WP/18/219

IMF Working Paper

China's Local Government Bond Market

by W. Raphael Lam and Jingsen Wang

INTERNATIONAL MONETARY FUND

WP/18/219

IMF Working Paper

Fiscal Affairs Department

China's Local Government Bond Market [1]

Prepared by W. Raphael Lam* and Jingsen Wang**

Authorized for distribution by Catherine Pattillo

September 2018

Abstract

Local governments play a significant role in China's public finance and fiscal operations. The size of local government debt has grown rapidly over the past years, exceeding the stock of sovereign debt in China. How does this development compare to other countries and what policies can foster the sound development of the bond markets? This paper finds that despite its rapid growth, the local government bond market is still underdeveloped. Severe impediments—low liquidity, weak credit discipline, structural fiscal deficit in local governments—have become more visible. Reforms to develop a sound local government bond market should harmonize tax and regulations, build liquidity, and advance fiscal reforms to tighten off-budget borrowing and address intergovernmental imbalances.

JEL Classification Numbers: H19, H70, H74, G10, G18.

Keywords: China; Local Government; Subnational fiscal balance; bond market

Authors' E-mail Address: wlam@imf.org; wang.jingsen@mof.gov.cn;

[1] The authors are grateful for the comments and discussion from the participants in the 2018 Fifth Annual IMF-PBC Conference, staff from the Budget Department of Ministry of Finance and IMF Fiscal Affairs Department. ZHANG Chi provided excellent research assistance. Affiliation: *International Monetary Fund; **Ministry of Finance, China.

I. INTRODUCTION AND MOTIVATION

Local governments are critical to understand China's public finance and fiscal policy.[2] They are key players in regional developments and provision of social services, accounting for half of general government revenue and over 80 percent of general government expenditure. Local government debt also rose significantly by 20 percentage points of GDP during 2013–17, exceeding the outstanding stock of sovereign debt in 2017.

China's government bond market has grown rapidly to become one of the largest in the world. Local government bonds now account for 20 percent of the fixed income market (Figure 1). Overall, China's fixed income market reached renminbi (RMB) 74.5 trillion (or US$ 11 trillion) in 2017 (over 90 percent of GDP), the third largest globally after the United States and Japan.

Much of the rapid growth in local government bonds was driven by a debt-swap program and regulatory change since late 2014. The central government has allowed local governments to issue bonds formally subject to an annual cap as part of efforts to rein in rising fiscal risks from local government off-budget borrowing.

Before 2015, local government bond financing was negligible due to central government restrictions. Local governments in general face structural revenue shortfalls relative to their spending needs. The intergovernmental transfer system largely relied on revenue-sharing and tax rebate transfers, which placed pressures for local governments with low tax capacity. As such, local governments circumvented the rules by setting up local government financing vehicles (LGFVs) to borrow from banks and capital markets, leading to a buildup of LGFV bonds (so called *chengtou*). They also relied on those LGFVs to engage in counter-cyclical fiscal policies.[3]

Despite its growing size, the local government bond market remains underdeveloped. Banks hold most local government bonds with limited trading. Bond spreads suggest little credit risk differentiation associated with fiscal fundamentals of local governments, in part because of the widely-held perception that local government bonds carry central government backing. Much of the off-budget borrowing continued to rise because the annual size of bond issuance in the budget is not large enough to accommodate local government spending needs.

---

[2] China has four broad subnational government levels (provincial, prefectural, county, and township). Provincial government consists of 31 provinces, autonomous regions, and provincial-level municipalities. Over 3,000 prefectural and county-level governments undertake most public services. Prefectures and counties are often densely populated, ranging from 150,000 to 2 million residents.

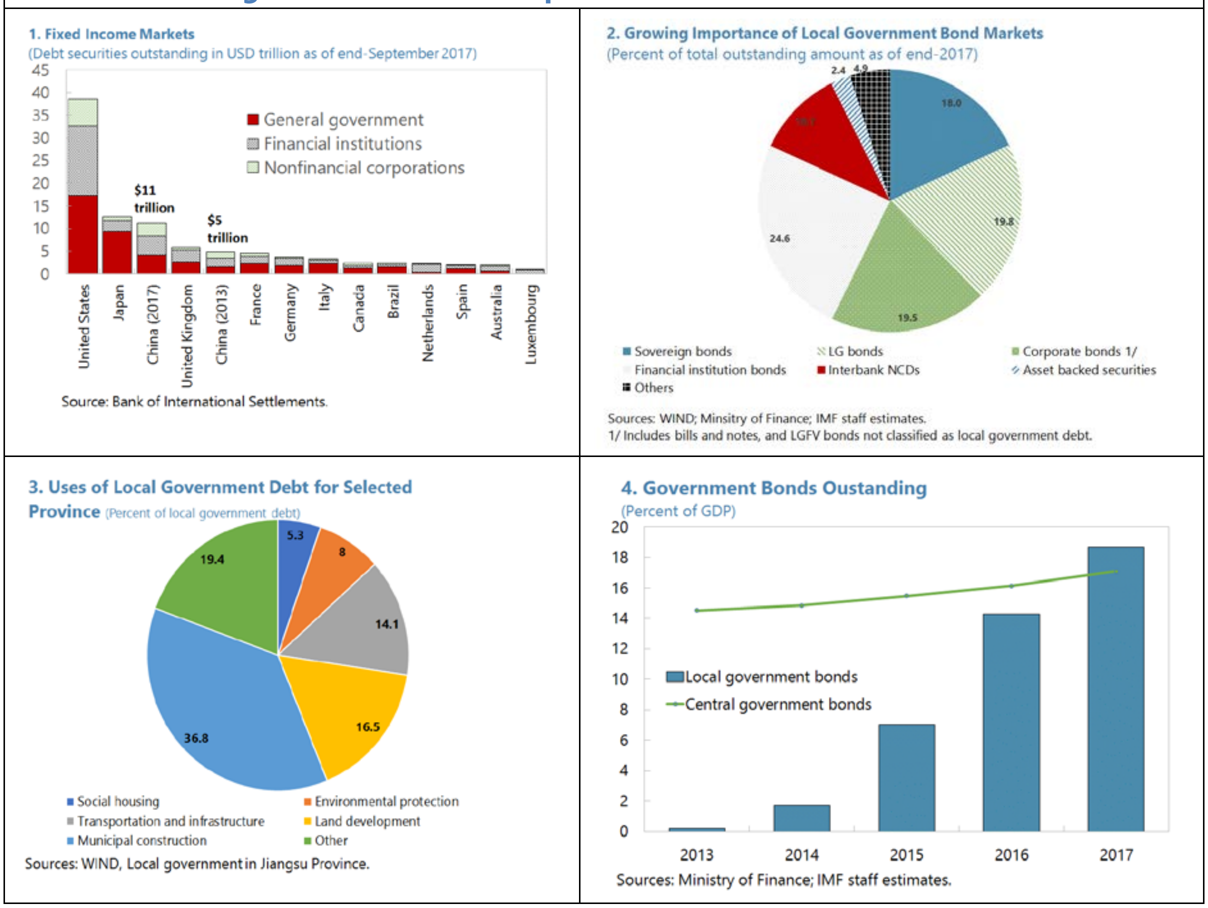
[3] This paper will only focus on official local government bonds. Studying the LGFV bond market is beyond the scope of the paper.

This paper will examine the following questions.

1. What are the recent developments in the local government bond market and how do those developments compare to other countries?
2. What are the current impediments on the bond market in China?
3. What are policy options to develop a sound local government bond market? What is the role of fiscal reforms?

The paper is organized as follows. Section II provides a summary on the recent developments and regulatory measures in China's local government bond markets. Section III discusses the current impediments in the markets. Section IV illustrates potential reforms for strengthening the local government bond markets. Section V concludes.

Figure 1. Recent Developments in China's Bond Markets



II. Recent Developments

The local government bond market was initially negligible prior to mid-2014 because most borrowing was through off-budget financing vehicles. Local governments were prohibited legally from borrowing on their own before 2014 except under the five-year pilot bond issuance program starting in 2009. Under the program, the Ministry of Finance issued RMB 200 billion local government bonds on behalf of local governments. The central government later allowed a small set of provincial governments to issue bonds directly (about RMB3–4 billion as of end-2014). As a result, local governments used other sources of financing for development needs and as a countercyclical fiscal tool to achieve growth targets. They established LGFVs to borrow from banks and capital markets in ways to circumvent legal restrictions.[4] In contrast to the small stock of local government bonds before 2014, the size of LGFV bonds rose rapidly from 2010, contributing to significant fiscal risks (IMF 2015).

The buildup of fiscal risks in local government finance has prompted central government measures to impose stricter control. The revised budget law adopted a strategy of "*opening the front door and closing the back door*" in which it tightened local government off-budget borrowing and other unregulated sources, while allowing provincial governments to issue their own bonds subject to an annual cap determined by the National People's Congress.[5] At the same time, the central government recognized about 22 percent of GDP of LGFV debt as general government debt in 2014–15. A three-year bond-swap program (RMB18 trillion or 25 percent of 2015 GDP) was also launched to gradually replace high interest and short duration debt—in the form of bank loans, LGFV bonds, trusts and other nonstandard borrowing—with provincial government bonds of 2–20 years maturity (Table 1).

Table 1. Government Debt and Bond Issuance

(RMB trillions, unless otherwise stated)	2013	2014	2015	2016	2017
Government Debt Outstanding	9.5	25.0	25.5	27.3	29.9
(Percent of GDP)	*16.0*	*38.8*	*36.9*	*36.7*	*37.7*
of which: central government	8.7	9.6	10.7	12.0	13.5
of which: local governments	0.9	15.4	14.8	15.3	16.5
(Percent of GDP)	*1.45*	*23.9*	*21.5*	*20.6*	*20.9*
Debt-swap program (flow) 1/		-	*3.2*	*4.9*	*2.8*
New bond issuance 2/	3.0	4.0	0.6	1.2	1.6
Local government bond outstanding	0.8	1.1	4.8	10.6	14.7
(Share of official local government debt)		*7.1*	*32.6*	*69.3*	*89.5*
Government Debt Ceiling (approved by National People's Congress)	-	25.5	26.9	29.8	33.0
Central government	-	10.1	11.2	12.6	14.1
Local government	-	15.4	15.7	17.2	18.8

Sources: Ministry of Finance; WIND.

1/ The debt-swap program will end by 2018.

2/ including the local government bond pilot program between 2009 and 2014.

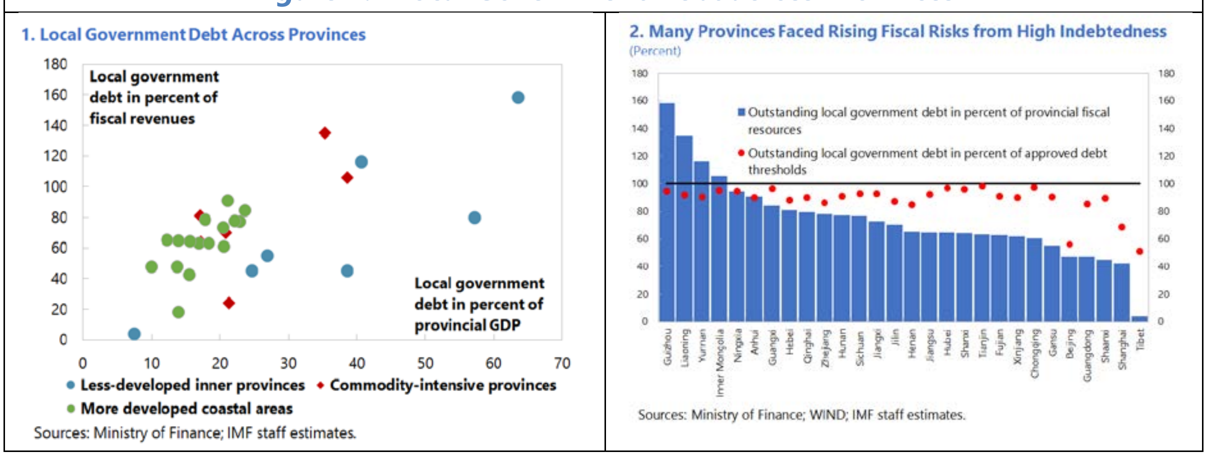
[4] Those LGFVs are distinct entities owned by local governments, typically established for land development, infrastructure investment, and social housing. LGFVs are legally registered as corporations and have public-sector objectives, which contrast with state-owned enterprises that run primarily on a commercial basis. In most cases, local governments shared the LGFVs' responsibilities to service debt and provided debt guarantees.

[5] The National People's Congress authorized an issuance of RMB1.6 trillion in bonds in 2015, of which RMB600 billion was for new financing and another RMB1 trillion was for refinancing maturing LGFV debt deemed general government debt under a three-year debt-swap program.

The size of the local government bond market grew from RMB1.1 trillion to RMB14.7 trillion between 2014 and 2017. The rapid buildup of debt has contributed to the deterioration of net financial worth of local governments (IMF 2018c; Lam, Moreno-Badia, and Dudine 2018). Much of this growth was due to the debt-swap program. About 90 percent of official local government debt is now in the form of debt securities. Overall, this program has helped local governments extend debt maturities, reduce interest costs, and standardize local government debt instruments (Lam, Wei, and van Eden 2017) but could have crowded out private investment (Huang, Pagano, and Panizza 2016). The maturity of the bonds ranged from 2-20 years, with an average maturity of about 4.5 years. While the debt-swap program was completed in 2018, further expansion of local government bonds is likely, given local governments' sizeable financing needs.

The issuance of local government bonds varies significantly across provinces. The more developed coastal provinces, nominally, have the largest bond issuance, but their debt burden in percent of GDP is smaller than the less-developed provinces. The less-developed provinces have debt of over 40 percent of GDP on average and over 80 percent of provincial fiscal resources. The weighted average yields on local government bonds reached 4.3 percent in 2017 (about 140 basis points below the average bank lending rates), and spreads across provinces were minimal within 10–20 basis points, much smaller than the spreads of subnational government bonds issued in other countries (Table 2).

Figure 2. Local Government Debt across Provinces



Relative to other OECD countries, the size of China's local government bond market is large in public finance. To date, about 37 of 53 major economies allow local governments to issue debt. Among OECD countries, subnational government debt accounted for 31 percent of GDP on average for federal countries and about 15 percent of GDP for unitary countries, comparable to the level of official local government debt in China, at about 20 percent of

GDP (Figure 3).[6] The magnitude for China could, however, become larger than the OECD average if considering a broader "augmented" perimeter to include off-budget LGFV debt (an additional 30 percent of GDP) (IMF 2018a; Li and Mano 2018; Mano and Stokoe 2017).

The small share of subnational government debt in OECD countries is due to legal restrictions on subnational borrowing and strict prudential fiscal rules defined by the central government. Local government borrowing in many countries can only take place for long-term investment in infrastructure. Debt securities account for a 45 percent of all subnational government debt across OECD countries on average (Figure 3). For example, in the United States, the amount outstanding of municipal bonds was at about $3.8 trillion (10 percent of the total bond market or 20 percent of GDP) in 2017. In Japan, local government debt was about 30.4 percent of GDP in 2015 (17 percent of the total government bonds) (Japan Ministry of Internal Affairs and Communications 2017).

Table 2. Summary Statistics of Subnational Government Bonds across Selected Countries

(in percent unless otherwise stated)[1/]

	Subnational govenrment bond spreads (in basis points)	Growth rate	Fiscal balance / GDP (after transfers)	Debt / GDP	Fiscal transfers / Revenue
Australia	75.2	7.8	0.1	3.8	45.1
Canada	61.4	4.9	0.2	28.2	36.2
Germany	18.9	2.3	0.2	25.2	49.6
United States	-43.6	3.7	0.8	6.9	24.9
China	10.7	7.7	-1.2	24.6	45.5

Sources: Sola and Palomba (2015) and IMF staff estimates.

1/ Numbers for China indicate the mean level across subnational governments.

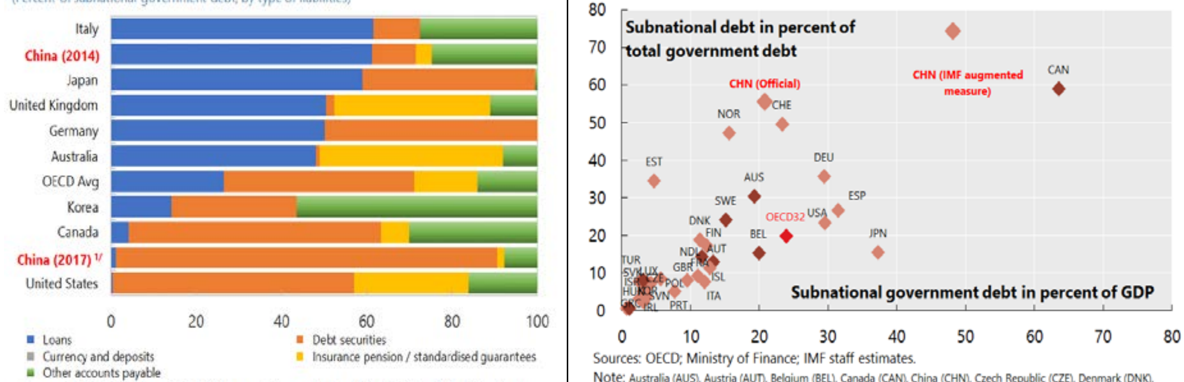
The sample period covers 2013-17 for China and 1990-2010 for other countries based on Sola and Palomba (2015).

[6] A unitary system of government (or unitary state) is a sovereign state governed as a single entity—the central government delegates different degrees of powers to the administrative divisions (China, Japan, Korea, Sweden, and the United Kingdom). A federal system—Canada, Germany, and the United States—shares power between the federal government and the states or provinces.

Figure 3. Subnational Government Debt among OECD Countries

1. Increasing Share of Local Government Bonds in China
(Percent of subnational government debt, by type of liabilities)

2. Subnational Government Debt across Countries
(Percent)



Sources: OECD At a Glance 2016; Ministry of Finance; National Audit Office; IMF staff estimates.
1/ Based on official definition of general government debt.

Sources: OECD; Ministry of Finance; IMF staff estimates.
Note: Australia (AUS), Austria (AUT), Belgium (BEL), Canada (CAN), China (CHN), Czech Republic (CZE), Denmark (DNK), Estonia (EST), Finland (FIN), France (FRA), Greece (GRC), Germany (DEU), Hungary (HUN), Iceland (ISL), Ireland (IRL), Israel (ISR), Italy (ITA), Japan (JPN), Korea (KOR), Luxembourg (LUX), Netherlands (NDL), Poland (POL), Slovakia (SVK), Slovenia (SVN), Spain (ESP), Switzerland (CHE), Turkey (TUR), United Kingdom (GBR), United States (USA).

In China, the government has also rolled out measures to further develop local government bond markets (opening the front door), alongside measures to tighten off-budget local government borrowing (closing the back door) (Table 3). Specifically,

- The revised budget law and related directives have assigned fiscal responsibility on local government finances to provinces. Provincial finance bureaus are responsible for lower-level subnational finances. If fiscal risks rise above a certain threshold, upper-level governments can restructure their debt and hold officials accountable.
- An early-warning system and risk management guidelines were announced to monitor subnational fiscal risks. Those measures, though untested, aim to warn of fiscal risks and allow for an early resolution of fiscal challenges, while limiting spillover to other subnational governments. Measures include a loss of fiscal authority on local administration, while ensuring the local populace retains minimum service levels.
- New directives to allow local governments to issue bonds against the land development and income from toll roads. Cross-agency measures to rein in proliferation of government guarantees intended to raise policy coordination.
- An intergovernmental reform plan aims to realign local government finances, including through raising local government tax base and revenues; (2) increasing general transfers to lower-level governments; and (3) shifting a greater share of spending responsibility to the central government.

Table 3. Key Government Measures in Regulating Local Government Finances

Date of Announcement	Document Reference	Key Measures on Local Government Finances
Mar-1994	Article 28 of the previous budget law	The budget law prohibited local governments (local government) from borrowings and issuing bonds, which had been in force until 2009.
2009	State Council	The State Council approved the issuance of local government special bonds RMB 200 billion.
2011	CaiKu 2011 No. 141	The State Council introduced a pilot program to allow Ministry of Finance to issue bonds on behalf of selected local governments.
2013-14	CaiKu 2013 No.77; CaiKu 2014 No.57	The pilot program was expanded to other provinces and municipalities with various maturities. Credit ratings were required at the issuance.
Aug-2014	Revised budget law	Effective from 2015, the revised budget law stipulated that provincial governments can only borrow in the form of bond financing, subject to a debt quota imposed by the State Council. Local governments (local government) had the full obligations on repaying and monitoring the risks and were prohibited to provide other forms of guarantees to third-parties.
Oct-2014	GuoFa 2014 No.43	Provincial governments were granted the authority to issue bonds, subject to the approval of the People's Congress. The measure also standardized the debt financing mechanism, separated local governmentFV debt from government obligations, intensified the accountability and monitoring of local government contingent liabilities, and encouraged the use of public-private partnerships (PPPs).
May-2015	State Council Doc No.40; CaiKu 2015 No.64; CaiYu 2015 No. 32; CaiKuai 2015 No.83	Interim measures were introduced to smooth local government financing for ongoing projects. Further regulations were in place to regulate the use of funding and the repayment responsibility on local government bonds.
	CaiKu 2015 No.102	Cross-agencies jointly announced a debt-swap program to replace local government debt, such as bank loans, to local government bonds over a 3-year period. The annual swap program would be announced during the annual NPC session.
Jul-2016	CaiYu 2016 No.154 and No.155	Further regulations on local government debt, including greater scrutiny on budget management, debt servicing, and use of funds from bond financing.
Oct-2016	State Council Doc. No.88	The State Council issued directives for the risk management and resolution framework for local government debt. Provincial governments were tasked to monitor the local government debt and take measures to mitigate risks.
May-2017	CaiYu 2017 No.50	Cross-agencies established a joint mechanism to monitor local government debt risks, reiterated the ban on off-budget local government borrowings, improved disclosures, and tightened local governmentFV and PPP financing.
May-2017	CaiYu 2017 No.62, 87, 89, 97	Restricted local government to raise debt illegally through service procurement process and banned the "build-transfer" mechanism; local governments were allowed to issue special bonds based on the land reserves, subject to tighter regulations. Toll road special bonds were formally allowed, subject to a debt ceiling and disclosed on the budget. The repayment will be based on land development and toll income.
Jun 2017 and Nov 2017	CaiJin 2017 No.55; No.455 and CaiBanJin 2017 No.92	The government restricted certain infrastructure projects to adopt public-private partnership models and allowed certain projects to be securitized. It also required local governments to file public-private partnership projects to the centralized database, while clearing out all projects not meeting criteria.
Mar-2018	CaiJin 2018 No.23, CaiYu No.28	seek local government guarantees. The central government allowed the local government special bond issuance to finance social housing (Shantytown Renovation) projects.
May-2018	CaiKu 2018 No. 61	The central government introduced measures to coordinate local government bond issuance across provinces, including setting a quarterly limit of bond issuance (not exceeding 30 percent of the annual limit), requiring local governments to use market pricing when issuing bonds, and expanding maturity of 2, 15, and 20 years.

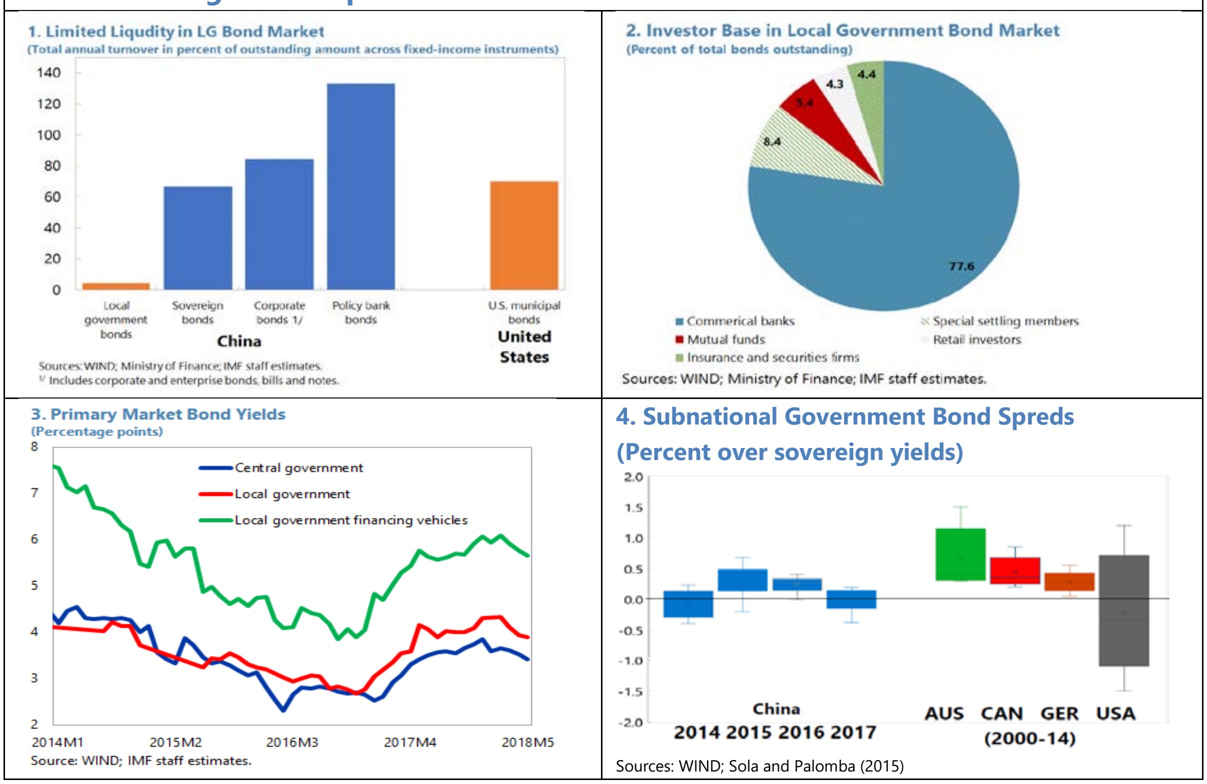
Sources: Ministry of Finance; the State Council; media news.

III. Current Impediments

The surge in local government bond issuance was not matched with a corresponding upgrade in the bond market development. Existing impediments—such as a narrow investor base, low liquidity, weak credit discipline, and fragmented regulations—have become more challenging and intertwined in a growing market. Specifically,

- *Low liquidity and narrow investor base.* The liquidity of local government bonds is still very low. Average turnover was only 4.3 percent of the outstanding amount, much lower than 66 percent for sovereign bonds in 2017.[7] It is even more pronounced when compared to other public-sector issuers such as policy banks and to municipal bond markets in other countries (Figure 4). Low liquidity was partly due to underdeveloped financial market infrastructure such as inactive market-marking dealers.[8] This has contributed to a narrow investor base as investors are less willing to invest when reselling is hard. More than three-quarters of local government bonds are held by commercial banks (Figure 4). Long-term institutional investors—mutual funds, life insurance

Figure 4. Impediments in the Local Government Bond Market



---

[7] While sovereign bonds were issued spanning from 3-month to 50-year maturities and the futures markets at 5- to 10-year treasury bonds supported liquidity, overall secondary market activity remains thin.

[8] Low liquidity has also reduced the role of price referencing typically provided by government securities. As a result, sovereign bonds in China do not provide a liquid benchmark yield curve (Chen, Chow, and Zhang 2018). Initially under the bond-swap program, banks bought the local government bonds at a low coupon rate. Banks could suffer a marked-to-market loss if bonds are sold.

companies, and pension funds—are natural holders of the long-horizon of local government bonds, but they are largely absent in the market.

- *Underdeveloped market discipline.* Bond market in many countries usually assigns greater credit risk premia (spreads over sovereign yields) and lower credit ratings for subnational governments with weaker financial positions (Figure 4). However, credit ratings in China do not seem to differentiate sufficiently among provinces, with most local governments receiving an AAA rating.[9] Empirical results based on over 8,000 individual bonds in China also suggest that local government bond spreads are not correlated to fiscal fundamentals—measured by provincial growth, debt ratio, and fiscal balances, unlike many advanced countries (Table 4 and Annex; IMF 2018b).[10] The lack of market discipline has negative repercussions for bond market development, including moral hazard and distorting risk pricing. The widespread perception is that the central government will bail out any local government debt nonpayment or defaults. Although the Ministry of Finance assigns provincial governments to have full explicit responsibility for their debt, existing laws do not allow defaults by provincial governments (Ji and others 2017). To date there have been no defaults by provincial government or LGFVs and it remains untested how the resolution will be.[11]

Table 4. Relationship between Subnational Government Bond Spreads and Fiscal Fundamentals

Dependent variable: Subnational government bond spreads	Australia		Canada		Germany		United States		China	
Subnational government GDP growth	0.4		-0.7		**1.7**	*	1.1		0.18	
Subnational government fiscal balance / GDP	**-6.7**	***	**-6.4**	**	-0.8		**-4.2**	***	0.00	
Subnational government debt / GDP	0.7		0.1		-0.5		**31.7**	***	-0.04	
Liquidity	-3.3		-0.5		-2.9		**-35.8**	***	**-2.50**	***
Volatility	**-0.7**	***	-0.3		**-0.7**	*	**2.5**	***	-	
R-squared	0.3		0.6		0.2		0.6		0.20	
Observations	70		32		71		133		8,831	

Note: Numbers with '*', '**', and '***' denote statistical significance at 10, 5, and 1 percent level. Estimates on Australia, Canada, Germany, and the United States are based on Sola and Palomba (2015).
Regression estimates for China include year and province dummies to control for time and cross-sectional effects.

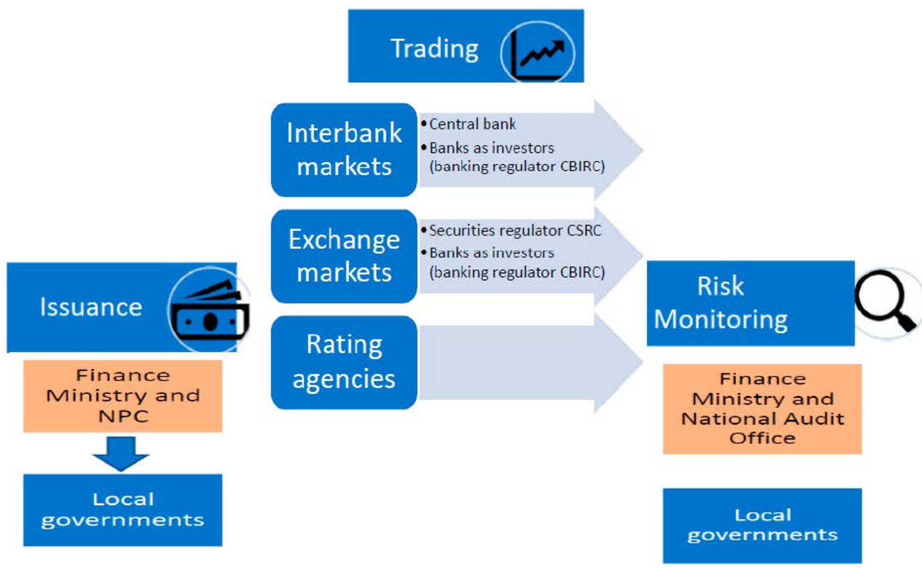
[9] Recently, there is an increasing amount of local government bonds auctioned at the exchange markets, amid at a low base. The pricing of those bonds could be more competitive but whether those are more liquid and reflect underlying credit risks remain to be verified.

[10] Estimates for other countries such as Australia, Canada, and the United States show that subnational government fiscal fundamentals are reflected in higher risk premia in their bonds, with an exception on Germany where it has a history of central government bailout (Table 4).

[11] China has a unitary fiscal system that does not seem to allow for an explicit default by lower-level governments.

- *Fragmented regulatory framework.* Several ministries and agencies regulate and supervise the local government bond market, each handling different aspects (Figure 5).[12] Multiple agencies supervising different aspects are common across countries, but in China there are both overlapping responsibilities (bond trading) as well as regulatory gaps (such as disclosures and resolution). At the same time, local government bonds are traded on both the over-the-counter interbank and exchange markets. This co-existence of two market segments does not pose a problem *per se*, but current restrictions have segmented investor participation, which create room for pricing distortion (for example, similar instruments have a pricing gap of 10–20 basis points).

Figure 5. Regulatory Framework in Local Government Bond Markets



Source: National authorities.

- *Lack of disclosure.* Investors and rating agencies often have limited information to assess local government creditworthiness. Although the Ministry of Finance has repeatedly requested greater disclosure, many local governments only provide limited information on the uses of funds, without indicating medium-term fiscal positions and resolution steps in case of nonpayment. For example, the prospectus for China's local government bond issuance is typically only 8–10 pages, compared to over 300 pages for municipal bond issuance in the United States.

[12] For example, the Ministry of Finance and local finance bureaus are responsible for the overall fiscal envelope in bond issuance, while the central bank is responsible for trading in the interbank markets and the China Securities Regulatory Commission, is responsible for activity in the exchange markets. Given large holdings of local government bonds in commercial banks, the China Banking and Insurance Regulatory Commission also plays a role in local government bonds when it supervises banks' capital risk weighting and portfolio holdings. The National Development and Reform Commission is responsible for the special construction bonds used for local government capital projects.

- *Limited debt management capacity*. Debt management capacity of provincial governments usually falls short of rising needs to issue bonds and monitor risks, particularly for lower-level finance bureaus and in less-developed provinces. The limited capacity makes local governments difficult to plan for and match bond financing to their long-term development needs, particularly local governments also face a misalignment of revenue and spending and do not have a medium-term budget framework. The Ministry of Finance aims to gradually raise capacity at local levels by establishing local debt units and staffing with central government officials.

IV. Policies to Develop a Sound Local Government Bond Market

A sound local government bond market can help strengthen local public finance. It can impose market discipline and improve transparency of government borrowing. Developing the bond market by addressing impediments will be critical, particularly when the authorities tackle large and obscure off-budget borrowing. It requires a coordinated approach comprising fiscal and financial sector policies in the following areas:

- **Financial sector policies**

Improve liquidity and broaden the investor base. Enhancing the liquidity of local government bonds will involve (1) harmonizing current regulations (see below) to eliminate market segmentation, such as the arbitrary limits on bond bidding (see below); (2) improving market-making and trading arrangements of securities brokerage; (3) standardizing terms (for example, trading and settlement arrangement, and trust methods) and preannouncing auctions in advance to enhance market predictability; (4) developing real-time trade data in secondary markets to allow mark-to-market valuation. To broaden the investor base, some progress was made to open up domestic bond market to foreign qualified investors.[13] Further efforts could include upgrading regulations on syndications, auction rules, and distribution, and allowing broker dealers and institutional long-term investors as authorized bidders in local government bond auction.

- **Fiscal reforms**

Tighten off-budget borrowing. The resilience of the local government bond market hinges ultimately to local government fiscal fundamentals. Recent government measures have contributed to the slower expansion of off-budget spending. Further efforts will involve reining in new avenues of off-budget borrowing (e.g., government-guided funds and misuse of public-private partnerships) (Gao, Ru, and Tang 2017). At the same time, the bond financing quota for local governments should be set large enough to ensure all off-budget

---

[13] For example, foreign institutional investors have been able to invest directly in the interbank bond market or through the “Bond Connect” program since 2017.

LGFV fiscal spending is brought onto the budget. This will improve transparency and make explicit the fiscal and aggregate demand implications of current policy.

Intergovernmental fiscal reforms. Given large vertical imbalances—shortfall of revenues relative to spending—at the local levels, intergovernmental reforms would need to raise local revenues, increase equalization transfers, and recentralize some of local spending mandates. The central government will need to decide on the degree of decentralization, accounting for other parallel structural reforms (e.g., eliminating residency-based restrictions on access to public services). That includes determining the level of government responsible for policy formulation, appropriate sources of financing, and a framework to indicate the government level for implementation and delivery of fiscal policies. Key elements include:

- Within the broad category of spending, public pension and unemployment insurance programs should be centralized (as in most other countries). Consolidating the pension systems at the national level, with some local autonomy for administration, could bring sizeable efficiency gains from risk-pooling and benefits portability (Wingender 2018). There is also a need for further clarification on spending items with joint mandates.

- On the revenue side, greater decentralization could allow for a better matching to local preferences and promote accountability for policy makers. A recurrent market-value based property tax would be suitable for local governments in China. The tax base is immobile and is largely perceived as progressive. The revenue can also be closely tied to the provision of public services, providing accountability of local officials. While the tax base should be defined following national guidelines, local governments could set tax rates within a band allowed by the central government.

- On equalization transfers, current reforms envisage the consolidation of the transfer system. Looking forward, moving toward a rules-based general transfer as opposed to the revenue-sharing and tax rebate transfers programs currently in place could lead to more clarity and predictability and a reduction of the pro-cyclicality of local government funding.[14] Moreover, fiscal disparities across areas could be reduced further by increasing the size of the funding pool for equalization grants.

- **Supporting fiscal institutions**

Harmonizing regulation and taxation. Addressing regulatory gaps and market segmentation will require policy coordination and information sharing, which are the key aspects of regulating the local government bond market. The authorities can clarify the respective roles

[14] Many countries facing vertical fiscal imbalances seek to minimize regional variations in public service delivery. Equalization transfers are then needed to compensate regions with low tax revenue capacity. For example, minimum national standards in healthcare and social safety net usually require equalization transfers to be effectively enforced (Escolano and others 2015).

and responsibilities of various stakeholders in the legislation to enhance fiscal coordination and promote transparency in local government bond issuance. There should also be a clear and explicit legal mandate for financial oversight function of the central government, along with an enforcement regime to address non-compliance or violation on the rules and regulations. Moreover, tax treatments on bond coupon payments and across financial institutions can be aligned to encourage liquidity and different type of investors.

Disclosures. Timely and credible disclosure of local government finances in the context of the medium-term expenditure framework would improve oversight and strengthen credit discipline of investors. The disclosure should also include information on local government balance sheet, debt services, and fiscal risks. Data compilation can be aligned closely to the international standard using the Government Finance Statistics Manual. Full implementation of a medium-term expenditure framework could support more realistic and targeted expenditure policies.[15] It can help clarify the resource envelopes so that local governments can adjust policies within the available funding rather than financing off the budget.

Resolution framework. Clarifying the resolution framework for local government bond default will help introduce credit discipline. The central government should provide clarity in liability for local government borrowings, such as introducing non-bailout clauses through legislation, providing legal mechanisms for resolving local government defaults, and strengthening the mechanism of ex-post monitoring on the uses of funds. This will also mitigate the entrenched perception of bail-outs by the central government. The central government will need to clarify *ex post* measures to deal with local government insolvency. Key elements should include (1) the definition of a trigger for intensified oversight and resolution procedure, (2) clear provisions to resolve local government debts collectively and to negotiate debt restructuring, and (3) plans for fiscal adjustment to bring expenditure into line with revenue. The framework should ensure that insolvent subnational governments can still deliver essential public services during a debt restructuring procedure. Creditor rights would need to be protected to reduce borrowing costs and encourage bond market development.

Debt management. The authorities should continue to strengthen the debt management capacity under the medium-term budget framework both at central and local levels. Similar to arrangements in other countries, options can include establishing separate specialized debt management units (both at central and subnational levels) to manage subnational debt (World Bank 2001). For example, the Municipal Securities Rulemaking Board in the United States is tasked with managing municipal debt issuance, while the U.S. Securities Exchange Commission is responsible for the approval of municipal issuance and setting the disclosure requirements. In the United Kingdom, the Debt Management Office oversees bond issuance

[15] An MTEF is a macroeconomic and institutional framework for setting fiscal and budgetary policies within a multiyear perspective. MTEFs also usually include mechanisms and procedures for ensuring these policies are respected in budget formulation, approval, and execution.

for sovereign and local government debt issuance. Over the medium term, when a sound, rules-based framework is established, the central government could consider giving greater discretion over the modalities of bond issuance (to better smooth debt services and manage refinancing risks) to local governments.

V. Conclusions

The local government bond market has grown rapidly and is becoming a key part of China's capital markets. Despite the rapid growth in size, the bond market is still underdeveloped. Severe impediments for local government bond markets—low liquidity, weak credit culture, narrow investor base, and fragmented regulatory structure—exist and become more visible in a growing market.

Developing a sound local government bond market will be increasingly important for local government financing and capital market developments. As noted, addressing impediments in the local government bond market requires a broad range of policy prescriptions. Key elements consist of a more harmonized tax and regulation system, greater liquidity, and significant upgrades on supporting institutions. These will cover trading, disclosures, debt management, and resolution framework. In parallel, advancing fiscal reforms is also critical in reining in off-budget borrowing and aligning intergovernmental relations.

ANNEX: EMPIRICAL RESULTS

The annex illustrates the data sources and empirical results on the relationship between subnational government bond spreads and fiscal fundamentals.

Data. Spreads of subnational government bonds measure the risk premia over sovereign bonds. It is computed as the difference between subnational government bond coupon rate over sovereign bond yields of same maturity at the date of bond issuance. For China, the coupon rates for local government bonds are obtained from WIND database in the primary market. The sample covers the period 2013-17 for 8,831 local government bonds for 31 provinces, municipalities, and autonomous regions. For other advanced countries, the paper uses the original data from Sola and Palomba (2015). Their empirical study consists of an unbalanced panel of risk premia for subnational government bonds cover the United States, Canada, Australia, and Germany. Market data on subnational government bond spreads rely on constant maturity yield curves for Australia, Canada, Germany, and the United States. Their database covers 36 sub-national governments with the total number of bonds issued at 1,641.

Macroeconomic data are from national authorities through CEIC. Main variables include GDP growth, subnational fiscal balance, fiscal transfer to revenue ratio, and debt ratio at subnational government levels. Data for China covers the sample period 2013-17, while data for other advanced countries are based on Sola and Palomba (2015). In their paper, liquidity is proxied by the outstanding debt stock and the volatility is measured by the U.S. VIX index. For China, we measure the liquidity by calculating the amount of individual bond issuance relative to the outstanding stock of bonds in that province. The paper also includes dummy variables for provinces with high-debt or high-deficit, which are defined with provincial debt ratio or deficit-to-GDP ratio greater than the average levels in that year, respectively.

Empirical specifications. The baseline specification includes main variables of liquidity and fiscal fundamentals, including provincial GDP growth, debt ratio, and fiscal deficit (see Annex Table 1). The year and province effects are included to control for time and cross-section effects. Additional specifications also include non-linear terms on debt ratio and dummy variables to assess if there are different effects of fiscal fundamentals on bond spreads for those high-debt or high-deficit provinces.

Results. Cross-country results show that subnational government bond spreads are usually related to fiscal fundamentals for advanced countries except Germany (Table 4 and Annex Table 1). The coefficients on fiscal deficit to GDP is found to be statistically significant. A one-percentage point increase in fiscal deficit to GDP would raise the bond spreads by about 4.2-6.7 basis points for Australia, Canada, and the United States. At the same time, subnational debt to GDP and liquidity also affect bond spreads in the United States. On the other hand, fiscal variables for Germany do not show a statistically significant relationship with bond spreads. In fact, Germany has the smallest variation in subnational bond spreads across advanced countries, where there is a history of bailouts.

In China, fiscal fundamentals also do not seem to play a significant role in bond spreads in the baseline specification. Robustness check accounting for nonlinearity in debt ratio or provinces with high debt and deficits also does not show significant relationship with bond spreads. In a few cases that coefficients are statistically significant at 10-percent level, those coefficients do not have the expected signs. For example, higher debt ratio and fiscal deficit tend to be associated with lower bond spreads (specifications 2 and 3 in Annex table 1).

Market conditions contribute to explaining subnational government bond risk premia. Liquidity has the expected negative sign and is a key determinant for spreads in China and the United States, although the magnitude in China is about 10 times smaller than in the United States.

Annex Table 1. Roustness Check on China's Local Government Bond Spreads

Dependent variable: Subnational government bond spreads:	Specification							
	(1) Baseline		(2)		(3)		(4)	
Subnational government GDP growth	0.18		0.04		0.28		0.24	
Subnational government fiscal balance / GDP	0.00		0.00		0.00		0.00	
Dummy for provincial fiscal balance / GDP greater than average level					1.39	*		
Subnational government debt / GDP	-0.04		-0.21	*	-0.02		-0.08	
Subnational government debt / GDP (squared term)			0.00	*				
Dummy for provincial debt / GDP greater than average level							1.75	*
Liquidity	-2.50	***	-2.53	***	-2.51	***	-2.46	***
Year	9.00	***	9.02	***	8.95	***	9.06	***
Province	-0.01		0.01		-0.01		-0.01	
R-squared	0.20		0.20		0.20		0.20	
Observations	8,831		8,831		8,831		8,831	

Note: Numbers with '*', '**', and '***' denote statistical significance at 10, 5, and 1 percent level.
Estimates include year and province dummies to control for time and cross-sectional effects.

REFERENCES

Gao, H.Y., H. Ru, and Y.J. Tang. 2017. "Subnational Debt of China: The Politics-Finance Nexus." Asian Finance Association 2018 Conference https://dx.doi.org/10.2139/ssrn.2783125

Huang, Y., M. Pagano, and U. Panizza (2016) "Public Debt and Private Firm Funding: Evidence from Chinese Cities" CEPR Discussion Paper No. 11489, September 2016

International Monetary Fund. 2015. "Staff Report for Article IV Consultation: People's Republic of China." IMF Country Report No.15/272, Washington, D.C.

———. 2018a. "Staff Report for Article IV Consultation: People's Republic of China." IMF Country Report No.18/240, Washington, D.C.

———. 2018b. "Fiscal Monitor: Capitalizing the Good Times." IMF, Washington, D.C.

———. 2018c. "Fiscal Monitor: Managing Public Wealth." Forthcoming, October 2018, IMF, Washington, D.C.

Ji, J.F., Y. Xu, H.B. Wang, C.C. Yao, and W.L. Lei. 2017. "City Construction Debt: Old Stories and New Games." CICC Fixed Income Research, September 2017.

Lam, W.R., M. Moreno-Badia, and P. Dudine. 2018. "What Does China's Government Balance Sheet Tell Us about Fiscal Policy?" IMF Working Paper, forthcoming, International Monetary Fund, Washington, DC.

Lam, W.R., J.N. Wei, and H. van Eden. 2017. "Local Government Finances and Fiscal Risks." In *Modernizing China: Investing in Soft Infrastructure*, edited by W.R. Lam, M. Rodlauer, and A. Schipke. Washington, DC: IMF.

Li, B. and R. Mano. 2018. "The Debt of Local Government Financing Vehicles: New Findings using Firm-level Analysis", Forthcoming, IMF working paper.

Mano, R. and P. Stokoe. 2017. "Reassessing the Perimeter of Government Accounts in China." International Monetary Fund Working Paper No.17/272, IMF, Washington, DC.

Ministry of Internal Affairs and Communications. 2017. "White Paper on Local Public Finance 2017 Illustrated." Ministry of Internal Affairs and Communications, Tokyo, Japan.

Organization for Economic Co-operation and Development (OECD). 2016. "Subnational Government Finance for Regional Development." OECD Regions at a Glance 2016, OECD, Paris.

Sola, S. and G. Palomba. 2015. “Sub-National Government’s Risk Premia: Does Fiscal Performance Matter?” IMF Working Paper WP/15/117, IMF, Washington, DC.

Wingender, P. 2018. “Intergovernmental Fiscal Reform in China.” IMF Working Paper No.18/88.

World Bank. 2001. *Developing Government Bond Market Handbook*. Washington, DC: World Bank.