

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)

June 2 2017

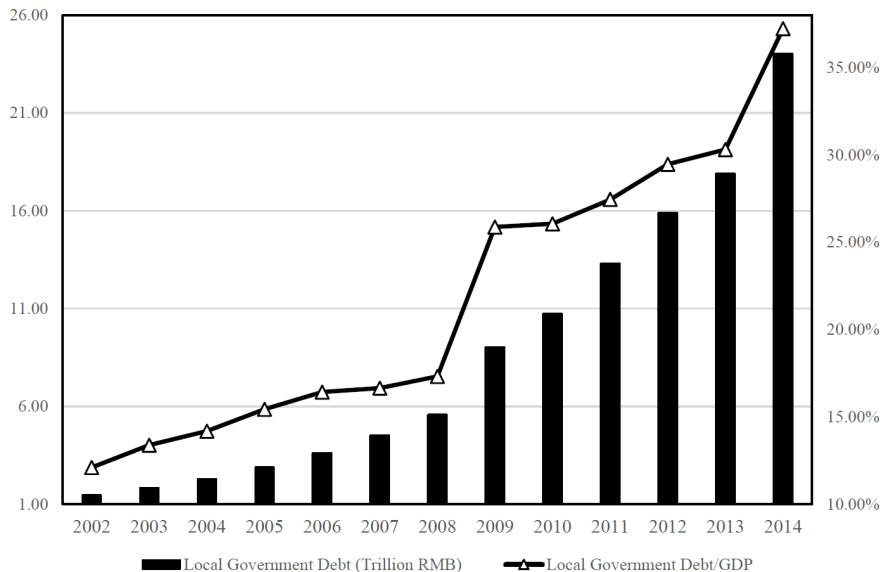
Motivation

- China becomes the second largest economy worldwide, whereby risks spike in China's financial system.
 - Moody downgraded China's sovereign ratings in May 23, 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

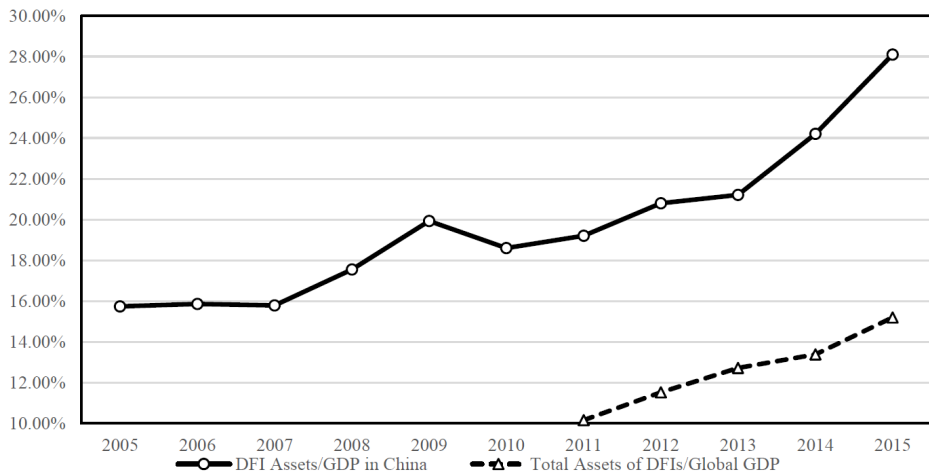
Contribution

- 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
 - 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
- Role of politician career concerns (e.g., Maskin, Qian and Xu (2000))
 - Development bank loans amount is positively associated with promotion chances of politicians
 - Relationship banking play a role (e.g., Petersen and Rajan (1994))
 - More selective defaults when development banks become more important

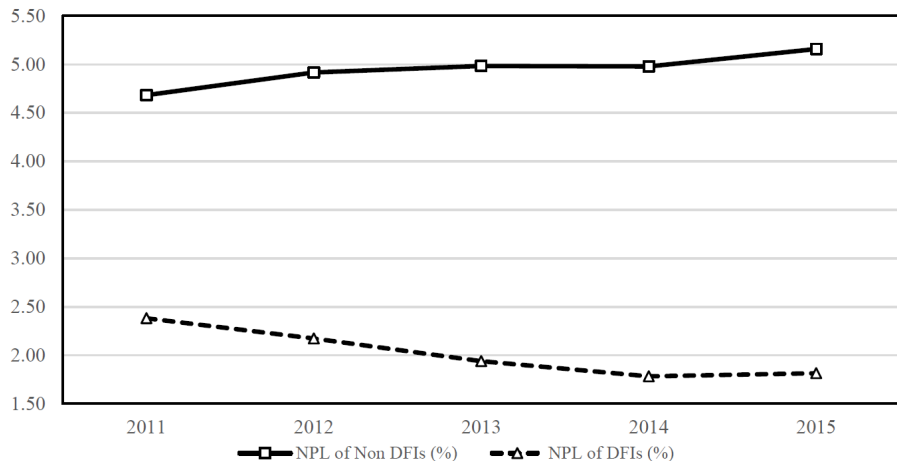
Dramatic Local Government Debt Increase in China



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

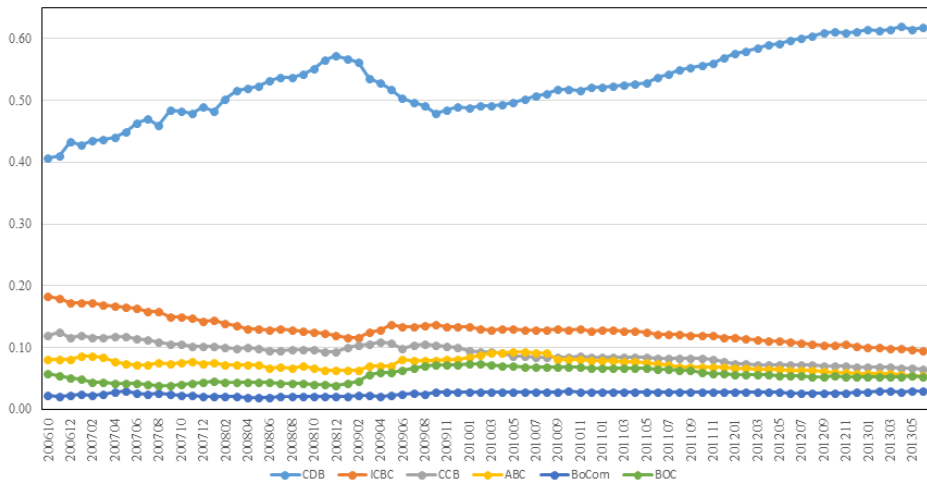
- The China Banking Regulatory Commission (CBRC) records information on individual bank loans
 - The CBRC data set includes 19 largest banks in China (2 policy banks and 17 commercial banks)
 - Cover borrowers with an annual credit line over RMB 50 million (approximately US\$8 million) between 2007 and 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

Average City Monthly Outstanding Loan Share: CDB vs. Big Five



Default Patterns: The CDB vs. Commercial Banks

Panel A: Commercial Banks versus China Development Bank

	Obs.	Default Rate	Obs.	Default Rate
	LFGVs		Non-LFGVs	
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%
<i>T</i> -statistics		18.41		-0.32
<i>Wilcoxon rank sum test Z</i> -statistics		8.89		-0.17

The CDB vs. Commercial Banks

VARIABLES	(1) Default Probability	(2) Default Probability	(3) Default Probability
CDB	-1.707*** (-5.01)	-1.832*** (-5.48)	-1.837*** (-5.49)
Bank Loan Rating		0.345*** (2.86)	0.344*** (2.85)
Loan Size		7.121*** (10.93)	7.134*** (10.94)
Maturity		-0.119*** (-3.14)	-0.119*** (-3.13)
Guaranteed		0.050 (0.58)	0.051 (0.59)
Log(LGFV Assets)		-0.160** (-2.51)	-0.160** (-2.51)
LGFV Leverage		0.003 (0.32)	0.003 (0.32)
Log(Local GDP)			-0.227 (-0.73)
Local Expense/Revenue			0.022 (0.71)
Local Estate Invest/GDP			0.535 (0.28)
Local Corruption			-0.506 (-0.56)
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	28,039	27,960	27,960
Pseudo R-squared	0.0114	0.0304	0.0306

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

Table 4: Selective Default across Banks

	Default Probability			
	Government Selecting		LGFV Selecting	
	(1)	(2)	(3)	(4)
CDB	-2.390*** (-8.28)	-2.530*** (-8.77)	-1.618*** (-4.25)	-1.671*** (-4.38)
Bank Loan Rating	1.242*** (16.07)	0.987*** (12.05)	0.154 (0.36)	0.110 (0.25)
Loan Size	5.706*** (10.39)	6.354*** (11.47)	7.083*** (4.98)	6.786*** (4.76)
Maturity	-0.074** (-2.03)	-0.055 (-1.51)	0.078 (0.72)	0.051 (0.46)
Guaranteed	-0.035 (-0.53)	0.077 (1.13)	-0.500** (-2.23)	-0.522** (-2.27)
Log(LGFV Assets)	-0.310*** (-13.93)	-0.261*** (-11.05)	-0.705*** (-7.99)	-0.742*** (-7.81)
LGFV Leverage	-0.016** (-2.03)	-0.011 (-1.39)	-0.063*** (-5.31)	-0.067*** (-5.47)
Control	NO	YES	NO	YES
Fixed Effects	YES	YES	YES	YES
No. Obs.	46,732	46,732	2,373	2,373
Pseudo. R2	0.069	0.092	0.120	0.123

Why Selective Default? Local Politicians' Career Concerns

Table 5: Access to CDB Credit and Politician Promotion

	Politician Promotion			
	Rank Based		Rank Plus GDP Based	
	(1)	(2)	(3)	(4)
Log(CDB Loan)	0.319*** (3.01)		0.256*** (2.71)	
CDB/Total Loan		0.313* (1.93)		0.322** (2.25)
Male	-0.601 (-1.59)	-0.603 (-1.60)	0.145 (0.40)	0.124 (0.34)
Age>=50	-1.095*** (-5.37)	-1.105*** (-5.46)	-0.645*** (-3.73)	-0.659*** (-3.82)
Local Politician	-0.120 (-0.54)	-0.130 (-0.58)	0.242 (1.29)	0.225 (1.21)
High Education	1.598 (1.50)	1.562 (1.48)	1.683** (2.21)	1.674** (2.20)
Oversea Experience	-0.309 (-0.95)	-0.319 (-0.97)	-0.324 (-1.19)	-0.318 (-1.16)
Log(Local GDP)	0.064 (0.40)	0.248* (1.67)	-0.014 (-0.10)	0.151 (1.17)
Local Expense/Revenue	-0.035 (-0.51)	-0.085 (-1.21)	-0.024 (-0.47)	-0.053 (-1.03)
Tertiary sector/GDP	0.023* (1.80)	0.033*** (2.68)	0.006 (0.55)	0.015 (1.40)
Year Fixed	Yes	Yes	Yes	Yes
Region Fixed	Yes	Yes	Yes	Yes
No. Obs.	657	657	657	657
Pseudo. R2	0.122	0.110	0.053	0.046

Political Cycle and Default

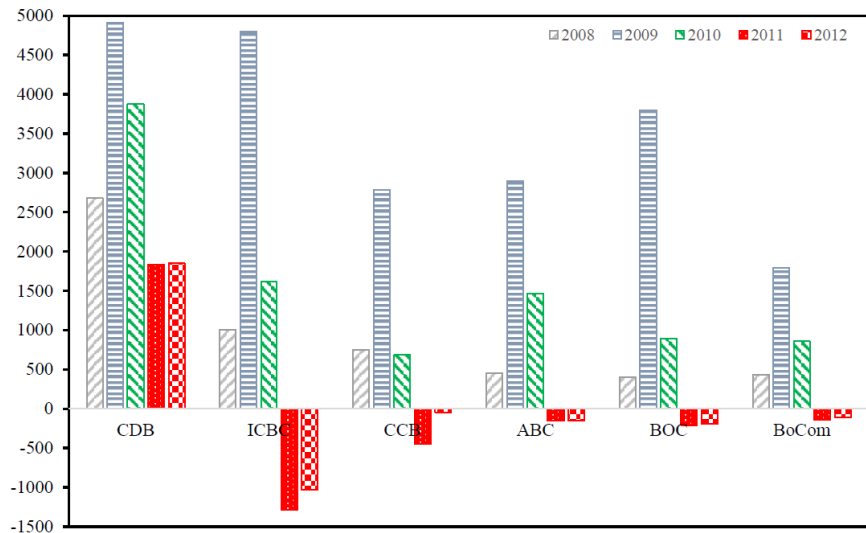
Table 6: Political Cycle Effect on Relationship between Loan Default and Lending Bank Type

	Default Probability			
	Within one year prior to turnover		Within two years prior to turnover	
	(1)	(2)	(3)	(4)
CDB	-2.528*** (-7.41)	-2.735*** (-7.89)	-2.317*** (-6.04)	-2.550*** (-6.56)
CDB*Politician Turnover	-0.273* (-1.88)	-0.360* (-1.74)	-0.569* (-1.65)	-0.587* (-1.79)
Politician Turnover	0.075 (1.11)	0.041 (0.18)	-0.042 (-0.71)	-0.057 (-0.95)
Male	0.174 (0.79)	0.298 (1.34)	0.188 (0.85)	0.307 (1.38)
Age>=50	0.133** (2.08)	0.121* (1.87)	0.128** (2.00)	0.118* (1.83)
High Education	-0.442*** (-3.79)	-0.346*** (-2.88)	-0.425*** (-3.66)	-0.335*** (-2.81)
Oversea Experience	-0.257** (-2.24)	-0.344*** (-2.94)	-0.263** (-2.29)	-0.349*** (-2.99)
Control	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	No	Yes	No	Yes
Region FE	No	Yes	No	Yes
No. Obs.	68,750	68,750	68,750	68,750
Pseudo. R2	0.051	0.064	0.051	0.063

Why Politicians Don't Want To Default on the CDB

- 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)
- The CDB is more important for LGFVs since they provide long-term and stable funds
- 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

Table 8: Selective Default and Two Policy Shocks of Four Trillion Stimulus Package

	Default Probability	
	(1)	(2)
CDB	-0.136*** (-7.55)	-0.210** (-2.22)
CDB*4-trillion Package	0.047** (2.01)	0.134 (0.97)
CDB*Tightening Regulation	-0.045** (-2.18)	-0.112* (-1.92)
4-trillion Package	0.004 (0.37)	0.064 (1.11)
Tightening Regulation	0.007 (0.65)	0.100 (1.50)
Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Region FE	Yes	Yes
No. Obs.	46,732	2,373
Pseudo. R2	0.094	0.135

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
 - Value of relationship banking
- 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)