

# Local Finance and Local Growth: Macro and Micro Evidence from China

*(Very preliminary)*

Chunyang Wang and Ziji Huang

Peking University HSBC Business School

and

People's Bank of China

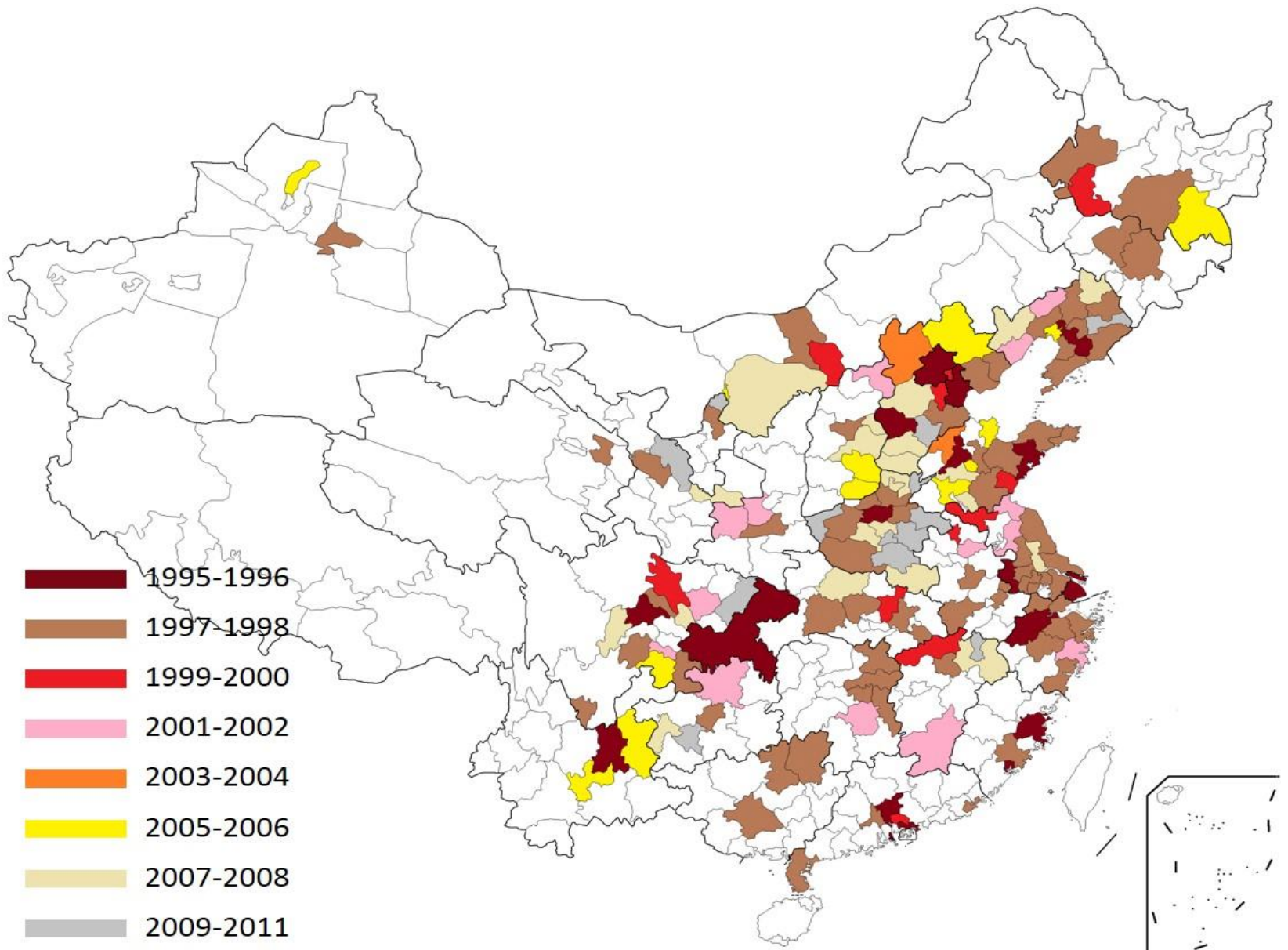
# Problem in China's Banking Sector

- State owned banks, especially the “big four”, i.e., Bank of China, China Construction Bank, Industrial and Commercial Bank of China, and China Agricultural Bank, are often accused for its inefficiency (Allen et al., 2005).
- By mainly lending to large inefficient SOEs.

# Bank Regulatory's Solution

Establishment of City Commercial Bank (operated only in that city) in China is to “promote small and medium firm growth to lead to local economic growth”

-China Bank Regulatory Commission



# Quick Glance of CCB

- By 2010, 147 CCB in 147 cities (286 cities total in China)
- Location is easily recognized from its name. For example, Bank of Jiujiang is in the city of Jiujiang
- Before 2006, only operated in its own city. Between 2006 and 2008, very rare cross region branching. After 2008, most of their business is still in its own city.
- Asset/city's GDP is 22.5% in 2010, on average.

# **CCB built on cooperatives, but very different**

Cooperatives have very strict deposit taking and loan issuing limit. According to Regulation of Urban Credit Cooperatives, “Deposits from non-cooperative members should not exceed 40% of all deposits, and deposits from any single individual non-cooperative members could not exceed 150,000 RMB. Loans to any single clients could not exceed 500,000 RMB, and loans to non-cooperative members could not exceed 40% of all loans.”

- For example, Bank of Shanghai was founded by merging 98 urban credit cooperatives at the end of 1995. In just one year after Bank of Shanghai was built, total asset increased by 89.3% and total loan increased by 82.8%.

# China's Advantage in Studying Decentralization

- China has a much more decentralized political structure.
- According to Landry (2008), a commonly adopted measure for decentralization, the ratio of central government expenditure to total government expenditure, is below 20% in China, in contrast to an average of 75% in democracies.



# However,

- City commercial banks are widely perceived to be heavily influenced by their local governments.

-----KPMG (2007).

- There is widespread corruption news for city commercial banks.

# “Sister of Housing”

- Top news in 2013
- Aiai Gong, a manager in CCB of Shenmu, owns houses worth of 2 billion US dollar.

# Who are they lending to?

- Borrowers' information available for the top 9 banks.
- In 2010, most of the top 10 borrowers from the top 9 banks were still SOE or public institutions (state run).

Top 3 Banks	Year	Top 10 borrowers	Type	% of total bank loan
Bank of Beijing	2010	Land Reserve Center of Beijing	Public Institution	0.85%
		Beijing Public Transportation Holding (group) co., LTD	SOE	0.82%
		Shaanxi Coal and Chemical Industry Group co., LTD	SOE	0.69%
		Beijing Shunchuang Investment Management co., LTD	SOE	0.63%
		Ministry of Railways (China)	SOE	0.60%
		Beijing North Star Company limited	Limited Liability Co.	0.57%
		Land Reserve Center of Beijing, Chaoyang District	Public Institution	0.53%
		Beijing Public Road co., LTD	SOE	0.49%
		Tangshan Caofeidian infrastructure construction co., LTD	SOE	0.48%
		Tianjin Port investment holding co., LTD	SOE	0.45%
Bank of Tianjin	2010	Structure Adjustment Land Acquisition Center of Tianjin	Public Institution	1.28%
		Tianjin New Financial Investment co., LTD	SOE	0.96%
		Tianjin Iron and Steel Group co., LTD	SOE	0.92%
		Tianjin Teda Group co., LTD	SOE	0.89%
		Beijing Hesheng North Real Estate Development co., LTD	Limited Liability Co.	0.89%
		Tianjin Binhai New Area Financial Management Center	Public Institution	0.89%
		Tianjin Wuqing District State-owned Assets Management Investment Company	SOE	0.89%
		Tianjin Binhai New Area Construction Development co., LTD	SOE	0.86%
		Tianjin Tianbao Holdings co., LTD	SOE	0.77%
		Land Reserve Center of Hangu district Tianjin	Public Institution	0.77%
Bank of Shanghai	2010	Bailian Group co., LTD	SOE	0.35%
		Shanghai Xinsheng Development co., LTD	Limited Liability Co.	0.34%
		Shanghai Huayuan Group co., LTD	SOE	0.34%
		Shanghai Gonghexin Elevated Road development co., LTD	Limited Liability Co.	0.34%
		Land Reserve Center of Beijing, Chaoyang District	Public Institution	0.34%
		Shanghai Harbour City Development (group) co., LTD	SOE	0.32%
		Shanghai Zhangjiang (group) co., LTD	SOE	0.30%
		Shanghai Shangshi (group) co., LTD	SOE	0.30%
		Shanghai Gubei (group) co., LTD	Limited Liability Co.	0.29%
Shanghai Jiushi Real Estate co., LTD	SOE	0.29%		

# Main Result

- Using CEIC (2001-2011) for city level data and Chinese Annual Census of Enterprises (1999-2007) for firm level data,
- Methodology: Difference-in-difference
- We find, CCB establishment lowered SME firm growth rate more, and lowered city GDP growth rate, quite significantly, robust to IV estimation.
- Totally opposite to the CBRC original intention!

# Bank Efficiency

- Using traditional bank efficiency measure developed by Berger and Mester (1997) and Berger et al. (2009), we find that CCB is even less efficient than “big four”.

# Possible Reason

- Since 1994, China has centralized its monetary authority by refusing to accommodate monetary policy to the local government behavior. (Qian and Roland, 1998)
- Decentralization of monetary (credit) policy would loosen firm's budget constraint because local government would bail out inefficient firms.
- Local city branches of "big four" with almost every city presence have a balance of power among their headquarter in Beijing, local city government, and provincial branches, while local government has its sole power over CCB's operation.

# CCB as an Alternative for Monetary Decentralization

- Local government is more willing to loan to SOE or large firms which have more bribery power or bring more brand reputation to the city to be credits for local government official promotion.
- Crony Capitalism with Chinese Characteristics (Bai, Hsieh, and Song, 2014): Local governments obtain economic benefits such as bribery from firms and consequently help firm's business (such as credit allocation). (For example, the former top official Xilai Bo. Firm gave funds for his son to study abroad.)
- Grasp the Large, Let Go of the Small (Hsieh and Song, 2014)



# Related Literature

- Finance-Growth Nexus: Levine (2004)
- Finance-Growth for China:
  - Zhang *et al* (2012): Positive effect, using data after 2001
  - Boyreau-Debray (2003): Negative effect
  - Firm Growth and Finance: Allen *et al* (2005); Ayyagari *et al* (2010).
- City Commercial Bank: Ferri (2009)
- TVE: Jin and Qian (1998)

# Data

- CEIC, China Regional Economic Statistical Yearbook, Statistical Yearbook for city level macro data (2001-2010)
- 286 cities
  
- China industrial enterprise database (1999-2007)
- 206,771 Firms
  
- CCB Information
- Manually collected

# Methodology: Difference-in-Difference

- $g_{i,t} = c + \alpha_t + \beta_i + \gamma \cdot CCB_{i,t} + \Phi \cdot X_{i,t} + \epsilon_{i,t}$
- $g_{i,t} = 100 \times Y_{i,t}/Y_{i,t-1}$ , is GDP or GDP per capita growth rate for city  $i$  in year  $t$
- $CCB_{i,t}$  is a dummy variable, which is equal to one if CCB exists in city  $i$  in year  $t$ .
- $X_{i,t}$  are control variables.

# Summary Statistics: City Level

	GRGDP	GRGDPPC	CCB	CCBYEAR	LOAN
Mean	0.1318	0.1260	0.4387	3.3392	0.7733
Std	0.0344	0.0409	0.4963	4.5331	0.4301
Median	0.1320	0.1250	0	0	0.6430
Min	-0.0780	-0.0904	0	0	0.0753
Max	0.3700	0.4760	1	16	4.6126
Obs	3157	3157	3157	3157	3153
	LnGDP	LnGDPPC	FAI	FDI	FISCAL
Mean	3.6412	9.3338	0.4913	0.0030	0.1308
Std	1.0225	0.7699	0.2269	0.0038	0.0755
Median	3.5771	9.2949	0.4598	0.0017	0.1130
Min	0.5839	7.0309	0.0629	0	0.0206
Max	7.2619	11.6194	1.7467	0.0577	1.0268
Obs	3157	3135	3154	3059	3154
	GRPOP	EDU	GR#EN	GRIP	
Mean	0.0086	0.0629	0.0782	0.2280	
Std	0.0147	0.0133	0.1889	0.1647	
Median	0.0065	0.0625	0.0719	0.2222	
Min	-0.0961	0.0099	-0.7366	-0.6735	
Max	0.1840	0.1235	1.7164	3.2694	
Obs	3150	3143	3151	3153	

# Methodology: Firm Growth

- $g_{i,j,t} = c + \alpha_t + \beta_j + \gamma \cdot CCB_{i,t} + \Phi \cdot X_{i,j,t} + \epsilon_{i,j,t}$
- Heterogeneous impact
- $g_{i,j,t} = c + \alpha_t + \beta_j + \gamma_1 \cdot CCB_{i,t} + \gamma_2 \cdot CCB_{i,t} * Totasset_{i,j,t} + \Phi \cdot X_{i,j,t} + \epsilon_{i,j,t}$

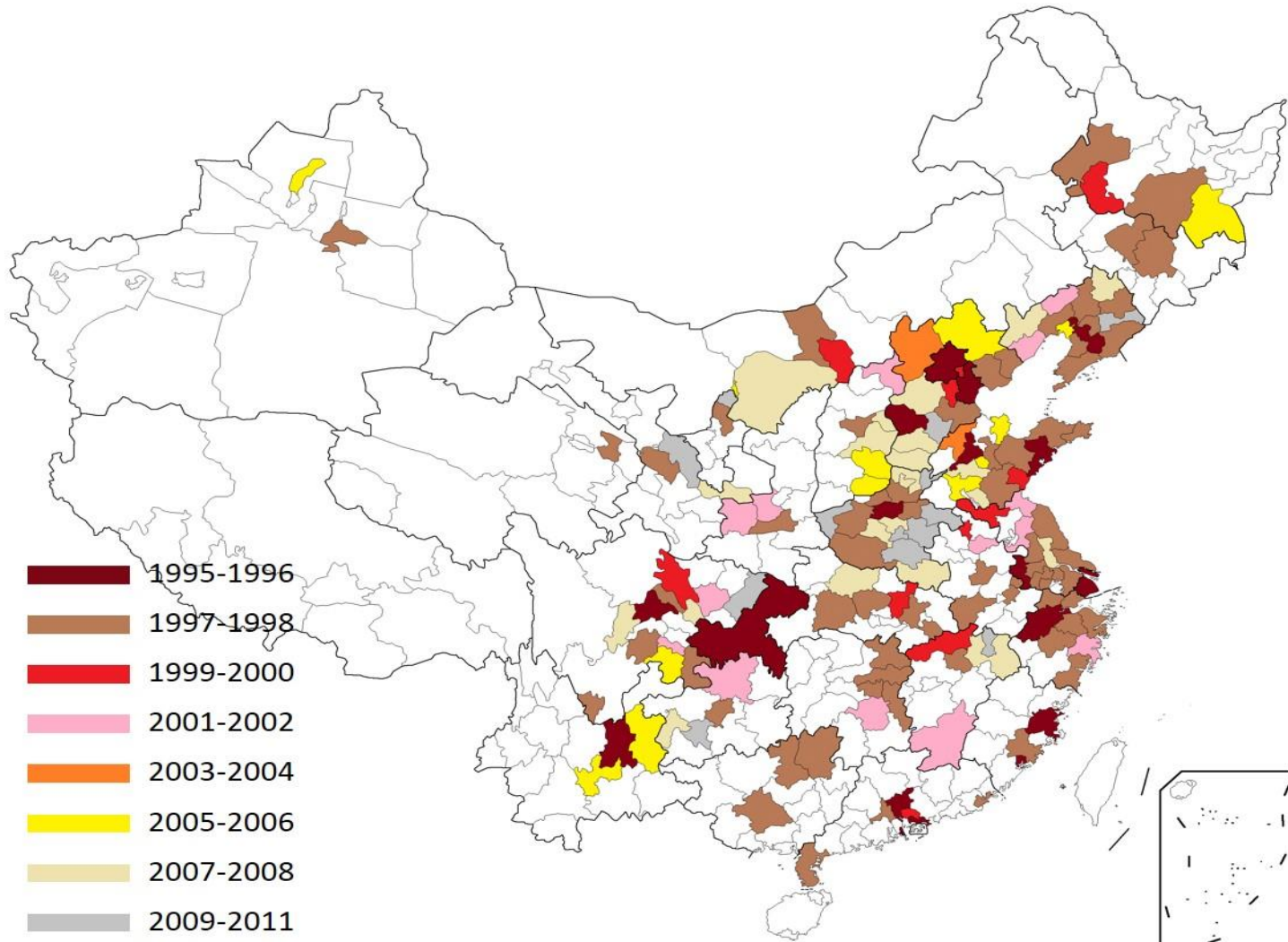
# Summary Statistics: Firm Level

	GRSALES	GRASSET	CCB	STATECAP	SOE
Mean	0.2650	0.1977	0.7556	0.0880	0.0879
Std	0.5857	0.4977	0.4298	0.2682	0.2832
Median	0.1476	0.0754	1	0	0
Min	-0.7588	-0.7421	0	0	0
Max	5.5839	5.0869	1	1	1
Obs.	947536	947536	947536	947536	947536
	ASSET	Medium	Small	Growth	Mature
Mean	10.1037	0.1283	0.8629	0.6141	0.1433
Std	1.4135	0.3344	0.3440	0.4868	0.3503
Median	9.9115	0	1	1	0
Min	4.7791	0	0	0	0
Max	20.1506	1	1	1	1
Obs.	947536	947536	947536	947536	947536

# Endogeneity

- CCB might be constructed because of city growth rate, or there might be omitted variables such as institutional quality affecting both CCB and growth.
- IV: percentage of neighboring cities having established CCB.
- Why? Policy diffusion (Simmons and Elkins, 2004): Neighboring regions are much more likely to adopt a similar policy.
- 2SLS with the first stage as follows.
- $CCB_{i,t} = c + \gamma \cdot Neighbor_{i,t} + \Phi \cdot X_{i,t} + \alpha_t + \beta_i + \epsilon_{i,t}$

# IV Validness: Intuitive Evidence





# Macro result: Negative growth effect

	Reg1	Reg2	Reg3	Reg4
<b>Dependent Variable</b>	GRGDP			
<b>CCB</b>	-0.00546*	-0.00563**	-0.00530**	-0.00676***
	(0.00263)	(0.00229)	(0.00202)	(0.00200)
<b>LnRGDP<sub>-1</sub></b>		-0.116***	-0.124***	-0.131***
		(0.0268)	(0.0212)	(0.0226)
<b>LOAN</b>				-0.0268***
				(0.00555)
<b>FAI</b>			0.0728***	0.0712***
			(0.00885)	(0.00915)
<b>FDI</b>			0.0608	0.0280
			(0.201)	(0.174)
<b>FISCAL</b>			-0.0796*	-0.0830**
			(0.0372)	(0.0327)
<b>GRPOP</b>			-0.0211	-0.0149
			(0.0399)	(0.0488)
<b>EDU<sub>-1</sub></b>			0.00366	0.0105
			(0.0420)	(0.0497)
<b>Constant</b>	0.0964***	0.450***	0.469***	0.515***
	(0.000890)	(0.0823)	(0.0657)	(0.0693)
<b>City fixed effect</b>	Yes	Yes	Yes	Yes
<b>Year fixed effect</b>	Yes	Yes	Yes	Yes
<b>Observations</b>	3,157	3,157	3,042	3,042
<b>Within R<sup>2</sup></b>	0.316	0.387	0.463	0.484

# Learning? No.

	Reg1	Reg2	Reg3	Reg4
Dep. Var.	GRGDP			
CCYEAR	-0.00312*** (0.000377)	-0.00258*** (0.000332)	-0.00232*** (0.000267)	-0.00172*** (0.000329)
LnRGDP <sub>-1</sub>		-0.109*** (0.0285)	-0.122*** (0.0232)	-0.128*** (0.0238)
LOAN				-0.0224*** (0.00537)
FAI			0.0700*** (0.00883)	0.0694*** (0.00923)
FDI			0.151 (0.196)	0.0826 (0.179)
GE			-0.103** (0.0342)	-0.0988*** (0.0308)
POPGR			-0.0186 (0.0407)	-0.0145 (0.0475)
EDU <sub>-1</sub>			-0.0176 (0.0404)	-0.00404 (0.0454)
Constant	0.0985*** (0.000476)	0.431*** (0.0873)	0.470*** (0.0712)	0.506*** (0.0722)
City fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	3,157	3,157	3,042	3,042
Within R <sup>2</sup>	0.341	0.403	0.475	0.489

# Lagged effect: Negative

	Reg1	Reg2	Reg3	Reg4	Reg5
Dep. Var	GRGDP				
Lagged CCB	CCB <sub>-1</sub>	CCB <sub>-2</sub>	CCB <sub>-3</sub>	CCB <sub>-4</sub>	CCB <sub>-5</sub>
	-0.00704***	-0.00667***	-0.00873***	-0.00546**	-0.00574**
	(0.00156)	(0.00157)	(0.00154)	(0.00211)	(0.00210)
LnRGDP <sub>-1</sub>	-0.131***	-0.130***	-0.130***	-0.130***	-0.129***
	(0.0227)	(0.0228)	(0.0233)	(0.0231)	(0.0231)
LOAN	-0.0266***	-0.0264***	-0.0260***	-0.0256***	-0.0250***
	(0.00561)	(0.00566)	(0.00552)	(0.00555)	(0.00558)
FAI	0.0711***	0.0709***	0.0708***	0.0712***	0.0713***
	(0.00913)	(0.00922)	(0.00930)	(0.00941)	(0.00944)
FDI	0.0336	0.0283	0.0356	0.0360	0.0237
	(0.167)	(0.159)	(0.159)	(0.161)	(0.165)
Fiscal	-0.0832**	-0.0821**	-0.0808**	-0.0810**	-0.0818**
	(0.0332)	(0.0332)	(0.0320)	(0.0322)	(0.0321)
GRPOP	-0.0176	-0.0151	-0.0131	-0.0174	-0.0164
	(0.0500)	(0.0497)	(0.0496)	(0.0475)	(0.0474)
EDU <sub>-1</sub>	0.0136	0.0203	0.0223	0.0152	0.00843
	(0.0480)	(0.0466)	(0.0464)	(0.0472)	(0.0461)
Constant	0.515***	0.513***	0.510***	0.508***	0.505***
	(0.0691)	(0.0692)	(0.0706)	(0.0698)	(0.0699)
City fixed effect	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	3,042	3,042	3,042	3,042	3,042
Within R <sup>2</sup>	0.484	0.484	0.485	0.484	0.484

## Robust to Growth Rate of GDP per capita as dependent variable: All negative

	Reg1	Reg2	Reg3	Reg4	Reg5
<b>Dependent Variable</b>	GRGDPPC				
	CCB	-	CCB <sub>-1</sub>	CCB <sub>-2</sub>	CCB <sub>-3</sub>
<b>CCB or Lagged</b>	-0.00419*		-0.00437*	-0.00575***	-0.00831***
	(0.00207)		(0.00215)	(0.00179)	(0.00182)
<b>CCBYEAR</b>		-0.00288***			
		(0.000597)			
<b>LnGDPPC<sub>-1</sub></b>	-0.113***	-0.114***	-0.113***	-0.113***	-0.113***
	(0.0216)	(0.0212)	(0.0218)	(0.0219)	(0.0219)
<b>LOAN</b>	-0.0310***	-0.0244***	-0.0309***	-0.0308***	-0.0304***
	(0.00573)	(0.00536)	(0.00573)	(0.00569)	(0.00563)
<b>FAI</b>	0.0839***	0.0811***	0.0838***	0.0836***	0.0835***
	(0.0124)	(0.0122)	(0.0124)	(0.0125)	(0.0126)
<b>FDI</b>	0.115	0.252	0.119	0.127	0.136
	(0.165)	(0.199)	(0.159)	(0.164)	(0.178)
<b>FISCAL</b>	0.0368	0.00264	0.0367	0.0369	0.0377
	(0.0618)	(0.0528)	(0.0616)	(0.0612)	(0.0607)
<b>GRPOP</b>	-0.241**	-0.239**	-0.243**	-0.241**	-0.239**
	(0.0997)	(0.0958)	(0.100)	(0.101)	(0.102)
<b>EDU<sub>-1</sub></b>	0.0987	0.0656	0.101	0.106*	0.108*
	(0.0596)	(0.0583)	(0.0572)	(0.0553)	(0.0552)
<b>Constant</b>	1.075***	1.087***	1.076***	1.075***	1.072***
	(0.198)	(0.193)	(0.199)	(0.200)	(0.200)
<b>City fixed effect</b>	Yes	Yes	Yes	Yes	Yes
<b>Year fixed effect</b>	Yes	Yes	Yes	Yes	Yes
<b>Observations</b>	3,039	3,039	3,039	3,039	3,039
<b>Within R<sup>2</sup></b>	0.406	0.419	0.406	0.407	0.408

# Growth rate of number of industrial enterprises above designated size: either insignificant or negative

	Reg1	Reg2	Reg3	Reg4	Reg5	Reg6
<b>Dependent Variable</b>	GR#EN					
<b>Sample period</b>	01-11	01-06	07-10	01-11	01-06	07-10
<b>CCB</b>	0.00541	0.00147	0.00688			
	(0.0110)	(0.0182)	(0.0189)			
<b>CCBYEAR</b>				-0.00741***	-0.00715*	-0.00877
				(0.00170)	(0.00350)	(0.00933)
<b>LnRGDP</b>	-0.0689	0.204	0.221	-0.0585	0.232*	0.190
	(0.0642)	(0.113)	(0.208)	(0.0659)	(0.110)	(0.238)
<b>FAI</b>	0.194***	0.240**	-0.00140	0.176***	0.229**	-0.0126
	(0.0403)	(0.0903)	(0.0516)	(0.0399)	(0.0868)	(0.0405)
<b>FDI</b>	0.638	0.822	3.157	1.110	1.036	3.609
	(0.846)	(1.495)	(5.279)	(0.911)	(1.545)	(4.878)
<b>Constant</b>	0.197	-0.684*	-0.760	0.178	-0.761*	-0.597
	(0.210)	(0.339)	(0.812)	(0.213)	(0.335)	(0.966)
<b>City fixed effect</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Year fixed effect</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Observations</b>	3,056	1,663	1,107	3,056	1,663	1,107
<b>Within R<sup>2</sup></b>	0.339	0.147	0.0954	0.343	0.149	0.0968

# Growth rate of industrial output as dependent variable: mostly significantly negative

	Reg1	Reg2	Reg3	Reg4	Reg5	Reg6
<b>Dependent Var.</b>	GRIP					
<b>Sample period</b>	01-11	01-06	07-10	01-11	01-06	07-10
<b>CCB</b>	-0.00534	-0.0359***	-0.00293			
	(0.00847)	(0.00748)	(0.0134)			
<b>CCBYEAR</b>				-0.00597***	-0.00473*	-0.00910**
				(0.000636)	(0.00195)	(0.00240)
<b>LnRGDP</b>	-0.101**	-0.0504	0.255	-0.0926**	-0.0339	0.226
	(0.0350)	(0.0792)	(0.368)	(0.0372)	(0.0795)	(0.383)
<b>FAI</b>	0.272***	0.285***	0.294*	0.258***	0.281***	0.282*
	(0.0252)	(0.0578)	(0.0962)	(0.0245)	(0.0570)	(0.0968)
<b>FDI</b>	1.982**	-1.950	2.759	2.293**	-1.889	3.123
	(0.735)	(3.131)	(4.342)	(0.766)	(3.093)	(4.332)
<b>Constant</b>	0.358***	0.217	-0.900	0.340**	0.159	-0.747
	(0.111)	(0.249)	(1.426)	(0.117)	(0.249)	(1.499)
<b>City Fixed Effect</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Year Fixed Effect</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Observations</b>	3,058	1,665	1,107	3,058	1,665	1,107
<b>Within R<sup>2</sup></b>	0.240	0.297	0.174	0.244	0.297	0.176

# Firm level evidence: negative effect from CCB

	Reg1	Reg2	Reg3	Reg4
Dep. Var.	GRSALES			
CCB	-0.0154**	-0.0162**	-0.0218***	-0.0218***
	(0.00688)	(0.00687)	(0.00688)	(0.00688)
Medium		-0.0608***		
		(0.00901)		
Small		-0.0846***		
		(0.00935)		
SOE		-0.0266***	-0.0291***	
		(0.00423)	(0.00423)	
ASSET			0.0826***	0.0826***
			(0.00249)	(0.00249)
STATECAP				-0.0373***
				(0.00479)
Growth		-0.0633***	-0.0691***	-0.0690***
		(0.00235)	(0.00235)	(0.00235)
Mature		-0.0415***	-0.0467***	-0.0465***
		(0.00408)	(0.00408)	(0.00409)
Constant	0.370***	0.490***	-0.392***	-0.391***
	(0.00536)	(0.0107)	(0.0251)	(0.0251)
Year fixed effect	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
Observations	947,536	947,536	947,536	947,536
Within R <sup>2</sup>	0.015	0.016	0.018	0.018

# Robust to growth rate of total asset: negative

	Reg1	Reg2	Reg3	Reg4
Dep. Var.	GRASSET			
CCB	-0.00842	-0.0103*	-0.0537***	-0.0538***
	(0.00553)	(0.00552)	(0.00600)	(0.00600)
Medium		-0.0299***		
		(0.00734)		
Small		-0.0986***		
		(0.00760)		
SOE		-0.0248***	-0.0480***	
		(0.00337)	(0.00342)	
ASSET			0.641***	0.641***
			(0.00294)	(0.00294)
STATECAP				-0.0585***
				(0.00393)
Growth		-0.0520***	-0.0981***	-0.0980***
		(0.00208)	(0.00207)	(0.00207)
Mature		-0.0365***	-0.0787***	-0.0783***
		(0.00345)	(0.00367)	(0.00367)
Constant	0.253***	0.378***	-5.920***	-5.919***
	(0.00431)	(0.00869)	(0.0293)	(0.0293)
Year fixed effect	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
Observations	947,536	947,536	947,536	947,536
Within R <sup>2</sup>	0.005	0.007	0.186	0.186



## Size groups: significant negative for small and SME firms

	Reg1	Reg2	Reg3	Reg4
Dep. Var.	GRSALES			
Sample	SME	Large	Medium	Small
CCB	-0.0208***	-0.0243	-0.00161	-0.0192**
	(0.00703)	(0.0362)	(0.0182)	(0.00780)
ASSET	0.0824***	0.111***	0.0315***	0.0907***
	(0.00252)	(0.0216)	(0.00765)	(0.00282)
STATECAP	-0.0378***	-0.0236	-0.0364***	-0.0325***
	(0.00496)	(0.0188)	(0.00892)	(0.00609)
Growth	-0.0681***	-0.170***	-0.134***	-0.0566***
	(0.00237)	(0.0277)	(0.00772)	(0.00253)
Mature	-0.0455***	-0.132***	-0.112***	-0.0325***
	(0.00415)	(0.0283)	(0.0101)	(0.00473)
Constant	-0.386***	-1.065***	0.133	-0.459***
	(0.0252)	(0.303)	(0.0897)	(0.0276)
Year fixed effect	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
Observations	934,955	12,581	121,557	817,597
Within R <sup>2</sup>	0.018	0.052	0.029	0.016

# Robust to Pooled OLS

	Reg1	Reg2	Reg3	Reg4
<b>Dep. Var.</b>	GRSALES		GRASSET	
<b>CCB</b>	-0.0168***	-0.0202***	-0.00865***	-0.0163***
	(0.00164)	(0.00164)	(0.00142)	(0.00144)
<b>Medium</b>	-0.0392***		-0.0249***	
	(0.00596)		(0.00482)	
<b>Small</b>	-0.0667***		-0.0620***	
	(0.00586)		(0.00473)	
<b>SOE</b>	-0.0654***		-0.0730***	
	(0.00209)		(0.00164)	
<b>ASSET</b>		0.0195***		0.0413***
		(0.000453)		(0.000408)
<b>STATECAP</b>		-0.0871***		-0.114***
		(0.00229)		(0.00191)
<b>Growth</b>	-0.165***	-0.169***	-0.108***	-0.115***
	(0.00166)	(0.00167)	(0.00139)	(0.00139)
<b>Mature</b>	-0.222***	-0.226***	-0.168***	-0.182***
	(0.00211)	(0.00212)	(0.00172)	(0.00175)
<b>Constant</b>	0.509***	0.254***	0.402***	-0.0624***
	(0.00898)	(0.00817)	(0.00804)	(0.00777)
<b>Year dummies</b>	Yes	Yes	Yes	Yes
<b>Industry dummies</b>	Yes	Yes	Yes	Yes
<b>Region dummies</b>	Yes	Yes	Yes	Yes
<b>Observations</b>	947,536	947,536	947,536	947,536
<b>R<sup>2</sup></b>	0.044	0.046	0.027	0.038

## Heterogeneous impact of CCB on firm growth: More negative for smaller firms

Heterogeneous impact of CCB on firm growth				
	Reg1	Reg2	Reg3	Reg4
<b>Dep. Var</b>	GRSALES	GRSALES	GRASSET	GRASSET
<b>CCB</b>	-0.616***	-0.00478	-4.691***	0.0370***
	(0.0251)	(0.00759)	(0.0359)	(0.00610)
<b>CCBASSET</b>	0.0583***		0.455***	
	(0.00236)		(0.00363)	
<b>CCBSMALL</b>		-0.0139***		-0.0570***
		(0.00404)		(0.00337)
<b>STATECAP</b>	-0.0349***	-0.0336***	-0.0397***	-0.0298***
	(0.00480)	(0.00479)	(0.00406)	(0.00390)
<b>Growth</b>	-0.0660***	-0.0630***	-0.0752***	-0.0518***
	(0.00235)	(0.00235)	(0.00208)	(0.00208)
<b>Mature</b>	-0.0439***	-0.0410***	-0.0588***	-0.0361***
	(0.00408)	(0.00408)	(0.00360)	(0.00345)
<b>Constant</b>	0.433***	0.410***	0.478***	0.289***
	(0.00573)	(0.00561)	(0.00756)	(0.00454)
<b>Firm fixed effect</b>	Yes	Yes	Yes	Yes
<b>Year fixed effect</b>	Yes	Yes	Yes	Yes
<b>Observations</b>	947,536	947,536	947,536	947,536
<b>R-squared</b>	0.017	0.016	0.097	0.007
<b>Number of firms</b>	206,771	206,771	206,771	206,771

# First stage IV: percentage of neighboring CCB has strong predictive power.

Table 21: First stage regression result				
	(1)	(2)	(3)	(4)
Dep. Var.	CCB	CCB	CCB	CCB
Neighbor	<b>0.3839***</b>	<b>0.3846***</b>		
	<b>(0.0549)</b>	<b>(0.0551)</b>		
Prov_Percent			<b>0.5402***</b>	<b>0.5401***</b>
			<b>(0.0633)</b>	<b>(0.0638)</b>
LnRGDP(ER)-1	-0.0566	0.0256	-0.0640	0.0038
	<b>(0.0722)</b>	<b>(0.0624)</b>	<b>(0.0735)</b>	<b>(0.0633)</b>
LOAN	<b>-0.0641***</b>	<b>-0.0605***</b>	<b>-0.0624***</b>	<b>-0.0597***</b>
	<b>(0.0191)</b>	<b>(0.0189)</b>	<b>(0.0183)</b>	<b>(0.0183)</b>
FAI	-0.0147	-0.0228	-0.0154	-0.0211
	<b>(0.0331)</b>	<b>(0.0336)</b>	<b>(0.0333)</b>	<b>(0.0340)</b>
FDI	<b>5.3816***</b>	<b>5.3965***</b>	<b>4.1892***</b>	<b>4.2600***</b>
	<b>(1.3977)</b>	<b>(1.4054)</b>	<b>(1.3303)</b>	<b>(1.3292)</b>
Fiscal	<b>-0.3940***</b>	<b>-0.2979**</b>	<b>-0.3727***</b>	<b>-0.2930**</b>
	<b>(0.1425)</b>	<b>(0.1370)</b>	<b>(0.1398)</b>	<b>(0.1352)</b>
GRPOP	0.0549	0.0542	0.0016	0.0005
	<b>(0.3196)</b>	<b>(0.3168)</b>	<b>(0.3436)</b>	<b>(0.3413)</b>
EUD-1	-0.3191	-0.2701	-0.3165	-0.2815
	<b>(0.5044)</b>	<b>(0.5044)</b>	<b>(0.5088)</b>	<b>(0.5100)</b>
City fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	3041	3039	3041	3039
R-squared	0.1700	0.1700	0.1666	0.1666

# Second stage result: still negative

Table 22: Second stage regression results				
	(1)	(2)	(3)	(4)
Dep. Var	GRGDP	GRGDPPC	GRGDP	GRGDPPC
IV.	Neighbor	Neighbor	Same Prov.	Same Prov.
CCB	-0.0751*** (0.0150)	-0.0701*** (0.0181)	-0.0777*** (0.0130)	-0.0820*** (0.0171)
LnRGDP(PC)-1	-0.135*** (0.0139)	-0.111*** (0.0138)	-0.135*** (0.0139)	-0.110*** (0.0141)
LOAN	-0.0319*** (0.00711)	-0.0357*** (0.00719)	-0.0321*** (0.00716)	-0.0365*** (0.00733)
FAI	0.0691*** (0.00533)	0.0814*** (0.00711)	0.0691*** (0.00538)	0.0810*** (0.00726)
FDI	0.493** (0.236)	0.565** (0.245)	0.511** (0.231)	0.647*** (0.236)
Fiscal	-0.111*** (0.0282)	0.0161 (0.0362)	-0.112*** (0.0277)	0.0123 (0.0363)
GRPOP	-0.00360 (0.0519)	-0.231*** (0.0631)	-0.00316 (0.0524)	-0.229*** (0.0650)
EDU-1	-0.0500 (0.0665)	0.0436 (0.0763)	-0.0524 (0.0673)	0.0337 (0.0791)
City fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	3,041	3,039	3,041	3,039
R-squared	0.291	0.283	0.276	0.234

# Comparing CCB with the notoriously inefficient “Big Five”

- Bank Efficiency Measure
- Following from Berger and Mester (2007) and Berger et al. (2009)

$$\begin{aligned}
 \bullet \ln \left( \frac{\pi}{w_2 z_1} + \theta \right)_{it} = & \\
 & \delta_0 + \sum_j \delta_j \ln \left( \frac{y_j}{z_1} \right)_{it} + \frac{1}{2} \sum_j \sum_k \delta_{jk} \ln \left( \frac{y_j}{z_1} \right)_{it} \ln \left( \frac{y_k}{z_1} \right)_{it} + \\
 & \beta_1 \ln \left( \frac{w_1}{w_2} \right)_{it} + \frac{1}{2} \beta_{11} \ln \left( \frac{w_1}{w_2} \right)_{it} \ln \left( \frac{w_1}{w_2} \right)_{it} + \sum_j \theta_j \ln \left( \frac{y_j}{z_1} \right)_{it} \ln \left( \frac{w_1}{w_2} \right)_{it} + \\
 & \ln u_{it} + \ln v_{it}
 \end{aligned}$$

# CCB is even less efficient than “big five”

	Profit efficiency	State-owned	City commercial	All
Stochastic frontier	Mean	0.3722	0.3306	0.3371
	Std	0.0590	0.0965	0.0921
Distribution free	Mean	0.8072	0.7394	0.7500
	Std	0.0934	0.1438	0.1382
	Observations	5	27	32

# Discussion

- Possible reasons for the poor performance of city commercial banks
  - Local government has a large influence over CCB VS “big five” has a balance of power among city, provincial, and central government.
  - Monetary (Credit) Decentralization
  - Local government is more corrupted than central government, as there is more transparency, more balance of power in central government, such as seven members in politburo standing committee of CPC (Sau-Chung Kim, 201?).



# A Simple Model: Credit Decentralization

- Firms pay bribes to politicians to obtain credit, as local government controls the bank.
- Larger firms pay higher bribes. Local bank (government) prefers larger firms. The bribe should be larger than the risk of being punished for taking bribes.
- Larger firms are inefficient since there is a decreasing return to scale on capital.
- Therefore, local banks reduce growth rate more.

# Credit Centralization

- Nationwide banks are more efficient as politicians in central government has a higher risk being punished. (Local government has more corruption than local government.)
- Therefore, nationwide banks prefer the very few large firms in the country, which makes these banks more efficient.

# Government i's problem

- $\max W_i = \varphi \int_0^1 (K_{if} + I_{if})^\alpha df + G(i)^\beta$   
s.t.

$$\delta I_i + G(i) = B$$

$$\sum_f I_{if} = I_i$$

$$\varphi (K_{if} + I_{if})^\alpha \geq F_i$$

Solution,

$$I_i = \frac{1}{\delta} \left( B - \left( \frac{\beta \left( \frac{F_i}{\varphi} \right)^{\frac{1-\alpha}{\alpha}}}{\varphi \alpha} \right)^{\frac{1}{1-\beta}} \right)$$

- Proposition 1: The presence of local banks reduced GDP growth rate by allocating credits to large firms.
- Proposition 2: Central government, which is less corrupted than local government, has a higher  $F$ , will reduce the detrimental effect from allocating funds to large firms. This explains the relative better performance of nationwide banks.

Why government officials still have incentive to establish local banks with lower GDP growth?

- Weighs between corruption and promotion.
- Connection and GDP both important factors for promotion.
- Controlling local banks might give edge to politicians to establish connections by financing connected politicians' related interests at upper level, which is another factor leading to promotion.

# Conclusion

- Establishment of CCB did not contribute to local city growth.
- CCB did not increase local firm growth, especially for small firm growth.