The Long Shadow of a Fiscal Expansion

Chong-En Bai, Chang-Tai Hsieh and Zheng (Michael) Song

Discussion by Yi Huang

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Main Findings/ Contributions

- **Extremely Important and Interesting paper about China:**
  - Fiscal expansion and rising local government debt (comprehensive estimations on off-balance sheet local government financing vehicles)
  - Financial system and liberalization/deregulation (relaxation of the balanced budget constraint on local governments)
  - Fiscal spending increase the aggregated investment rate and reduce the current account surplus(no offsetting by saving)
- **Political Economy of Financing with Chinese Characteristics.**
  - Geographic segmentation of credit market: local public debt issuance does not attract capital from elsewhere and market imbalance remains local(lending "home bias")
  - Credit misallocation and political incentive ("special deal" and connected firms)
- **Reallocation of investment is likely to reduce long-run growth.**
  - Massive post-crisis increase in local public debt crowded out the investment of high productivity firms without connection.

Contributions to the Literature

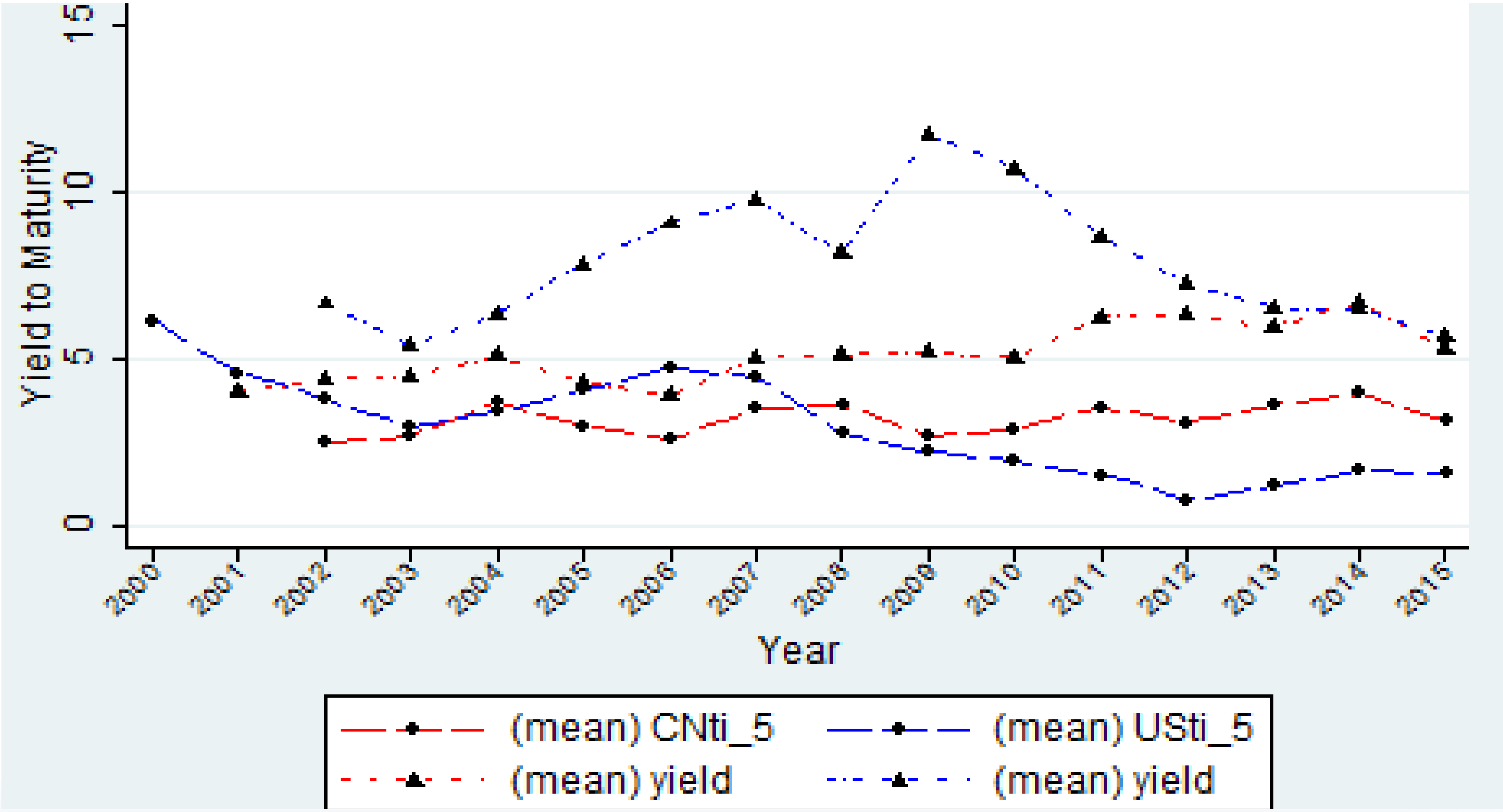
- **Fiscal Spending/ Public debt and growth**
  - Reinhart and Rogoff (2011), Cecchetti, Mohanty and Zampolli (2011)
  - Mian and Sufi (2009); Nakamura and Steinsson (2014)
- **Fiscal expansion and crowding out/in private investment**
  - Interest Rate channel (Blanchard, 2008)
  - Political connection (Cohen et al. 2011; Bai, Hsieh, and Song, 2016)
  - Credit Rationing channel (Huang, Pagano and Panizza, 2016; Cong and Ponticelli, 2016)
- **Capital misallocation and financial friction**

  Hsieh and Klenow (2009), Song, Storesletten, and Zilibotti (2011); Deng, Gyourko, Morck and Wu(2015); Hsieh and Song (2016); Song and Wu(2016); Kiyotaki, Aoki and Benigno(2016)
- **China's Local government debt**
  - Zhang and Barnett (2014); Ang, Bai, and Zhou (2015); Ambrose, Deng and Wu (2015), Gao, Ru, and Tang (2016); Cong and Ponticelli (2016)……
- **China's (shadow) financial system**
  - Allen, Qian, Tu, and Yu (2015); Acharya, Qian and Yang (2016); Hachem and Song (2016); Chen, Ren and Zha (2016); Shi et al. (2016); Wang, Wang, Wang, and Zhou (2016) ; Brunnermeier and Wei (2016); Chen, He and Liu(2016)…..

Neat Model: Effects of Financial Liberalization from LFVs

- Aggregated effect of the **partial** financial liberalization
  - partial financial liberalization may **worsen** the allocation of resources
  - the **boost** in aggregate investment driven by financial liberalization will necessarily reduce the trade surplus
- Model of financial intermediary and two types of firms---**connected and unconnected.**
  - Financial liberalization for the connected firm that **increases** its borrowing limit will **crowd out** funds allocated to the unconnected firm by i**ncreasing** the marginal lending cost.
  - Financial liberalization will always **increase** the aggregate fund demand and, hence**, reduce** fund inflow or trade surplus.
  - Financial liberalization will **rise** market interest rate apart from the regulated rate, which is consistent with the findings by Hachem and Song (2016) .

Borrowing Costs between China and World Market
(Policy) Interest Rate and Bond Yield

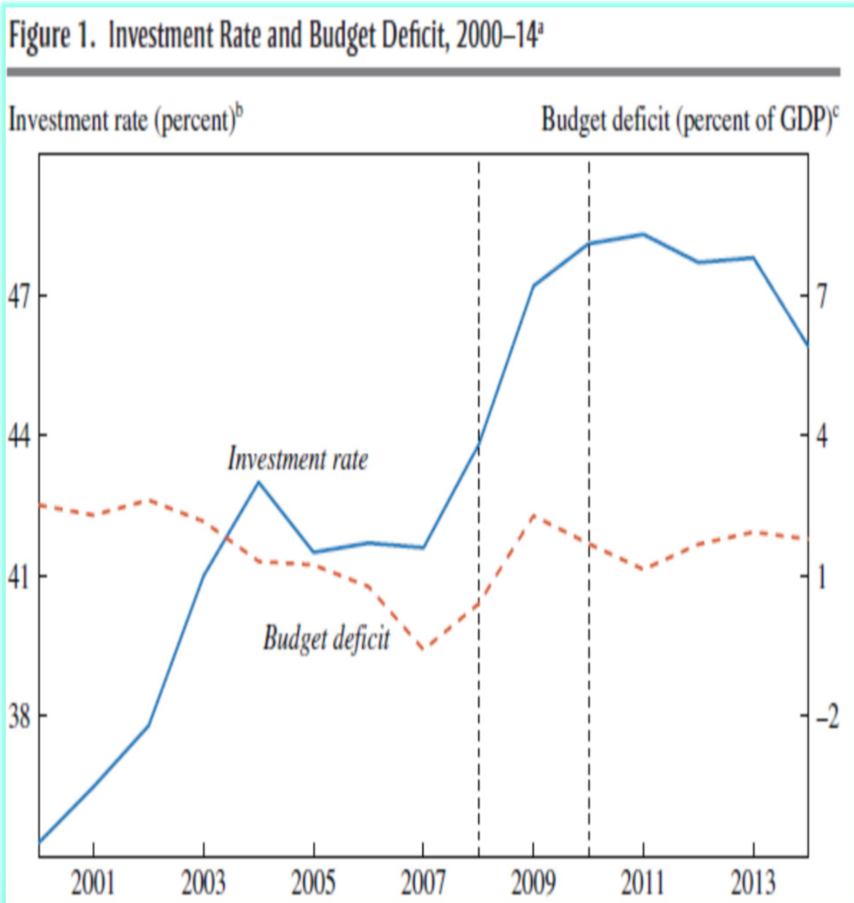


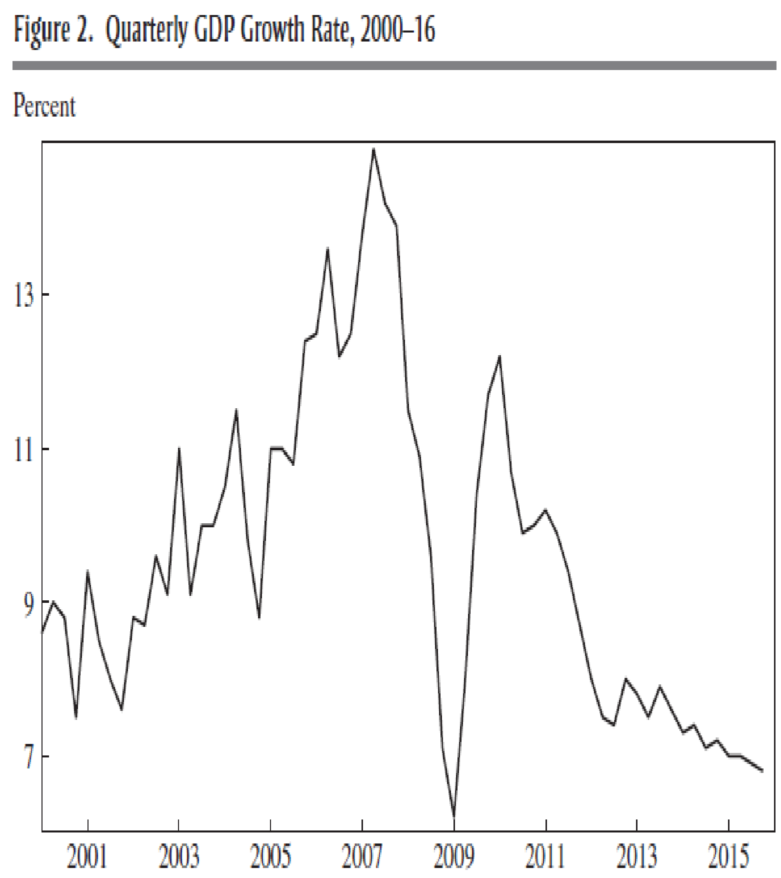
Source: Yi Huang and Richard Portes (2016)

Main suggestion: Connected firms

- **Comments :** connected firms? misallocation? low productivities?
  - Bai, Hsieh, and Song (2016), the favored firms are almost always **the largest/ listed** firms in a locality. How about private firms?
- **Suggestions: fiscal spending exposure index**(Huang et al., 2016 and Ru, 2017)
  - Since most LFVs manage public infrastructure projects, the exposure index is based on the sorting that the sectors directly affected by LFVs expenditure are: *(i) electricity production and distribution; (ii) heat production and distribution; (iii) gas distribution; (iv) water distribution and sewage treatment; (v) construction; (vi) environmental management; and (vii) public facilities management.*
  - We match these sectors with the **input-output table** constructed and build exposure indexes to the seven sectors listed above for the 135 sectors covered in the input-output tables. Finally, we match these exposure indexes to the manufacturing firms.

Rising Investment Rate vs. Declining Growth

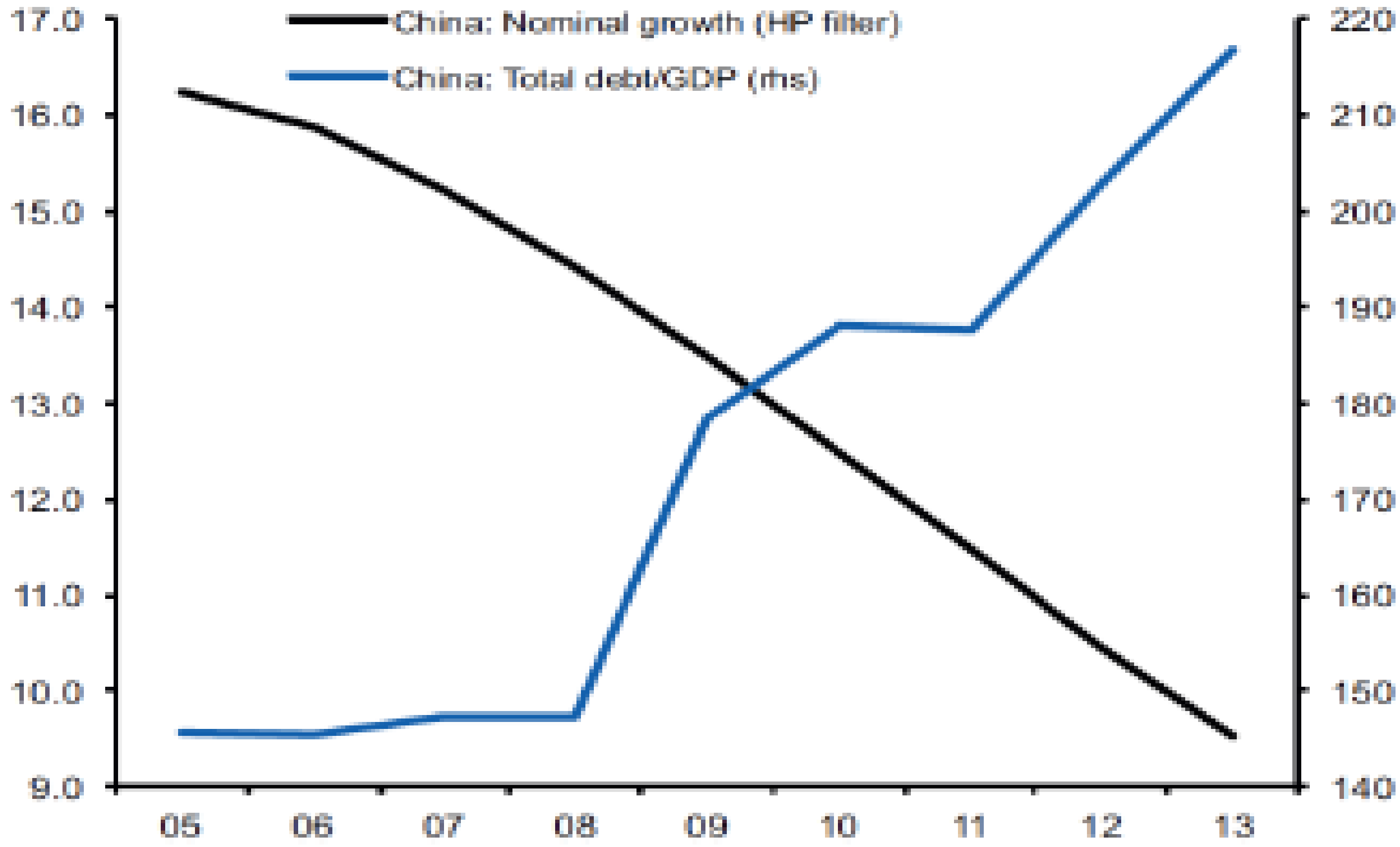




Source:Chong-En Bai, Chang-Tai Hsieh and Zheng (Michael) Song

Comments: chart between investment rate and growth rate?

Potential Explanation: Growth slowdown and debt rising



Source: Buttiglione L, P Lane, L Reichlin and V Reinhart (2014)

The Total Debt of Local Financing Vehicles, 2007–15

Table A2: Summary Statistics

	(1)	(2)	(3)	(4)	(5)	(6)
	# WIND LFVs	Total Debt (trillion Yuan)	# of New WIND LFVs	Average Debt of New LFVs (billion Yuan)	# Incumbent WIND LFVs	Average Debt of Incumbent WIND LFVs (billion Yuan)
2006	263	2.4	263	9.2	0	-
2007	413	3.8	154	5.2	259	11.7
2008	576	5.4	163	4.2	413	11.4
2009	901	9.3	326	4.8	575	13.4
2010	1155	12.5	256	3.8	899	12.9
2011	1445	15.6	290	2.7	1155	12.8
2012	1652	19.6	209	2.4	1443	13.3
2013	1701	24.0	65	4.6	1636	14.5
2014	1711	29.9	22	20.7	1689	17.4
2015	1688	35.2	6	6.1	1682	20.9

Note: New WIND LFVs are defined as those that appear in the WIND dataset for the first time. Incumbent LFVs are those that existed in the WIND dataset in the previous year.

Source: Chong-En Bai, Chang-Tai Hsieh and Zheng (Michael) Song

Comments: Decomposition by bond, bank loan and trust? M&A and restructure of the LFVs?

Local Government Fiscal Expending by sectors

Table 2. Local Governments' Cumulative Off-Balance-Sheet Expenditures as of June 2013

Type of expenditure	*Percent of total expenditures*
Municipal construction	34.6
Transportation infrastructure	24.4
Land storage	11.2
Housing security	6.5
Health, education, and culture	5.8
Agriculture, forestry, and water conservation	3.2
Environmental protection	2.7
Industry and energy	1.4

Source: NAO (2013).

Source: Chong-En Bai, Chang-Tai Hsieh and Zheng (Michael) Song

Comments: use the LFV data instead of the NAO

Fiscal Gap and Off-balance-sheet borrowing

Table 3. Fixed-Effects Regressions on Local Financing Vehicles' Debt Growth[a]

	Log of debt			
	(1)	*(2)*	*(3)*	*(4)*
One-year lagged log of LFV debt	0.492	0.488	0.467	0.464
	(0.011)	(0.011)	(0.013)	(0.013)
Fiscal gap[b]	0.867	−1.538	1.099	−1.083
	(0.308)	(0.514)	(0.360)	(0.563)
Fiscal gap × post-2009		2.355		2.097
		(0.404)		(0.417)
Year dummies	Yes	Yes	Yes	Yes
Other controls[c]	No	No	Yes	Yes
No. of observations	4,476	4,476	3,855	3,855
R^2	0.778	0.780	0.753	0.755
No. of issuers	877	877	861	861

Source: Authors' calculations.
a. Standard errors are in parentheses. Observations are for city-level local financing vehicles.
b. The fiscal gap is defined as (local fiscal expenditures – local fiscal revenue)/local GDP.
c. Other controls include log of GDP, log of population, and log of GDP growth.

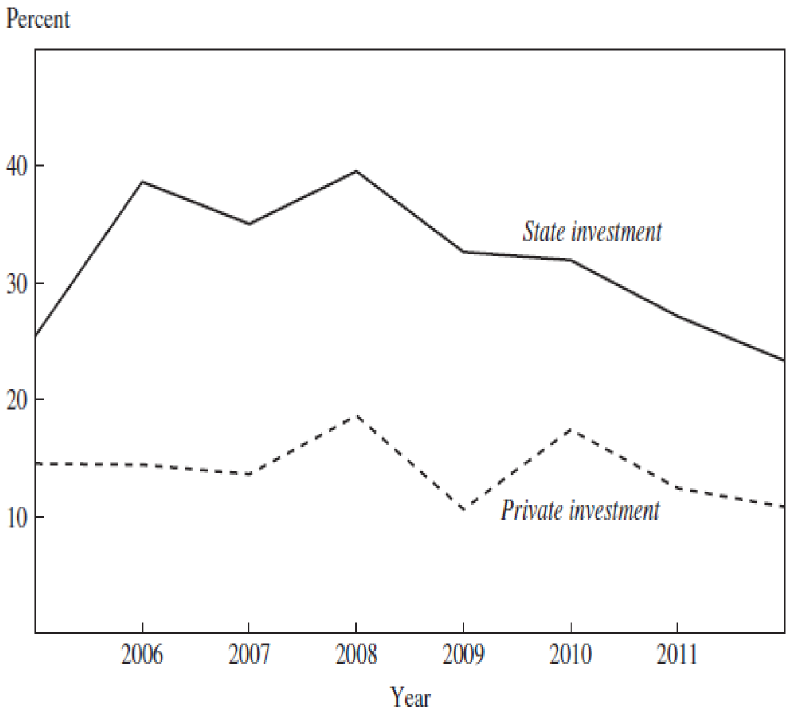
Source: Chong-En Bai, Chang-Tai Hsieh and Zheng (Michael) Song

Comment: Cross sectional regression between 2008 and 2015?

How about panel regression with city and year fixed effects using within/ between cities and time variations?

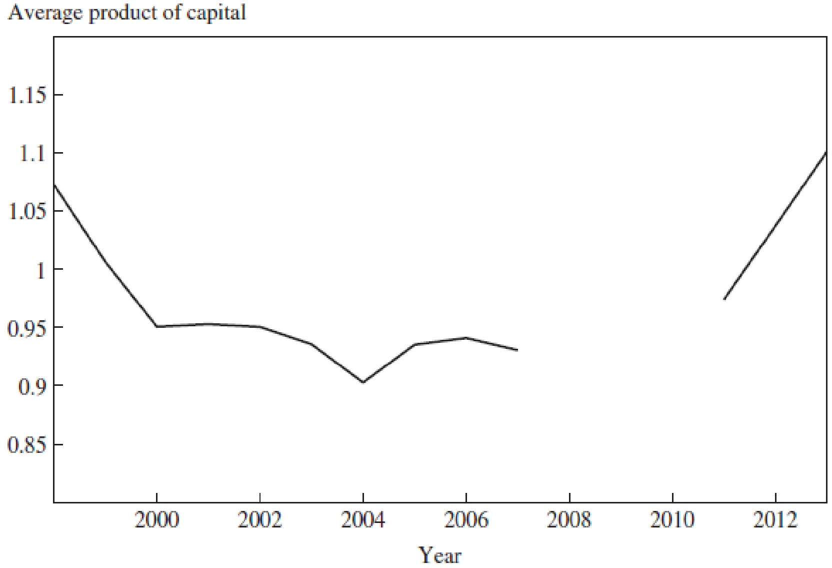
Investment Rate and Value Added to Capital Stock

Figure 10. Investment Rate by Ownership in the Industrial Sector, 2005–12



Source: *China Statistical Yearbook.*

Figure 12. Dispersion in the Average Product of Capital across Privately Owned Industrial Firms, 1998–2013[a]



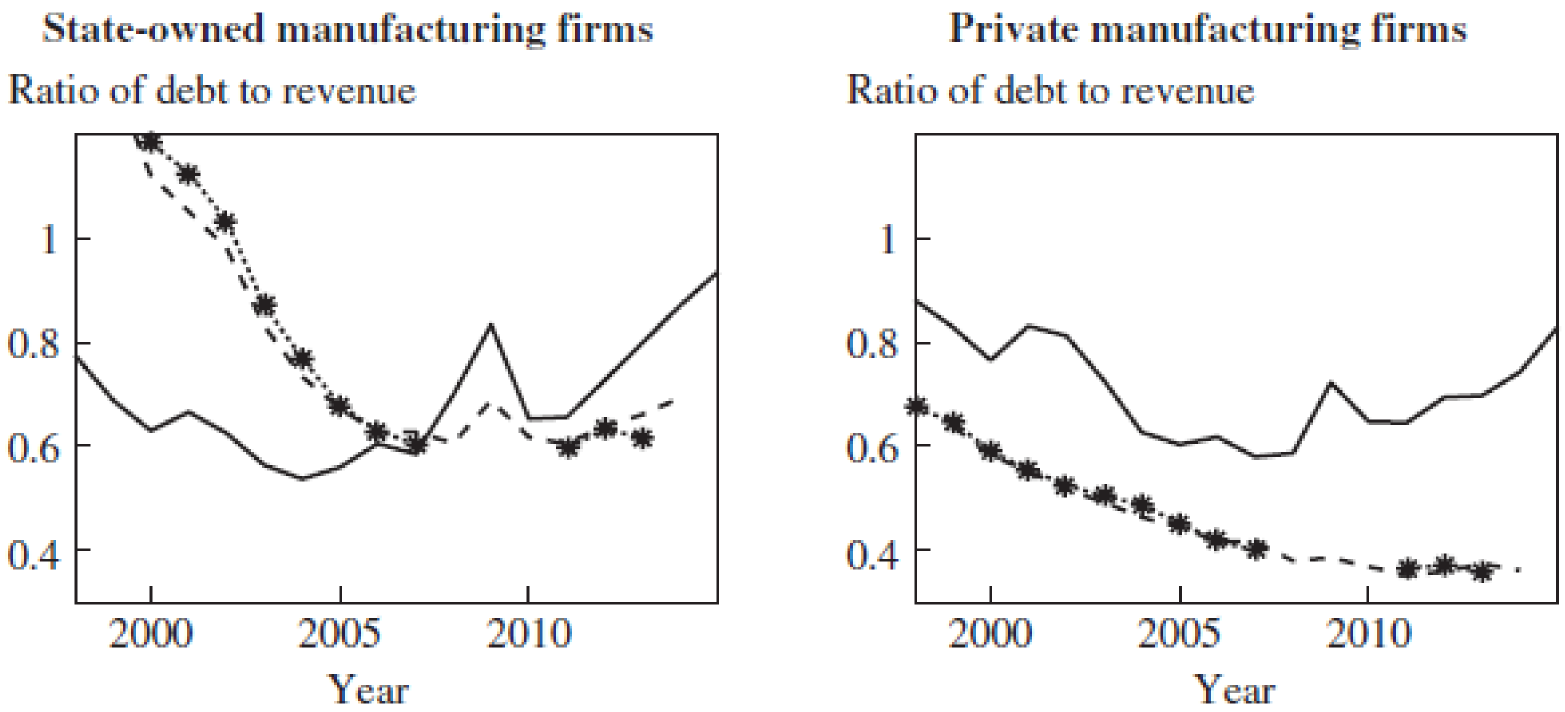
Sources: National Bureau of Statistics of China; authors' calculations.

a. This figure plots the variance of the log of the ratio of value added to fixed capital among private firms in the balanced panel of industrial firms. The ratio of value added to fixed capital is divided by the median value in each four-digit industry. The top and bottom 1 percentiles in each industry in each year are dropped.

Source:Chong-En Bai, Chang-Tai Hsieh and Zheng (Michael) Song

Comment: Decomposition by ownership?

Debt/Revenue between Listed Firms and Industry firms by Ownership



Sources: China Stock Market and Accounting Research database; *China Statistical Yearbook*; National Bureau of Statistics of China.

a. Data are from the Annual Survey of Industrial Firms, with years missing for 2008–10.

Source:Chong-En Bai, Chang-Tai Hsieh and Zheng (Michael) Song

Comment: Listed Industry Firms?

One Million Dollar Question:
What is the impact of the fiscal stimulus and financial Reform?

- China's aggressive policy may have prevented an economic contraction and partially liberalized (formal) financial system which, in the presence of hysteresis (Fatás and Summers, 2016; Bai et al., 2016 and He et al.,2017).
- The fiscal stimulus reduced investment by private firms.
  - **Reallocation of investment** from private to SOEs is likely to reduce on China's long-run growth potential (Huang et al. 2016; Cong and Ponticelli, 2017)
  - By **boosting the fraction of public debt in banks portfolios**, this policy has strengthened the bank-sovereign nexus in China, with possible systemic risk consequences: **see Europe in 2010-12**(Acharya et al., 2014; Altavilla et al. 2015; Brunnermeier, 2016:The Euro and the Battle of Ideas)!

Footnotes from Geneva: complementing evidences

Public Debt and Private Firm Funding: Evidence from Chinese Cities

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Estimation of Local Government Debt

- We compute the total debt of Local Government Financing Vehicles (LGFV) by exploiting their reporting requirements: debt contracts.
  - LGFVs that wish to issue a bond are required to disclose their current and previous balance sheets, at least for the previous 3 years
- We aggregate at city-year level and obtain a lower bound for total city-level public debt
  - But lower bound is much more accurate than data based on bond issuance only
  - Wide cross-sectional and time-series variation in city-level public debt/GDP

Source: Yi Huang, Marco Pagano and Ugo Panizza (2016)

Conclusions

- Very polish paper with original/neat ideas/ policy implication: enjoy reading it and learn a lot.
- Few practical suggestions on the measurement and channels on credit misallocation and financial liberalization reform.
- I can not recommend it highly enough(citation, policy implication and reading list/syllabus …)
- Look forward follow-up papers!

Merci!

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