Understanding China's Evolving Credit Risk Maze

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Outline

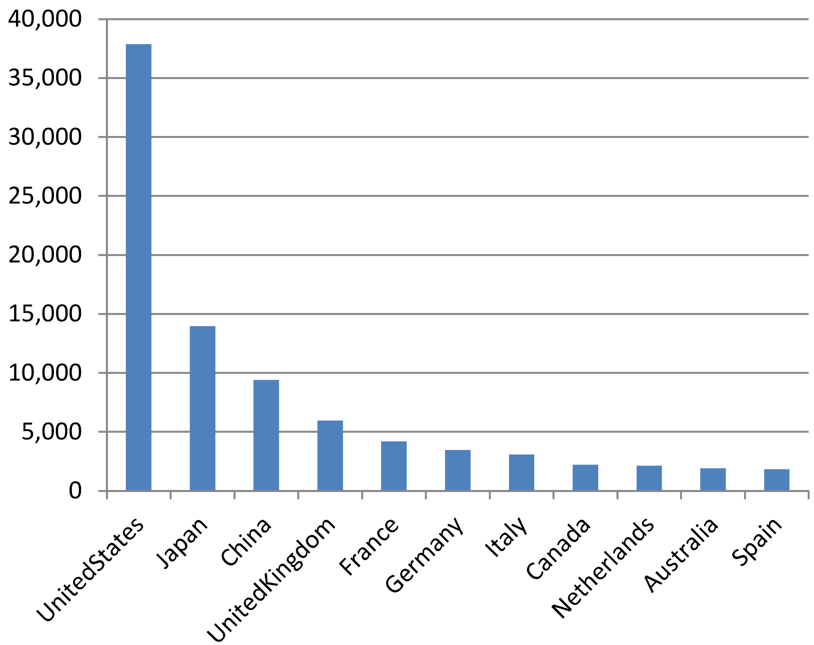
- Why China's debt markets are viewed as opaque.
- Background on the growth of China's non-financial enterprise debt.
- Why infrastructure investment and local public finance are at the heart of the problem.
- Some major policy actions of central authorities.
- Statistical analysis of credit risk premia across market segments.
- Conclusions

Chinese capital markets are opening to international investors

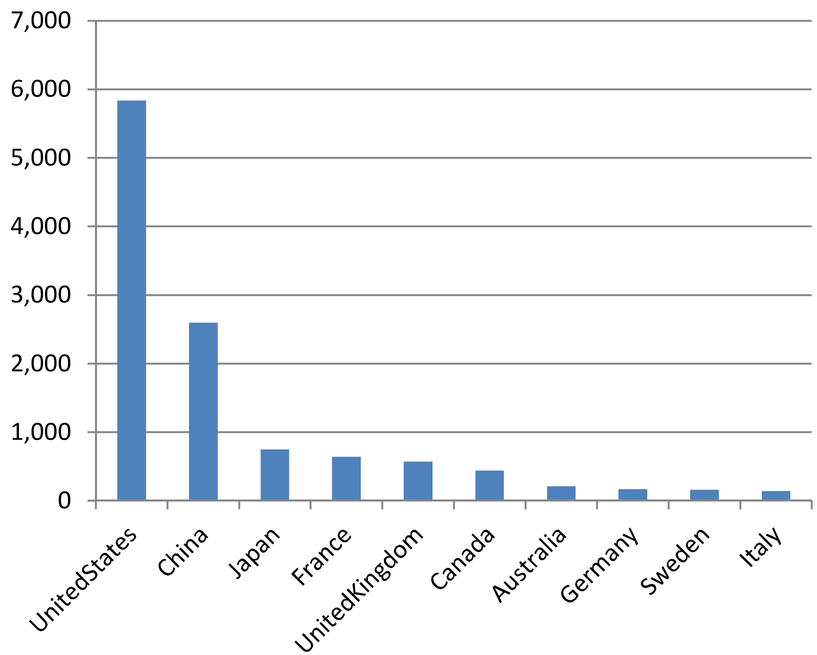
- Steps in opening to portfolio investors:
  - 2002: Qualified Financial Institutional Investors Scheme
  - 2014: HK-Shanghai Connect, HK-Shenzhen Connect (retail stock market investors, two-way flows)
  - 2015: Renminbi joins SDR . Currency meant to be "freely usable" internationally.
  - 2016: 20 major international institutions given access to domestic interbank market where bonds are actively traded.
  - 2017: Bond connect (initially inward flow only)
- But international fund managers hesitate about whether they should enter and if so where and when? Views often expressed (WSJ, FT, ..)
  - Chinese debt levels are unsustainable or will soon be.
  - Chinese debt markets are opaque and foreigners are at a disadvantage with respect to (a) information and (b) treatment.
- Conclusion: China has a debt problem and something needs to be done about it.

China's bond markets are large on a global scale. Concentrated in non-financial corporate paper.

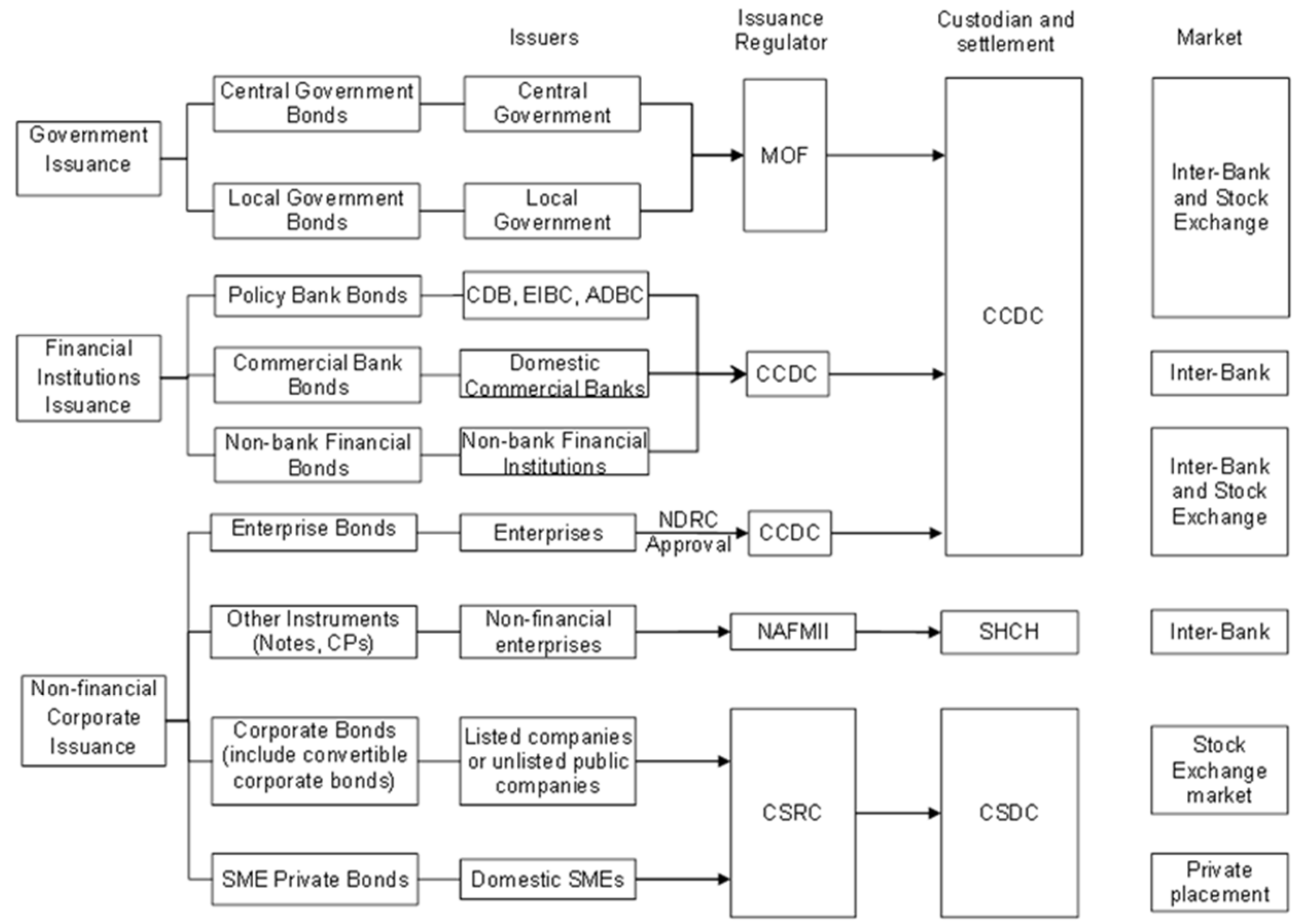
World's top bond markets 2016 Q3 (Billion USD)



World's top non-financial corporate bond markets 2016 Q3 (billion USD)



Chinese bond market architecture: debt securities of non-financial enterprises enter through 3 channels



Regime for Chinese Bond Issuance

Total Financial and Non-Financial Bonds Outstanding at Depository Institutions, January 2017 (Billion CNY)

	CCDC	SHCH	CSDC	Total
Financial	2,732	6,276	-	9,008
of which				
CDs	-	6,276	-	6,276
Commercial Bank	1,636	-	-	1,636
Tier-two Capital Instruments	886	-	-	886
Non -bank Financial Institutions	210	-	-	210
Non-financial	4,563	7,735	6,268	18,566
of which				
Enterprise Bonds	3,536	-	946	4,482
Corporate Bonds	-	-	4,128	4,128
SME Private Bonds	-	-	1,194	1,194
Medium Term Notes	1,026	3,431	-	4,457
CPs	-	2,124	-	2,124
Private Placement Notes	-	2,180	-	2,180

Source: WIND and author's calculations

Non-financial Domestic Issues of Corporate Bonds and Related Securities February 2017, By Entity Type

Company type	Number	Amount Outstanding (Billion CNY)
Central SOE	1,764	4,330
Collective Company	54	34
Foreign Company	328	408
Local SOE	12,229	11,477
Other Company	73	72
Private Company	1,981	1,715
Public Company	111	137
Sino-Foreign Joint Venture	167	171
Not Disclosed	471	134
Total	17,178	18,478

Source: WIND and author’s calculations

Implicit guarantees: A policy dilemma

- SOE's account for more than ½ of the issues of non-financial enterprise debt.
- Many issues are made through the old enterprise bond channel where the planning mechanism (NDRC) plays an explicit role.
- Private firms also depend heavily on good government relations.
- Central authorities are very clear that maintaining strong and stable growth is a high priority.
- All this leads many analysts and investors to expect the government to step in when issuers are distressed.
- But is this consistent with the "five main tasks" of the 13th plan?

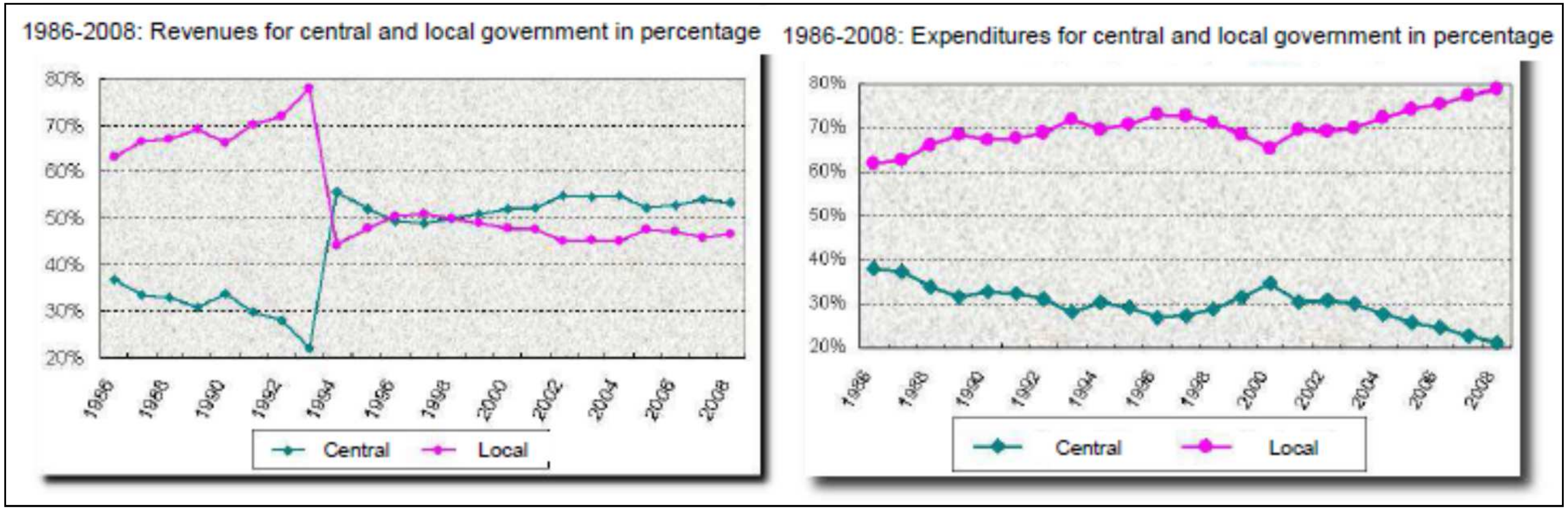
  De-capacity, De-stocking, Deleverage, Lowering costs, Improving weak links (Tang, 2016)

Background on the growth of China’s non-financial enterprise debt.

- Bai et al (2016) find origins of debt explosion in the 4 trillion RMB stimulus from 2008. Real investment rose from 42% of GDP in 2007 to 48% in 2010, heavily in non-residential structures including infrastructure projects.
- Much of the funding was channelled through local government funding vehicles. LGFV’s with bond outstanding grew from 600 in 2008 to 1600 by 2012 (Bai *et al*, 2016).
- Chen *et al* (2017) show that asset/liability maturity miss-match because bank loans originally were used to fund l.t. infrastructure investments gave rise to roll-over pressure starting in 2012. This fueled a big growth of bond, trust loans and entrusted loan issuance in the next two years.
- Many of the new debt issues were being repackaged in so-called Wealth Management Products (WMP’s) which were being sold to unsophisticated investors who were ill-placed to recognize the riskiness of the underlying instruments. It is argued that this has been knowingly tolerated by the Chinese authorities and that as a result there is a general expectation of government bail-outs in case of defaults. These expectations of government guarantees may be supporting a bubble in debt markets. (N. Zhu, 2016).

Why infrastructure investment and local public finance are at the heart of the problem.

- 1993 Budget Law fundamentally shifted revenue collection in favour central government.
- However, the burden of provision of public services remained with local government, creating a structural deficit.



Source: Lu Hua

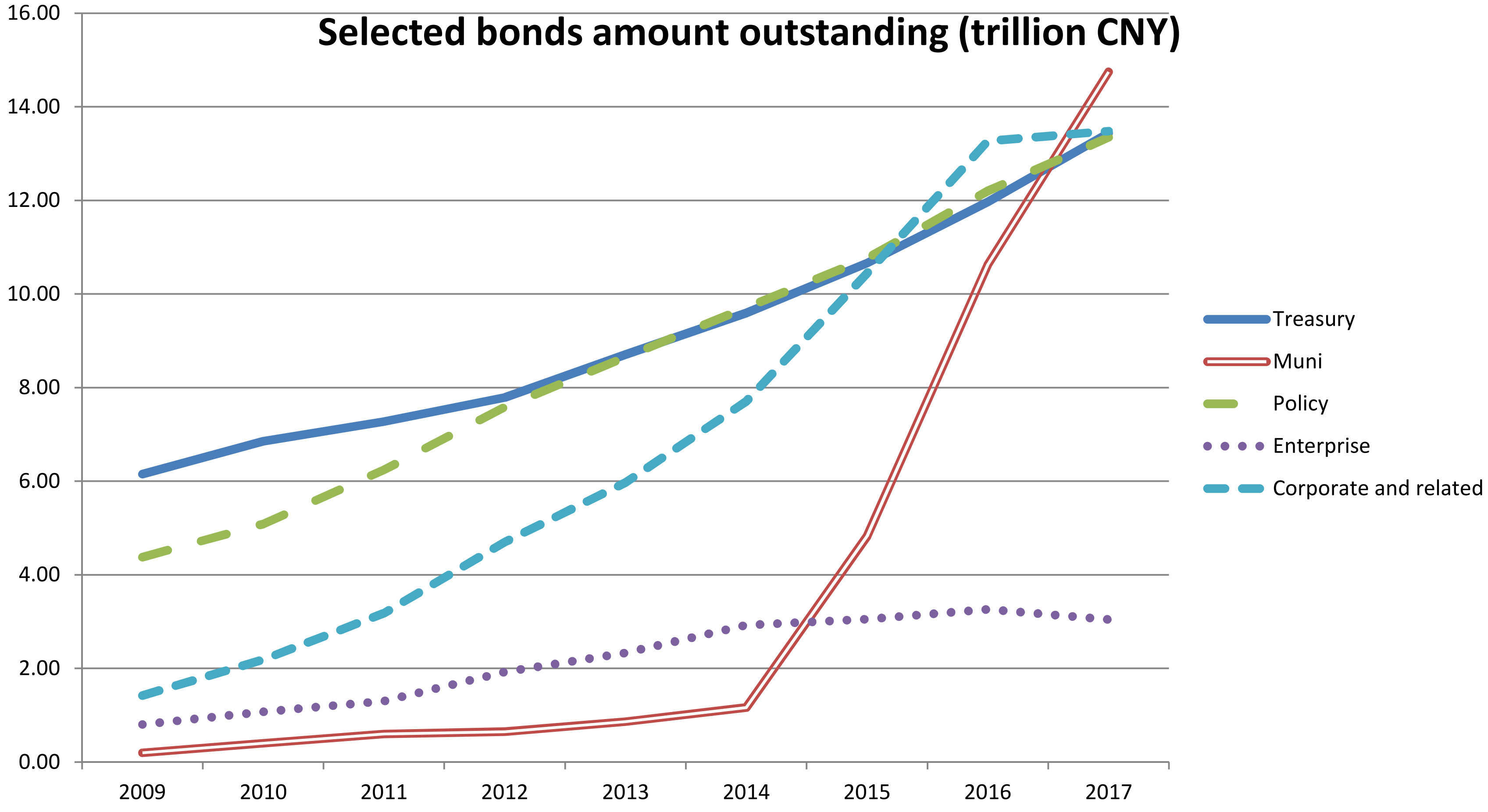
Local government response to structural deficits in public finance and it relation to local SOEs

- 1993 Budget Law also made it illegal for local governments to borrow in order finance operating budget deficits.
- Local governments could seeks revenues from central government. But limited and typically for special programmes.
- Following the example of Shanghai Pudong development they could undertake infrastructure development projects via a Local Government Financing Vehicle (LGFV)
  - Organized as a Local SOE
  - LG capital contribution could be commitment of proceeds from land grant (l.t. lease) of land taken out of agricultural production
  - LGFV could borrow using land as collateral.
  - Can issue corporate bonds, enterprise bonds, etc in the market
- Local SOE's generate revenues from tolls, subway tickets etc but also from commercial activities developed by the firm (mixed public and commercial purpose).

China's debt containment strategy since 2014

- Strategy set out in State Council Guidance (2014 No. 43) on management of local government debts
  - Authorise some local governments to issue muni bonds directly or through the Ministry of Finance (not through LGFV)
  - Limit the ability of local governments to give debt guarantees to enterprises (including LGFV's)
  - Create debt management systems (impose budget discipline)
  - Start muni bond/ city construction bond swaps to reduce interest cost of existing debts
  - Encourage PPP to support remaining infrastructure investment
- Reaffirmed repeatedly by MOF, NDRC etc in 2015-2018

2014-15 reforms of local public finances have led to major restructuring of bond markets.

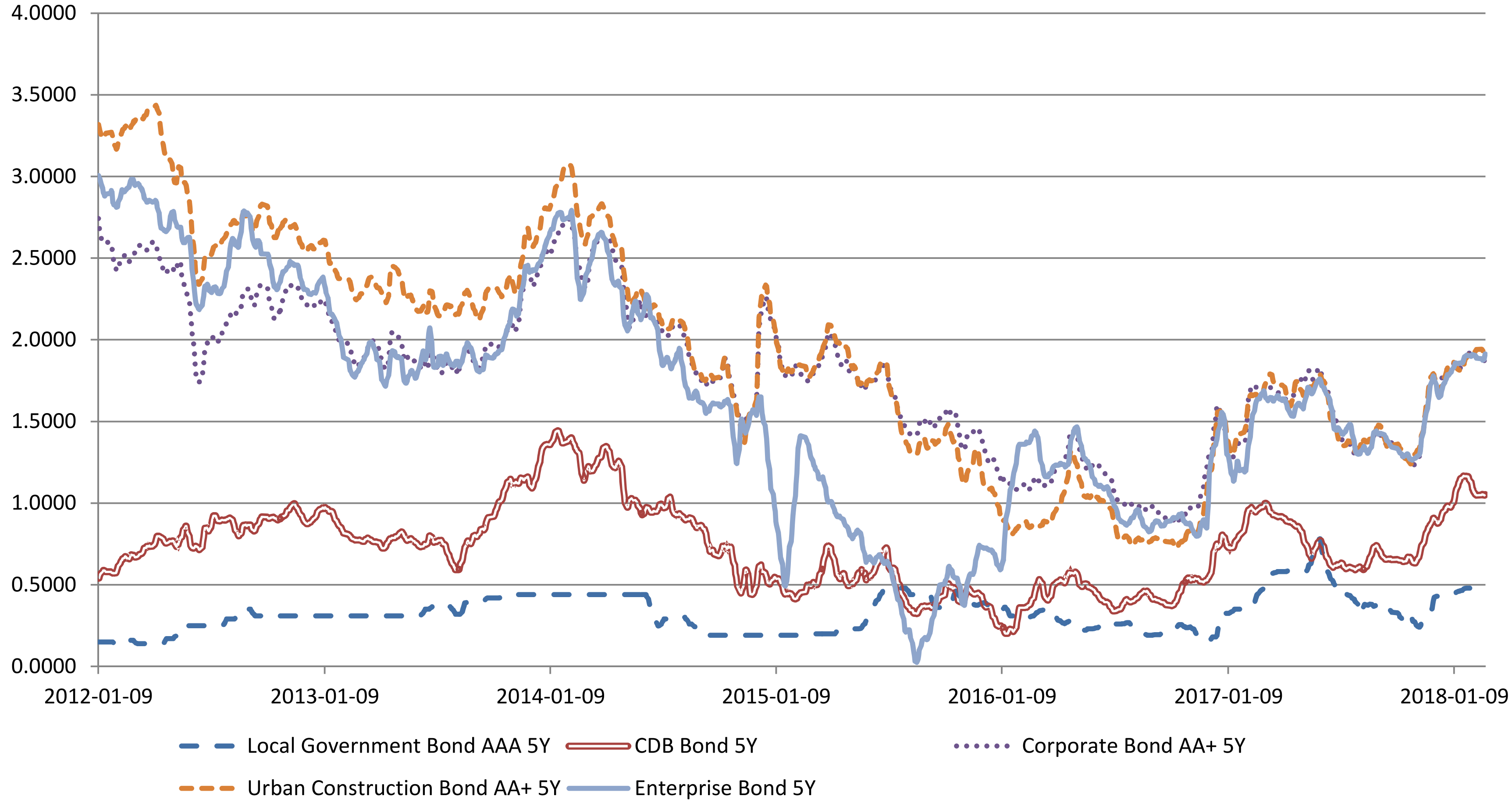


Source: WIND and authors' calculations

PPP, debt growth, and the issue of government guarantees

- Public-private partnerships: preferred funding means for infrastructure.
- As of 2017 Q3, there have been PPP projects with a total cost of 17.8 tr. CNY approved or under review.
- A typical PPP project might finance project costs with 20% social capital contributed by the partner of the local government and 80% debt.
- Thus approximately 14.2 tr. CNY of new debt coming from PPP projects.
- Does this debt carry a government guarantee?
- According to State Council Guidance (2014 No. 43)
  - local government commitment is limited to what is specified in the approved PPP contract,
  - Local governments are not allowed to give further reassurances or commitments of proceeds from future land sales etc.
- Reaffirmed repeatedly by MOF, NDRC etc in 2015-2018
- November 2017 MOF order to withdraw approval of non-conforming PPP projects.

Yields reflect the main phases of China's strategy to reform local public finance and restrict scope of government guarantees



Yield spreads versus treasury bonds. Source: WIND and authors' calculations

Statistical analysis of credit risk premia

- Based on individual enterprise and corporate bonds trading on exchange and interbank market.

- Detailed data on issue, issuer, and yields, monthly between April 2015 and May 2018.

- Can use these data to learn something about Chinese investors' credit risk expectations.

Who are the issuers and where do they issue?
Number of Non-financial Bonds Outstanding May 2018

	Enterprise	Corporate		Total
		SSE	SZSE	
Central SOE	385	374	49	808
Foreign-owned	9	93	29	131
Joint ventures	87	64	4	155
Local SOE	2,780	648	158	3,586
Other companies	17	11	7	35
Private Enterprise	96	431	362	889
Public company	13	30	30	73
Other SOE	4	0	0	4
Total	3,391	1,651	639	5,681

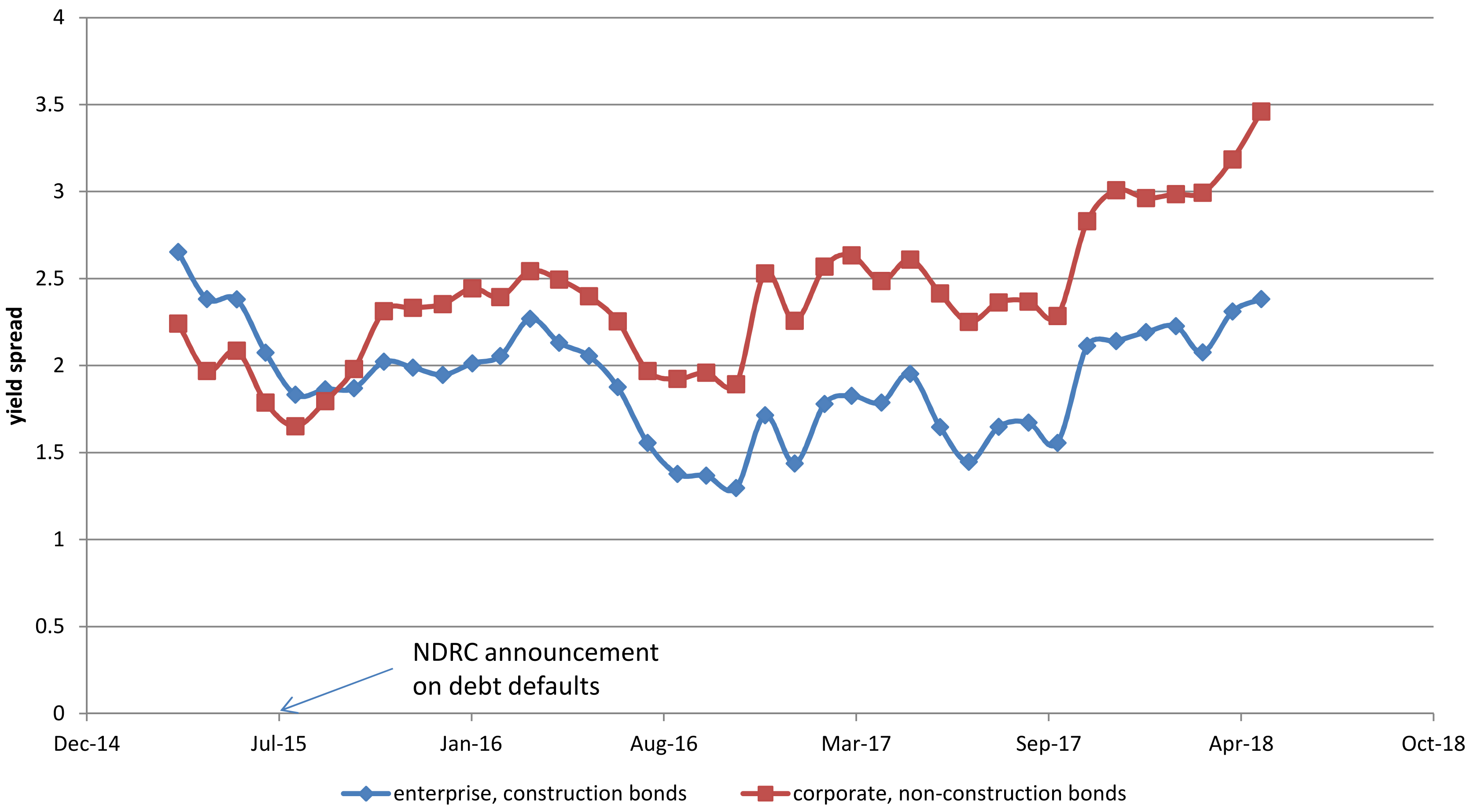
What do they fund?
City Construction Bond Issues by Issuer and Market

	City Construction	Other	Total
Panel A: By company type			
Central SOE	112	689	801
Foreign-owned	2	127	129
Joint ventures	75	80	155
Local SOE	2,902	669	3,571
Other companies	14	21	35
Private Enterprise	57	811	868
Public company	1	68	69
Other SOE	2	2	4
Total	3,165	2,467	5,632
Panel B: By market			
Enterprise	4,668	1,000	5,668
SSE	322	1,327	1,649
SZSE	45	572	617
Total	5,035	2,899	7,934

How have credit risk expectations evolved?
Change of Mean Yield Spread, Apr-15 to May-18
(per cent)

	Central SOE		Local SOE		Private	
	construction		construction		construction	
	no	yes	no	yes	no	yes
enterprise	0.56	.	2.45	0.38	6.22	.
corporate	1.40	0.39	1.30	0.66	2.59	0.13

Monthly Average Credit Spreads (per cent)



Are guarantees explicit or implicit?: Change of Mean Yield Spread, Apr-15 to May-18

	Central SOE		**Local SOE**		**Private**	
	explicit guarantee		explicit guarantee		explicit guarantee	
	no	yes	no	yes	no	yes
enterprise	1.31	0.32	0.60	0.41	9.61	4.72
corporate	0.45	2.04	0.77	1.86	2.72	1.69

Yield Spread Regression Analysis, benchmark regressions

	Enterprise		Corporate	
	b/t	b/t	b/t	b/t
Construction	-1.678***	-1.676***	-0.757***	-0.744***
	(-7.25)	(-7.23)	(-10.45)	(-10.33)
GuaranteeYN	-0.533	-0.535	0.519**	0.475**
	(-1.44)	(-1.44)	(3.65)	(3.35)
ConstGuar	1.076**	1.075**	0.313*	0.324**
	(3.53)	(3.53)	(2.42)	(2.47)
Month	0.017***		0.064***	
	(8.53)		(19.3)	
Rating &Comp Type	Yes	Yes	Yes	Yes
Month dummies	No	Yes	No	Yes
R-sq	0.274	0.292	0.229	0.24
Nobs	81320	81320	42631	42631

Extensions &Robustness

- Most company dummies are insignificant in the benchmark regressions. If they are omitted, the estimates of remaining variables are virtually unchanged. But taken as a whole the company dummies are significant.

- If the *level* interest rates is included (e.g., 5yr government yield) it is significant but the estimates of benchmark variables are virtually unchanged.

- Analysts' ratios (tangible assets, current, cash, quick) are insignificant on their own. They enter with right sign and are marginally significant in enterprise (but not corporate) regressions when included with benchmark variables. Estimates of benchmark variables are virtually unchanged.

- Province dummies or industrial sector dummies improve fit slightly but leave estimates of benchmark estimates unchanged.

Conclusions (1)

- The non-financial bond market is segmented. Segments reflect the legal status of the issuer and the channel by which the securities enter the market. Yield differences between segments are evolving over time.

- Between 2015 and 2018 there have been very striking changes in the pattern of credit spreads in the market. These can be associated very closely with de-leveraging policy actions taken by central authorities. Government backing for non-financial issues has been more explicitly limited to enterprise bonds, particularly city construction bonds, while at the same time the growth of that segment has been slowed through restrictions in the planning process. Over this period yield spreads in corporate bonds rose steadily relative to enterprise bonds as policy guidance became more explicit and also as bond defaults spiked up.

Conclusions (2)

- Standard measures of credit worthiness appear to be of second order importance in understanding patterns of credit spreads across bond segments.

- Our results support the view that greater financial discipline is being felt by Chinese issuers and investors. It seems that changing credit risk patterns are largely the result of removing dysfunctional modes of local public finance which resulted in ill-governed LGFV's which lacked clearly defined enterprise strategies.

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