

JULY 2020

South-South Integration and the SDGs: *Enhancing Structural Transformation in Key Partner Countries of the Belt and Road Initiative*

UNCTAD/BRI PROJECT/RP5

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Debt Sustainability and Debt Management: Lessons from China

Abstract

This report examines China's strategic approach to debt management and debt sustainability during its process of economic structural. By reviewing the investment and financing mechanism of the development projects, we find that well-targeted development investment is key to China's debt sustainability. Projects that can transformation expand market boundaries and generate revenues by promoting private business activities is highly appreciated by China's government. The decentralized economic development structure which allows local governments to play a pivotal role in debt raising and investment decision-making is also crucial for debt management. It encourages innovations and flexibilities in the process. Central authorities are in charge of keeping aggregate debt risks in line and maintaining economic stability with macro controls. Several lessons could be drawn from such debt management approach for other developing countries who are facing structural transformation.

Key words: Debt sustainability, debt management, public debt risks, policy intervention



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Acknowledgements

This paper has been prepared under the project South-South Integration and The SDGs: Enhancing Structural Transformation in Key Partner Countries of the Belt and Road Initiative, funded by UNPDF Sub-Fund for SDG. The authors are grateful to UNCTAD staff for their comments and suggestions on the previous versions of this paper.

Introduction

For the past forty years, China has experienced a remarkable period of rapid growth. Its GDP growth has averaged nearly 10 per cent a year, and per capita GDP based on purchasing power parity (PPP) swelled from \$524 in 1980 to \$16,186 in 2018. China's average annual growth rate of 9.6 per cent exceeded that of the United States by 7.5 percentage points over the same period. One of the driving engines behind this exceptional growth is large capital expenditures from both public and private sectors. By estimation, capital accumulation contributes an average of 4 percentage points to China's economic growth each year, which is considerably higher than its average annual contribution to the GDP growth of EMDEs (Emerging Markets and Developing Economies), where it only accounts for 1.3 percentage points.

This substantial capital investment, along with market-friendly policy framework, helped create a pro-growth feedback loop in China's economy. Investment which is predominately linked to capacity building such as mechanization of tedious or repetitive tasks and building of infrastructure boosts productivity. The resultant productivity gains are then distributed throughout the economy in the form of more jobs and higher wages for workers. As a result, the household disposable income increases, which in turn fuels consumptions as well as private savings. Higher demand and savings then encourage more investment in the economy, initiating another multiplier process. In the presence of macro policies aimed at supporting capital accumulation the process is facilitated. Such policies include providing targeted investment incentives, strengthening financial sectors by encouraging the role of market mechanism, removing regulatory barriers such as investment censoring in certain industries. Such mechanisms were also employed in other high performing Asian countries during their economic expansions - South Korea, Indonesia, Singapore and Thailand are a few examples.

Within this feedback mechanism, debt sustainability looms large. Large scale capital accumulation is always accompanied by rapid credit expansion, which further leads to an elevated risk of financial crisis. Without proper debt management, the increased leverage will most likely result in a persistent inflation, or even a disruptive adjustment in the economy, neither of which is desirable if a country wants to achieve sustained economic growth. Therefore, it is crucial for developing countries with investment-fuelled growth to be able to maintain debt sustainability. The question then arises is how. What are the strategies and approaches to a successful debt management while promoting development? Are there any specific institutional arrangements or policy mechanisms that can be adopted to ensure debt sustainability?

This paper seeks to provide some answers to the above questions by drawing lessons from China's experience.

Five lessons could be drawn from China's approach to debt sustainability: (i) start with development projects that can bring in revenues in the short run; (ii) encourage local governments or institutions to take the initiative in development financing and investing; (iii) maintain macroeconomic stability and moderate inflation through macro control; (iv) be pragmatic and flexible on policymaking; and (v) ensure that development investment expands market boundaries, rather than disrupt markets. Although each developing country has its specific circumstances to be adapted to, these lessons can act as an important reference point for establishing its own debt management framework.

The rest of the paper is organized as follows. Section 1 introduces the development investment process of China's government, showing the project selection criteria that help to ensure debt sustainability. Section 2 investigates the financing mechanism for development investment and the pivotal role local governments played in this mechanism. In Section 3, we will turn to financial institutions and see how their

involvement facilitates development financing as well as debt management. Section 4 examines the role of China's central government in maintaining debt sustainability, and, in section 5 China's policies with respect to debt distress if it occurs are reviewed. The final section concludes with suggestions for other developing countries to achieve debt sustainability during their respective structural transformation.

1. Development finance and public debt

According to Institute of International Finance, China's total debt to GDP has surged from 120 per cent in 1997 to over 300 per cent in 2019 (Figure 1 in the Appendix)¹. This sharp rise was largely driven by the debt of non-financial firms – mostly state-owned enterprises. The sector's debt-to-GDP ratio jumped dramatically in 2009, as the stimulus to stave off the Global Financial Crisis was deployed, and continued to climb until 2017. The household debt-to-GDP was quickly catching up since 2012, experiencing a 3.3 percentage growth each year on average. However, given the very low base of the household debt compared to many other countries, the coverage of this paper mainly focused on the sustainability of development finance. After all, it is the government-backed liabilities, either in the form of direct governmental borrowing or state-owned enterprises debt, that constitute the biggest bulk of the total debt outstanding and prompt most of the economic growth in China for the past decades. Both the investment decisions and financing mechanisms are examined in detail to see how China shapes its development funding to ensure that debt generated through development projects is sustainable. The roles of financial institutions in supporting development transformation are also discussed. Commercial banks, as well as national development banks, are of great importance in enabling China's investment in production capacity, industrial upgrades and infrastructure. Not only did they make up local governments' shortfall in development funding through financial innovations, but they were also deeply involved in the process of project selection and risk management. We will then explain how central government steers the economy with its the constantly evolving macroeconomic conditions, and assumes the role of stabilizer once debt distress occurs.

By analyzing China's approach to development financing and debt management, we find that well-targeted development investment is key to debt sustainability. Infrastructure investment that can expand market boundaries and generate revenues by promoting private business activities is highly appreciated by China's government. Projects that can help the country tap into the global markets also figure high on its list of priorities. With carefully chosen investment projects, the government secures both short and long run incomes, laying a solid foundation for sustainable growth. In order to achieve optimized decision making in investment and financing, China has adopted a decentralized economic development structure. Local officials are assigned with the ultimate authority in rolling out local economic policies, as well as financing and launching development projects. The central government, on the other hand, set up a GDP based promotion system for them and focuses on curbing aggregate debt risks originated from overheating or demand fluctuations through macro control. The arrangement taps the enthusiasm of local officials in investment projects, and encourages them to cooperate with financial institutions such as commercial and policy banks to obtain long-term, low cost financing for the investment. Debt sustainability thus gets enhanced as local governments are typically more informed and more flexible during the financing and investment process of local projects than their central counterparts. This allows them to be aware of potential risks and the best ways to hedge them

¹ Although the suggested level of debt-to-GDP varies with estimation methods and data sources, growth trajectories of the ratios are similar.

2. Investment: from factories to cities

Debt sustainability depends on whether the expected present value of the future incomes could cover the existing debt stock. In other words, if we put discount factors – an element which can be maneuvered by the government aside and treat them as given, the question of debt sustainability is actually the question of projects' future incomes. Typically, this involves uncertainty, but in the case of China, the government crucially chose its battles wisely to make sure that the projects in which it invested were able to generate enough revenues. This was especially important during the early stage of China's economic development when the saving rate was relatively low.

2.1 Project selection: industrial structure and regional potential

Having future incomes at heart, the government's first criterion of development project selection is to choose projects that match the process of industrial structure evolution. China's industrialization can be roughly divided into three stages. The first stage spans from 1953 to 1978 when China prioritized heavy industry through the centrally planned economy, with the intention of accomplishing a great leap forward and catching up with the developed world. The second stage, the period of 1979 to 1999, witnessed a more balanced development to promote light industries. The roles of the market and private businesses in promoting industrialization were emphasized and encouraged. The third stage starts from 2000 when China saw the reappearance of heavy industrialization and more knowledge intensive sectors. In the first stage, when the agriculture dominated traditional industrial structure first started to transform into a modern industrial one, capital investment in electricity production and supply was most desired by the government. And then, as the industrialization proceeded, the labor-intensive industries had emerged, transportation projects facilitating logistics became more and more attractive. After China's second industrial revolution, which involved massive production using machinery and urbanization, the government began to invest in urban infrastructure to better serve the modernized society.

In selecting development projects that synchronize the industrialization process, the government helped build up the competitive advantages of the economy and create an impetus for productivity growth. The resulting output growth, accompanied by the increased demand from both domestic and international markets, will then bring government incomes through taxes and SOE profits. As shown in Figure 2 (in the Appendix), most of the capital accumulations occurred in electricity production and transportation sectors in the mid and late 90's. It is during that period of time that China's engine of production had gradually shifted from rural enterprises to industrial manufacturing factories, offering an annual Total Factor Productivity (TFP) growth of 6 per cent. The same figure also indicates that, before 2003, the investment in urban infrastructures such as water resources, environment and public facilities management was scarce, given that the pace of urbanization was low.

Another criterion for selecting development projects is to invest in regions that are able to enjoy rapid population and industrial agglomeration first. In China, different regions have different factor endowments. The Yangtze and Pearl River delta regions, for example, have excellent geographic environments and rich natural resources, and have been China's commercial centres since the Qing dynasty. The population densities in these areas are relatively high, and entrepreneurship is part of local culture. In these conditions, it was easier for state-led investment to trigger rapid population and

industrial agglomeration in the 1980s and 1990s and facilitate the formation of region-wide industrial supply chains. As a result, the Yangtze and Pearl River delta regions benefited greatly from economies of scale during China's industrialization and emerged as the leading economic centres of the country.

2.2 Importance of foreign exchange earnings and infrastructure

The government also put priority on projects that could directly or indirectly bring in foreign exchange. The building up of special economic zones is a case in point. In 1984, China's government decided to set up 17 special economic zones in coastal cities to focus on export processing. In order to encourage foreign direct investment, the government not only invested large amounts of money in building supporting facilities, but also established many preferential policies in the special economic zones. As it turned out, the special economic zones had succeeded in solving China's problem of capital shortage (foreign exchange in particular) at that time and helped developing industries which in hindsight propelled economic growth. The accumulation of foreign exchange through special economic zones alleviated China's demand for external debt. This is quite important for debt sustainability because developing countries like China may only have limited access to international financial markets during the early stage of their development, and a high level of external debt usually means heavy debt service burden as well as elevated liquidity risk. In this sense, too much reliance on external debt will undermine a developing country's ability to maintain debt sustainability.

About 30 per cent of the China's investment in capital construction went to infrastructure projects (Figure 3 in the Appendix). The necessity of infrastructure investment such as transportation and urban infrastructures lies in its function of expanding the markets and lubricating commerce. The convenient access to domestic as well as international markets ensured demand growth, which in turn supported specialization and made massive production possible. This has borne out the theory of economies of scale, that up to some point, the more intensively fixed investment can be used, the more can be produced at lower and lower marginal cost. This allows for growing market share and market dominance. The massive supply of goods with ever increasing quantity and variety then lifts corporates' incomes and workers' wages. Therefore, the market-friendly or production-friendly infrastructure investment conducted by China's government has helped create a virtuous cycle among market expansion, specialization, and income growth in the economy.

3. Financing mechanism: the pivotal role of local government

China's local governments have a long history of being the major players in raising funds and investing in development projects. Even during the early stage of China's opening up reform when the markets were incomplete, local governments financed and developed local economies by setting up entities like township-village-enterprises. The successful rural industrialization in 1980s then proved that local governments, when inspired properly and given adequate autonomy, can be a driving force in propelling economic growth. They are better connected with local enterprises and institutions than the central government, which allows them to have more flexible financing arrangements and less information deficiency. Moreover, since the investment projects are usually located directly within their administrative regions, the local governments

can monitor the process of the projects' construction more closely than the central government, reducing the related operational and financial risks.

3.1 Local government share in investment

The local and central government's share in total government investment for recent years are indicated in Figure 4 (see Appendix). It is evident that the central government's investment share has been declining, from 28 per cent in 1999 to less than 4 per cent in 2017, while local governments, on the contrary, has increased their share from 72 per cent to 96 per cent. In addition to their activity in the field of project investment, the local governments also have taken primary responsibility for raising the money for these projects. Take infrastructure investment for instance. Figure 5 (in the Appendix) illustrates that China's infrastructure projects were predominately financed by self-raised funds and domestic loans. As we shall see below, both of these two funding sources are tightly connected to the local governments' role in the funding vehicle model of financing.

The GDP based performance evaluation for local officials underpins local governments' enthusiasms for launching development projects. The local governments' pursuit for GDP growth by allocating local economic resources started with the 1978 reform. In 1994, China has implemented the so called "Tax-sharing Fiscal Reform", which empowered local officials with the ultimate authority in local economic management. This greater freedom has expanded the local officials' abilities to influence GDP performance accordingly. Meanwhile, the public servant promotion system in China has also changed. The political conformity was no longer the single most important factor in assessing officials, and the economic growth under a cadre's governance has become the key indicator to show his or her competence. The higher the economic ranking among peers, the greater the chances for promotion. Such a GDP based performance evaluation system has encouraged the local officials compete with each other in achieving superior economic growth. The development investment, which can boost the economy almost immediately, was therefore eagerly embraced by the local governments.

The financing mechanism adopted to fund those development projects has been changing in accordance with the restraints that the central government put on its local subordinates. Early in the 1980s, when China was largely a planned economy, the money that used to fund development projects mainly came from government appropriations. Even after the policy of "replacing appropriations with bank loans" was enforced nationwide in 1984, the local governments still took advantage of their political power by commanding the banks to extend credit to the projects, which had changed little in the nature of the funding mechanism.

However, the situation changed dramatically since 1994. The "Tax-sharing Fiscal Reform" not only snatched away the most lucrative tax sources from the local governments, but also prohibited them from having budget deficits and issuing municipal bonds. The fiscal stresses and restrictions placed on local governments were in stark contrast with their ever-growing needs for development investment. Figure 6 (see Appendix) shows that the local governments' proportion in total fiscal revenue dropped sharply in 1994 and has remained relatively low ever since. However, their proportion in total fiscal expenditure has not stopped rising, creating a mismatch between the two ratios.

3.2 Use of funding vehicles

In order to offset the deficiencies, the local governments have turned to an innovative approach to finance the development investment – the Local Government Funding Vehicle (LGFV) mechanism. Under this financing mechanism, the local government first sets up a state-owned enterprise by injecting its budget revenue and quality assets into it, and issues a stamped document as a promise (but not a guarantee since the law forbids local governments to do so) to the policy bank like CDB (China Development Bank). The enterprise, known as the LGFV, then takes the future profits of a bundle of infrastructure projects as collateral to borrow from CDB as well as other commercial banks. The reason why the loans are approved in a bundle rather than one project at a time is because these long-term, capital-intensive infrastructure projects have diverse cash flow patterns, and some may have more social benefits than economic returns. By bundling them together, the projects can compensate each other for any financial imbalances, generating a much more stable cash flow stream. Along with that, the positive spillovers of the socially valuable projects may increase the operational incomes of other projects. In this regard, a collection of development projects is just like a financial portfolio, offering a customized risk-return profile by diversification to meet the lenders' financial goals as well as their risk tolerance.

Soon after the LGFV financing mechanism was established, local governments and the banks came up with a new operation called "land finance" to further leverage the LGFV's credit. In a typical land finance operation, local governments will transfer land sales revenue to the LGFV or use the land use rights as collateral to help LGFV to secure loans. As a result, land owned by local governments constitutes a principal source of LGFVs' capital, future extrabudgetary revenue, and collateral for LGFV borrowing.

The LGFV financing mechanism has proved to be a success in the sense of freeing the local governments from their financial constraints, and has become the backbone of China's infrastructure development. It is a good example of combining the government budget revenue and market resources together to support development investment. The independent legal person status of LGFV bypasses the budget law and makes the borrowing behavior possible for local governments who want to invest in long-term infrastructure projects. The support that local governments provide to LGFVs, either by giving implicit promises to the banks or by transferring valuable assets such as land to the company, helps improving the credit worthiness of the LGFVs, and allows them to obtain better terms for repaying debt.

However, the LGFV financing mechanism has also caused troubles. The convenience of the mechanism, together with the local official's ambition of moving up the career ladder, resulted in a significant rise in the local government debt burden. According to National Audit Office, the overall scale of China's local government debt is RMB 17.9 trillion by the end of June 2013, achieving an average annual growth rate of 22.4 per cent since 2010. Among the total local government debts, the LGFV debt amounted to RMB 6.97 trillion, equivalent to two thirds of the sum of local government revenue and transfers from the central government. Furthermore, although the ingenious operation of land finance has provided banks with a certain degree of comfort in approving loans to LGFV, it also puts them and local governments at the mercy of the property markets. A sharp decline in land value may not only hurt the debt servicing ability of local governments and LGFVs, but also deteriorate banks' balance sheet through the collateral effect. In the worst-case scenario, it may trigger a vicious circle among the property market, the financial sector, and the public sector.

In order to curb the risks generated by the LGFVs, the central government has been strengthening the regulations of local government budget and financing since 2014. The

local governments' indirect financing through LGFVs is prohibited according to the 2014 revision of the budget law, while the restriction on their direct financing through the bond market is lifted, as the central government seeks greater transparency for its contingent liabilities. The PPP (Public and Private Partnerships) financing model is also promoted by the central government to ease part of the local governments' infrastructure spending pressure. By the end of July 2019, 12,543 PPP projects were registered with the Ministry of Finance, with total investment of RMB 17.6 trillion (Figure 7). Nevertheless, the PPP model has been constantly criticized for disguising local governments' contingent liabilities and for its excessive reliance on short-term debt. A sound regulatory framework for PPPs is still in urgent need since PPP will remain the main financing model for Chinese local governments to fund infrastructure investments over the medium term.

Box 1: How Local Government Became Overindebted – The Case of City X

Local government X is a municipal level administration located in Jiangxi Province, Southeast China. The city covers 18,823 square kilometers with an estimated population of 4.9 million in 2018. According to local audit office, the outstanding government debt of city X was RMB103.7 billion at the end of 2016, and its debt-to-GDP ratio was 51 per cent. Among all the government debt, 70.8 billion were borrowed by LGFVs, leaving them with a remarkably high leverage ratio of 185 per cent. Before 2001, the LGFVs in city X mainly acted as liquidity providers to help the local government to balance the budget under central government's budget control system. Back at that time, China's tax system had divided the local tax incomes into two parts, and the relatively stable streams of tax incomes such as value added tax and corporate tax were collected by the central government. Consequently, the fiscal income of the city X was quite volatile and sometimes not sufficient to meet the binding requirement of budget balance.

The retaining ratio of the tax incomes for city X was also low according to its admirative ranking in the government system. On average, city X can only retain 16-17 per cent of its tax income while province-level municipalities as well as municipalities with independent planning status under the national social and economic development can retain 30-50 per cent of their tax incomes. This exacerbated the insufficient funding problem for city X, especially after 2001 when more and more local development responsibilities have fallen on the shoulder of local governments in the form of joint local development programs. A typical joint local development program between local and its upper level government usually involves a guidance document or local regulation issued by the upper level government and supporting funds provided by the local government. For instance, to follow the national strategy of ecological civilization construction, city X was commanded by its superior to build a new industrial sewage disposal plant. The total investment of the new plant is RMB 150 million, and the central government only offered 5 million as subsidy. The rest of the fund supposed to be covered by city X's local government. As city X cannot issue municipal bond according to the law, it can only rely on the LGFVs to act as its surrogate and finance the project. In fact, in China's current fiscal management system, 70 per cent of the expenditures in transportation investment, science, education, culture and health business, ecological environment protection should be assumed by the local governments. The imbalance between administrative responsibilities and fiscal power leaves the local governments with no choice but to accumulate debts through LGFVs.

The financial status of the LGFVs quickly deteriorated after the global financial crisis in 2008. To stabilize the economy, China's government released a RMB 4 trillion stimulus package, 1.18 trillion of which was invested by the central government and the rest of money came from local governments' pockets. The central government and PBOC had encouraged the expansion of LGFVs in 2009 as the fiscal incomes of the local governments were clearly not enough to boost the investment. City X's fiscal income to GDP ratio was as high as 18.5 per cent in 2014 and the room for increasing local government incomes using fiscal means was extremely limited.

Using land and governmental credibility as its resources, city X had financed a large amount of money from the banking system and most of it were invested in urban constructions. The annual fixed asset investment growth rate was about 20 per cent during the period of 2010–2016, and the urbanization rate of city X had increased from 42.5 per cent in 2010 to 50 per cent in 2016. The local harbor, airport, river bridge, and high-speed railway were all financed by the LGFVs of city X. Consequently,

the GDP growth rate of city X has stabilized at 12 per cent since 2008. However, the output ratio of the fixed assets was declining for city X. In 2007, the increase in GDP comparing to the year before is RMB 6.1 billion and the fixed asset investment during the year is 11 billion, rendering an output ratio of 0.55. This ratio declined to 0.14 in 2016, with RMB 45.9 billion investment in fixed assets and 7.8 billion increase in GDP. The declining output ratio reflected the deficiencies in local government investment. Half of the investment were made in non-operational projects such as transformation and renewal of the old city, and these projects were lack of hard inspection constraints due to their nature of public welfare. 90 per cent of city X's non-operational projects were over the budget and some of the projects' settlement amount were twice as much as the original budget. The returns of the operational investment projects were also discouraging. For instance, the fishing harbour project in city X started in 2007 and was aimed to engage in fishing boat maintenance, rental of sites and facilities, as well as collecting parking fees. The contractor withdrew after one year and the project was suspended. In 2011, the project restarted and the first stage of the project completed in 2014. Four years after the completion, the operational incomes of the project amounted to RMB 3.7 million, which equalled to 1.76 per cent of the original investment. The low return of the protracted operational project eroded the balance sheets of the LGFVs, increasing their debt burdens.

What made things worse was that most of the fiscal income that city X received cannot be used to repay LGFVs' debt. The fiscal income of city X was RMB 40 billion in 2016, only 1.5 billion was used to repay the existing debt since the local government had undertaken too much development responsibilities which required budgetary expenditures. The prosperity in real estate market which made the land supplied by the government valuable and governmental credibility were the two key elements that kept LGFVs away from immediate financial distress and were still able to borrow from the banking system.

Since 2010, the central government has been trying to clean up the LGFVs' debt problems. It sent out the National Audit Office to reckon the amount of local government debt and delivered regulations and policies to transform and update the LGFVs with the attention of separating them from the local governments. It also encouraged the local governments to issue municipal bonds and special bonds to replace the outstanding debt, while continuing fiscal and taxation reforms. So far, the total amount of city X's debt is still large despite of an improved transparency.

4. Financial Institutions: The perfect complement to public finance

As we have already seen in Figure 5, domestic loans and self-raised funds (mainly in the form of build–operate–transfer and bond issuance) were the primary sources of infrastructure investment financing. Financial institutions have played a major role in assisting LGFVs to get access to those funding sources and became the perfect complement to the public finance. To a certain extent, the participation of financial institutions not only satisfies local governments' needs to support development investment, but also ensures their investment decisions won't face intervention by the central government through economic controls.

Of all the financial institutions, commercial and policy banks, are of great importance in facilitating development investment. Figure 8 plots the annual change in outstanding loan balance to LGFVs from 2008 to 2012 for the six biggest LGFV lenders in China: China Development Bank (CDB), Industrial and Commercial Bank of China (ICBC), China Construction Bank (CCB), Agricultural Bank of China (ABC), Bank of China (BOC), and Bank of Communications (BoCom). As major participants for the LGFV financing mechanism, the CDB as well as commercial banks have provided substantial and incremental loans to the LGFV annually before 2011. Then, after the State Council's No.19 announcement to implement the first official regulation on LGFVs in the second half of 2010, all of the big commercial banks pulled back their lending to the local governments, leaving CDB the only major bank that continued to expand its position.

This gives us a glimpse of the relationships among local governments, development banks, and the commercial institutions². In terms of activeness and absolute volume, the commercial banks have always been an influential force in raising money for local governments and their development projects, especially during the period when LGFVs were thriving. Even after 2014, when LGFV mechanism was prohibited, the commercial banks have found their way to support local infrastructure investment by providing comprehensive financial services for PPPs. They established PPP industrial investment funds, issued special bonds for PPPs, and created a trading platform of PPP assets. It is safe to say that without these commercial banks, China will not be able to achieve its development goals and economic structural transformation as it has done today.

Nonetheless, the commercial banks as local governments' financing partners were sometimes considered inferior to policy banks such as CDB. As a matter of fact, the existing research showed that local governments tend to implement a strategy call "selective default", that is, to default on commercial banks rather than CDB when their cash inflows were insufficient to serve all their debt simultaneously. According to the study, during the period of 2007 to 2013, 1.7 per cent of all matured bank loans to LGFVs in their sample were more than 90 days delinquent, or effectively defaulted according to conventional definition. Policy bank loans from the CDB to local governments have a significantly lower default rate (0.3 per cent) than commercial bank loans with similar characteristics (1.8 per cent), and for the set of LGFVs that have already defaulted on their commercial bank loans, they paid off 97.7 per cent of CDB loans that have the same due time as their defaulted commercial loans.

² A commercial bank is a type of bank that provides services such as accepting deposits, making business loans, and offering basic investment products that is operated as a business for profit. In China, there are state-owned commercial banks such as ICBC, ABC, BOC, CCB etc. and private commercial banks such as China Merchants Bank, Huaxia Bank, etc.. All of them are shareholding companies where the dominate shareholder of the former ones is the state.

The superiority of policy bank loans links to the banks' political status. Unlike commercial banks, policy banks like CDB have the political right to participate in the top-down design for national infrastructure constructions. In this regard, they are not only the executant of the national development strategy, but also the designer of it. Hence their involvement in local development investment could ensure that the investment decisions made by local officials are in alignment with country's long-term planning and enhance the feasibility of the projects. Given their political influence, the policy banks are more intricately intertwined with local governments' work than commercial banks, which allows them to monitor the construction process of development projects closely and take the initiative in risk management. The long-term cooperation between the policy banks and governments also helps form a kind of supervision over the local governments' debt repayment within the administrative system: they keep an internal credit rating system not only for the local government, but also for its officials, and a local official who is responsible for high share of local governments' non-performing loans may find him- or herself being shut out from promotion into the upper level government.

Large scale medium- and long-term bond issuance has provided policy banks with a stable funding source, which in turn increased their risk tolerance. Figure 9 in the Appendix illustrates that the annual volume of policy bank bond issuance has surged for the past three decades, from RMB 193 billion in 1998 to RMB 3.4 trillion in 2018. In the late 1990s when China's bond market was severely underdeveloped, the policy bank bond issuance accounted more than 40 per cent of the total bond issuance each year. The ratio then fell to 15 per cent in the mid-2000s and fluctuated within the range of 15 per cent - 30 per cent ever since. In addition to the large issuance volume, China's policy banks also have a medium- and long-term dominated maturity profile, which is indicated in Figure 10. On average, short-term bonds - which mature within 1 year - accounted about 20 per cent of the annual issuance of the policy banks, while the rest of the issuance is composed of medium- and long-term bond.

The characteristics of their funding source have empowered policy banks to assume the responsibility of financing long-term development investment and to take on higher risks than their commercial counterparts. In fact, by constructing a multi-layer risk sharing mechanism, the policy banks usually mitigate the risks on development projects for commercial institutions, allowing them to enter the field of public good provision, and enhancing the multiplier effect of the capital.

To sum up, the financial institutions have helped local governments overcome their capital shortage in developing local economy and cut down the financing costs for infrastructure investment. Commercial banks who are in search of profits have done an excellent job of channelling private savings into development projects, while policy banks, with their national strategy imperative, have a greater say in local governments' investment decisions and are actively engaged in project supervision and risk management. Together they complement the investment and financing processes of development projects and facilitate the construction of a well-developed infrastructure network from which China's economy has benefited greatly.

5. Central Government: Macroeconomic regulation and control

Since 1978, China has gradually transited into a mix economy, with a robust private sector. The central government, who decided to let the market play its role, has started to play a more backseat role relying more on macroeconomic regulation and control (or "macro control") to address economic fluctuations. In other words, the central

government began to alter the aggregate demand by adjusting its monetary and fiscal policy, and adopting of administrative measures to avoid overheating or hard landing of the economy.

Macro control has proven quite effective in managing macroeconomic volatilities, and contributed considerably to debt sustainability. Given the eagerness of local governments to boost local economies, in the context of loosening financial constraints, it is only a matter of time that this enthusiasm leads to excessive investment and over-indebtedness. In order to prevent this kind of overheating from threatening economic stability, the central government has always kept a close watch on the aggregate liability of the public sector, and made sure that both inflation in the economy and risks in the financial system were well under control. For instance, in 1993, after witnessing a surge in fixed asset investment in the latter half of 1992 (Figure 11 in Appendix) and a protracted period of accelerating inflation (Figure 12 in Appendix), China's central government started to impose tight fiscal and monetary policies to rein in high inflation, and released 16 direct administrative measures to suppress the aggregate demand. The measures adopted included strict examination of new projects before approval, tight control on institutional consumption and so on. As a consequence, the annual inflation fell from 21.7 per cent in 1993 to 15 per cent in 1995 and was gradually leveled out in the following years. In the meantime, the real GDP growth was kept above 9 per cent a year, which means that by implementing macro control policies, China's central government had successfully achieved what it called a "soft landing".

A more pertinent example of central government's practice in maintaining debt sustainability with macro control was the deleveraging campaign of non-financial corporate sector in the past few years. Since the RMB 4 trillion stimulus package was announced by the State Council to counteract the effects of the global financial crisis, China's non-financial corporate sector have experienced an excessive credit growth³. The debt-to-GDP ratio for the sector rose from 95 per cent at the end of 2008 to 158 per cent in 2016, exposing a material threat to the country's debt sustainability and financial stability. In the following two years, China's central government deployed a number of policy initiatives to curb further rise of corporate debt level, including:

- (i) implementing neutral monetary policy with some tightening biases;
- (ii) cleaning up a large number of zombie companies to address the "soft budget" problem⁴;
- (iii) disciplining state-owned enterprises (SOEs) and LGFVs from over-borrowing;
- (iv) preventing banks from lending money to certain industries with serious overcapacity; and
- (v) clamping down China's gigantic shadow banking sector.

These efforts to macro control financial misconducts of local governments, businesses and financial institutions soon paid off. The non-financial sector debt as a percentage of GDP peaked in mid-2017 and began to decline until the end of 2018. However, as

³ As we have shown above, the LGFVs were registered as state-owned enterprises to circumvent the regulations on local government debt issuance. Hence the debt of LGFVs was categorized as non-financial corporate debt.

⁴ At the end of 2016, China launched a three-year program to resolve around 2,000 zombie enterprises that suffered extended losses and outdated production capacity. Local governments had rolled out detailed instructions of zombie companies' recognition and disposal procedures according to local industrial characteristics. Restructuring options including mergers and consolidation, liquidation, debt-equity swaps and corporate asset sales were widely adopted. Until October 2019, China has cleared up more than 95 percent of zombie companies and enterprises in extreme difficulty, nearing its goal of phasing out all zombie enterprises by the end of 2020.

the pressure from the U.S. trade war started to dent China's economic growth in 2019, the deleveraging campaign has more or less halted. Cuts to reserve requirement ratios for banks indicated that bolstering its faltering economy was once again the priority of the central government.

The two cases show that inflation in the economy as well as systemic financial risk are two key focusses of central government when evaluating intervention in debt accumulation. Persistent high inflation rate and rising concerns about debt sustainability will certainly catch the authorities' attention. However, when analyzing debt sustainability, it is important to notice that the traditional measurements such as debt stock to repayment capacity ratios and credit gaps have their own limitations, and there is no convincing evidence that the breach of indicative thresholds for debt burdens will lead to a debt crisis. The debt profile should also be examined in detail. In China, where most of the debt is borrowed domestically, the analysis of debt profile should pay more attention on the maturity structure of the outstanding debt, the debtor base (Who is borrowing? The residents, the private firms, or the governments?), and the application of funds (For investment or for consumption?). Understanding the debt profile would help central government to get a better picture of the country's credit quality and the economic consequences of credit expansion, which are quite useful for debt sustainability analysis.

Keeping economic growth within a reasonable range is essential for debt management too. The danger of unsustainable debt surely cannot be ignored. But to curb the credit expansion at the price of choking the economy also deserves much deliberation. A sharp decline of the economic growth will dent the country's repayment capacity significantly and increase the possibility of a debt crisis even when the absolute volume of the debt stock is shrinking. Therefore, if an economy is facing downward pressure due to external challenges, it is crucial for policymakers to strike a balance between stabilizing growth and preventing financial risks. China's recent efforts to maintain ample liquidity and cut taxes on a bigger scale in a bid to keep 2019 growth steady against the headwinds is an example of such balance.

Box 2: The Rise and Fall of Shadow Banking System in China

Shadow banking refers to activities performed by financial firms outside the formal banking sector, which are therefore subject to lower levels of regulatory oversight and higher risks. Such activities are off the balance sheets due to accounting practices. The rapid emergence of the shadow banking system in China began in 2008 and it was driven by a number of structural factors. Interest rate controls on bank deposits is one of them. Despite substantial progress in financial liberalization, China's banking system is still subject to significant regulations. The deposit rate ceiling, in particular, has depressed interest rates in the economy and created financial repression. Given high inflation rates, the real interest rates have been either negative or close-to-zero for many years. The desire for higher-return investments by investors has created strong demand for products like wealth management products (WMPs) and trust products, whose yields are unconstrained by the deposit rate ceiling.

Banks can also overcome lending-side restrictions, such as the reserve requirement and credit quota, through shadow banking transactions. Shadow banks are exempt from many credit and macro-prudential requirements, and their lending is subject to less official interference. By cooperating with shadow banks and conducting shadow banking activities, banks can extend credit creation beyond what is allowed by existing regulations. Such circumvention of the regulations was especially important when stimulus policy changed after the global financial crisis. From December 2008 to April 2010 was the most intensive stimulus period in China to fight against the economic slowdown. However, by late 2010, the economy showed signs of overheating, with inflation rising above 5 per cent. The PBOC cut back stimulus and ordered banks to reduce their lending. The abrupt policy change created a problem for banks, as they had lent significantly to local government financing vehicles and large and credit-intensive infrastructure projects. The long-term nature of

these investments required continued credit infusion, without which there would likely be widespread project failures and rise in non-performing loans. As a response, banks further expanded their off-balance sheet operations and became increasingly reliant on shadow banking to intermediate credit.

In other words, the rapid rise of shadow banking system was closely related to the debt expansion of LGFVs. The financing demand to continue the long-term infrastructure projects which started in the 2009 stimulus plan, as well as the rollover pressure of maturing bank loans that were taken on by LGFVs, fostered the rapid growth of shadow banking activities after 2010. According to Moody, the estimated amount of China's shadow banking assets by the end of 2017 was about RMB 64 trillion.

However, the scale of shadow banking is not the most important issue here. Comparing with most western countries, especially the US, where the shadow banking accounted for 167 per cent of GDP in 2013, the absolute volume of shadow bank assets in China remained relatively modest. The major risk in shadow banking in China is due to maturity mismatches between funding sources (mostly WMPs with a max. maturity of 6 months) and trust loans to risky sectors (usually 2-3 years). To address systemic risks, it is imperative to pay more attention to shadow banking and to enhance supervision over shadow banking activities. The first reaction of the regulators was to require that banks bring their off-balance sheet liabilities (mostly WMPs) and assets (mostly trust loans) on balance, but that worked only partially (mainly because the hybrid state banks were trying to avoid additional capital charges). The regulators then concentrated on increasing transparency through tightening disclosure requirements, on limiting the extent to which banks could raise funds through WMPs and on forcing corporate to corporate loans through the banking system as "entrusted" loans. For instance, the CBRC has required that the ratio of non-standard assets to the total assets of wealth management portfolios cannot exceed 30 percent, and the ratio of wealth management portfolios of any given bank to the total assets of the bank cannot exceed four percent. For the trust loans, the CBRC implemented new regulations of bank-trust wealth management cooperation, clarified the risk attribution of bank-trust wealth management cooperation and required off balance sheet of bank-trust wealth management cooperation business to be transferred onto balance sheets by the end of 2011. For cooperative trust loans of commercial banks and trust companies that were not transferred onto the balance sheet, trust companies had to make risk provisions of 10.5 percent.

At the beginning of 2018, CBRC introduced three new indicators into a revised rule on liquidity risk management which came into effect March 1 2018. These are the net stable funding ratio, high-quality liquid assets adequacy ratio and the liquidity matching ratio. All are required to be no lower than 100 per cent at any time. The net stable funding ratio measures banks' long-term stable funding to support business development and will apply to lenders with assets of no less than RMB200 billion. The high-quality liquid assets adequacy ratio, which evaluates whether banks have enough high-quality liquid assets to cover short-term liquidity gaps when under stress, will apply to lenders with assets below RMB200 billion. This requirement will be expected to be met by end of 2018. Applying to all lenders, the liquidity matching ratio gauges how well bank assets and liabilities are matched in maturity and will be expected to be met by the end of 2019.

As a result, the shadow banking sector shrank by RMB 4.3 trillion yuan in 2018 to end the year at 61.3 trillion yuan, its lowest level since the end of 2016, just before regulators tightened controls. The contraction was led by reduced core activities including trust loans, entrusted loans and undiscounted bankers' acceptances which saw a combined decline of 2.9 trillion yuan. The future growth of shadow banking is likely to be slow as better regulation continues.

6. What to do when debt distress occurs

- 1 **Stabilize:** When debt distress occurs, the government's priority is to stabilize the aggregate demand and avert a collapse of its economy. In 1997, when the East Asian financial crisis began, China was fortunate to have capital controls in place. The insulation of the domestic capital market helped to prevent some fatal international uncertainties and attacks, but its banking sector is quite fragile as the large banks are undercapitalized and hold a high percentage of non-performing loans (NPLs) on their balance sheets. Existing estimations suggest

that the proportion of the NPLs was likely to have been about 24 percent before the crisis and 29 percent after the crisis. Such proportions are very high even compared with NPLs in the crisis-affected East Asian economies such as Thailand (15 per cent pre-crisis, 27 per cent post-crisis) and South Korea (16 per cent pre-crisis, 25 per cent post-crisis). If financial risk cannot be eliminated quickly, the probability of debt distress and banking crisis will increase.

- 2 Meanwhile, due to China's insistence on not devaluing the RMB, its attractiveness to foreign direct investment and export growth has greatly diminished. The GDP growth rate began to slow down in the second half of 1997 and the downward trend has since worsened. Under this circumstance, China adopted a proactive fiscal policy in 1998, mainly to cope with the impact of the Asian financial crisis and to expand domestic demand, giving impetus to economic growth. It issued RMB 910 billion worth of national bonds over the period of 1998 - 2004 and invested the proceeds in infrastructure. The policy played a remarkable role in buffering the impact of the Asian financial crisis, reducing pressure on the national economic operations, and contributed 1.5 to 2 percentage points of national output growth each year.
- 3 Management of NPLS: With regard to NPLs in the financial system, the government has introduced a set of reform measures including adopting a new accounting system, improving financial supervision and regulation, recapitalizing the state-owned banks, and establishing four asset management companies (AMCs) for dealing with the bad loans. First, China has taken an important step towards the recognition of NPLs by introducing a "new", risk-based, loan classification system. The system follows the international standard of dividing NPLs into four categories: special mention, substandard, doubtful and loss. The "old" system loosely classified loans as overdue (loans overdue up to three months), doubtful (loans overdue for more than three months but less than 24 months) and bad (loans overdue for more than 24 months). Under the system, undue loans could still be classified as "performing" even when an enterprise ceased operation due to financial difficulties. No provisions were required to be made against the undue loans. This lack of provisioning explained the bulk of China's persistent NPL problem. Implementing a risk-based loan classification system to replace the one based on the overdue period is an advance in capital risk management. Banks will need to make provision against a loan according to the category it is in. The regulators are better placed to monitor the asset quality of banks.
- 4 Rethinking Credit allocation: The second major reform measure to resolve the flow problem was the abolition of the credit plan. Until end-1997, credit allocation in China was based on a mandatory quota system under which the People's Bank of China (PBC) set the lower limit on new loans to be made annually and their allocation to specific sectors. Under the system, banks were often asked to allocate credits to support the operations of loss-making SOEs. Effective from 1 January 1998, the PBC replaced the credit plan system (for both working capital loans and fixed investment loans) with an indicative, non-binding, target. Since the abolition, banks have been free to lend according to commercial considerations, provided that their total lending is in line with asset/liability ratios and monetary policy targets of the PBC.
- 5 Recapitalisation: Another notable measure to boost bank capital was the issuance in August 1998 of RMB 270 billion of special government bonds to recapitalize the state-owned banks. The plan was implemented in conjunction with the reduction in the deposit reserve requirement. The recapitalization plan

raised the capital of the state-owned banks to RMB 478 billion from RMB 208 billion. After the capital injection, the size of the aggregate balance sheet of the state-owned banks remained unchanged. The balance sheet of the central bank contracted but this was offset by a similar expansion in the balance sheet of the Minister of Finance (MoF). The PBC has indicated that the recapitalization plan would bring the average capital adequacy ratio of the state-owned banks to 8 per cent.

- 6 Cleaning up balance sheets: In addition to measures aimed at replenishing banks' capital, the government also established asset management companies to repackage and sell on the problem loans of the state-owned banks. Between April and October in 1999, China established four AMCs associated with the four pillar commercial banks: Cinda (CBC), Huarong (ICBC), Orient (BOC) and Great Wall (ABC). Each received RMB10 billion from the state budget as registration capital to cover current operating expenses. Together the AMCs are intended to deal with about RMB 1.4 trillion NPLs, which is slightly less than half of the estimated NPLs of Chinese banks. The establishment of AMCs provides a unique opportunity to separate good assets from bad ones, and helped banks clean up their balance sheets, leaving a viable and healthy banking sector able to undertake new business.
- 7 Maintain economic growth: High levels of NPLs hold back economic growth as lending behaviour turns cautious and losses of the banks get recognized and absorbed, but as they are resolved over time – this tendency fades as debt distress is resolved. But initially, resolving debt distress by bank restructuring and other financial reform measures is deflationary particularly when growth is slowing down. Thus, while pushing forward the bank restructuring and showing government's commitment to financial reform, it is equally important to maintain moderate economic growth. For instance, the PBC instructed the state-owned banks to extend loans based on repayment ability, it also urged them to meet the 1998 loan target of RMB 1,000 billion to boost growth. Though some might concern that this kind of economic boosting operation will setback the debt resolving process, it also helps ensure social stability, and generates more room for government to carry out complementary economic reforms.

7. Lessons for other developing countries

Nowadays, in many partner countries of BRI, the government capacity to effectively design, manage, coordinate, implement, and evaluate strategic economic interventions is limited. Countries all over the developing world are increasingly looking to China as a model for how to launch, sustain, and manage rapid economic growth. Although there is no single universal model of structural transformation and sustainable development - as each country has its unique assets and challenges - building on what works is far more likely to succeed than trying to import any particular model from overseas. It is worthwhile to distil some essential lessons from China's approach to debt management during the transformation period and its proactive use of policy mechanisms on this front. They can act as an important reference point for other developing countries who wish to assess their own economic policy options in achieving debt sustainability and structural transformation. More specifically, the following five lessons can be drawn from what we have learned about China's debt management experience.

1. Start with development projects that can bring in revenues in the short run. One of the most important determinants of debt sustainability is future incomes. For developing countries that are still in the early stages of development, attaining

short run revenue should be of primary interest when it comes to project selection. Comparing to high-end development projects which may require much longer time to construct and to generate cash inflows, projects that fit country's current industrial structure or help the country to tap into global demand are able to repay the initial investment before long, replenishing the country's capital quickly. This is especially beneficial for countries with weaker economic foundations since it ensures their social and financial stability while enhancing the government's ability to design and support future development investment. In other words, starting with projects with short run revenues promotes country's self-reliance at the preliminary phase, and paves way for long-term development investment.

2. Encourage local governments or institutions to take the initiative in development financing and investing. China has followed a decentralized economic development structure since 1994's tax sharing reform. Local governments as well as financial institutions have played a much more important role in making actual investment and financing decisions than the central authorities. Different local development strategies and policies are encouraged as long as they do not conflict with national ones. Meanwhile, the local officials are held accountable for local economic performance, which provides them incentives for boosting the economy to get promoted. Such arrangement mitigates asymmetric information issues related to a central planning development strategy, and increases the flexibility of resource allocation, improving the efficiency of development investment. For other developing countries, though they may have different political structure, it is important to realize that local governments and institutions do have an edge in local investment and financing activities, and they could be the key agents for achieving sustainable development as long as appropriate institutional structures are in place.
3. Maintain macroeconomic stability and moderate inflation through macro control. Decentralized economic development structure will evidently raise concerns about economic problems such as overheating. The increasingly interconnected world also poses threats to financial stability through external shocks. The contagion effect observed during the spread of the global financial crisis in 2008 were sobering lessons on how shocks and disruptions in one part of the world can spread to other economies. Therefore, the central government's ability to weather shocks and maintain macroeconomic stability is crucial for long-term economic growth, which further contributes to debt sustainability. It is also beneficial for a country to keep moderate inflation in the economy by adjusting its monetary and fiscal policy stance, since moderate inflation will benefit the debtors, encourage people to spend, and serve as a kind of economic lubricant, all of which improve debt sustainability at the macro level.
4. Be pragmatic and flexible on policymaking. Economic policies, whether they come from central government or local governments, have played a significant role in influencing country's growth performance and financial stability for the past 40 years. Unlike the conventional view favored by many Western-trained economists, China's officials not only see economic policy as a means to maintain high employment and price stability, but they also regard it as an important tool to support development and global strategic objectives of the state. Policies adopted made good use of its large domestic market to exploit production economies of scale and network externalities and chose gradual liberalization to improve the country's financial system. However, the multi-objective feature has its own downsides. For instance, it may cause unproductive use of credit when the policy imperative is to avoid a severe

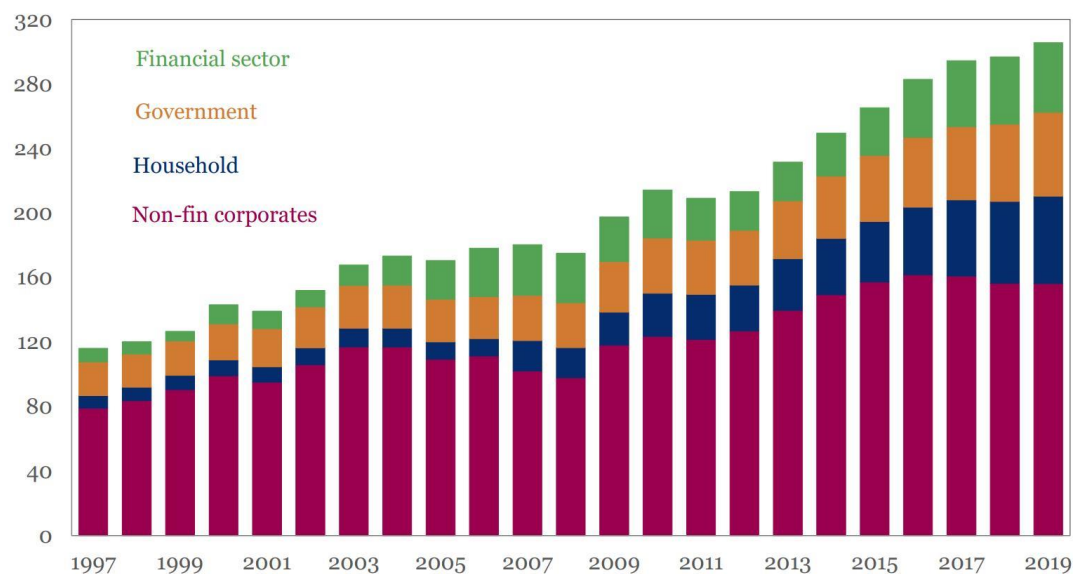
economic downturn. Hence it is essential for policymakers to be flexible and to balance country's often conflicting objectives given the specific nature of its economy at a particular point in time.

5. The purpose of development investment is to expand market boundaries, not to disrupt markets. Most of the government investment in China is focused on capacity building. Commerce requires well-maintained roads, railroads, airports, and ports so that manufacturers can obtain raw materials and parts and deliver finished products to consumers while growing communities rely on well-functioning water and sewer systems. Infrastructure investment in logistics, electricity, water supply, telecommunications and waste treatment facilities helped expand the market boundaries, create a business-friendly environment to facilitate private investment, and eventually boost economic growth by increasing the potential supply capacity and productivity of the economy. In fact, many of the existing studies found that spending on public infrastructure has a positive and statistically significant effect on productivity and, thus, economic growth. Therefore, in selecting development projects, developing countries should turn their attention to the type of infrastructure investments that will support and facilitate business growth according to the condition of the existing infrastructure and the mix of industries in the region.

From the above mentioned five lessons, we can see that China's approach to debt sustainability emphasizes ex ante screening of the projects. It requires careful evaluation of the planned projects' justifications, outcomes, viabilities, risks and so on. The approach also encourages each agent to assume a role that suits its function during the investment and financing process to reduce possible information costs and enhance efficiency. The central government practically turned local authorities into corporate CEOs by delegating financing and investment decisions to them and holding them responsible for "maximizing" regional economic growth. The central government itself, on the other hand, took a back seat and concentrated on overall planning and maintain stability through macro control. It is such arrangements that makes China's debt management pragmatic, and more adaptive to changing circumstances.

Appendix

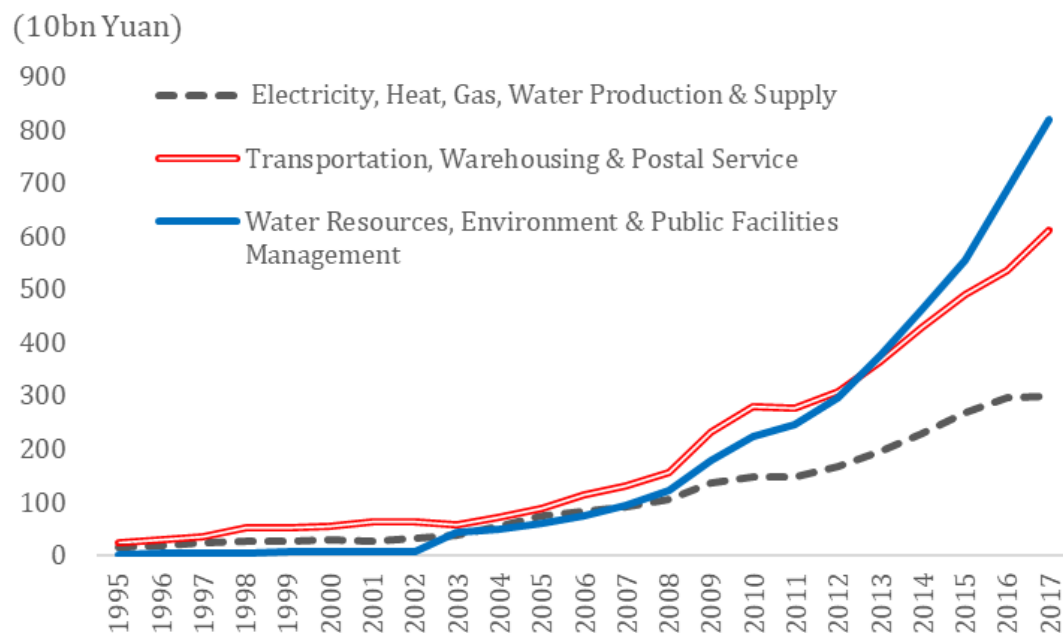
Figure 1. Total Debt-to-GDP in China



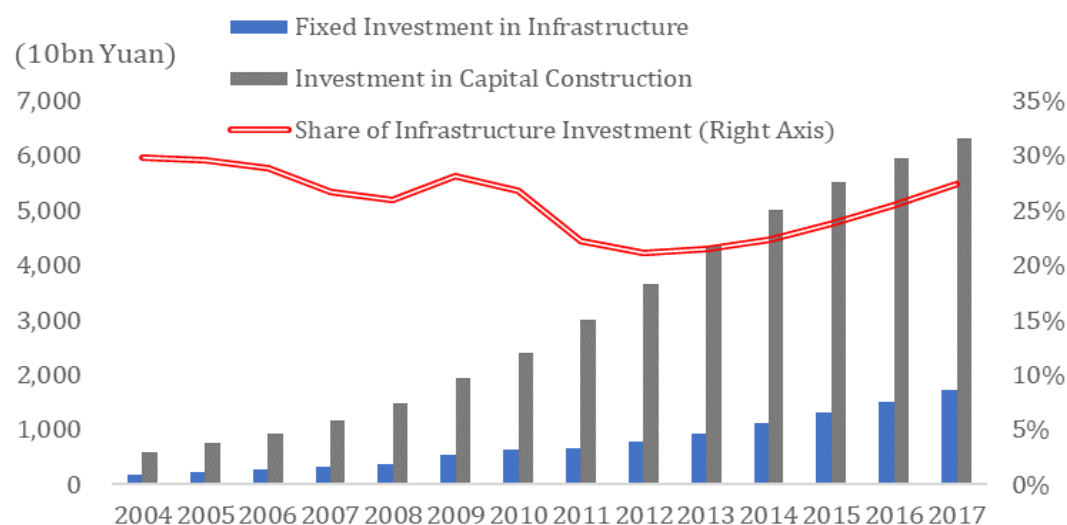
Note: To be consistent with 2019's data, the percentage of GDP indicated here came from Q2 of each year.

Source: Institute of International Finance's Quarterly Global Debt Monitor, August 2019.

Figure 2. Fixed Assets Investment in elected sectors

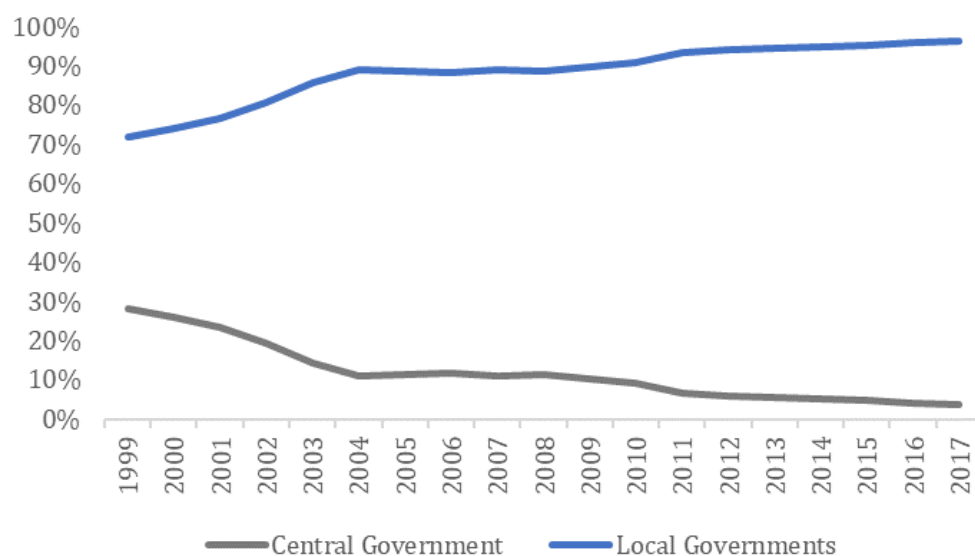


Source: Wind Financial Database.

Figure 3. China's investment in Capital construction and infrastructure

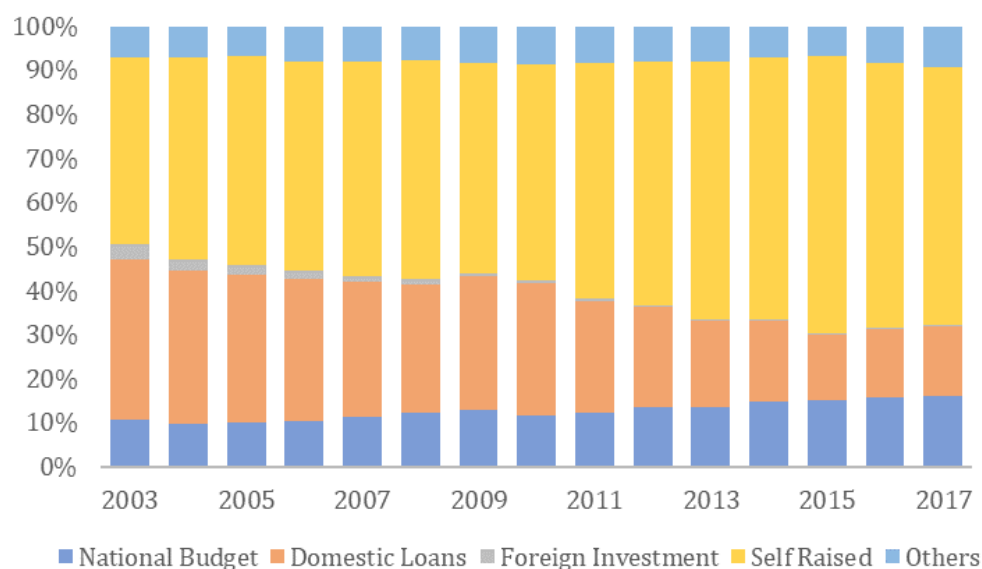
Notes: Capital construction refers to the new construction projects or extension projects and the related work of the enterprises, institutions or administrative units mainly for the purpose of expanding production capacity or improving project efficiency covering only projects each with a total investment of 500,000 RMB yuan and over. They mainly include projects listed in the capital construction plan of the government, state-owned units, and administrative units. Infrastructure investment, on the other hand, includes investment in electricity, heat, gas, water production & supply, transportation, warehousing & postal service, water resources, environment & public facilities management.

Source: Wind Financial Database.

Figure 4. Local and central government's share in total government investment

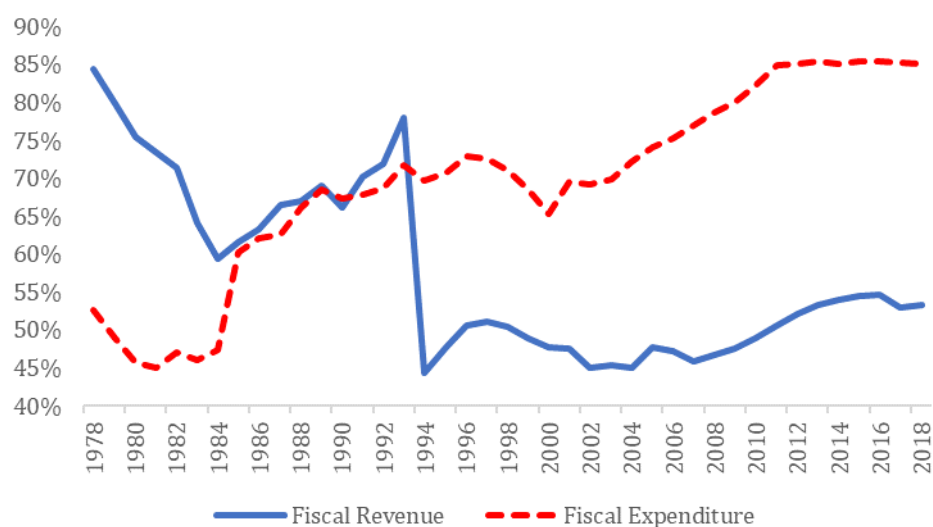
Note: The share calculated is based on the value of the local/central government's investment.

Source: Wind Financial Database.

Figure 5. Source of funds for infrastructure investment

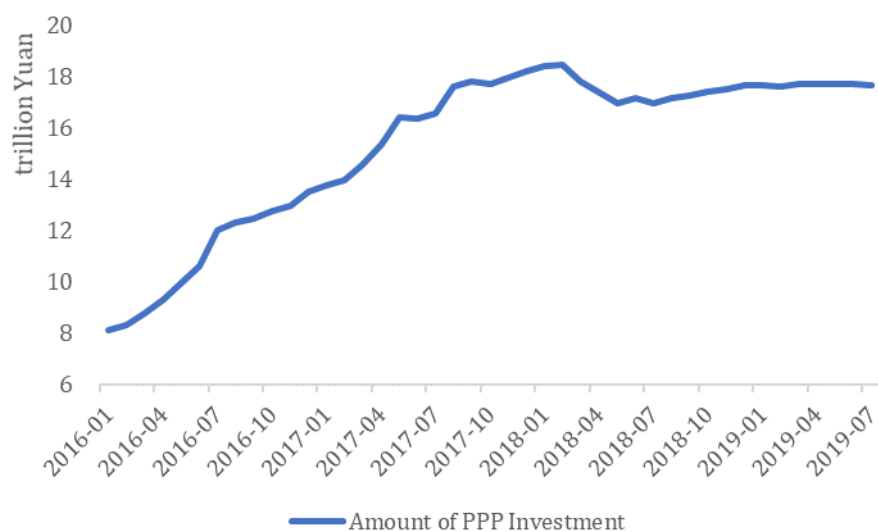
Note: National budget refers to appropriation in the budget of the central and local governments; Domestic loans refer to various funds borrowed by enterprises and institutions from banks and non-bank financial institutions; Foreign investment refers to foreign funds received; Self-raised funds refer to funds received by construction enterprises from their higher responsible authorities, local governments, or raised by enterprises or institutions themselves; Others refer to funds received which are not included in the above-mentioned sources.

Source: Wind Financial Database.

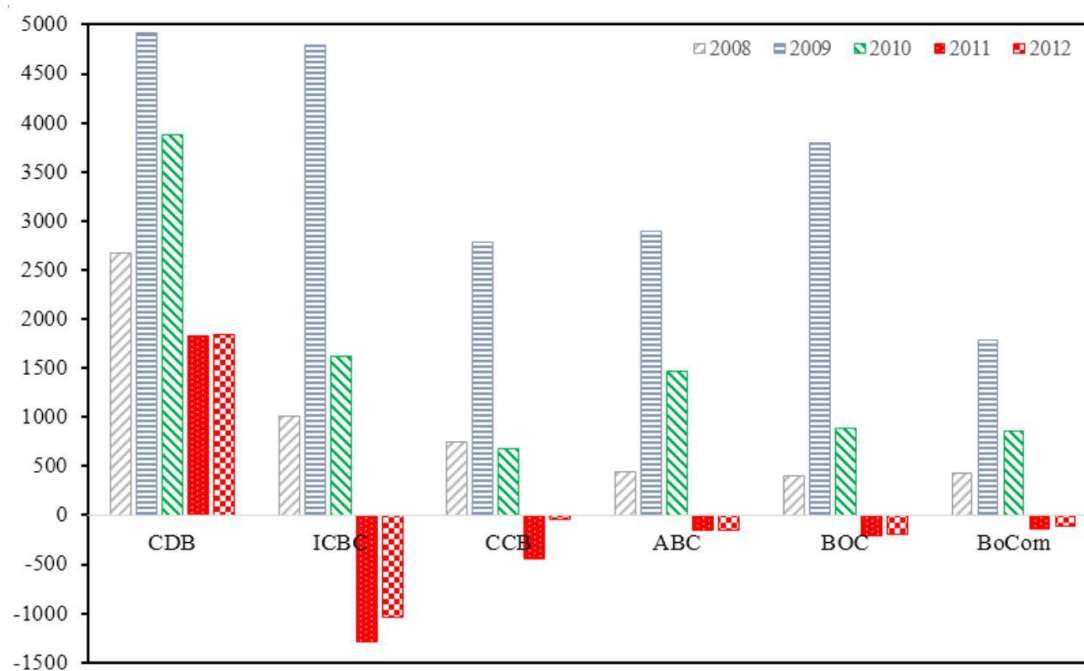
Figure 6. Local government share in Total Fiscal revenue/Expenditure

Note: The proportion is calculated by dividing local governments' fiscal revenue/expenditure by the general governments' total fiscal revenue/expenditure.

Source: Wind Financial Database.

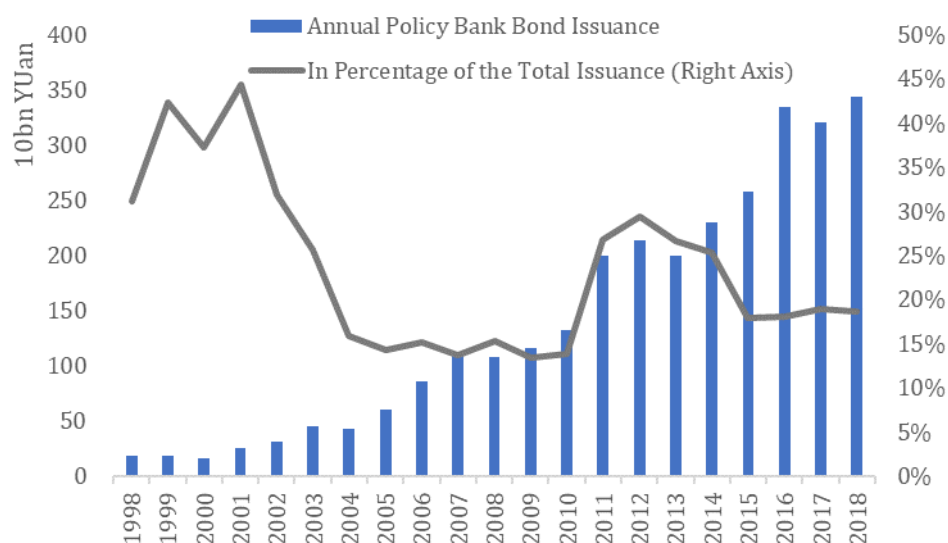
Figure 7. Investment amount of PPP Projects

Source: Wind Financial Database.

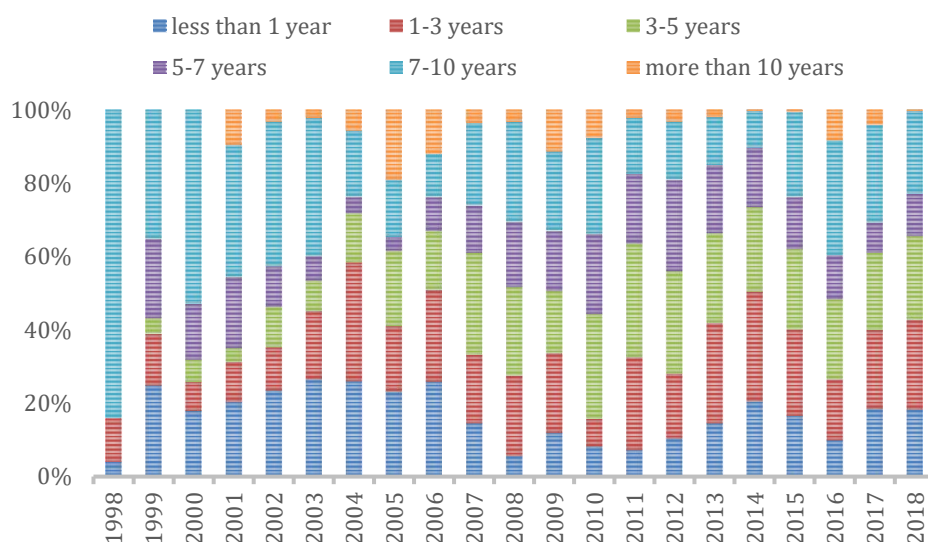
Figure 8. Individual Bank Lending to LGFVs from 2008 to 2012

Note: This figure plots the annual change in outstanding loan balance to LGFVs from 2008 to 2012 for individual banks. The unit for the vertical axis of net loan amount is in RMB 100 million.

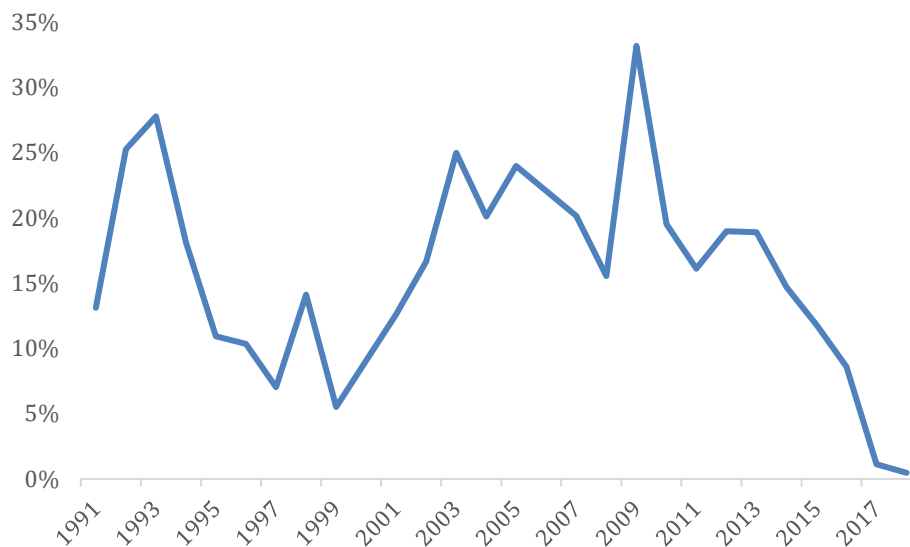
Source: Gao, Haoyu, Ru Hong, Tang Dragon Yongjun, 2018, "Selective Default by Local Governments in China", VoxChina (<http://www.voxchina.org/show-3-61.html>).

Figure 9. Policy Bank Bond Issuance and its market share

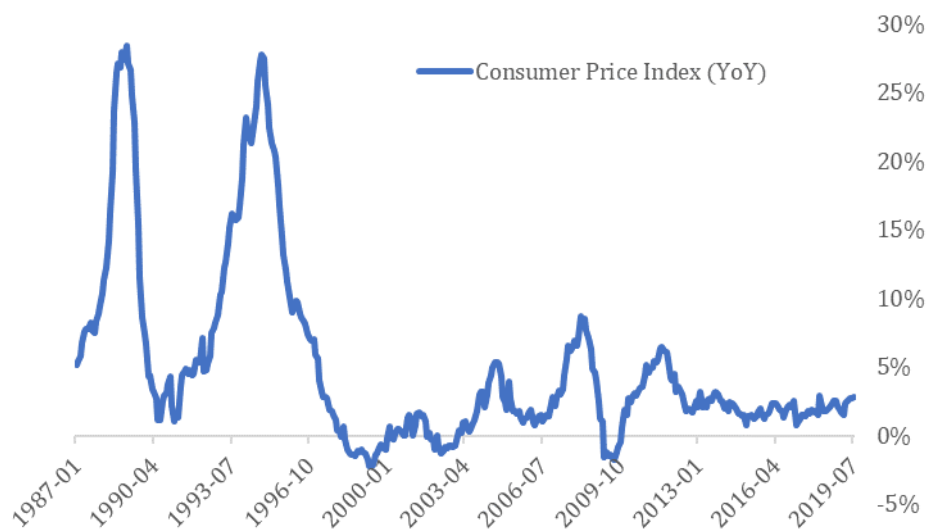
Source: Wind Financial Database.

Figure 10. Maturity Profile of Policy Bank Bond issuance

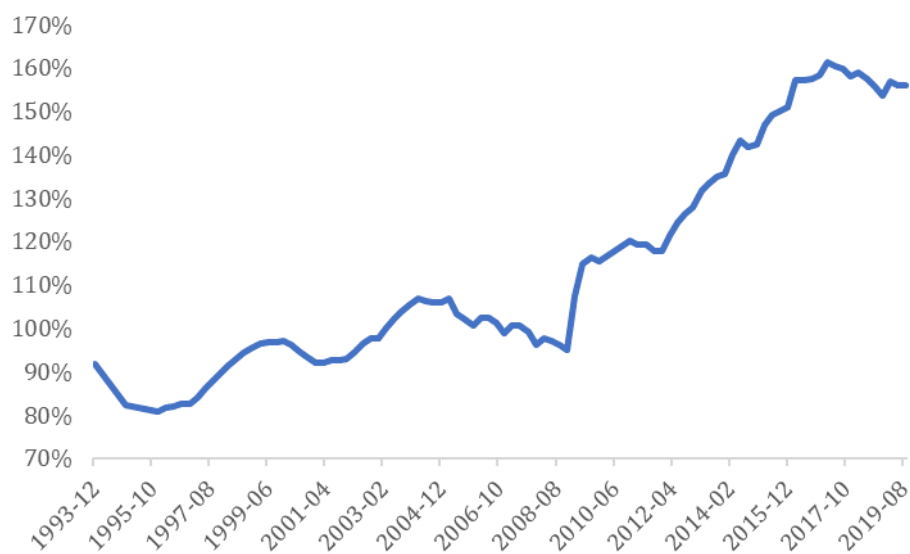
Note: The proportions are based on the value of each year's issuance. For instance, the proportion of short-term bond (i.e. with maturity less than 1 year) in a specific year, is calculated by dividing the value of the short-term bond issued by the total value of the bond issued by the policy banks in that year.
s: Wind Financial Database.

Figure 11. Real Growth Rate of the total investment in Fixed Assets

Source: Wind Financial Database.

Figure 12. Monthly Inflation Rate in China (Jan 1987 – July 2019)

Source: Wind Financial Database.

Figure 13. Debt-to-GDP Ratio for Non-financial Corporate Sector

Source: Wind Financial Database, Research Center for National Balance Sheet.