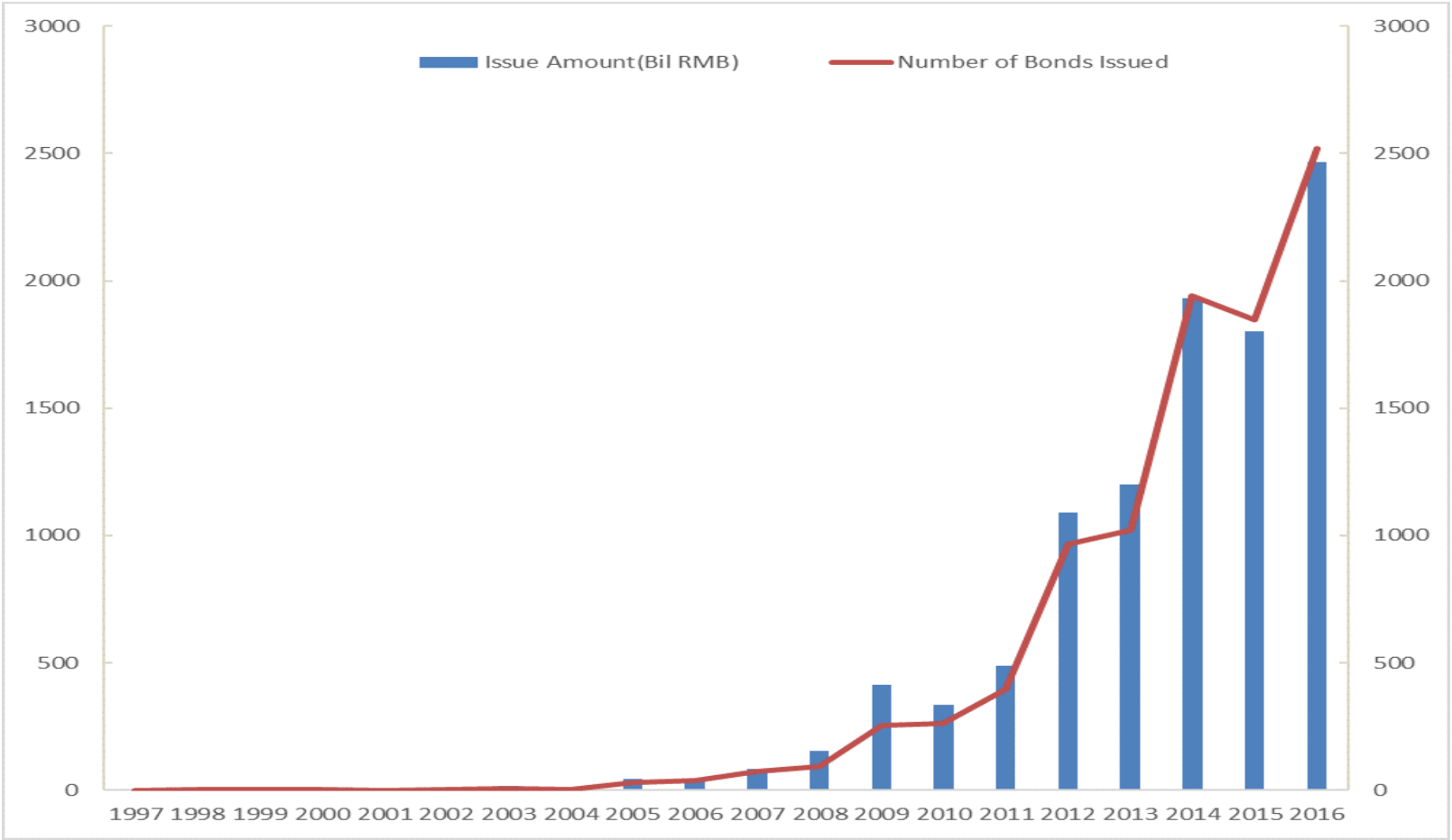
Shanghai Tower ($2.4 billion)
the world's secod-tallest building.

Most Infrastructure are Financed by Chengtou Bonds

- construction
- high-speed train
- bridges and roads
- public transportation
- water supply and environment services
- ...
- real estate such as land development, low-income housing projects.

- China does not have *bona fide* municipal bonds
- Instead, China's tremendous growth in infrastructure development is financed to a large extent through **Chengtou bonds (CTB)**, also known as urban construction and investment bonds.

Chengtou Bond Issuance



- 1992: first CTB, Pudong development bond, RMB 500 million
- By 12/31/2016: total outstanding of RMB 7.28 trillion
- The annual growth rate is 85% during 2008 - 2014

China CTB vs USA Muni

USA: Muni	China: CTB
- Municipal Bond	- Corporate Bond
- Federation: central govt bears no responsibility	- Central gov't implicit guarantee
- Investor: individuals (50%)	- China's shadow banking (80%)
- Have little systemic risk	- Affects financial stability
- More transparent	- More opaque
- Debt does not have to be backed by physical collateral	- Collateral is often required: the use-right of land, bridges,etc.
- Tax-exempt	- Non tax-exempt

Research Question

While its large size, fast growth, and the central role in China's development make the Chengtou bond market interesting to study in and of itself, there are distinctive features that makes it uniquely suited to investigating the effect of government guarantees, political risk, and distortions in market pricing induced by such effects.

- What market distortion does the implicit government guarantee exert on Chengtou bond pricing?
  - provincial risk exposure to the central government
  - local government solvency, in particular, the real estate market
  - local government political risk

Related Literature

- Market distortion under government guarantee
  - Targeted limited number of securities (Husain, Mody, and Rogoff, 2005)
  - Guarantee is suddenly imposed on selective securities (Levy and Schich, 2010)
- Municipal bond and corporate bond pricing
  - Ang, et.al (2010, 2014, 2016), Landoni (2016)
  - Collin-Dufresne, et.al (2001), Bai and Wu (2015), Bai, et.al (2016)
- Real estate
  - Fang, et.al (2015), Deng, Gyourko, and Wu (2015)
- Political risk
  - Fisman and Wang (2015), Butler, et.al (2009), Griffin, Liu, and Shu (2016), Lin, et.al (2016)

Example 1: '09 Hu Chengtou 0982024.IB

Shanghai Tower ($2.4 billion)

Example 1: '09 Hu Chengtou 0982024.IB

- Issue: 2/27/2009
- Size: RMB 5 BIL (USD 0.77 BIL)
- Tenor: 8-year
- Yield: 4.3%
- Rating: AAA
- Issuer: Shanghai Chengtou Corporation.

- founded in 1992 by Shanghai Municipal Government
- owned 100% by Shanghai State-owned Assets Supervision and Administration Commission (SASAC) since 2003
- business: 27 subsidiaries covering roads and bridges, water supply, environment, and real estate
- performance in 2013: total asset, 363bil RMB, net income 1.05bil RMB (0.33bil RMB returns to SASAC)

Example 2: 1180075.IB

- Issue: 4/11/2011
- Size: RMB 1 BIL (USD 0.15 BIL)
- Tenor: 7-year
- Yield: 6.99%
- Rating: AA
- Issuer: Ordors City Construction Investment Group

- founded and owned by Ordos Municipal Government
- business: **land sales and land development** in Kangbashi District

一、发行人概况

中文名称：鄂尔多斯市城市基础设施建设投资有限公司

注册地址：鄂尔多斯市康巴什新区

法定代表人：麻永飞

注册资本：人民币 207,388.26 万元

公司类型：国有独资公司

经营范围：一、二级土地开发、出让、租赁；城市基础设施配套建设投资与经营；房地产开发；产业项目开发。

鄂尔多斯市城市基础设施建设投资有限公司是由内蒙古自治区鄂尔多斯市人民政府批准，由鄂尔多斯市人民政府出资，于 2001 年 5 月 16 日成立的国有独资公司，企业法人营业执照注册号为 152702000001593。公司主营业务为城市市政基础设施建设，土地收储

"Ordos, China: A Modern Ghost Town"

Source: *Time Magazine*
Other Media: *BBC, Time, CNN, WSJ, Forbes, HuffPost, The Atlantic*, etc

- Eerie Quiet: streets remain empty even during the morning commute

Local Government Finances

1. Proliferation of local government debt was triggered by the 2008-2009 global financial crisis and China's QE.
   - 2.8 tril RMB in the QE is shouldered by local governments.

2. However, local governments
   - Can NOT levy additional sales, property, or income tax.
   - Can NOT borrow directly from banks or issue bonds.

3. Local officials promotion crucially depends on performance

The fiscal pressure elevates beyond normal balance.

$\Rightarrow$To answer the challenge, LGFV!

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$\Rightarrow$To answer the challenge, LGFV!

- What role does LG play in the CTB pricing? Does LG play any role?

One Pseudo Default

In April 2011, Yunnan Highway Development and Investment Co. Ltd. made one-sided announcement that they will only pay interest but not principal of its debt.

- Reason: cash-flow pressure
- Solution: Yunnan Provincial Government immediately asked the firm to withdraw the claim, then coordinated the payment
- Impact: panic in the debt market, more attention to local government implicit guarantee

Other signals of government intervention:

- National Development and Reform Commission (NDRC) subsequently relaxed the approval process for bond issuance
  $\Rightarrow$ CTB issuance doubled in 2012 compared to 2011
- The Ministry of Finance and the NDRC encourage SWAP from riskier LGFV debt to safer low-yield long-term municipal bonds.

Hypotheses and Main Findings

1. Given the central government implicit guarantee, there still exists a large heterogeneity in chengtou bond yields

2. Conventional risk factors:
   - Credit risk matters, but in a less degree compared to similar corporate bonds
   - Illiquidity matters in an opposite way, most liquid CTB are those with higher yield, indicating investors' intention to reach-for-yield while taking advantage of gov't guarantee
   - Issuer (LGFV) solvency does not matter much after including issuer dummies

Hypotheses and Main Findings (Cont'd)

3. Implicit government guarantee
   - Provincial-level real estate performance is the most important driving factor – One standard deviation increase in local RE GDP, contributes to 8.6% decrease in CTB yields, supporting the "growth engine" story
   - Provincial-level political risk, a novel measure based on anti-corruption campaign in China, significantly elevate CTB yields
   - Conditional on high political risk, RE GDP actually elevate CTB yields; only low corruption provinces enjoy low financing costs with high real estate GDP

Data

- Chengtou bonds
  - Issuance data from 1992 – 2016
  - Transaction data, daily from Aug2007 – Dec2016
- Corporate bonds issued by SOEs as control group

- Firm-level financial conditions (leverage, profitability, ROA, etc.)
- Province-level economic conditions
  - Various components of local GDP, RE, service, retail, etc
  - Local real GDP growth, fiscal surplus ratio, leverage, volatility
- Country-level economic barometers
  - CDS, FDI, FX, RF, CA, RET

- Source: WIND, Ministry of Finance, Provincial Finance Bureaus

CTB Excess Yield

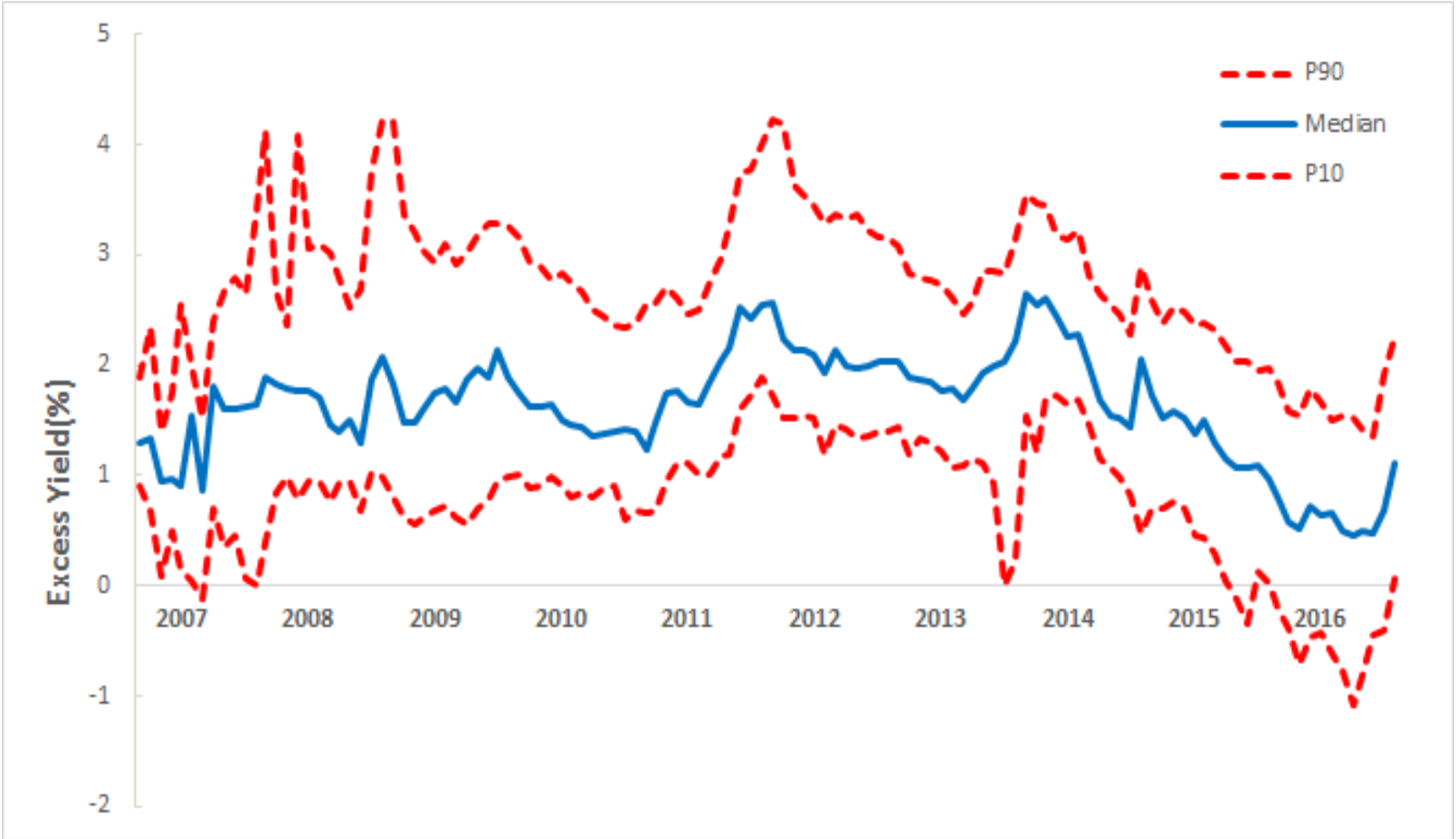
$$Y_{ijt} = y_{ijt}^{CTB} - y_{it}^{CGB}$$

- y_{ijt}^{CTB}, chengtou bond yield which is calculated from bond features and transaction prices
- y_{it}^{CGB}, matching central government bond yield which is calculated from (i) CTB cash flows, and (ii) zero-coupon curve of Chinese central government bonds (Svensson, 1994)

H1: Central Government Guarantee

- The implicit central government guarantee suggests that all CTBs have similar yields, regardless of issue province

Heterogeneity of CTB Excess Yields



- Dispersion varies over time, even wider when the median level is high

Heterogeneity of CTB Excess Yields

		Excess Yields (%)					Characteristics	
		Mean	Median	SD	P10	P90	Mean	SD
GEOGRAPHY								
	Coastal	1.87	1.77	0.81	1.04	2.83		
	Middle	2.15	2.11	0.83	1.19	3.19		
	West	2.21	2.16	0.75	1.34	3.10		
FISCAL DEFICIT							Fiscal Deficit (%)	
	High	2.37	2.35	0.76	1.43	3.29	20.73	9.94
	Mid	2.13	2.07	0.79	1.24	3.09	10.44	3.13
	Low	1.85	1.76	0.80	1.03	2.81	3.18	3.04
GDP GROWTH							GDP Growth (%)	
	High	2.09	2.00	0.80	1.25	3.05	19.08	7.34
	Mid	2.10	2.06	0.81	1.20	3.07	16.51	5.02
	Low	1.79	1.69	0.79	0.97	2.79	13.93	5.73
RE PRICE							RE Price ($¥/m^2$)	
	High	1.92	1.81	0.81	1.08	2.90	7659	3629
	Mid	2.08	2.03	0.81	1.14	3.11	3687	267
	Low	2.17	2.18	0.76	1.26	3.07	3145	144
WHOLE SAMPLE		1.98	1.90	0.81	1.11	2.98		

- Given the central government guarantee, CTB yields still exists significant economic heterogeneity across provinces!

H2: Conventional Risk Factors

	(1)	(2)	(3)	(4)	(5)
RATING	-0.33***				-0.35***
	(-15.17)				(-14.32)
TURNOVER		0.07***			0.04**
		(4.10)			(2.59)
SIZE			-0.13***		0.03
			(-5.58)		(0.90)
TTM				0.06	0.08***
				(1.56)	(2.96)
Month Dummy	Y	Y	Y	Y	Y
Cluster (Province)	Y	Y	Y	Y	Y
Obs	20357	20357	20357	20357	20357
Adj R^2	0.348	0.192	0.211	0.188	0.362

- Credit risk matters
- Illiquidity matters in an opposite way, most liquid CTB are those with higher yield, indicating investors try to take advantage of gov't guarantee

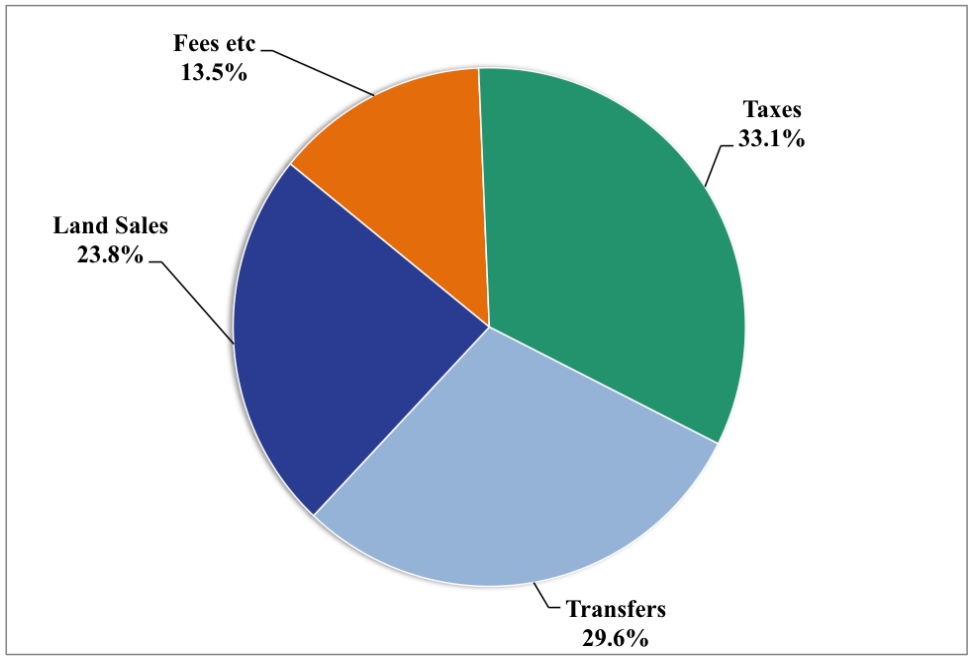
H3: Proxy of Implicit Government Guarantee

A. Provincial risk exposure to the central government

B. Local government solvency and performance

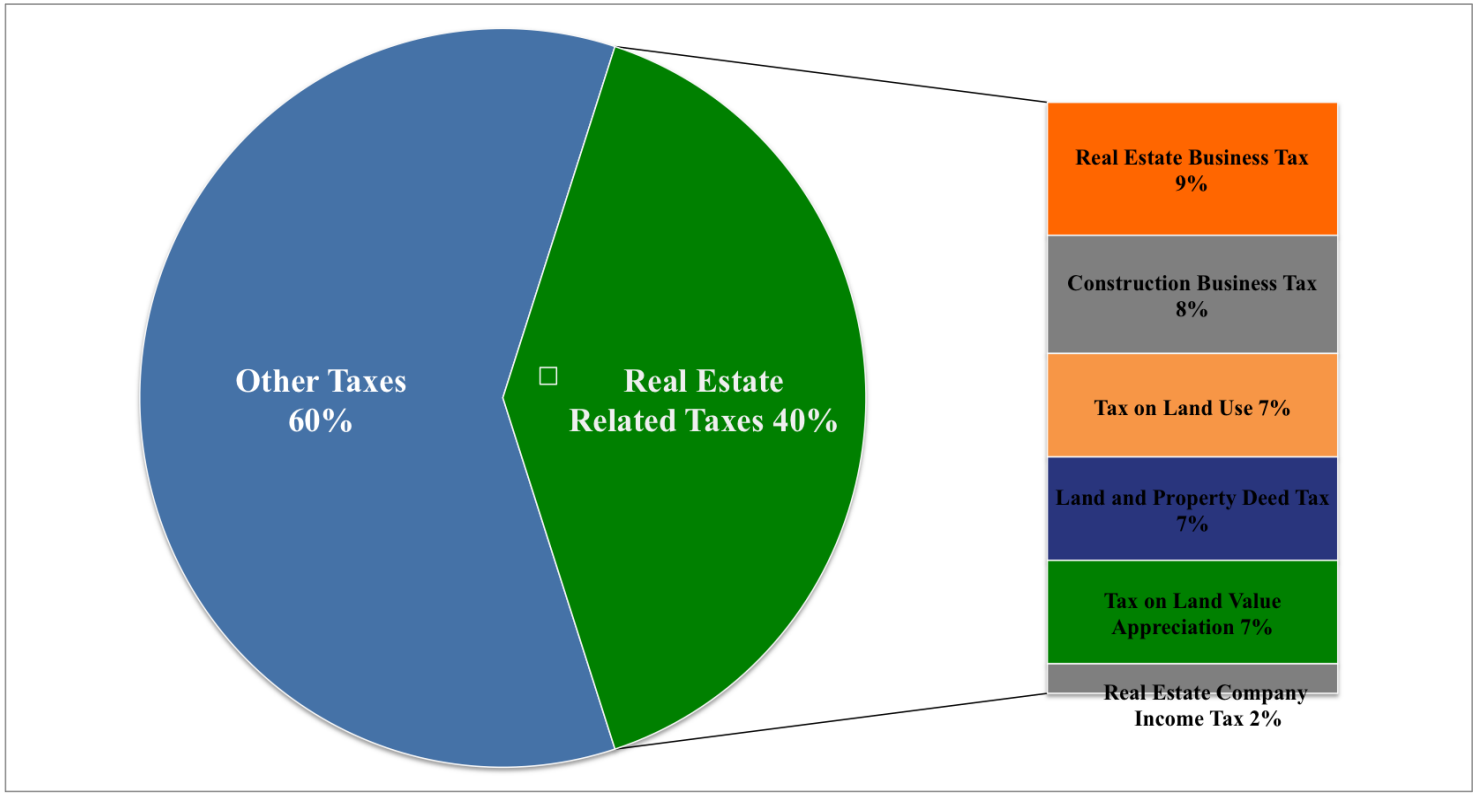
C. Local government political risk

Fact 1: Land Sales are a Key Revenue Source for LG



Source: Ministry of Finance, 2014

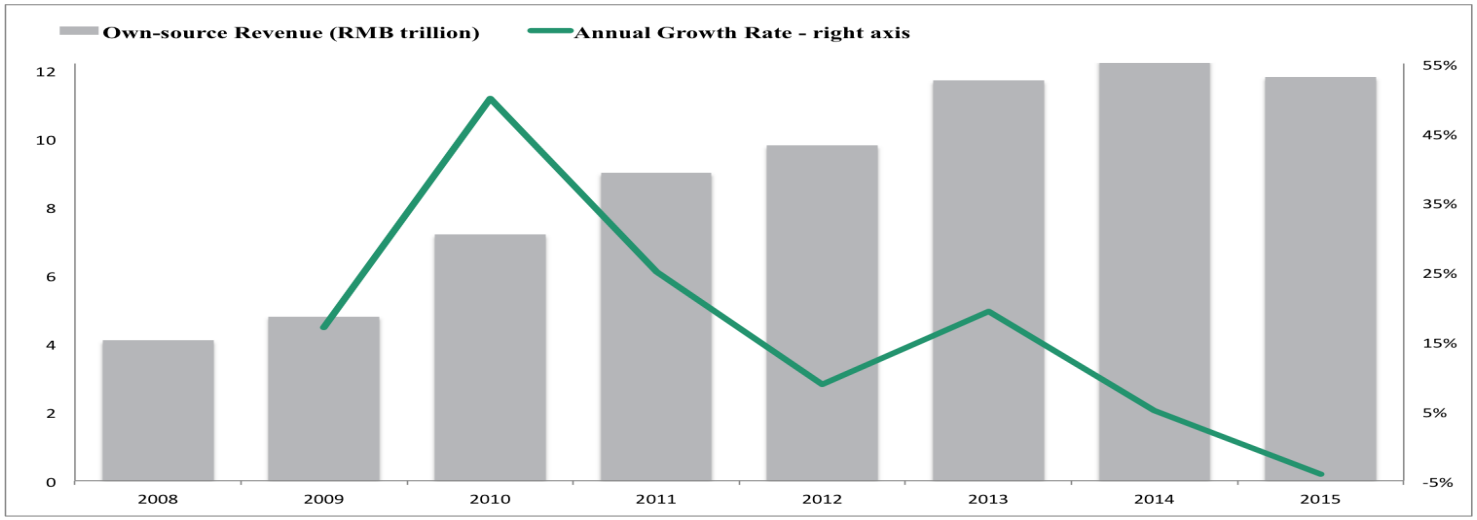
Fact 2: RE Tax accounted for 40% of LG's Total Tax



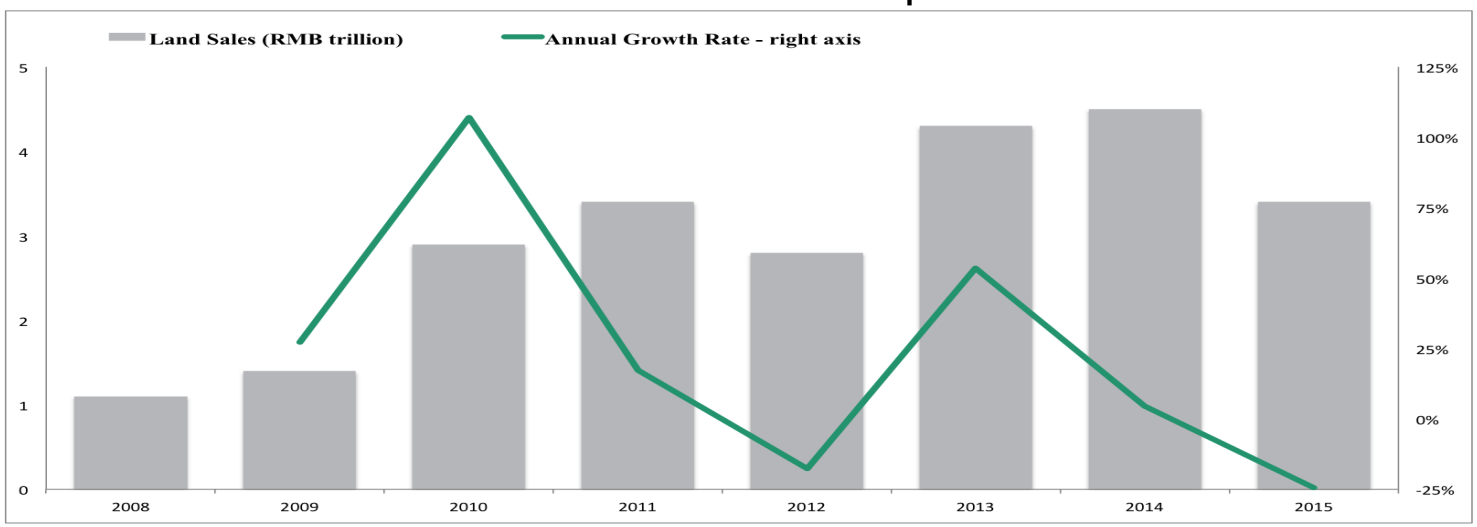
Source: Ministry of Finance, 2014

Fact 3: LG's Reliance on RE Leads to Revenue Instability

LG own-source revenue are highly volatily



Land Sales are the most volatile component of LG revenues



H3B: Real Estate and Other Measures of LG Solvency

- Hypothesis: growth engine
  - high real estate GDP ratio helps boost local governments revenue, generate better cash flow to support CTB, hence decrease CTB yields
- Hypothesis: ghost town
  - high real estate GDP ratio may create an oversupply problem, thus negative shock in RE market will dampen local economies hence increase CTB yields

Overall, Real Estate is the Growth Engine

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
REAL ESTATE GDP	-0.17***				-0.21***		-0.18***
	[-5.48]				[-5.13]		[-3.76]
SERVICE GDP		-0.01			-0.04		-0.04
		[-0.41]			[-1.15]		[-1.25]
RETAIL GDP			-0.11***		0.04		0.06
			[-3.30]		[0.87]		[1.36]
HOTEL GDP				0.08**	-0.03		-0.04
				[1.98]	[-0.48]		[-0.66]
GDP GROWTH						0.04	0.03
						[1.09]	[0.50]
FISCAL DEFICIT						0.11**	0.05
						[2.62]	[1.41]

- Control for bond characteristics, size, ttm, liquidity
- Control for province risk exposure βs
- Control for time dummies and cluster at province level

Alternative Real Estate Measures

LAND COST	-0.09*				
	[-1.74]				
RE TAX		-0.11**			
		[-2.78]			
RE PRICE			-0.16***		
			[-6.01]		
RE LOAN				-0.16***	
				[-4.62]	
RE INVEST					-0.01
					[-0.16]

- Control for bond characteristics, size, ttm, liquidity
- Control for province risk exposure
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H3C: Political Risk

- CTB yields reflect the local governments backing income stream and their willingness to bail-out, which is affected by local political risk
- Plus, real estate market is the hotbed of corruption

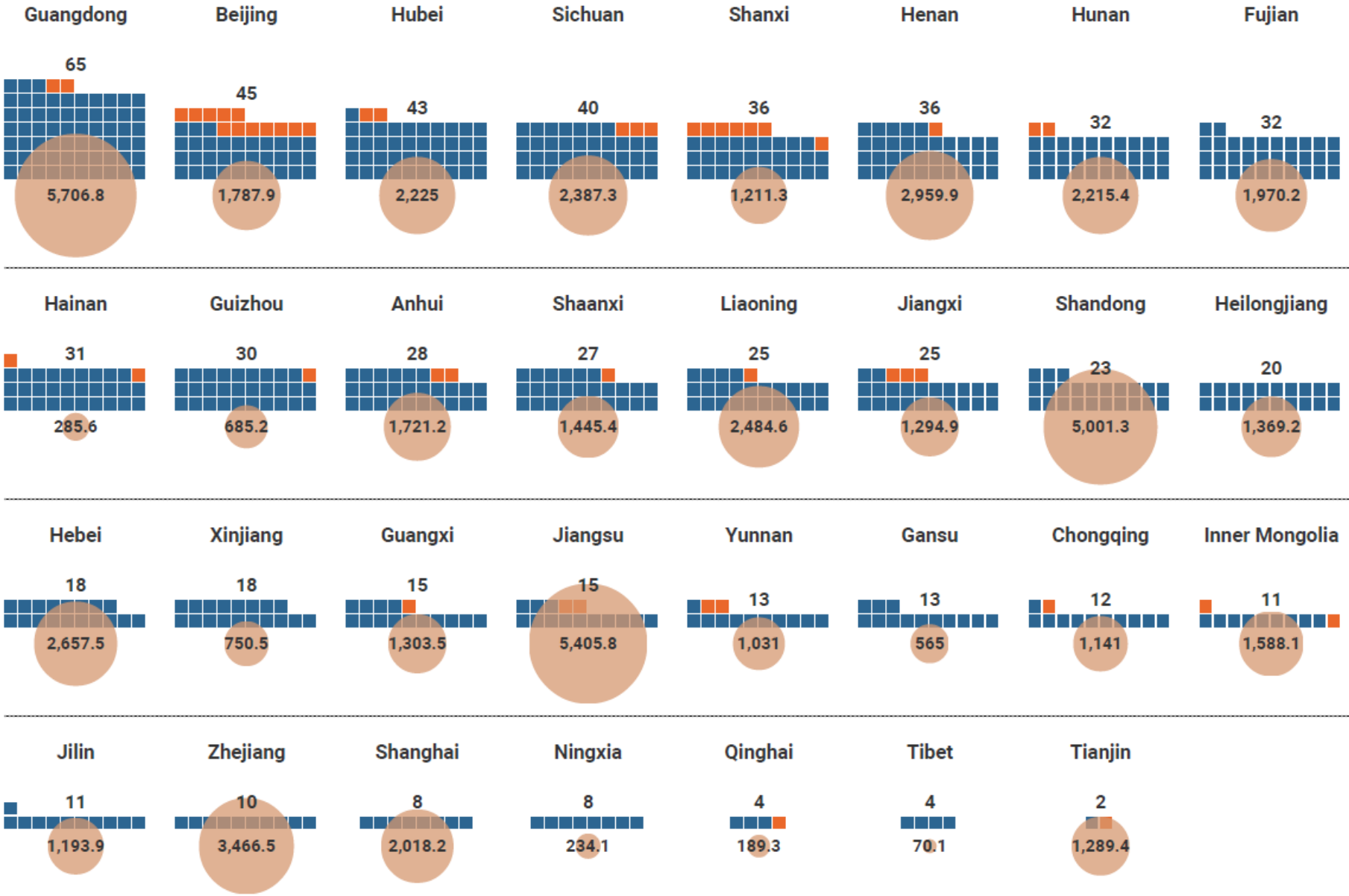
- Political risk increases the CTB excess yields — value destruction
  - provinces with higher political risk is unlikely to have stable future revenue income and hence should have higher cost of financing
  - Butler, Fauver, and Mortal (2009), Mauro (1995)

- Political risk decreases the CTB excess yields — greasing the wheels
  - provinces with more officials involved in graft probes, especially high-ranking ones, are typically the provinces with good economic development and aggressive political leaders.
  - Amore and Bennedson (2013), Dreher and Gassebner (2013)

Political Risk Measures

- Compile a list of individual officials in graft investigations published on the CCDIs website during 2012 to 2014, the anti-corruption campaign period.
- Collect information on corrupt officials titles and rankings, and categorize individuals into five rankings
- *GRAFT–TIGERS*, the rank-weighted index;
- *GRAFT–FLIES*, the number of graft cases.

Corruption: Officials named in CCDI Graft Reports



H3C: Provincial Political Risk

GRAFT–TIGERS	0.15***		0.14***
	[3.74]		[3.99]
GRAFT–FLIES		0.05	0.03
		[0.94]	[0.67]

- Control for bond characteristics, size, ttm, liquidity
- Control for province risk exposure
- Control for time dummies and cluster at province level

- We confirm the value destruction hypothesis.
- There is a significant and economically meaningful positive relationship b/w risk-adjusted CTB yields and political risk proxies.

Event Study on Corruption Announcement

Event	AR(-1)	AR(0)
A: First corruption in each province	0.168	-0.204
B: Tiger graft in each province	-0.187	0.027
in Top 5 provinces with highest corruption index	-0.392***	-0.265***
in Bottom 5 provinces with lowest corruption index	-0.230	0.09
in Top 5 provinces with largest corruption cases	0.143	-0.139
in Bottom 5 provinces with smallest corruption cases	-0.241	-0.206

- Announcement of TIGER events have significant impact for provinces with highest corruption index
- Provinces with more severe corruption have lower CTB yields

Real Estate, Political Risk, and their Interaction

REAL ESTATE GDP		-0.16***	-0.14***	-0.18***	-0.16***
		[-5.15]	[-5.10]	[-6.66]	[-6.69]
GRAFT–TIGERS	0.14***	0.08***	0.07*		0.05*
	[3.99]	[2.89]	[2.07]		[1.91]
GRAFT–FLIES	0.03	-0.06		-0.03	-0.02
	[0.67]	[-1.58]		[-0.84]	[-0.64]
*RE GDP * TIGERS*			-0.02		-0.04
			[-0.49]		[-1.61]
*RE GDP * FLIES*				0.07***	0.07***
				[3.24]	[3.34]

- Control for bond characteristics, size, ttm, liquidity
- Control for province risk exposure
- Control for time dummies and cluster at province level

- Conditional on political risk, provinces with higher RE GDP have higher financing cost, ie.,higher CTB yields.

Conclusion

- Given the central government implicit guarantee, there still exists a large heterogeneity in chengtou bond yields
- Conventional bond pricing factors such as credit and liquidity risk has weaker or opposite impact for CTB, due to implicit government guarantee
- Implicit gov't guarantee is the most important pricing factor of CTB
  - Provincial-level real estate performance is the dominating driver – One standard deviation increase in local RE GDP, contributes to 8.6% decrease in CTB yields
  - Provincial-level political risk, a novel measure based on anti-corruption campaign in China, significantly elevate CTB yields
  - Conditional on high political risk, RE GDP actually elevate CTB yields; only low corruption provinces enjoy low financing costs with high real estate GDP

THANK YOU!

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Subnational Debt of China: The Politics-Finance Nexus

Haoyu Gao (Central University of Finance and Economics)
Hong Ru (Nanyang Technological University)
Dragon Tang (The University of Hong Kong)

Sept 28 2017

Motivation

- China becomes the second largest economy worldwide, whereby risks spike in China's financial system.
  - Moody and S&P downgraded China's sovereign ratings in 2017 for first time since 1989
- China's local governments have accumulated too much leverage
  - Approximately 24 trillion RMB, 37.22% of GDP in 2014
- Government debt becomes a serious issue worldwide
  - Credit from Development Financial Institutions (DFIs) has been growing rapidly
  - Looming concerns on default risks; The U.S. (e.g., Puerto Rico), The E.U. (e.g., Greece)
- Important to understand the patterns of debt issuance and default
  - Most of them are off-balance sheet
  - No consensus on even the amount of local government debt in China

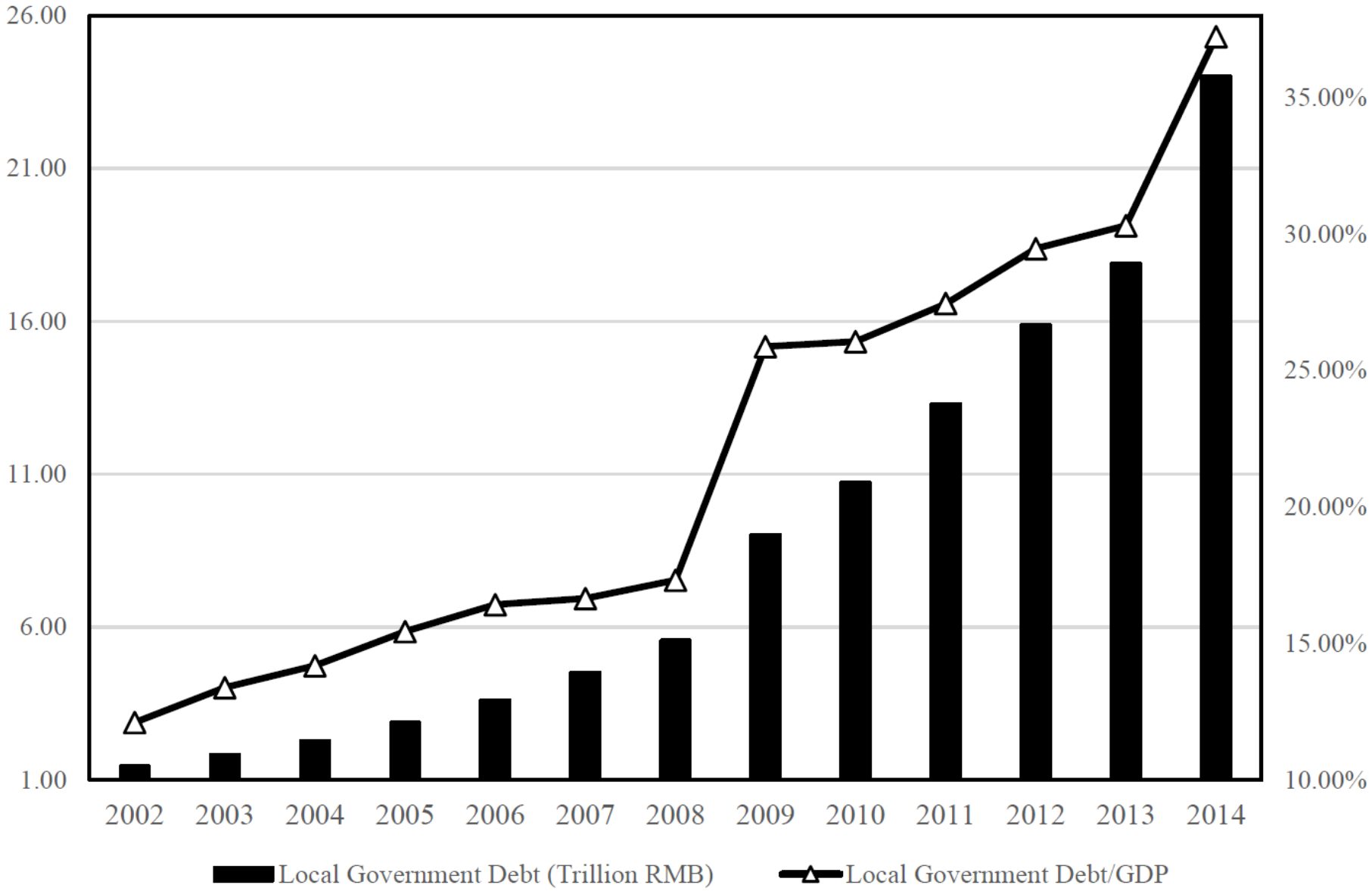
Contribution & Finding

- This paper use a unique loan-level data to unveil the local governments off-balance sheet debt in China
  - Trace each loan to document stylized facts cross regions and overtime
- Development bank loans perform better than commercial bank loans
  - China Development Bank (CDB) loans have significantly lower delinquency rate
  - Against conventional wisdom (e.g., Stiglitz (1993), Dewatripont and Maskin (1995), La Porta et al. (2002), Barone and Spratt (2015))
  - Prevalent in many other countries recently
- New Channel: **Selective default strategy**
  - Distressed local governments choose to default on commercial bank loans
  - Even harder budget constraint for development banks

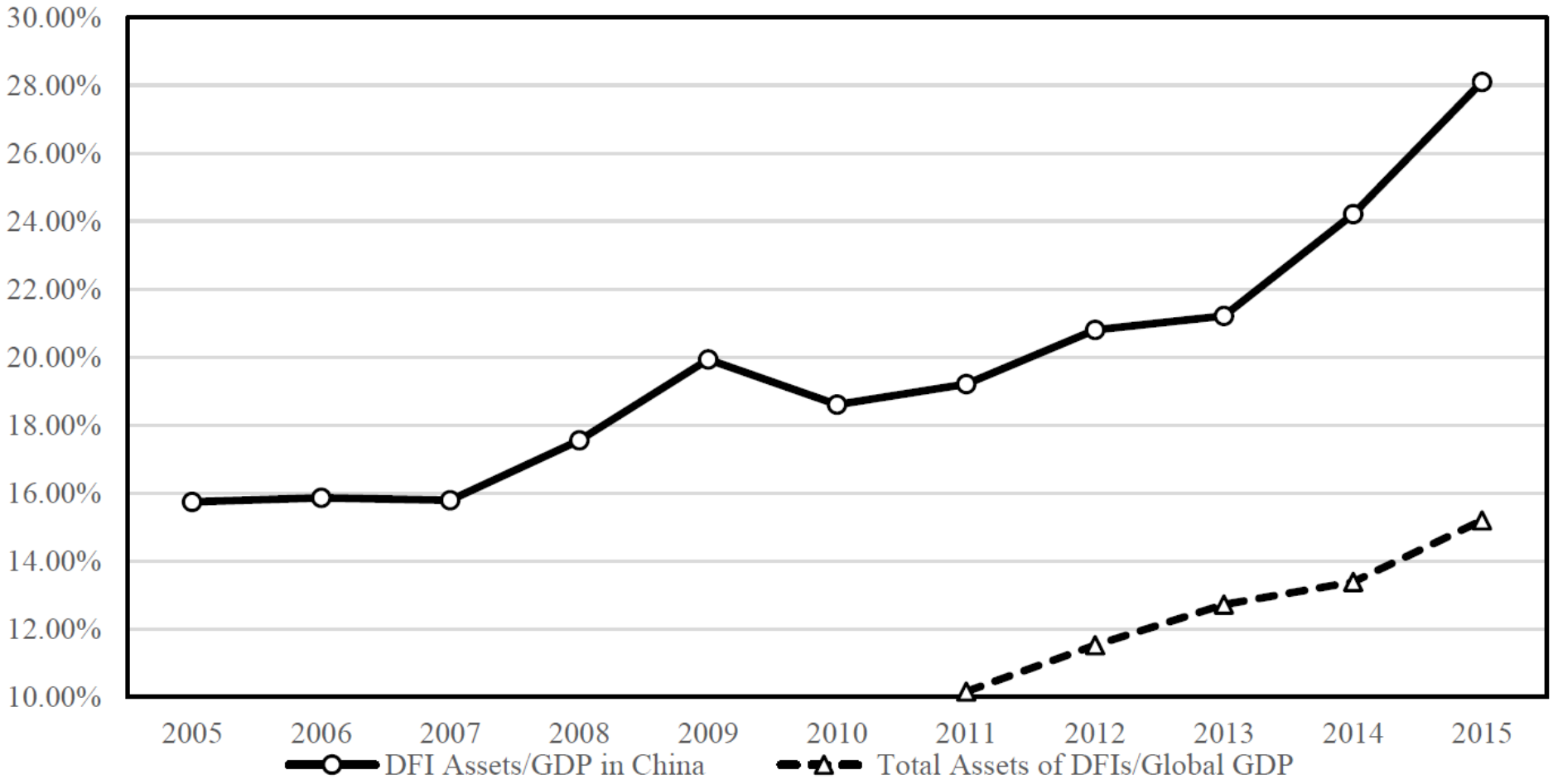
Contribution & Finding

- Role of continuation value of banking relationships
  - CDB is the most prominent financing source for local governments (provides 50% of total bank credit)
  - More selective defaults when the CDB becomes more important (i.e., 4 trillion stimulus package as an exogenous shock)
  - The literature has focused mostly on the added value of relationship bank loans for borrowers (e.g., Boot, Greenbaum, and Thakor (1993), Petersen and Rajan (1994), Berger and Udell (1995))
  - Little work has been done on how borrowers change debt repayment strategies for their future financial continuation (e.g., Schiantarelli, Stacchini, and Strahan (2016))
- Role of politician careen concerns
  - In China, local politicians' career advancements depend largely on the GDP growth (Li and Zhou (2005))
  - CDB loans amount is positively associated with promotion chances of politicians
  - Selective default doesn't exist in non-LGFVs loans

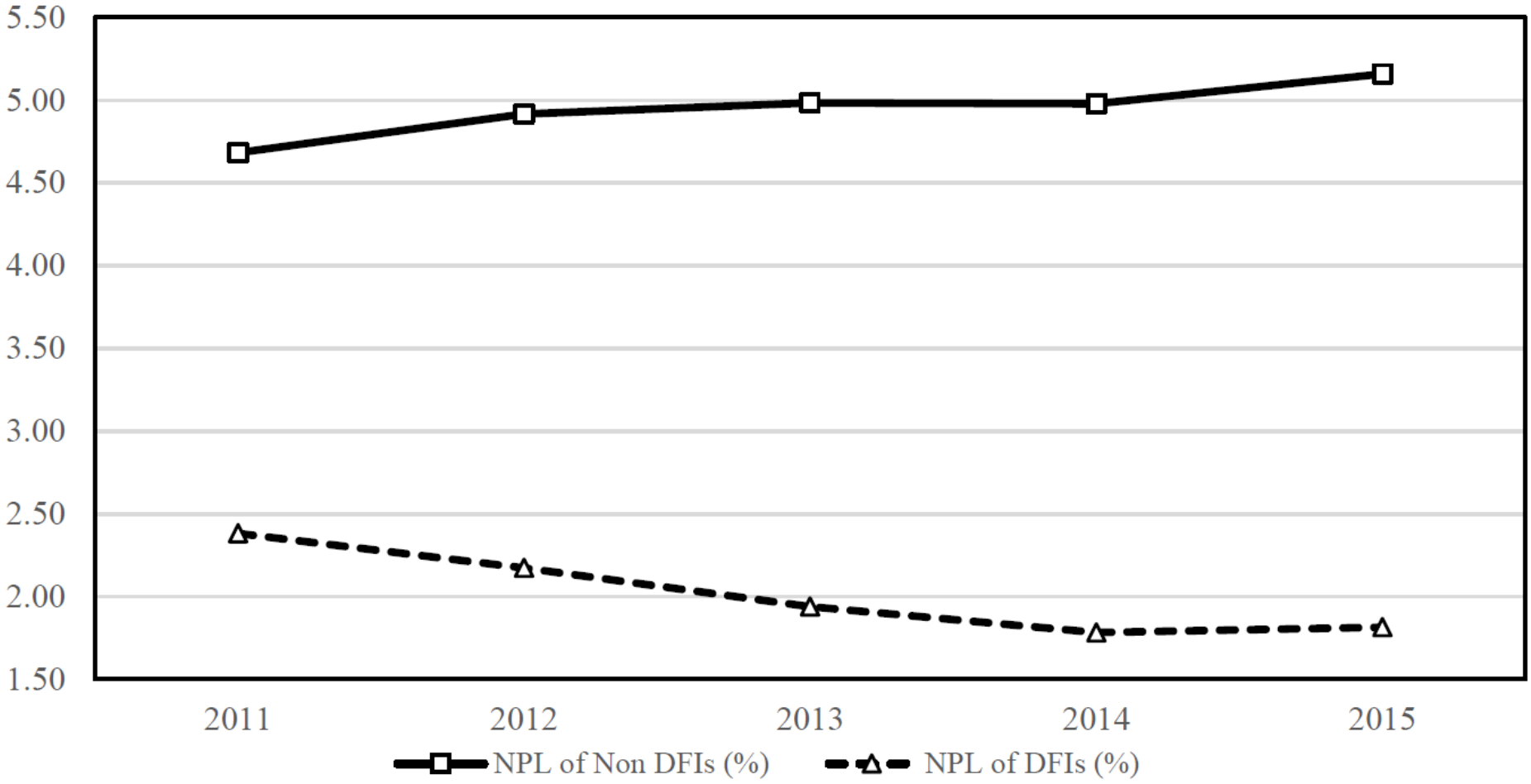
Dramatic Local Government Debt Increase in China



DFIs become more important across the globe: Assets/GDP



DFI vs. Non-DFI across the globe: NPL Ratios



Tax Sharing Reform and Budget Law

- Tax Sharing Reform in 1994
  - Local governments in China receive only around 30% of the tax revenue
- Budget Law in 1994 prohibited local government to incur debts
  - Local governments can't directly borrow or issue bonds until 2015
- Local governments are still responsible for local economic development
  - For example, infrastructure investments
- Huge gap between local government investment and financing

Off-Balance Sheet Borrowing

- The China Development Bank (CDB) was established in 1994
  - The CDB is a policy bank with mandate to provide subsidized credit to infrastructure investments and to strategic industries
- The CDB help local governments to set up local government financing vehicles (LGFVs)
  - LGFVs are fully state-owned corporations which can legally borrow and issue bonds
  - Wuhu Model in 1998; first LGFV.
  - All of local government debts are off-balance sheet until 2015.
- LGFVs have various financing sources
  - Borrow from the CDB and commercial banks
  - Issue bonds
  - Borrow from shadow banking system

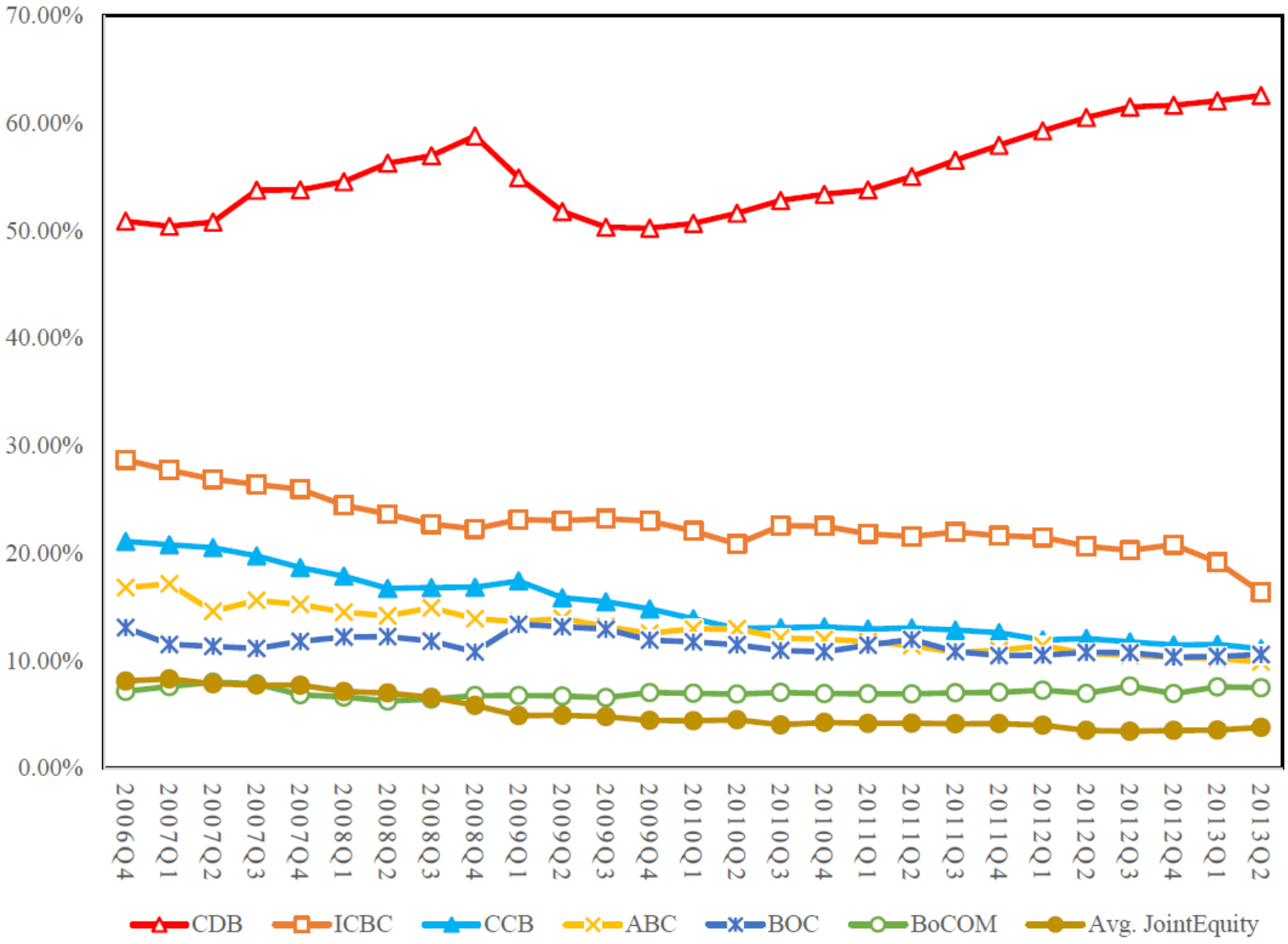
CBRC Loan-level Data

- The China Banking Regulatory Commission (CBRC) records information on individual bank loans
  - The CBRC data set includes 19 largest banks in China (2 policy banks and 17 commercial banks)
  - Cover borrowers with an annual credit line over RMB 50 million (approximately US$8 million) between 2007 and 2013
  - Cover approximately 80% of the total bank credit in China, almost 100% of local government bank loans
  - Record comprehensive loan level information (e.g., loan amount, maturity, guarantee, ratings, delinquency) as well as firm characteristics (e.g., ID, assets, location)
- List of local government financing vehicles from the CBRC
  - There are 5,672 LGFVs that have loan information covered by the loan data set

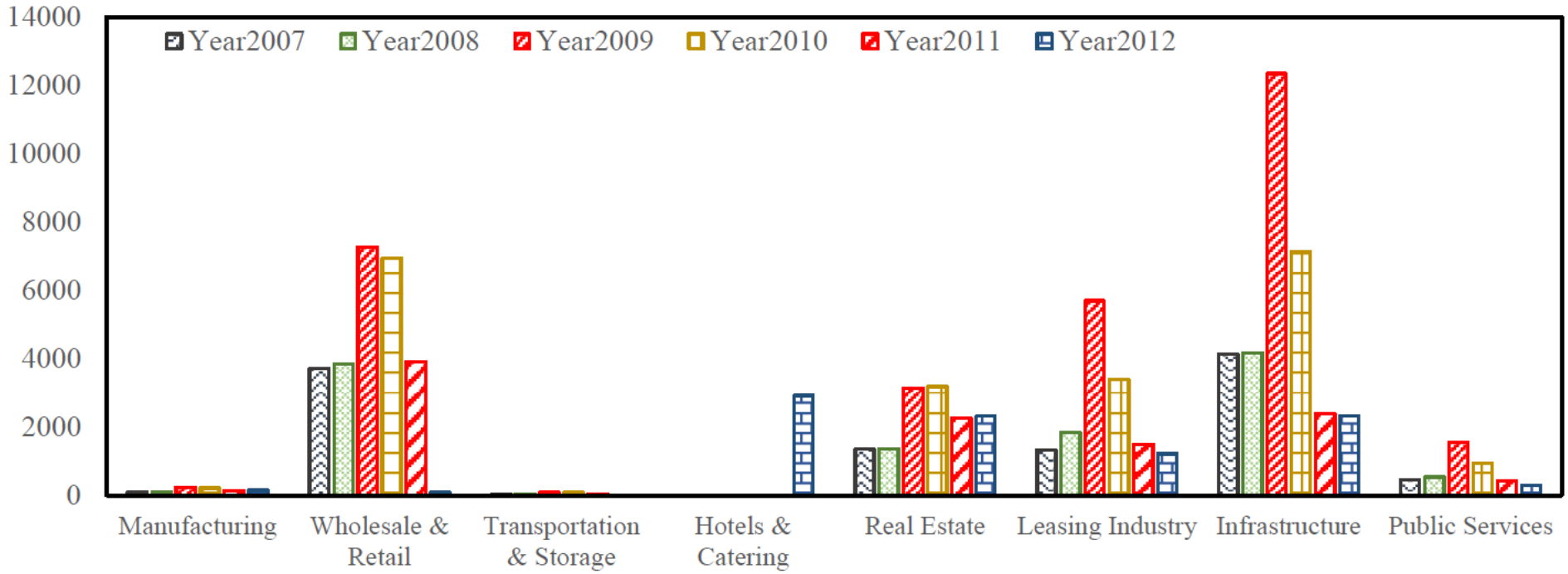
Summary Statistics

	New Loans							Outstanding Loans		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Year	# LGFVs	# Issues	Total Amount (Trillion RMB)	# Loans per LGFV	Loan Amount (100 Million RMB)	Avg. Maturity	# Banks per LGFV	# LGFVs	# Issues	Total Amount (Trillion RMB)
2007	2,380	23,150	1.3	9.7	5.4	3.4	2.3	2,837	37,174	3.1
2008	2,678	24,296	1.4	9.1	5.2	3.5	2.4	3,248	45,216	3.8
2009	4,412	47,539	3.5	10.8	7.9	4.0	2.8	4,725	65,693	6.6
2010	3,772	39,290	2.5	10.4	6.6	4.1	2.3	4,857	73,806	7.7
2011	2,256	17,564	1.1	7.8	5.1	3.9	2.0	4,520	70,556	7.4
2012	1,946	14,829	1.0	7.6	5.2	4.0	2.0	4,194	67,216	7.3
2013	1,733	9,406	0.7	5.4	4.3	4.1	1.7	4,100	65,315	7.3
All	5,672	176,074	11.5	31.1	20.3	4.1	3.4			

Lending to LGFVs across Banks

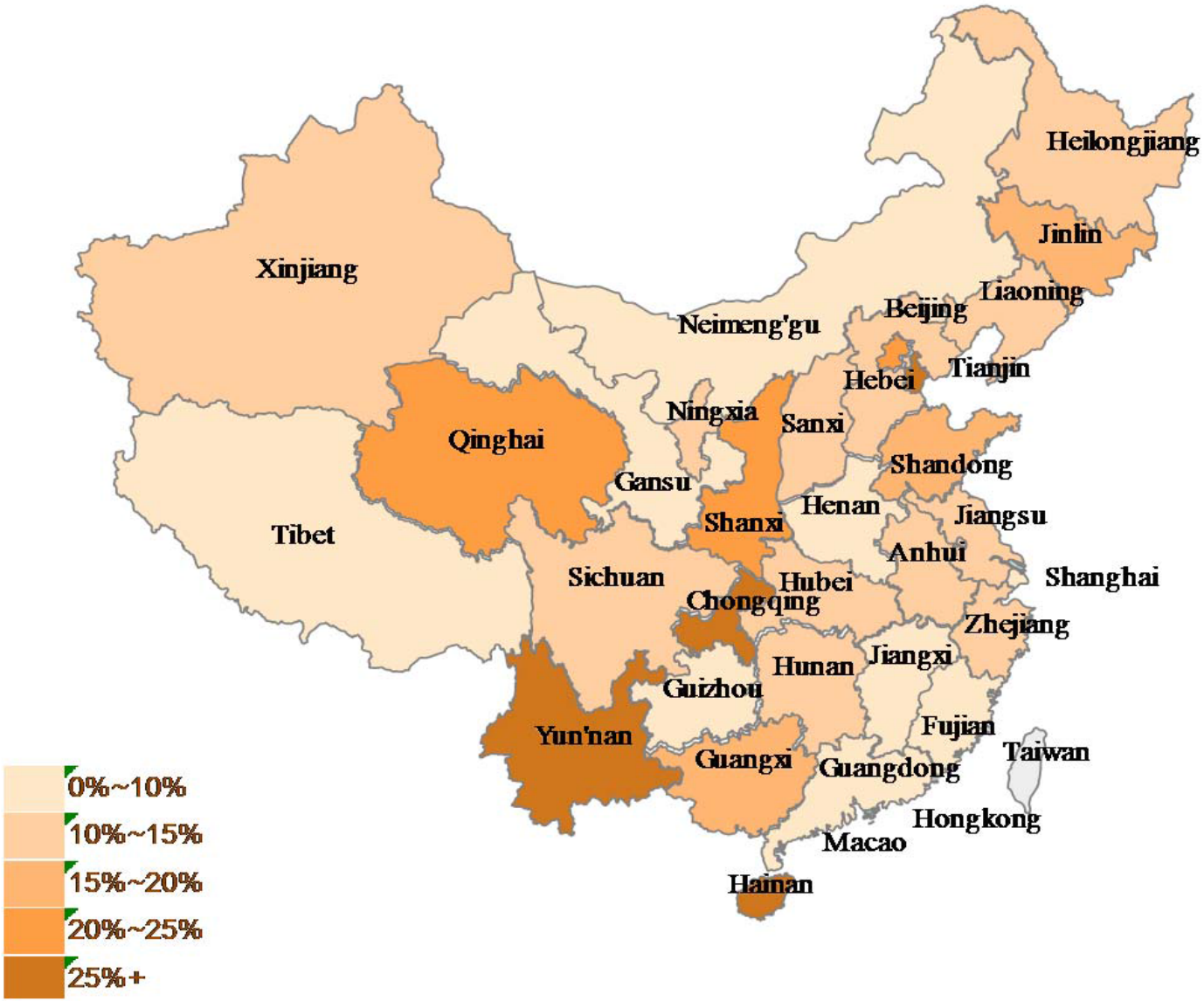


Industry Distribution (100M RMB)



Panel A: Industry distribution of LGFV loans

Regional Distribution (Loan to GDP Ratio) in 2012



Default Patterns: The CDB vs. Commercial Banks

Panel A: Commercial Banks versus China Development Bank

	Obs.	Default Rate	Obs.	Default Rate
	LFGVs		Non-LGFVs	
Commercial Banks	83,948	1.8%	5,226,036	0.9%
CDB	5,837	0.3%	7,658	0.9%
Mean Diff		1.5%***		-0.0%
T-statistics		18.41		-0.32
Wilcoxon rank sum test Z-statistics		8.89		-0.17

Regression Specification

In our baseline model, we perform the regressions of LGFV loan default dummies on loan characteristics:

$$Default_i = \alpha + \beta_1 \times CDB_i + Control_i + FE + \epsilon,$$

where $Default_i$ is the indicator for whether loan i has been delinquent for more than 90 days. CDB is the dummy for whether the loan i is from the CDB.

The CDB vs. Commercial Banks

	Default Probability			
	(1)	(2)	(3)	(4)
CDB	-2.757***	-2.852***	-1.837***	-1.850***
	(-9.77)	(-10.06)	(-5.49)	(-5.07)
Bank Loan Rating	1.141***	1.078***	0.344***	0.475***
	(17.72)	(16.37)	(2.85)	(3.31)
Loan Size	6.675***	6.750***	7.134***	7.324***
	(14.74)	(14.68)	(10.94)	(10.20)
Maturity	-0.050	-0.054*	-0.119***	-0.119***
	(-1.62)	(-1.74)	(-3.13)	(-2.89)
Guaranteed	0.164***	0.176***	0.051	0.021
	(2.76)	(2.96)	(0.59)	(0.22)
Log(Assets)	-0.190***	-0.184***	-0.160**	-
	(-9.60)	(-8.92)	(-2.51)	-
Leverage	-0.002	-0.004	0.003	-
	(-0.41)	(-0.64)	(0.32)	-
Local Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	No	No
Region FE	Yes	Yes	No	No
Firm FE	No	No	Yes	Yes
Firm*Year FE	No	No	No	Yes
No. Obs.	89,785	89,785	27,960	16,847
Pseudo. R2	0.054	0.060	0.200	0.238

Better Loan Performance of the CDB

- In contrast with the conventional wisdom
  - Policy banks should perform poorly because they do not focus on (short-term) profits and usually invest in undeveloped areas and in non-profitable public goods with positive externalities
  - Policy banks typically have softer budget constraint
- Very robust results
  - Matched loan characteristics
- The question is How and Why?

Selective Default Strategy

	Default Probability					
	Government Selecting			LGFV Selecting		
	(1)	(2)	(3)	(4)	(5)	(6)
CDB	-2.530***	-1.486***	-1.809***	-1.671***	-2.782***	-3.096***
	(-8.77)	(-4.13)	(-4.46)	(-4.38)	(-5.41)	(-4.10)
Bank Loan Rating	0.987***	0.338**	0.647***	0.110	-0.340	-0.333
	(12.05)	(2.48)	(3.74)	(0.25)	(-0.52)	(-0.39)
Loan Size	6.354***	6.980***	7.385***	6.786***	9.449***	8.311***
	(11.47)	(8.73)	(8.11)	(4.76)	(5.17)	(3.90)
Maturity	-0.055	-0.141***	-0.148***	0.051	0.035	-0.362
	(-1.51)	(-2.94)	(-2.58)	(0.46)	(0.16)	(-1.17)
Guaranteed	0.077	-0.173*	-0.109	-0.522**	-0.308	-0.311
	(1.13)	(-1.73)	(-0.95)	(-2.27)	(-0.96)	(-0.84)
Log(Assets)	-0.261***	-0.137	-0.012	-0.742***	-0.549	-0.321
	(-11.05)	(-1.64)	(-0.09)	(-7.81)	(-1.46)	(-0.61)
Local Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	No	Yes	No	No
Region FE	Yes	No	No	Yes	No	No
Firm FE	No	Yes	Yes	No	Yes	Yes
Firm*Year FE	No	No	Yes	No	No	Yes
No. Obs.	46,732	17,950	9,434	2,373	2,373	1,322
Pseudo. R2	0.092	0.333	0.651	0.123	0.207	0.315

Why Selective Default? Local Politicians' Career Concerns

			Politician Promotion			
	Local GDP Growth		Rank Based		Rank Plus GDP Based	
	(1)	(2)	(3)	(4)	(5)	(6)
Log(CDB Loan)	0.025***		0.334***		0.252***	
	(5.56)		(3.37)		(2.91)	
CDB/Total Loan		0.003**		0.285*		0.281**
		(2.18)		(1.90)		(2.10)
Male	0.026	0.026	-0.594	-0.579	0.143	0.136
	(1.31)	(1.25)	(-1.58)	(-1.54)	(0.39)	(0.38)
Age>=50	-0.041***	-0.040***	-1.086***	-1.063***	-0.647***	-0.637***
	(-4.25)	(-4.13)	(-5.37)	(-5.32)	(-3.76)	(-3.72)
Local Politician	-0.008	-0.011	-0.122	-0.150	0.242	0.214
	(-0.82)	(-1.05)	(-0.55)	(-0.68)	(1.29)	(1.15)
High Education	-0.019	-0.014	1.600	1.580	1.682**	1.693**
	(-0.73)	(-0.52)	(1.50)	(1.49)	(2.21)	(2.23)
Oversea Experience	-0.018	-0.018	-0.309	-0.316	-0.324	-0.318
	(-1.22)	(-1.21)	(-0.95)	(-0.97)	(-1.19)	(-1.17)
Local Expense/Revenue	0.001	-0.004	-0.044	-0.135**	-0.023	-0.080*
	(0.34)	(-1.44)	(-0.68)	(-2.03)	(-0.47)	(-1.69)
Tertiary sector/GDP	0.000	0.001	0.023*	0.037***	0.006	0.017*
	(0.06)	(1.63)	(1.84)	(3.09)	(0.55)	(1.68)
Year Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Region Fixed	Yes	Yes	Yes	Yes	Yes	Yes
No. Obs.	657	657	657	657	657	657
Pseudo. R2	0.114	0.071	0.122	0.106	0.053	0.045

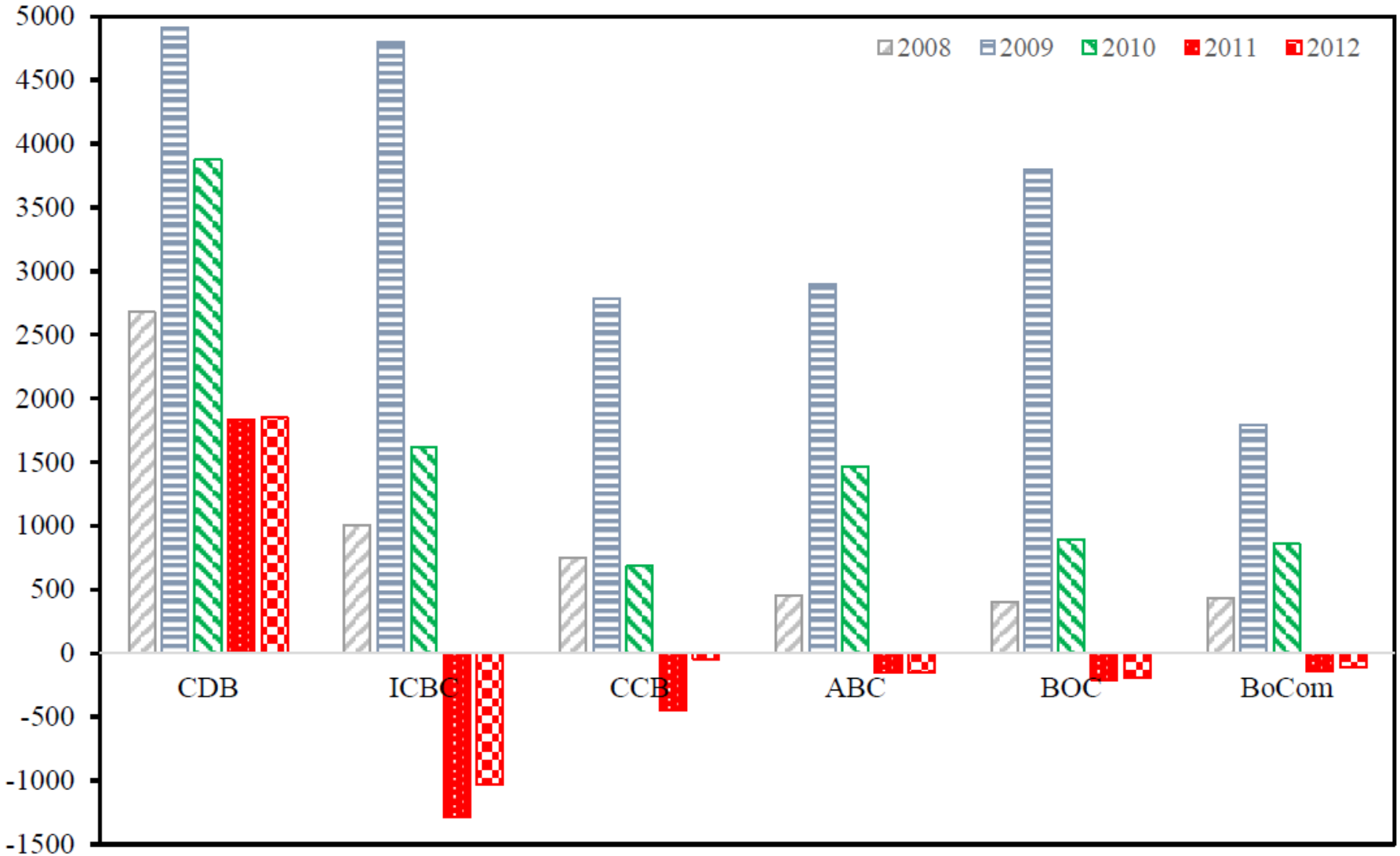
Punishment of Default

	Log(Loan Amounts)		
	(1)	(2)	(3)
Outstanding Delinquency	-0.063***	-0.061***	-0.070***
	(-4.37)	(-4.17)	(-2.61)
CDB*Outstanding Delinquency		-0.011**	-0.018*
		(-2.46)	(-1.82)
CDB		0.045***	0.112***
		(6.42)	(15.44)
Big Five Dummy*Outstanding Delinquency			0.015*
			(1.85)
Big Five Dummy			0.112***
			(30.13)
Firm*Year FE	Yes	Yes	Yes
No. Obs.	89,553	89,553	89,553
Adjusted. R2	0.319	0.358	0.382

Why Politicians Don't Want To Default on the CDB

- The CDB is more important for LGFVs since they provide long-term and stable funds
- Compared with commercial banks, the CDB was at the ministerial level
- The CDB has closer relationship with local governments
  - Many of CDB employees are from the National Development and Reform Commission (NDRC)
- We exploit shocks on relationships between the CDB and local governments
  - Two policy shocks of four trillion stimulus packages
  - Officially started on Nov 2008
  - Sudden pull back on June 2010

Bank Lending over Four Trillion: Changes of Outstanding Loan Amount



Selective Default and Relationship

	Default Probability			
	Government Selecting		LGFV Selecting	
	(1)	(2)	(3)	(4)
CDB	-2.324***	-2.836***	-1.923**	-2.632**
	(-3.08)	(-2.60)	(-2.22)	(-2.24)
CDB*4-trillion Package	1.113*	1.599*	1.061*	1.734**
	(1.76)	(1.75)	(1.83)	(2.01)
CDB*Tightening Regulation	-0.866*	-1.381**	-0.219**	-0.931*
	(-1.94)	(-2.20)	(-2.15)	(-1.71)
4-trillion Package	0.224	-0.745**	0.598	-0.077
	(0.85)	(-2.12)	(1.13)	(-0.12)
Tightening Regulation	0.441	-0.545	0.439	-0.247
	(1.45)	(-1.41)	(0.74)	(-0.35)
Pretrend_6months	2.541	2.873	2.549*	3.414*
	(1.08)	(1.23)	(1.75)	(1.94)
Pretrend_12months	2.182	1.657	12.787	2.159
	(1.63)	(1.14)	(0.02)	(1.29)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Firm*Year FE	NO	Yes	NO	Yes
No. Obs.	46,732	9,434	2,373	1,322
Pseudo. R2	0.135	0.173	0.208	0.319

Conclusion

- Local government debt in China
  - E.g., Ang, Bai, and Zhou (2016 WP); Chen, He, and Liu (WP); Bolton (2016 AFA)
- Better performance for policy bank loans
  - Selective-default; Harder budget constraint for development banks
  - Novel mechanism to harden budget constraint: disciplining the local government borrowers through politicians' career concerns
- Political economy of bank lending
  - E.g., Sapienza (2004 JF), Dinc (2005 JFE), Khwaja and Mian (2005 QJE), Calvalho (2014 JF), Ru (2017 JF)
- China Model/Chinese Characteristics
  - E.g., Allen, Qian, and Qian (2005 JFE); Song, Storesletten, and Zilibotti (2011 AER); Bailey, Huang, and Yang (2011 JFQA)

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China's Anti-Corruption Campaign and Credit Reallocation to Non-SOEs

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MIT Golub Center for Finance and Policy
Four Annual Conference
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Research Questions

- How does political uncertainty affect credit reallocation among industry rivals (China's anti-corruption campaign)?

Contagion or industry competition dominates?

- On the one hand:
  - Heightened political uncertainty may also affect rivals
- On the other hand:
  - Bright futures for competitors

Main Findings

- Non-SOE (privately-owned) rivals increase financing capacity
- SOE (state-owned) rivals decrease financing capacity
- Contrasts the unconditional preferential treatment of SOEs
- (Chinese anti-corruption campaign as an exogenous shock)

Main Findings

- Credit reallocation – detailed components
- Show the credit reallocation is driven by the supply side
- The reallocation of credit towards non-SOE peers is efficient
- Additional evidence
  - Stock market, investment efficiency, market shares, (more robustness)

Literature

- China anti-corruption campaign – natural experiment
  - Ang, Bai, and Zhou (2016); Liu, Shu, and Wei (2017); Lin, Morck, Yeung, and Zhao (2016); Griffin, Liu, and Shu (2016)

- Unconditional financing advantage of SOEs
  - Brandt and Zhu (2001); Boyreau-Debray and Wei (2005); Song, Storesletten, and Zilibotti (2011); Cong, Gao, Ponticelli, and Yang (2017)
  - Privatization and firm performance: Megginson, Nash, and Randenborgh (1994); Dewenter and Malatesta (2001); Boubakri, Cosset, and Guedhami (2005); Liao, Liu, and Wang (2014)
  - Ownership structure and debt financing cost: Lin, Ma, Malatesta, and Xuan (2011); Borisova, Fotak, Holland, and Megginson (2015)

Literature

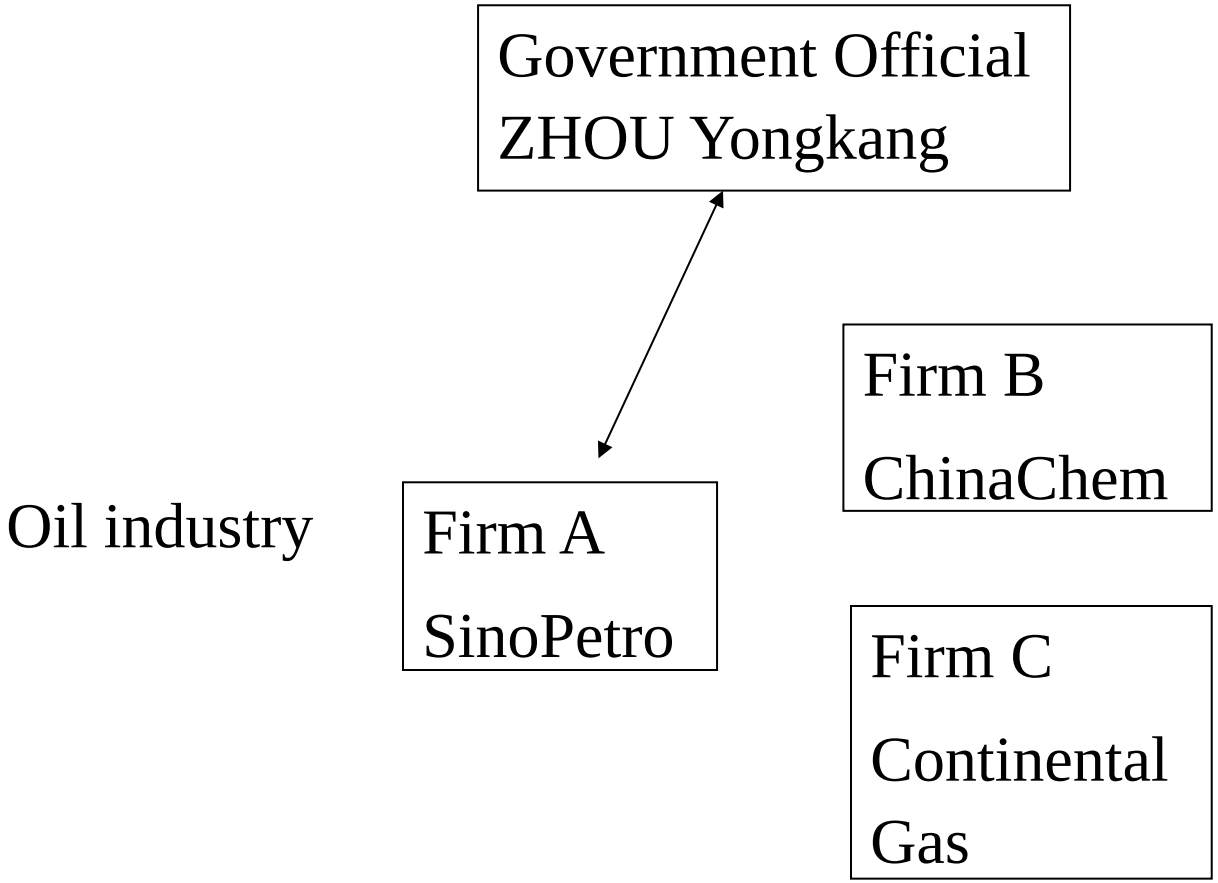
- Corruption – A two-side story
  - Economic cost of corruption by fostering rent-seeking activities: Shleifer and Vishny (1993); Shleifer and Vishny (1994); Mauro (1995); Fisman (2001); Fisman and Svensson (2007); Butler, Fauver, and Mortal (2009)
  - Political connections mitigate financial frictions: Faccio (2006); Goldman, Rocholl, and So (2009); Amore and Bennedson (2013); Dreher and Gassebner (2013)
- Political connection and bank lending
  - Khwaja and Mian (2005); Claessens, Feijen, and Laeven (2008); Leuz and Oberholzer-Gee (2006)
- Competition versus contagion effects
  - Zeume (2016); Lang and Stulz (1992); Hertzel and Officer (2012); Parsons, Sulaeman, and Titman (2014)

The Chinese Anti-corruption Campaign

- Initiated since late 2012, an ideal laboratory to study the causal relationship between political uncertainty and competitors' financing capacity

- Investigations constitute staggered events to identify loss of political connections on credit allocation

An Example


Government Official
ZHOU Yongkang
Oil industry
Firm A
SinoPetro
Firm B
ChinaChem
Firm C
Continental
Gas

Data

- Collect corruption cases from the *Central Commission Discipline Inspection* (CCDI) in China between 2012 and 2015

- Identify government officials under investigation
  - Name, current position, previous positions as government officials or CEOs of public firms (SOEs), type and degree of corruption
  - Focuses on senior officials: those hold positions at or above deputy minister level at central government and deputy governor level at provincial government

Data

- Measure political connection: search news articles (Baidu/Google) on the existence of connection between investigated senior government officials and publicly-listed firms
  - Focus on five types of connections: current employment, previous employment, business associations; relatives, investigators
  - Perform a pilot experiment with a random sample of 100 news articles to check the validity of the key word search

- Keep only the first announcement on investigations: 31 corruption related industries

- Identify industry peers using the three-digit industry classification, which yields 1,560 public peer firms

Quarter distribution of corruption investigations

Panel A: The number of investigations

Year-quarter	Number of investigations	Number of affected industries	Number of peer firms
2012-4	1	3	201
2013-1	1	0	0
2013-2	6	8	520
2013-3	6	0	0
2013-4	11	2	65
2014-1	4	0	0
2014-2	14	9	447
2014-3	15	2	51
2014-4	9	5	216
2015-1	11	2	60
Total	78	31	1560

Summary Statistics

	State-owned Enterprises (SOEs)			Privately-owned Enterprises (Non-SOEs)				
Variables	N	Mean	SD	N	Mean	SD	T-test	Sig
ROA	18908	0.007	0.019	18566	0.010	0.020	-18.245	***
Size	18908	22.482	1.353	18566	21.584	1.090	70.647	***
Tobin's Q	18908	2.222	1.830	18566	3.293	2.664	-45.430	***
Leverage	18908	0.533	0.215	18566	0.399	0.221	59.575	***
HHI	18908	0.096	0.088	18566	0.080	0.070	19.553	***
Log_Total_Debt	18908	19.344	5.742	18566	16.862	7.059	37.360	***
Log_Short_Debt	18908	17.087	7.448	18566	15.053	8.159	25.208	***
Log_Long_Debt	18908	15.179	8.826	18566	10.432	9.453	50.258	***
Log_Loan_Amt	18908	15.362	8.206	18566	13.041	8.740	26.506	***
Log_Bond_Amt	18908	1.066	4.572	18566	0.651	3.559	9.799	***
Market share in sales	18908	2.373	5.289	18566	1.366	4.532	19.780	***
Market share in assets	18908	2.337	4.821	18566	1.378	3.469	22.060	***

- SOE peers have higher leverage, lower growth opportunity, and lower return on assets compared to non-SOE peers

Methodology

$$y_{i,t+1} = \beta_1 Investigation_{i,t} + \beta_2 Investigation_{i,t} * SOE_i + \beta_3 InvestigationAft_{i,t} +$$

$$\beta_4 InvestigationAft_{i,t} * SOE_i + Firm\ Controls_{i,t} + Firm\ fixed_i + Quarter_t + \varepsilon_{i,t}$$

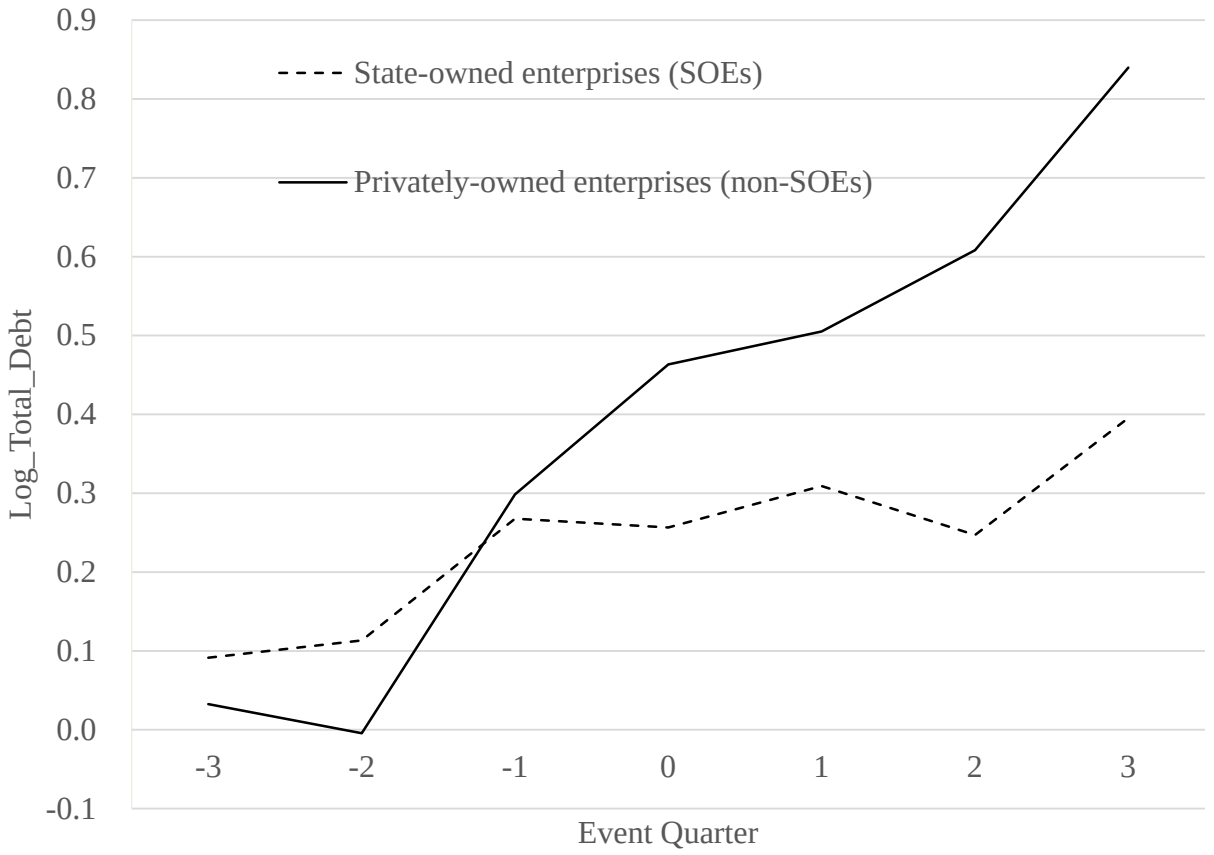
- Diff-in-Diff-in-Diff:
  - Under investigations and control
  - Before and after investigations
  - SOE and non-SOE

Results – credit reallocation

- Industry rivals' financing capacity before and after

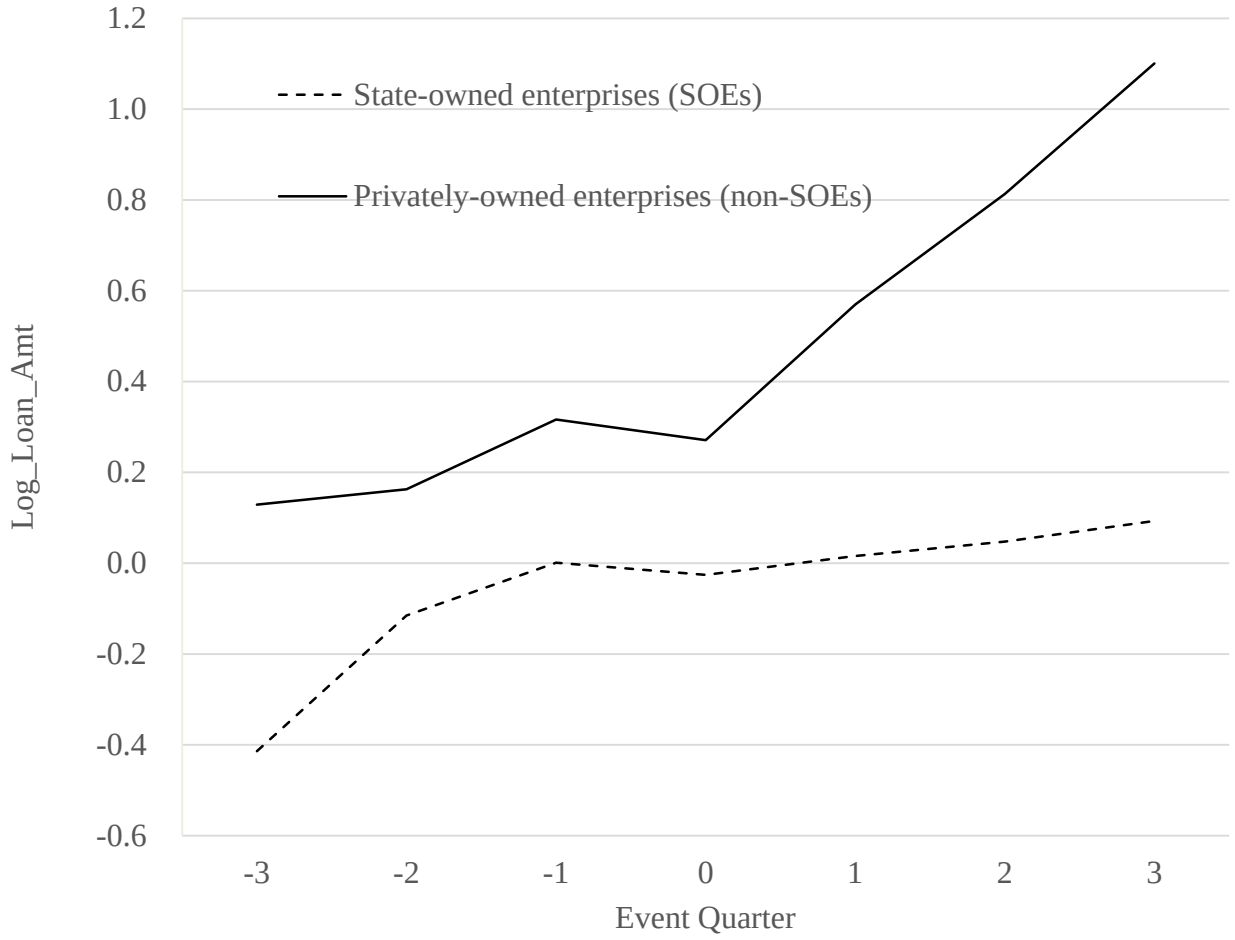
	Non-SOE Peers	SOE peers
Total debt capacity	+	-
Bank loan amount Bond issuance	+ -	- ?
Extensive margin Intensive margin	+ ?	- -
Short-term debt Long-term debt	+ ?	- -

The Total Debt Capacity

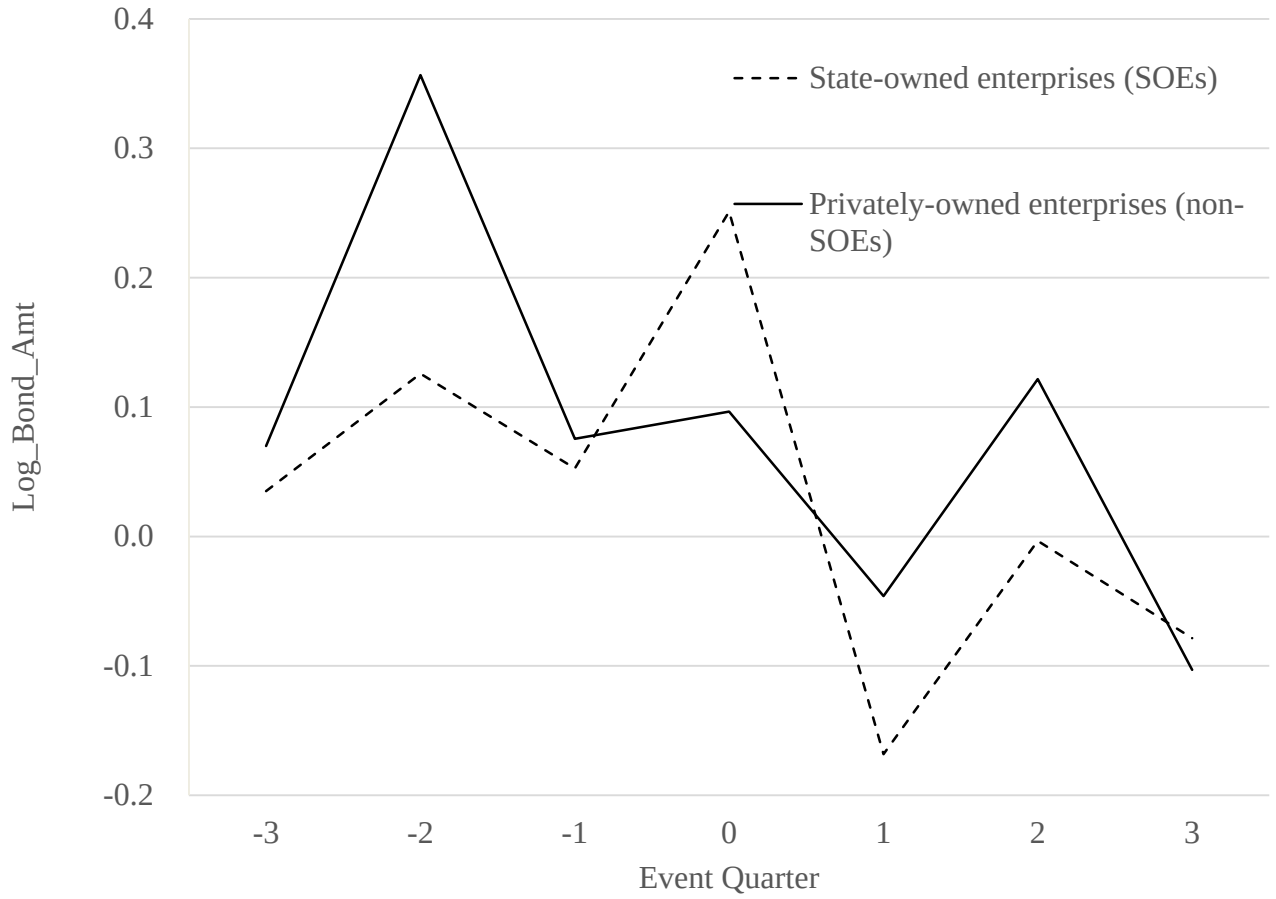


Variables	(1)	(2)	(3)	(4)
		Log_Total_Debt		
Investigation	0.481**	0.351*	0.363*	0.260*
	(2.435)	(1.677)	(1.750)	(1.756)
*Investigation*SOE*	-0.444	-0.407	-0.371	-0.281
	(-1.605)	(-1.469)	(-1.366)	(-1.450)
InvestigationAft	**0.916*** **	**0.463*** **	**0.522*** **	**0.308*** **
	(11.437)	(3.647)	(3.782)	(3.100)
InvestigationAft*SOE	**-0.963*** **	**-0.962*** **	**-0.921*** **	**-0.593*** **
	(-8.845)	(-8.840)	(-8.605)	(-7.380)
SOE	-0.189**	-0.192**	-0.209***	-0.225
	(-2.322)	(-2.357)	(-2.577)	(-1.406)
Firm level controls	Yes	Yes	Yes	Yes
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474
R-squared	0.384	0.386	0.412	0.141

The Bank Loan Issuance



The Corporate Bond Issuance



Variables	(1)	(2)	(3)	(4)
	Log_Loan_Amt		*Log_Bond_Amt*	
Investigation	0.073	-0.028	-0.287*	-0.290*
	(0.254)	(-0.120)	(-1.765)	(-1.897)
*Investigation*SOE*	-0.086	-0.045	0.240	0.257
	(-0.229)	(-0.149)	(1.128)	(1.287)
InvestigationAft	**0.741*** **	**0.457*** **	**-0.510*** **	**-0.502*** **
	(3.890)	(2.931)	(-4.723)	(-4.903)
InvestigationAft*SOE	**-1.139*** **	**-0.705*** **	**0.109**	**0.102**
	(-7.709)	(-5.580)	(1.305)	(1.229)
SOE	-0.766***	-0.040	-0.428***	-0.217
	(-6.831)	(-0.158)	(-6.732)	(-1.317)
Firm level controls	Yes	Yes	Yes	Yes
Quarterly fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	No	Yes	No
Firm fixed effects	No	Yes	No	Yes
Observations	37,474	37,474	37,474	37,474
R-squared	0.343	0.068	0.083	0.017

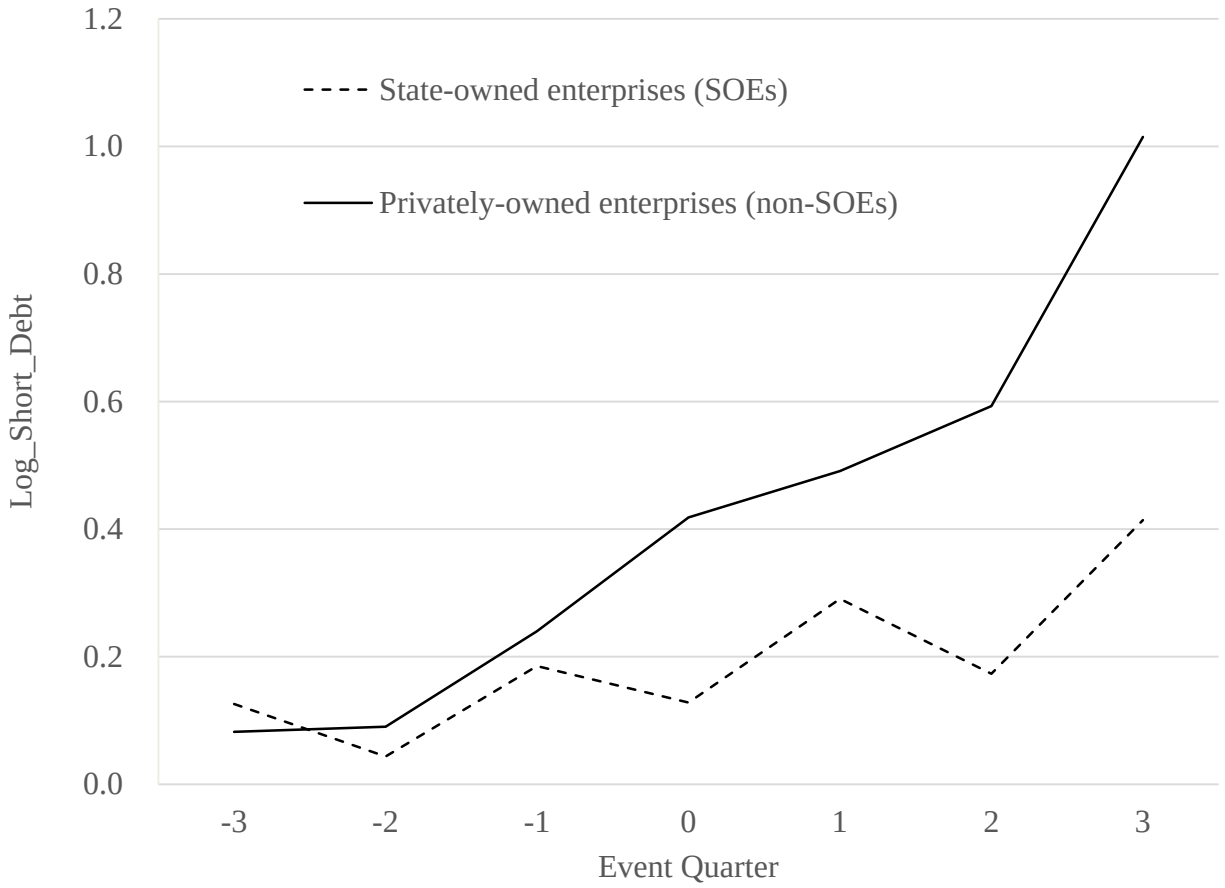
Extensive Margin

Variables	(1)	(2)	(3)	(4)
	Prob(New_Loan)			
Investigation	0.004	-0.031	-0.006	-0.041
	(0.072)	(-0.524)	(-0.104)	(-0.567)
*Investigation*SOE*	-0.030	-0.022	-0.011	0.021
	(-0.367)	(-0.270)	(-0.133)	(0.214)
InvestigationAft	**0.106*** **	**0.066***	**0.137*** **	**0.121****
	(4.681)	(1.771)	(3.267)	(2.425)
InvestigationAft*SOE	**-0.221*** **	**-0.224*** **	**-0.223*** **	**-0.207*** **
	(-6.885)	(-6.957)	(-6.789)	(-5.042)
SOE	-0.157***	-0.159***	-0.130***	-0.089
	(-6.710)	(-6.799)	(-5.356)	(-1.629)
Firm level controls	Yes	Yes	Yes	Yes
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474

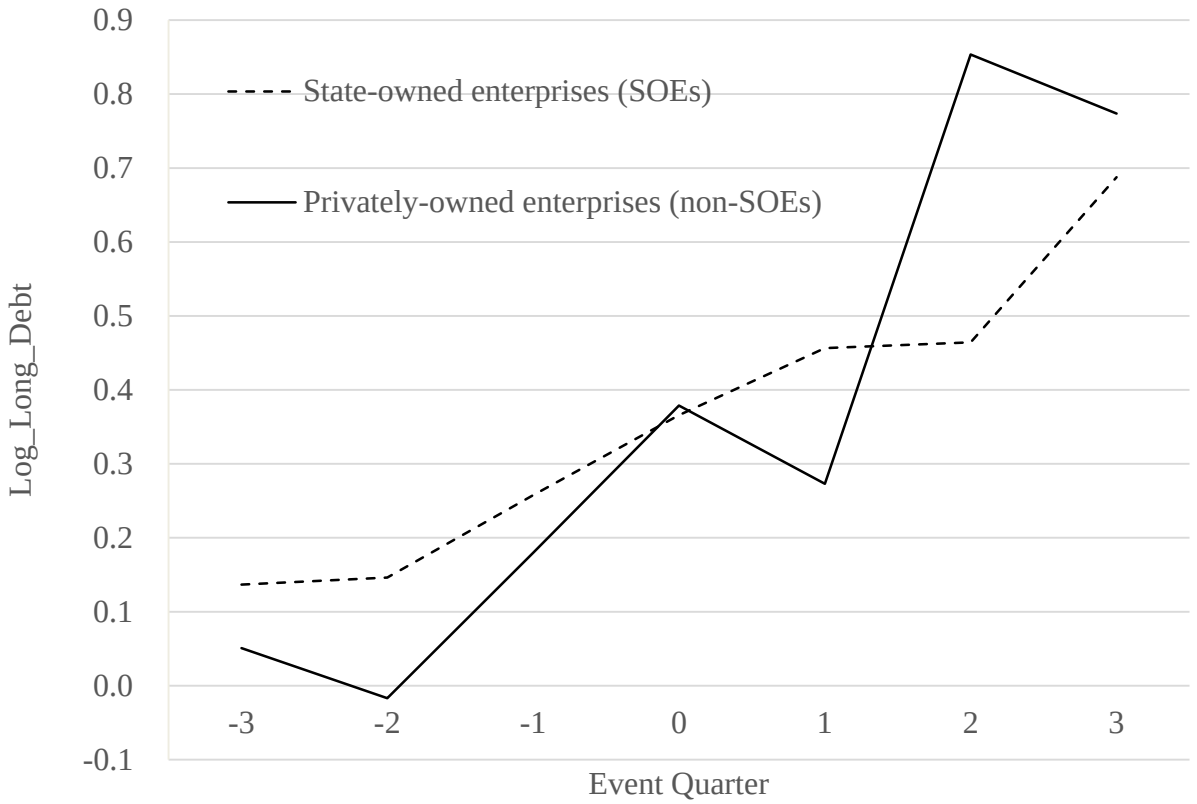
Intensive Margin

Variables	(1)	(2)	(3)	(4)
	Log_Loan_Amt			
Investigation	-0.296	-0.424	-0.328	-0.377
	(-1.163)	(-1.577)	(-1.219)	(-1.548)
*Investigation*SOE*	0.311	0.376	0.356	0.420
	(0.900)	(1.089)	(1.043)	(1.355)
InvestigationAft	**-0.185***	**-0.174**	**0.053**	**0.074**
	(-1.776)	(-1.082)	(0.299)	(0.458)
InvestigationAft*SOE	**-0.177**	**-0.185**	**-0.225***	**-0.280****
	(-1.293)	(-1.354)	(-1.649)	(-2.119)
SOE	-0.707***	-0.716***	-0.673***	-0.322
	(-6.809)	(-6.908)	(-6.436)	(-1.138)
Firm level controls	Yes	Yes	Yes	Yes
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	27,708	27,708	27,708	27,708
R-squared	0.173	0.178	0.194	0.031

The Short-term Debt Issuance



The Long-term Debt Issuance



	(1)	(2)	(3)	(4)
Variables	*Log_Short_Debt*		*Log_Long_Debt*	
Investigation	0.368	0.255	0.114	-0.008
	(1.415)	(1.362)	(0.390)	(-0.041)
*Investigation*SOE*	-0.491	-0.413*	0.075	0.188
	(-1.444)	(-1.686)	(0.196)	(0.700)
InvestigationAft	**0.692*** **	**0.365*** **	**0.354*** **	**0.096**
	(4.007)	(2.905)	(1.828)	(0.701)
InvestigationAft*SOE	**-1.169*** **	**-0.653*** **	**-0.635*** **	**-0.252** **
	(-8.718)	(-6.420)	(-4.225)	(-2.264)
SOE	-0.598***	0.043	0.320***	-0.012
	(-5.877)	(0.212)	(2.801)	(-0.052)
Firm level controls	Yes	Yes	Yes	Yes
Quarterly fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	No	Yes	No
Firm fixed effects	No	Yes	No	Yes
Observations	37,474	37,474	37,474	37,474
R-squared	0.362	0.111	0.443	0.142

The Supply Side Channel

- The credit reallocation can be driven by either the demand or the supply channel
  - The demand channel: increases in political uncertainty reduce product market demand of rival firms
  - The supply channel: investigations change bankers' perception about political uncertainty for the SOE rivals

- Explore bank specific shock

The Supply Side Channel

- Identify the first and one of the most influential anti-corruption case in the financial industry
  - China Minsheng Bank Corp. Ltd scandal
  - The CEO Mao Xiaofeng of China Minsheng Bank was investigated on January 30, 2015 in a case related to a high-profile official
  - How financiers respond to heighted political risk

- Rent-seeking activities occur within triangles of firms (SOEs), government officials, and bankers

- Study how financiers respond to heightened political risk (uncorrelated with nonbank industry fundamentals)

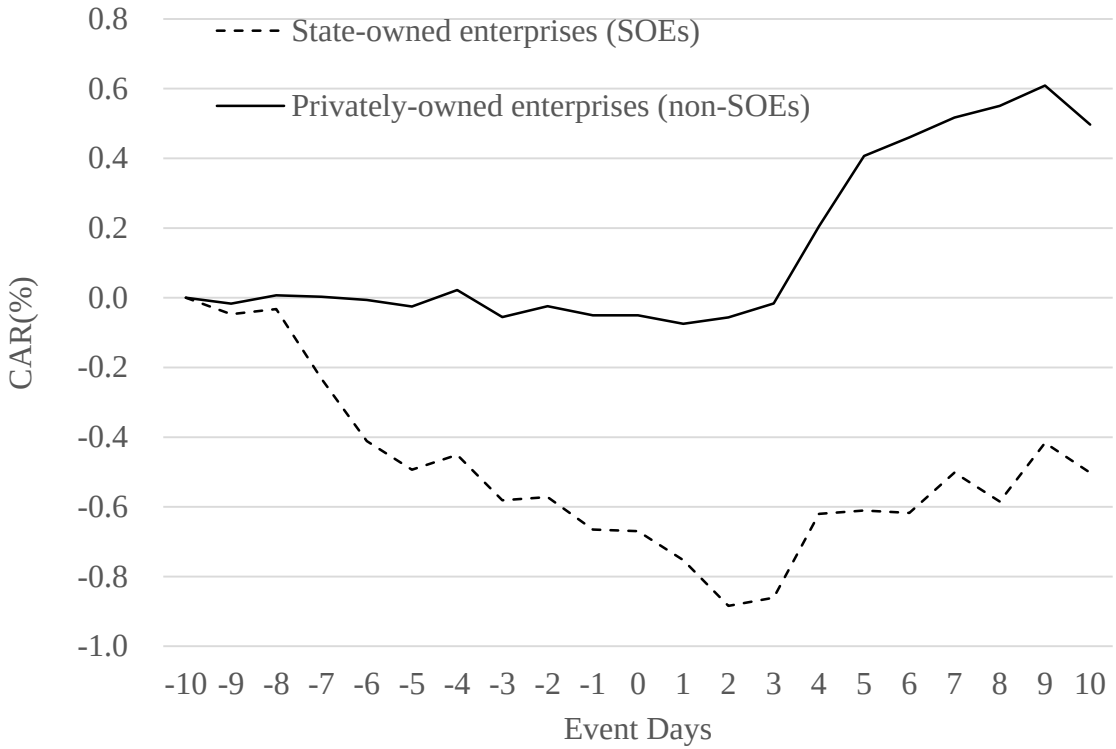
	(1)	(2)	(3)	(4)	(5)
Variables	*Log_Total_Debt*	*Log_Short_Debt*	*Log_Long_Debt*	*Log_Loan_Amt*	*Log_Bond_Amt*
InvestigationAft	0.296***	0.284**	0.164	0.393**	-0.489***
	(2.956)	(2.244)	(1.185)	(2.501)	(-4.729)
*InvestigationAft*SOE*	-0.563***	-0.577***	-0.266**	-0.639***	0.108
	(-6.897)	(-5.593)	(-2.360)	(-4.988)	(1.283)
InvestigationAft*AftMao	**0.628***	**2.348*****	**-1.600*****	**2.148*****	**-0.292**
	(1.952)	(5.779)	(-3.601)	(4.255)	(-0.879)
InvestigationAft *AftMao*SOE	**-0.979****	**-2.619*****	**0.641**	**-2.368*****	**-0.138**
	(-2.221)	(-4.700)	(1.051)	(-3.420)	(-0.303)
Firm level controls	Yes	Yes	Yes	Yes	Yes
Quarterly fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	37,474	37,474	37,474	37,474	37,474
R-squared	0.142	0.112	0.142	0.069	0.017

Placebo Test

Variables	(1) *Log_Total_Debt*	(2) *Log_Short_Debt*	(3) *Log_Long_Debt*	(4) *Log_Loan_Amt*	(5) *Log_Bond_Amt*
InvestigationAft	0.345*	0.521**	0.178	0.491	0.854***
	(1.742)	(2.081)	(0.649)	(1.579)	(4.188)
*InvestigationAft*SOE*	-0.736***	-1.481***	-0.114	-1.235***	0.196
	(-3.192)	(-5.080)	(-0.357)	(-3.409)	(0.827)
InvestigationAft*2013Placebo	**-0.052**	**-0.193**	**-0.098**	**-0.075**	**-1.470*** **
	(-0.272)	(-0.805)	(-0.375)	(-0.252)	(-7.535)
InvestigationAft *2013Placebo*SOE	**0.176**	**0.974*** **	**-0.157**	**0.627**	**-0.219**
	(0.717)	(3.143)	(-0.463)	(1.629)	(-0.867)
Firm level controls	Yes	Yes	Yes	Yes	Yes
Quarterly fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	37,474	37,474	37,474	37,474	37,474
R-squared	0.142	0.112	0.142	0.069	0.022

Stock Market Reaction

Three-factor model;
Pre-event period:
[-210,-30] days;
Event window:
[-10,+10] days;

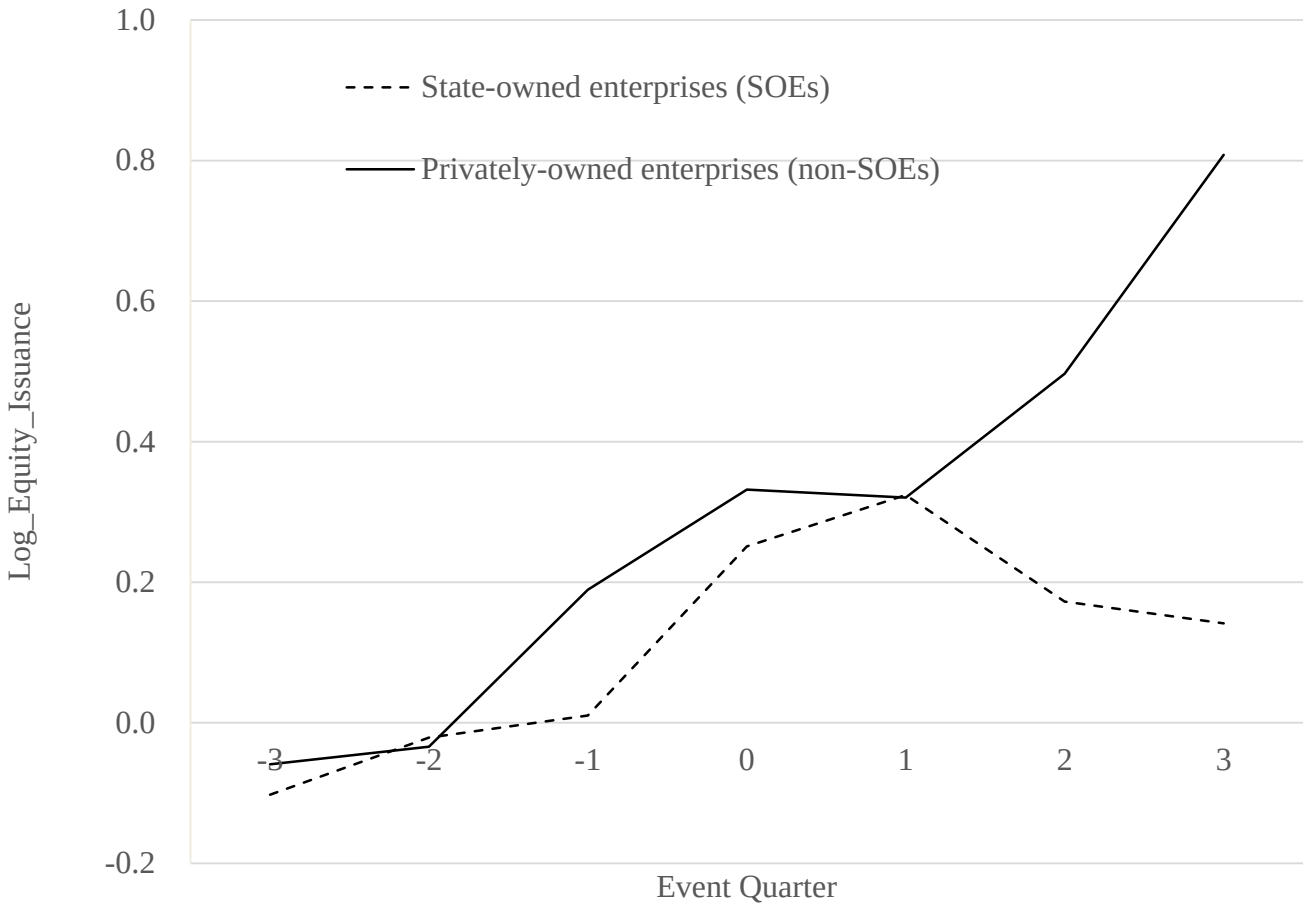


Abnormal Returns

T-test for differences in CARs between SOE and non-SOE peer firms

	Privately-owned enterprises (non-SOEs)			State-owned enterprises (SOEs)			Diff (non-SOEs-SOEs)	
Event window	N	Mean	Median	N	Mean	Median	T-test mean	T-test median
[-10,-2]	2699	-0.024	-0.695	2285	-0.572	-0.986	0.548	0.291
		0.860	0.000		0.000	0.000	0.004	0.006
[-10,+2]	2681	-0.056	-0.989	2279	-0.884	-1.464	0.828	0.476
		0.730	0.000		0.000	0.000	0.000	0.001
[-10,+10]	2681	0.497	-0.587	2271	-0.502	-1.389	0.999	0.802
		0.019	0.001		0.017	0.000	0.001	0.001

The Equity Issuance

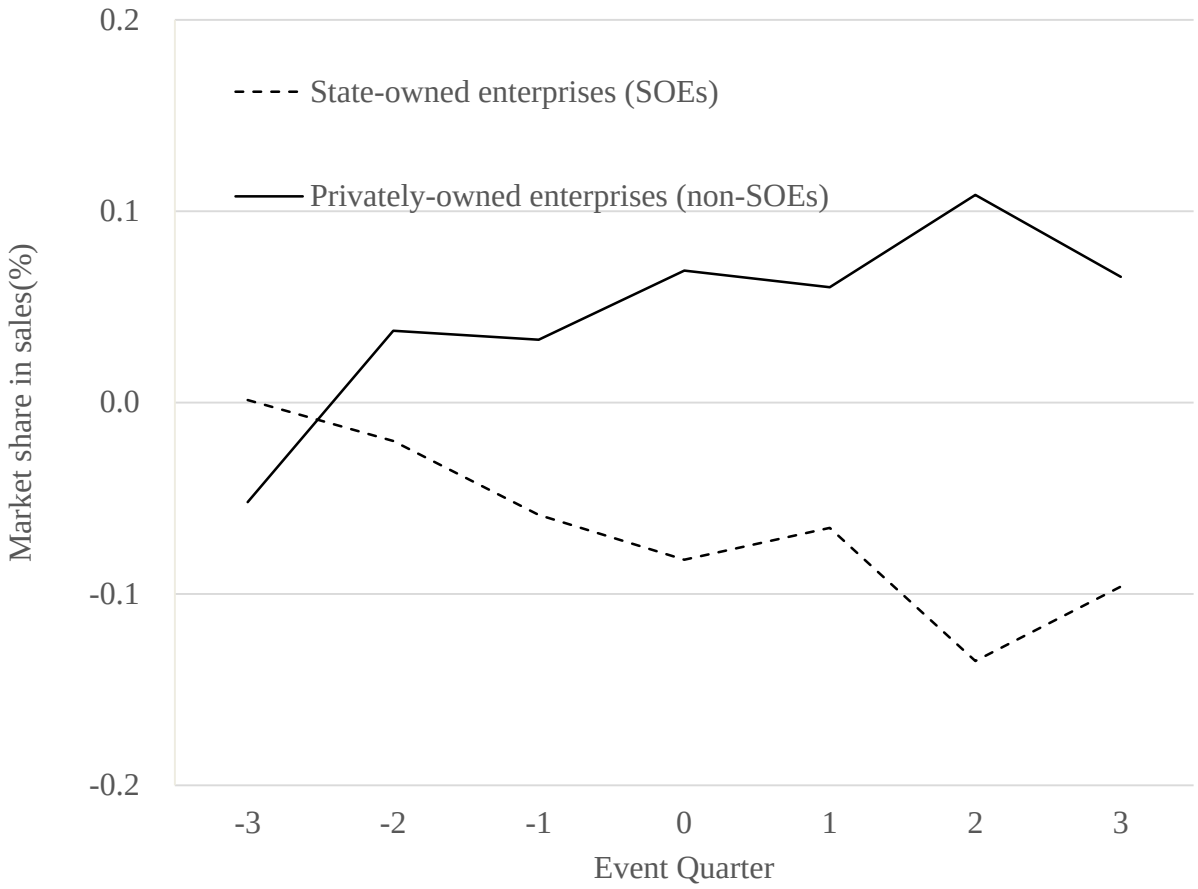


Variables	(1)	(2)	(3)	(4)
	Log_Total_Equity			
Investigation	0.300**	-0.013	0.037	-0.012
	(2.143)	(-0.088)	(0.244)	(-0.079)
*Investigation*SOE*	-0.019	-0.016	-0.023	0.055
	(-0.098)	(-0.084)	(-0.116)	(0.278)
InvestigationAft	**0.679*** **	**0.120**	**0.242** **	**0.155**
	(11.952)	(1.332)	(2.425)	(1.537)
InvestigationAft*SOE	**-0.398*** **	**-0.393*** **	**-0.410*** **	**-0.260*** **
	(-5.147)	(-5.098)	(-5.295)	(-3.180)
SOE	-0.130**	-0.122**	-0.114*	-0.109
	(-2.247)	(-2.115)	(-1.941)	(-0.666)
Firm level controls	Yes	Yes	Yes	Yes
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474
R-squared	0.012	0.015	0.017	0.018

Investment Efficiency

Variables	(1)	(2)	(3)	(4)
		Capx_ratio		
Investigation	-0.482***	-0.214***	-0.099	-0.073
	(-7.120)	(-3.017)	(-1.423)	(-1.185)
*nvestigation*SOE*	0.150	0.144	0.167*	0.112
	(1.585)	(1.536)	(1.827)	(1.391)
InvestigationAft	-0.730***	-0.447***	-0.236***	-0.217***
	(-17.200)	(-8.423)	(-4.288)	(-4.347)
*InvestigationAft*SOE*	0.296***	0.303***	0.380***	0.301***
	(5.061)	(5.230)	(6.752)	(5.662)
InvestigationAft*TobinQ	**0.030****	**0.030****	**0.037*****	**0.018**
	(2.349)	(2.339)	(2.965)	(1.324)
*SOE*TobinQ*	0.015	0.030***	0.037***	0.041***
	(1.532)	(3.042)	(3.785)	(4.394)
SOE*InvestigationAft*TobinQ	**-0.049*****	**-0.045*****	**-0.056*****	**-0.044*****
	(-2.850)	(-2.640)	(-3.402)	(-2.743)
SOE	-0.391***	-0.408***	-0.493***	-0.401***
	(-9.021)	(-9.504)	(-11.691)	(-4.956)
Firm level controls	Yes	Yes	Yes	Yes
Quarterly fixed effects	No	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No
Firm fixed effects	No	No	No	Yes
Observations	37,474	37,474	37,474	37,474
R-squared	0.142	0.112	0.142	0.069

The Market Share Change in Sales



Variables	(1)	(2)
	Market share in sales	
Investigation	-0.010	0.034
	(-0.070)	(0.567)
*Investigation*SOE*	-0.088	-0.101
	(-0.464)	(-1.303)
InvestigationAft	-0.092	0.010
	(-0.961)	(0.258)
InvestigationAft*SOE	**0.044**	**-0.073****
	(0.590)	(-2.264)
SOE	0.042	-0.274***
	(0.745)	(-4.265)
Firm level controls	Yes	Yes
Quarterly fixed effects	Yes	Yes
Firm fixed effects	No	Yes
Observations	37,474	37,474
R-squared	0.500	0.051

Robustness Checks

- Extend to the first five investigation events in each industry
  - Unlikely driven by time-invariant industry specific characteristics
- Credit reallocation holds using change in total debt
- Address the concern on the exogeneity of supply-side shock
  - Falsification test on January 30, 2014
- (Alternative CSMAR loan level data)

Conclusion

- Anti-corruption events are associated with reallocation of credit from less-productive SOE peers to more-productive non-SOE peers
- Pin down the supply-side channel through bankers' credit provision
- China's anti-corruption campaign benefits the real economy, due to more efficient credit reallocation

Policy Implications – Is Anti-Corruption Good or Bad?

- Limitation of macroeconomic or market level evidence
  - The anti-corruption campaign coincide with the economic slowdown, fiscal stimulus, and global trade dwindling
- The subtle role of banking industry
  - Loan officers are more willing to allocate credit towards non-SOEs to diversify political risk
- The direct effect on corruption investigated firms versus the indirect effect among all industry rivals – whole economy

Special Topics in China Financial Research
PhD Course by Hao Zhou at Tsinghua

- Anti-Corruption and Financial Market – I: September 26
- Anti-Corruption and Financial Market – II: October 10
- Shadow Banking – I: October 17
- Shadow Banking – II: October 24
- Local Government Debt: October 31
- (Ir)Rational Investors: November 7
- Stock Trading Mechanism: November 14
- Leverage and Stock Market: November 21
- Real Estate Market: November 28
- Split-Share Reform: December 5
- Pollution and Investment: December 12
- International Shock Transmission: December 19

Special Topics in China Financial Research
PhD Course by Hao Zhou at Tsinghua

- (Tentative research topics to be added in the future)

- Bank Competition and Interest Rate Liberalization
- Exchange Rate Liberalization and Capital Account Opening
- Stock Market Reform and Opening
- Systemic Risk and Financial Regulation
- Monetary Policy Transition

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Government Financial Products, Policies, and Institutions

September 28, 2017

China's New Financial Institutions

Chang-Tai Hsieh (University of Chicago)

China since 2008

1) Debt

2) Investment

3) Current Account

4) Growth Slowdown

New Financial Intermediaries

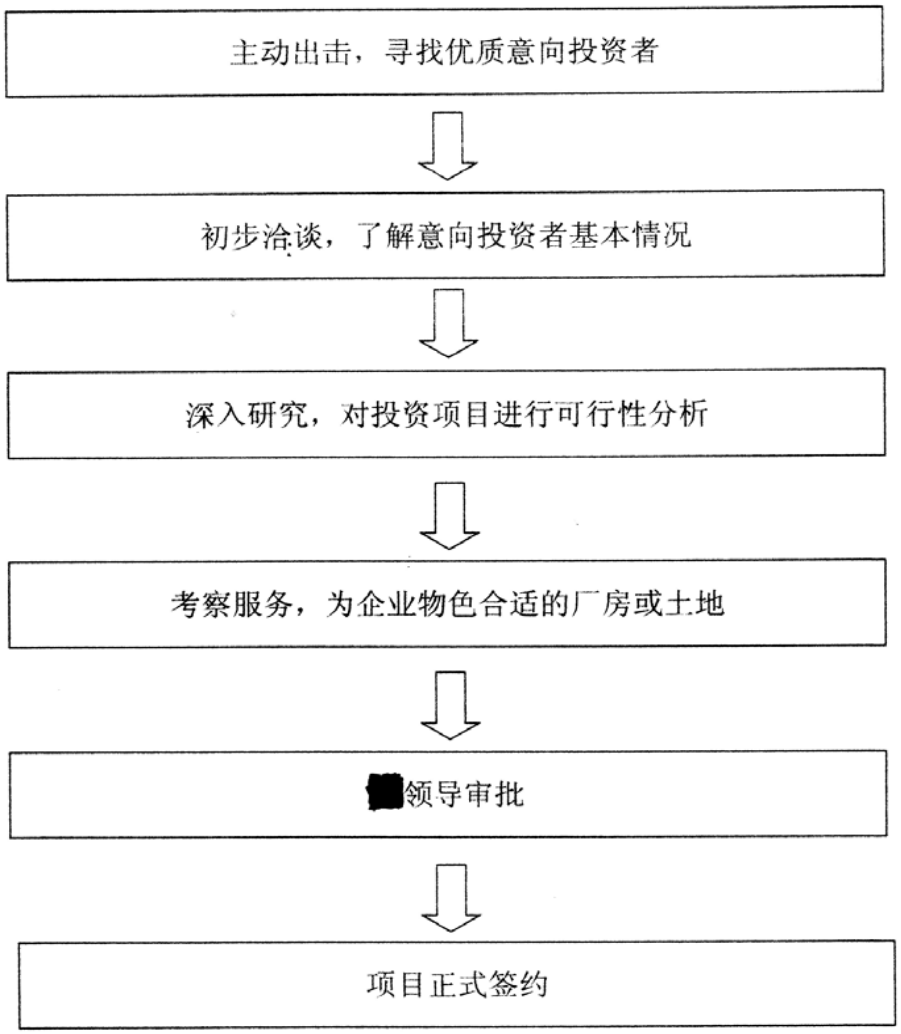
- Local Financing Vehicles
- Shadow Banking (Trusts and Wealth Management Products)

World Bank Doing Business Indicators

Ease of Starting a Business in China: 151 (out of 180)

Same as Congo (yes this is Mobutu's Congo)

Small City in Southern China



Actively look for quality prospects

Initial discussion to learn about investor

Feasibility Analysis

Identify land and other needed services

Approval by Vice-Mayor

Sign agreement

Organization of Local Government

Party Secretary

Mayor

9 Vice-Mayors

Each Vice-Mayor assigned 20 "important" projects

Local governments had high powered incentives to provide special deals to favored firms

But subject to severe capital constraints

- Revenues controlled by central government
- Budget law made borrowing illegal

But otherwise little controls on local governments (until 2013)

2009-2010 Fiscal Stimulus (trillion Yuan)

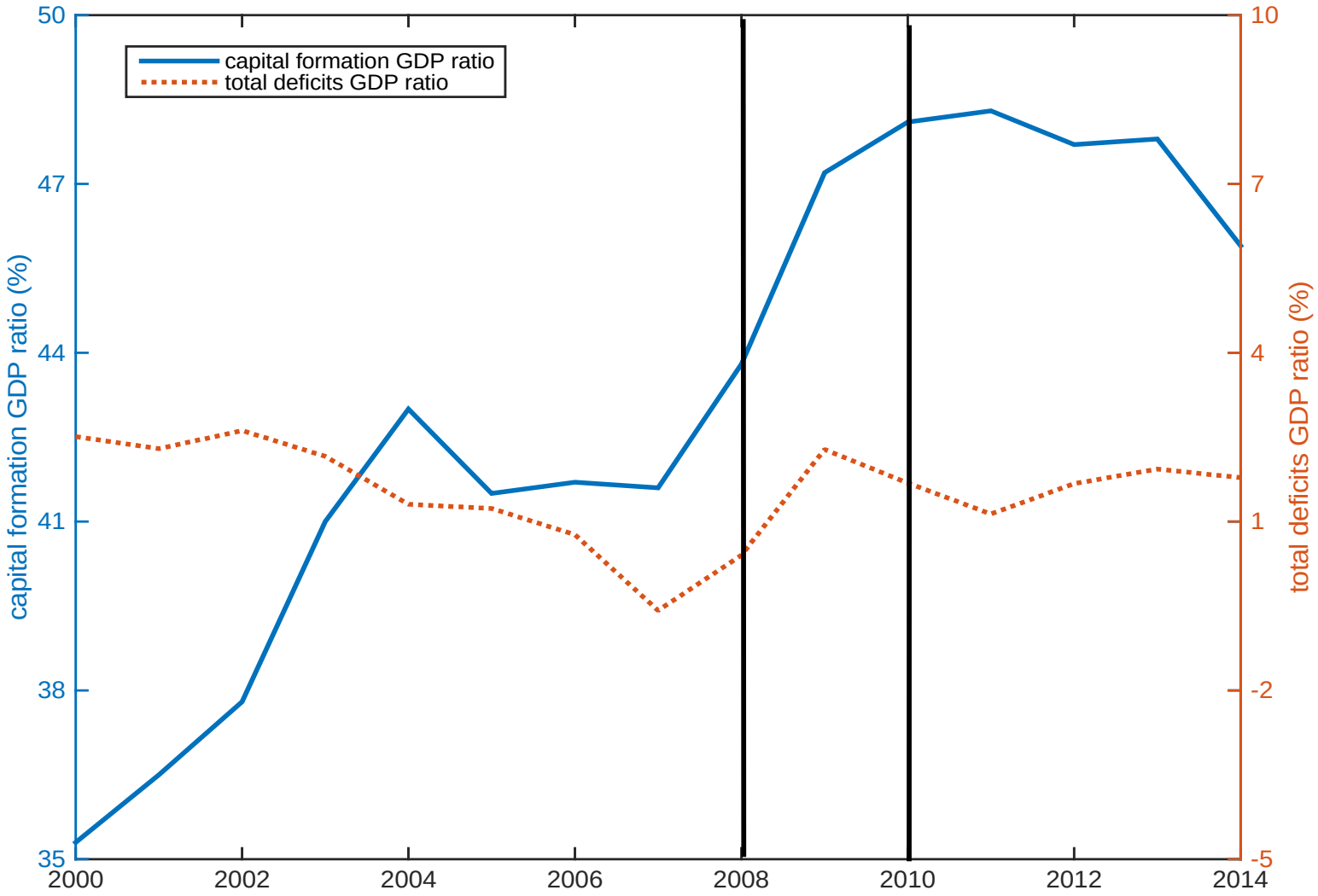
	Planned Investment	On-Balance Sheet Spending	
		Central +Local	Local
Housing Security	0.40	0.20	0.12
Rural Livelihood and Infrastructure	0.37	0.20	0.20
Railway, Road, Airport, Water Conservancy and Urban Power Grids	1.50	0.27	0.31
Health, Education and Culture	0.15	0.11	0.11
Environment Protection	0.21	0.05	0.05
Self-Independent Innovation and Structural Adjustment	0.37	N.A.	N.A.
Post-Disaster Reconstruction	1.00	0.23	0.21
Total	**4**	**1.05**	**1.00**

2011-12: Crackdown Bank Lending to Local Financing Vehicles

⇨ Gave rise to Shadow Banking

2014-15: Crackdown by CBRC and Ministry of Finance on Borrowing by Local Financing Vehicles

Investment Rate and Budget Deficit



Publicly available data on local financing vehicles:

- WIND: Financial statements of LFVs that issue bonds

  Individual data on LFVs, **total** debt

- 2011 and 2013 Audit of ***all*** LFVs (National Audit Office)

  Only covers “Official” debt.

  “Debt that government has responsibility to repay or debt the government would fulfill the responsibility of guarantee or for bailout when the debtor encounters difficulty in repayment."

Aquatic Cube and Bird's Nest

Owned by Beijing Asset Management Company (BSAM)

Total 2015 debt (as reported in WIND): 70 billion Yuan

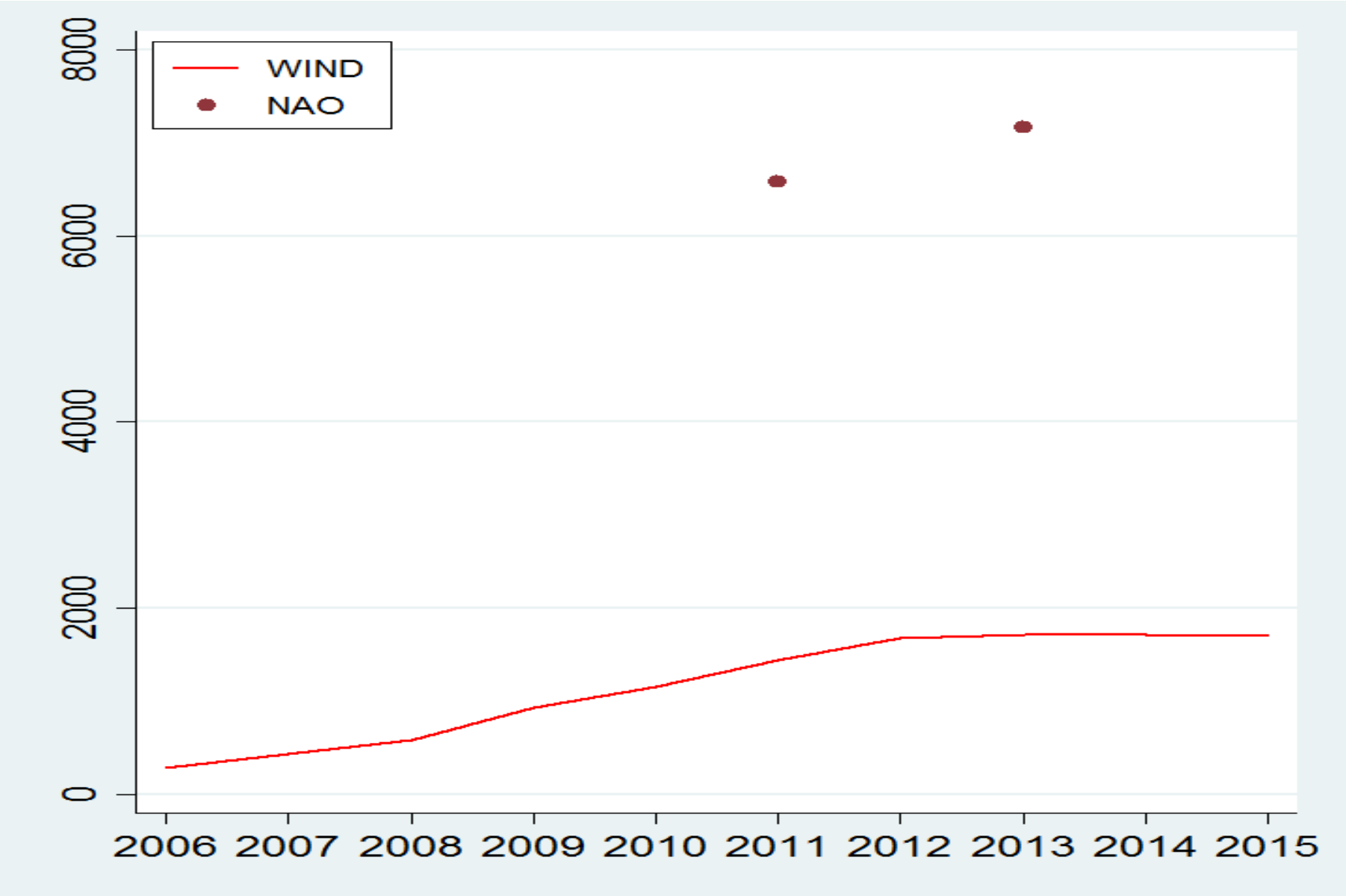
Also owns financial, real estate, and manufacturing companies

Shareholder of Bank of Beijing and Beijing Auto Group

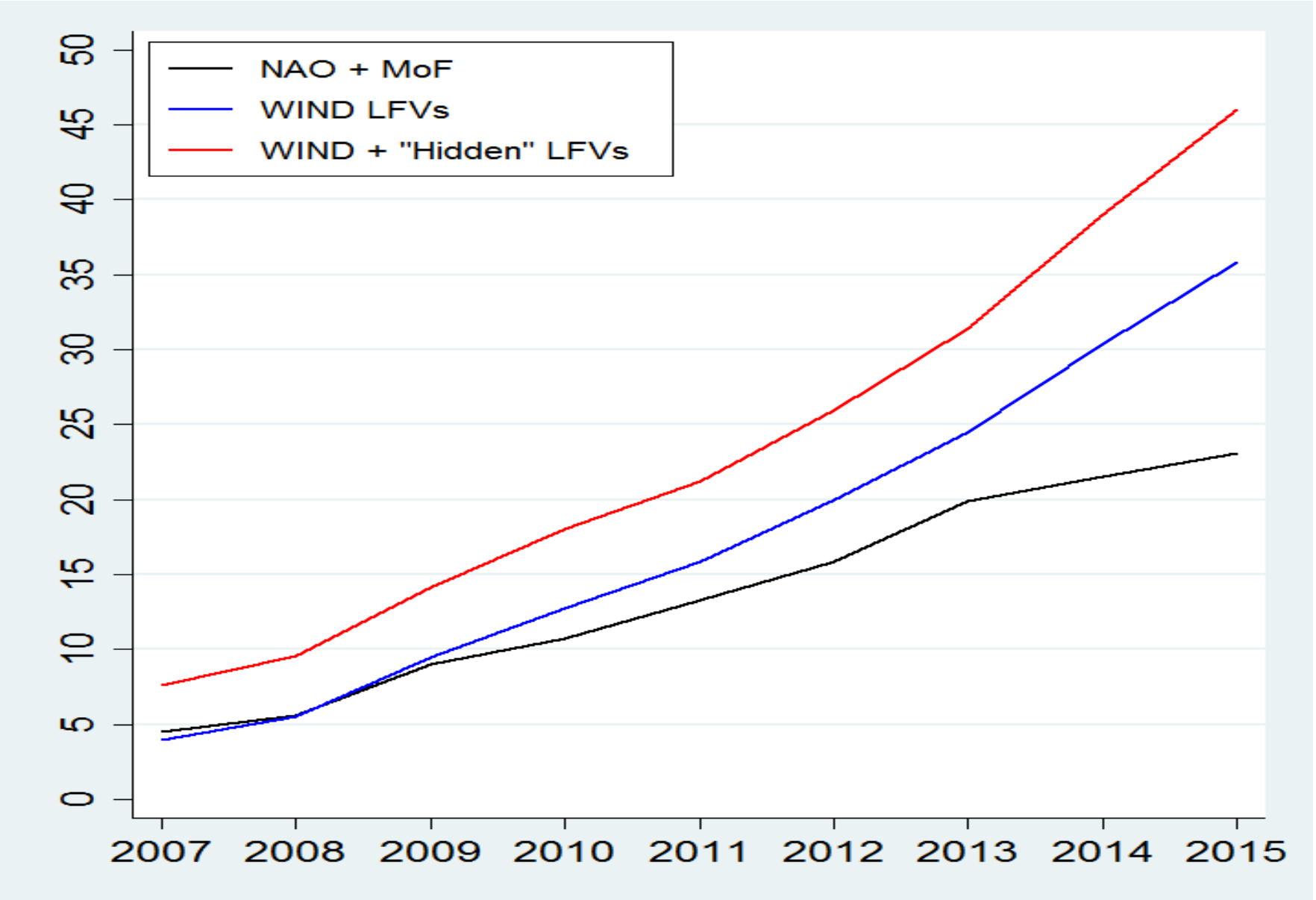
Beijing Capital Group

http://www.beijingcapital.org/group.html

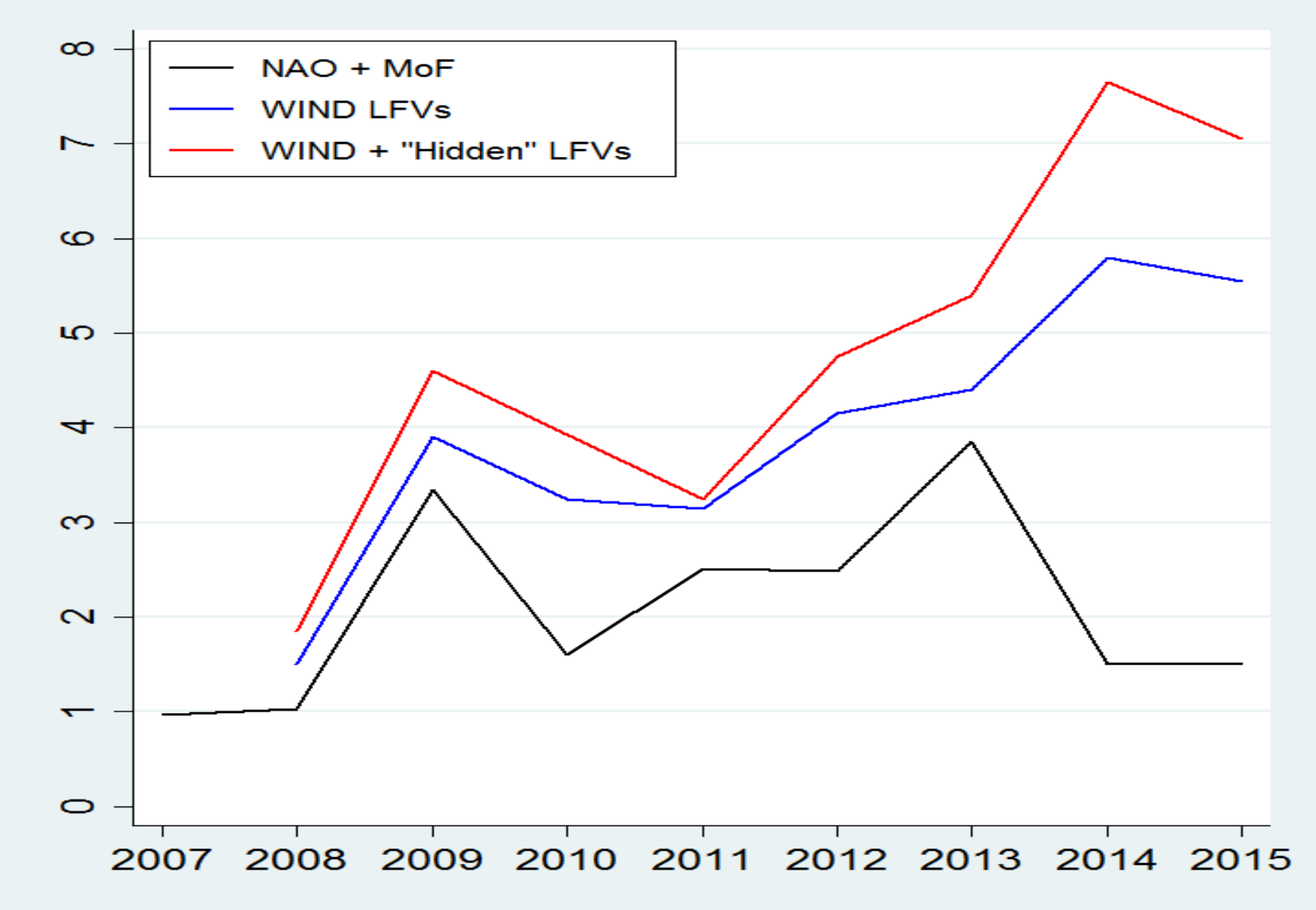
Number of Local Financing Vehicles



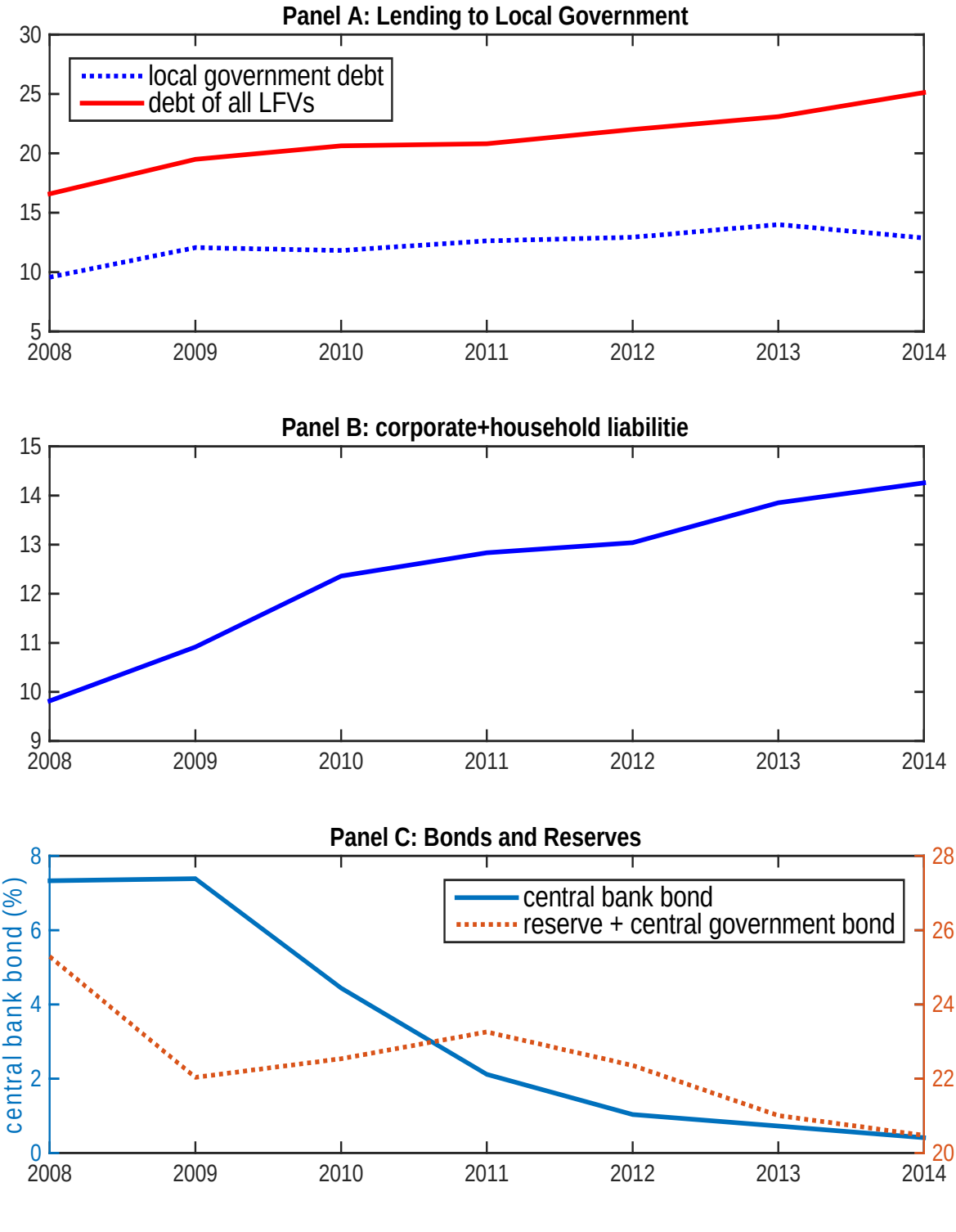
Total Debt of Local Financing Vehicles (trillion)



Annual *Change* in Local Financing Vehicle Debt (trillion)



Assets of Consolidated Financial System



Medium Run Effects

- Increase in Investment Rate

- Decline in CA Surplus (from 10% of GDP in 2008 to 2-3% of GDP)

Aside: David Lipton praises “external rebalancing” but condemns increasing debt

Long Run Effects

Efficiency in Capital Allocation?

- Local financing vehicles vs. treasury bills?
- Too much infrastructure investment?
- Too much public investment?

Removed financial constraints that makes Chinese “special deal” regime different

Chinese special deal regime starts to look more “normal”

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