LOCAL GOVERNMENT FINANCING VEHICLES REVISITED[1]

Local government financing vehicles (LGFVs) in China are widely recognized for their important role in funding public infrastructure. Financial statement data however show that their activities are considerably more expansive, including varied forms of financial support for local governments, firms, and the property market, much of which is not captured in earnings statements. These activities have not only increased these vehicles' size and interconnectedness, adding to their already considerable financial risk profile, they also appear to have broader ramifications for economic efficiency. More than half of LGFV borrowing is used for purposes other than capital expenditure, and firms with investment linkages to LGFVs tend to have lower capital productivity than other firms. Finally, the risk that LGFVs trigger broader macrofinancial instability is rising, as growing investor concerns about state support for LGFV debt could create negative feedback loops between LGFVs, firms, banks, and local governments. These findings underscore that the solution to China's LGFV problems will require a comprehensive restructuring agenda and institutional fiscal reforms.

A. Introduction

1. **Local government financing vehicles (LGFVs) play an important role in China's economy.** Local governments for decades have relied on these special-purpose state-owned enterprises to finance public infrastructure and provide countercyclical investment during economic downturns. The widespread use of LGFVs stems in large part from fiscal reforms in 1994 that decreased local governments' share of tax revenues, as well as prohibitions on their direct borrowing that were lifted only in 2015. As a result, local authorities have long been incentivized to use these vehicles to raise capital markets funding for public investments needed to meet government growth targets.[2]

2. **The scope of LGFVs and their debt is not precisely known.** Official government data on the size of LGFV activities and debt is lacking, in part reflecting the absence of a formal legal distinction between these vehicles and other state-owned enterprises. As IMF staff assess that LGFVs are part of the general government, the IMF has historically used a top-down approach to estimate China's LGFV debt based on the results of the National Audit Office (NAO)'s 2013 audit of LGFV debt. Beginning in 2020, the IMF switched to a bottom-up approach based on the firm-level financial statements of bond issuers classified as LGFVs by the bond market regulatory agency NAFMII, in line with observed market practice. By this measure, LGFV debt reached 39 percent of GDP in 2020, up from 34 percent in 2018.

3. **Central government authorities have recently renewed efforts to contain growth in LGFV debt.** Since 2010, authorities have used a mix of fiscal and regulatory policies to contain LGFV

[1] Prepared by Henry Hoyle (MCM) and Phakawa Jeasakul (MCM).

[2] For more on the history of LGFVs, see Zhang and Barnett (2014) and Lam, Wei, and van Eden (2016). LGFV activity comes despite legal reforms and regulations passed in 2014 that prohibit local governments from borrowing through LGFVs or assuming liability for the repayment of LGFV debts.

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expansion. The 2013 audit was followed by legal amendments that prohibited local governments from borrowing via LGFVs and a plan to refinance NAO-identified public liabilities into sub-sovereign bonds issued directly by provincial governments. Despite shifting some 14 trillion RMB in LGFV debt to the official public balance sheet as part of a debt-swap program, LGFV borrowing continued to grow, prompting renewed efforts to limit the use of LGFV borrowing. In 2018, authorities forbade local governments guarantees for LGFV debts and introduced new measures to make local government officials responsible for debt accumulation on their watch. In early 2021, authorities tightened channels for new LGFV borrowing for the most indebted local governments (except refinancing of existing debt) through a variety of administrative and prudential measures, including tighter controls on working capital loans.

4. A closer look at the risks and costs associated with LGFVs underscores the urgency—and difficulty—of dealing with them. This paper begins by exploring LGFVs' varied functions based on stylized facts from firm-level financial data for over 2200 LGFVs and evidence of linkages with local governments and firms. The subsequent section provides some initial evidence outlining the broader macroeconomic costs of these vehicles' different activities, including their potential impact on productivity and credit efficiency. The last section highlights how these entities' elevated financial vulnerabilities could become destabilizing, especially as other forms of indebtedness rise, underscoring the need for a comprehensive restructuring and reform plan.

5. This analysis makes use of a large database of firm-level financial statements and investment linkages. Data for LGFVs and other firms used in this report is based on a sample of over 14,000 Chinese nonfinancial firms with financial statements available from S&P Capital IQ, including 2200 identified as non-LGFV SOEs, 8300 privately-owned entities (POEs), and roughly 1500 firms with other ownership designations. This database also incorporates information from Capital IQ's trove of data on investment transactions and relationships between firms. While this data does not have consistent information about the size, date or other characteristics of investment relationships, it allows for the observation of investment linkages both between firms within the database and with other firms identified in Capital IQ's database.[3, 4]

B. LGFVs: Large, Interconnected and Risky

6. LGFV balance sheets are large relative to China's economy and growing rapidly. Financial statements of about 2200 LGFVs show that their total assets reached 120 percent of GDP in

[3] Ownership status and other key information was constructed by integrating data from WIND and Bloomberg LP. For some analytical purposes, firms identified as consolidated subsidiaries of other firms within the sample are removed to avoid double-counting.

[4] Since many LGFVs and other firms do not have publicly available financial statements, and not all investment relationships are captured in the Capital IQ database, the coverage of firms and investment relationships is necessarily incomplete. The 2200 LGFVs in the database likely excludes some 7000 that may have not issued bonds—typically much smaller LGFVs—as well as firms that are similar to LGFVs in both their function and financial profile but lack the LGFV designation, like local government "asset operations firms." This sample nevertheless generates total LGFV debt figures that closely approximate figures produced by Chinese and foreign analysts and think tanks.

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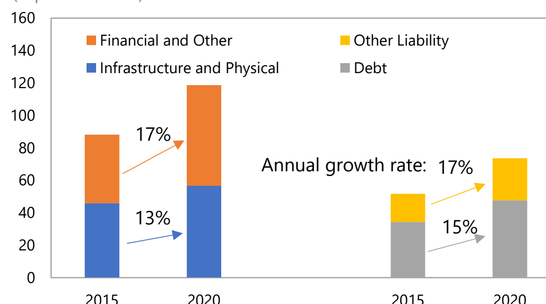
2020, after five years of 15 percent annual growth. Total liabilities reached about 75 percent of GDP, after growing 16 percent, with interest-bearing debt about two-thirds of that (Figure).

7. Much of this growth appears driven by activities other than public infrastructure investment. While LGFVs are associated primarily with infrastructure, firm-level financial data show these vehicles also allocate financial resources to implement a range of policy goals, including supporting local firms and real estate markets. Infrastructure and other physical assets like inventories account for 48 percent of LGFV assets, down from 52 percent in 2015. Financial assets, encompassing accounts receivable and investments in securities, cash, loans, company equity and other unspecified tangible assets, are the fastest growing portion of LGFV balance sheets, accounting for 48 percent of total LGFV assets, up from 42 percent in 2015. Intangible assets account for the remaining 4 percent of assets.

LGFVs: Assets and Liabilities, by Selected Components
(In percent of GDP)



Sources: Capital IQ; and IMF Staff Calculations
Note: Physical assets includes plants, property, equipment, and inventories. Growth numbers shown are compound annual growth rates.

8. Some of this rapid growth in financial assets likely represents LGFV support for local governments in the form of trade credit. LGFVs are in most cases majority-owned by local governments, and income for infrastructure investment projects is the primary source of LGFV revenues. A large portion of this income is however not paid in cash but in the form of credit, which is not reflected in earnings statements. Receivables, standing at least at 18 percent of GDP and the fastest growing portion of LGFV balance sheets, largely reflect arrears from local governments for investment projects.[5]

9. LGFVs' traditional infrastructure activities also channel significant financial resources to land and real estate markets. LGFV assets reported as inventories are equivalent to 30 percent of GDP, or over a quarter of LGFV balance sheets, and largely comprise land and real estate assets. These vehicles' accumulation of inventory in excess of realized sales indicates that they provide considerable support for these markets in terms of net demand. This underscores their importance in supporting local government fiscal revenue, which is dependent on land sales. Expenditures on inventory in excess of realized sales are not reflected in earnings statements, contributing to a persistent gap between LGFVs' recognized profits and actual cash flows.

10. LGFVs invest in other nonfinancial firms, creating extensive interlinkages with the corporate sector. LGFVs' estimated equity and debt exposures to other enterprises (excluding deposits and cash-like securities) are equivalent to at least 12 percent of GDP and likely higher, given that some portion of accounts receivable (18 percent of GDP) and unspecified tangible assets (17 percent of GDP) may be claims on firms. Investment linkage data from Capital IQ shows that

[5] For more information on Chinese credit rating agencies findings on LGFVs, see Pengyuan Ratings primer on LGFV financial statements (Pengyuan Ratings 2020)

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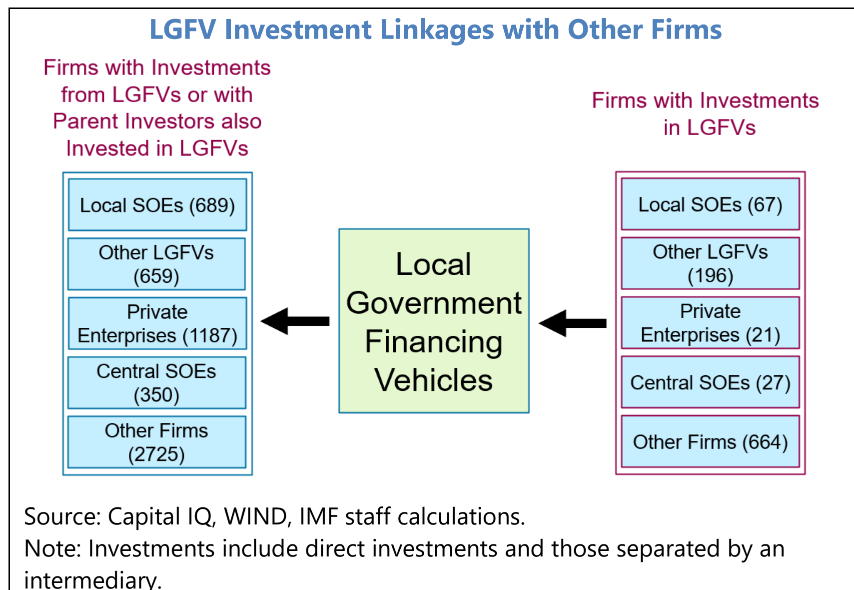
LGFVs have direct or indirect investments in almost 3400 firms, and are linked via a common parent investor with another 1600 firms.[6] Collectively these roughly 5000 firms include over 1000 private firms, 58 banks, 112 securities companies, insurers, and trust companies, and at least 660 other LGFVs (Figure). Out of these 5000 firms with LGFV investment linkages, 2585 are nonfinancial, non-LGFV firms captured in the 14,000-firm database, and collectively account for a large share of both firms and assets represented in that database. LGFV-linked SOEs (both local and central government-owned) account for 48 percent of all SOEs within the database and 62 percent of their SOE assets. LGFV-linked POEs account for about 14 percent of all POEs within the sample and 32 percent of their assets.

11. The nonfinancial corporate sector also has substantial direct exposure to the LGFV sector. Nearly 1000 other firms and funds have direct or indirect claims on LGFVs, likely in the form of equity or equity-like investment, although only 123 are captured in the financial statement database. LGFVs' non-interest bearing liabilities, equivalent to 26 percent of GDP, have also been growing faster than debt or assets. These liabilities appear to be largely accounts payable to other firms, with their rapid growth likely reflecting efforts to divert cash to limit growth in interest-bearing debt.[7]

LGFV Investment Linkages with Other Firms



Source: Capital IQ, WIND, IMF staff calculations.
Note: Investments include direct investments and those separated by an intermediary.

12. These activities generate additional financial vulnerabilities beyond LGFVs' well-known debt risks. The stock of LGFV debt-at-risk, defined as debt not backed by earnings sufficient to cover interest payments, is equivalent to about 37 percent of GDP and is a primary contributor to China's elevated debt vulnerabilities. These vehicles' wide-ranging financial support for local governments, firms, and property markets, as well as their investments holdings in local firms, also creates a significant degree of interconnectedness. This increases the likelihood that financial stress at LGFVs would spread more widely to other firms, asset markets, and the broader economy. LGFVs' continuous deferral of income and large spending on inventories in excess of sales means that their actual cash flows are considerably weaker than their reported incomes, heightening their dependence on new financing. The rapid growth in accounts receivables and inventories relative to

[6] While some of LGFV exposures to other enterprises may be infrastructure-related, the investment linkage data suggest a considerable portion is not. Of the 3400 firms with direct or indirect investments from LGFVs, only 26 percent are in the infrastructure-linked transportation, capital goods, or utilities sectors.

[7] Rating agencies also note that LGFVs are active providers of credit guarantees to local firms, often private firms, creating additional contingent liabilities likely amounting to trillions of RMB.

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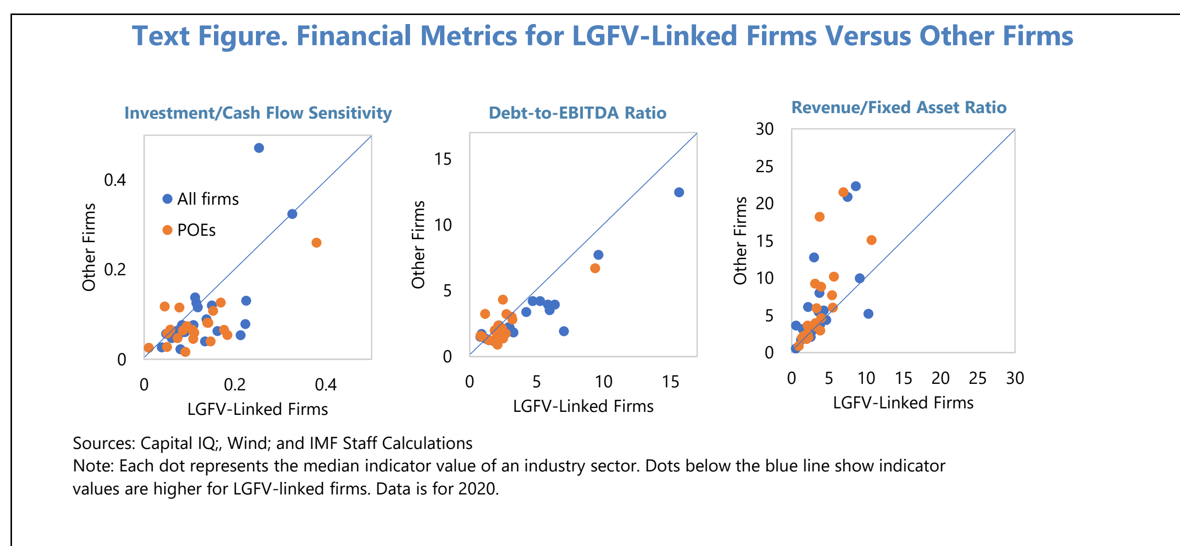
realized income also suggests some assets are subject to valuation risks. This means LGFVs' relatively comfortable reported equity buffers, equivalent to 38 percent of assets or 45 percent of GDP, may also be overstated.

C. LGFVs' Implications for Efficiency

13. LGFV appear to have an important role in facilitating firm-level investment through their various linkages. Compared with other firms in the 14,000-firm database, the 2643 nonfinancial, non-LGFV firms with investment links to LGFVs tend to undertake more investment relative to their income and carry more debt relative to their income (controlling for year and sector effects).[8] These patterns also hold for LGFV-linked private firms (Figure, left and middle panels). This finding suggests that LGFVs may be able to "share" some of their privileged access to credit with their affiliated companies due to perceived backing of shareholders and/or guarantors that enjoy strong implicit guarantees. This leads to a greater propensity of LGFV-affiliated firms to invest on the back of easier access to credit. It may also reflect local governments' efforts to use LGFVs to provide more support to firms that are carrying out industrial policy and employment goals, which tend to have weaker profitability.

Text Figure. Financial Metrics for LGFV-Linked Firms Versus Other Firms



Sources: Capital IQ;, Wind; and IMF Staff Calculations
Note: Each dot represents the median indicator value of an industry sector. Dots below the blue line show indicator values are higher for LGFV-linked firms. Data is for 2020.

14. Lagging capital productivity at LGFV-linked firms could point to LGFVs' broader ramifications for resource misallocation. LGFV-linked firms tend to have lower capital productivity, as proxied by revenue per unit of fixed assets (controlling for year and sector effects), in comparison to unaffiliated firms (Figure, right panel). A panel regression analysis with sector fixed effects also confirms the association between LGFV-linked firms and lower capital productivity. At the sector level, LGFV-linked firms in the capital goods, materials, semiconductors, and technology

[8] An investment link is defined as an investment between a non-LGFV firm and an LGFV in either direction, either directly or via an intermediary company or investment vehicle. A firm is also counted as LGFV-linked if it has a parent investor also invested in an LGFV. The 2643 firms encompass both the 2585 with investments from LGFVs or a common parent investor with an LGFV and the 123 with investment in LGFVs. The two do not sum because some firms count in both categories.

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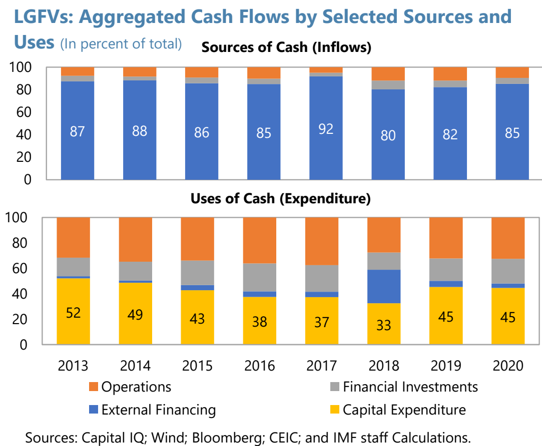
sectors appear to have lower capital productivity. While these correlations do not establish causality—in principle, LGFVs might be providing capital to already-inefficient firms or their investment backing itself could cause overinvestment—they clearly point to the LGFVs' role in propagating the prevalence of inefficient firms. This role in resource allocation leaves the possibility that LGFVs could be among the possible driver of the broader slowdown in aggregate manufacturing productivity growth documented in Cerdeiro and Ruane (2022).

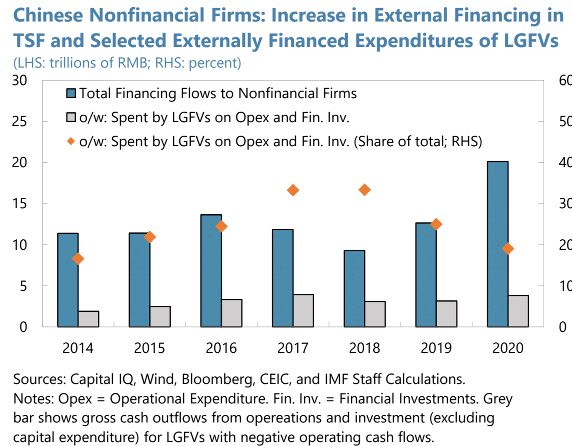
15. Large amounts of LGFV debt are spent on operating expenditures and financial investments. Aggregated cash flow statements of LGFVs show that 80 to 90 percent of their spending is funded by infusions of new external financing each year, primarily in the form of debt, reflecting relatively limited inflows from operations (Figure, upper panel).[9, 10] Of that spending, less than half has been used for capital expenditure in public investments like infrastructure, which can generate broad-based productivity gains. Most of the remaining expenditure is for operating costs, like interest payments, accumulation of inventory like land and real estate, and employee payrolls, and investments in financial assets, like company equity and lending. LGFVs with negative operating cash flows—a segment accounting for about three quarters of LGFV debt—have used at least RMB 10 trillion of net new financing on these forms of spending over the last three years, equivalent to an average of roughly 20 to 30 percent of the new flow of total social financing for nonfinancial firms (Figure, lower panel).

LGFVs: Aggregated Cash Flows by Selected Sources and Uses (In percent of total)



Sources: Capital IQ; Wind; Bloomberg; CEIC; and IMF staff Calculations.

Chinese Nonfinancial Firms: Increase in External Financing in TSF and Selected Externally Financed Expenditures of LGFVs
(LHS: trillions of RMB; RHS: percent)



Sources: Capital IQ, Wind, Bloomberg, CEIC, and IMF Staff Calculations.
Notes: Opex = Operational Expenditure. Fin. Inv. = Financial Investments. Grey bar shows gross cash outflows from opeerations and investment (excluding capital expenditure) for LGFVs with negative operating cash flows.

16. This points to broader inefficiencies in the use of credit and local government spending. External financing of operating costs like payrolls and land purchases generates new interest-bearing debt for LGFVs in exchange for spending without long-term benefits for growth or productivity, and ideally should be covered by recurring taxes or operating revenues. The lack of operating cash flow coverage of interest costs

[9] LGFVs report a significant portion of their interest expense as cash flows from financing. In line with rating agencies' practice, this analysis shifts these back from financing cash flows to operating cash flows to reflect their relevance for debt-servicing capacity. As virtually all cash balances are generated from external financing flows, this analysis also excludes cash balances as a source and use of cash for presentational simplicity.

[10] In an anomaly, LGFVs collectively report cash sourced from new equity investments that is several orders of magnitude larger than PBC's measure of new equity financing. This may be because a large portion be equity transactions that are debt-like in nature, e.g. perpetual bonds.

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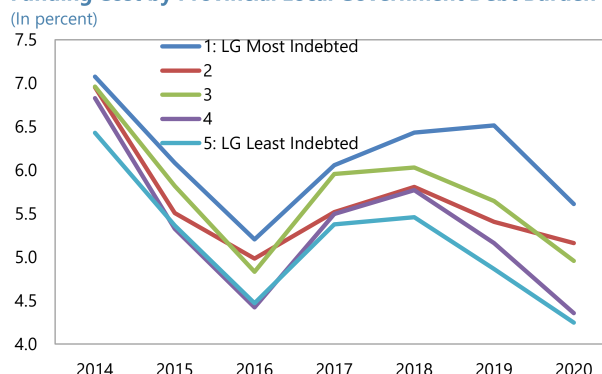
compounds entity-level LGFV debt, magnifying potential contingent sovereign liabilities. Debt-financed public investment in local firms also heightens financial risks for government balance sheets with uncertain long-term economic benefits, especially given the demonstrated low capital productivity of LGFV-affiliated firms. Finally, LGFVs' debt-financed outlays on operational expenditure and financial investments are also large relative to other important fiscal priorities, for example in 2019 amounting to nearly 50 percent of local government spending on education and social safety nets. Increases in these social spending items have relatively large returns for human capital, particularly when such spending is relatively low, pointing to large economic gains from institutional reforms that shift spending to these areas.

D. Rising Risks to Macrofinancial Stability

17. Policy uncertainty around the degree of state support for some LGFVs is rising, affecting their access to debt markets. Given their limited income, LGFVs rely on the perceived financial support of parent local governments to obtain credit. This support however is seen as increasingly uncertain for some LGFVs. In provinces where official local government debt has risen rapidly relative to both provincial GDP and local government revenues, investors have become concerned about the government's capacity or willingness to backstop weak firms, reflected in widening credit spreads for local LGFVs (Figure). More recently, central authorities have also taken steps to limit new borrowing at certain heavily indebted LGFVs, and pushed provincial governments to address excess indebtedness through cost-cutting, asset sales, or other uses of local public sector resources.

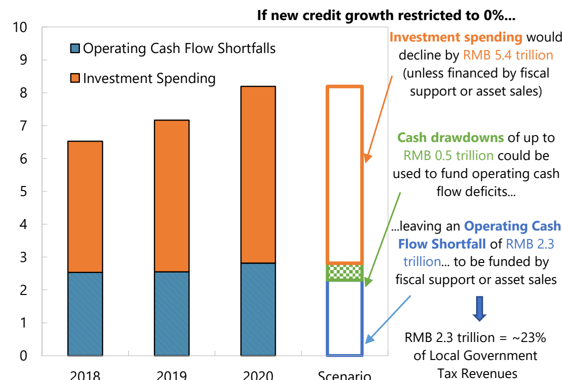
Chinese Local Government Financing Vehicles: Bond Market Funding Cost by Provincial Local Government Debt Burden
(In percent)



Sources: Bloomberg; CEIC; and IMF Staff Calculations
Note: Data shown is the annual weighted average coupon on bonds issued by Local Government Financing Vehicles in provinces.

18. The prospect of weakening access to credit for LGFVs raises the risk of macrofinancial instability. LGFVs intrinsically have weak cash flows and thus need to rely on external financing to fund investment activities and operating cash flow deficits. As discussed in GFSR October 2021, should LGFVs' access to credit becomes significantly constrained, LGFVs could face an operating cash flow shortfall of 23 trillion RMB unless they sell assets and/or receive fiscal support (Figure). As these LGFVs' ability to raise new debt becomes limited, macrofinancial stability could be affected through several transmission channels:

Uses of LGFV Cash Flows from Financing and Estimated Impact of Credit Growth Restrictions (In trillions, RMB)



Sources: Capital IQ; Wind; Bloomberg; CEIC; and IMF staff calculations.

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- **LGFVs' weakening role as local investor and guarantor.** As credit conditions for LGFVs become tighter, their capacity to undertake new infrastructure projects and/or facilitate investment carried out by other local firms would become more limited. Given their role as an investor and guarantor for local firms, LGFVs' market access troubles may have consequences for the availability of credit for other firms, especially LGFV-affiliated firms. As a result, in provinces where LGFV credit pricing has become more unfavorable, growth in LGFV debt has slowed, as has growth in total private debt (potential chart).

- **Credit losses and spillovers through banks.** As the largest creditor to LGFVs, banks would see a large increase in nonperforming exposures from even a small amount of LGFV defaults. As discussed in GFSR October 2021, many LGFVs lack the ability to generate sufficient earnings to cover interest expense for three consecutive years, with such risky debt amounting to about 20.1 trillion RMB as of 2020, or 44 percent of total LGFV debt (in the sample). Even a small LGFV default rate of 5 percent would be equivalent to a roughly 75 percent increase in banking system NPLs. The impact would likely be concentrated on smaller local banks, which have weaker buffers and are believed to be most exposed to LGFVs with limited state support. These banks may face tighter funding market and capital-raising conditions, constraining their ability to provide credit to local firms.

- **Regional risk re-pricing.** Following SOE defaults in late 2020, corporate credit conditions have tightened on some borrowers, with the tightening more pronounced for firms located in provinces with relatively weak public finances and/or with recent local SOE defaults. Hence, further repayment difficulty of local SOEs and LGFVs could prompt investors to re-evaluate local government's willingness and capacity to support local firms, potentially leading to significant restrictions in access to credit for firms in the region, especially those with weak balance sheets.

- **Fiscal and macroeconomic feedback loops.** If LGFVs face significant constraints on obtaining new financing, they would be forced to scale back investment, thus hurting economic growth. A drop in fiscal revenues resulting from a potential economic slowdown and any support provided to LGFVs to help finance operating cash flow deficits would put further strain on local governments' fiscal resources. This would in turn reduce their capacity to backstop local firms, further tightening credit conditions and setting off a negative local feedback loop. More broadly, local governments are exposed to contingent liabilities associated with financially weak LGFVs. As presented in GFSR October 2021, many provinces could see a sharp increase in their public debt should such contingent liabilities materialize, which would in turn put significant stress on such local governments' finances.

19. These spillovers raise the risks of adverse macrofinancial feedback loops. The intertwining of the financial health of local governments, firms, and banks via LGFVs means that tightening in financial conditions, worsening local government debt dynamics, and drags on economic activity can become self-reinforcing even without defaults. This sets up the potential for destabilizing feedback loops.

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E. Conclusions

20. Efforts to address the problem of LGFVs must go beyond restrictions on their growth and access to finance. Policies that focus primarily on limiting further debt growth may not be credible or sustainable, given the potential for macrofinancial instability. Given LGFVs' elevated debt, interconnectedness with local firms and governments, and lack of cash flows, restrictions on new financing may create negative macrofinancial and fiscal feedback loops that create regional systemic stability risks.

21. These findings underscore the urgency of a comprehensive restructuring agenda and institutional fiscal reforms. To safeguard financial stability, authorities should accelerate the restructuring of financially non-viable LGFVs using the improved legal frameworks outlined below in addition to continued efforts to contain leverage. This should be complemented with the following actions[11]:

- *Phasing out implicit guarantees.* The phasing-out of implicit guarantees is key to reduce excessive debt accumulation by LGFVs. However, this must be handled carefully with coordinated efforts to avoid unintended adverse macro-financial feedback loops between corporates, banks, and local governments especially in regions with weak public finances.[12]

- *Strengthening the corporate restructuring and insolvency frameworks.* An effective, market-based framework can help facilitate the orderly deleveraging, restructuring, and exit of non-viable LGFVs. The framework should incorporate all restructuring and insolvency options. It should also be conducive to loss recognition and burden sharing through out-of-court, hybrid restructuring and the general corporate insolvency regime. Improving the existing insolvency procedures and their coordination with other restructuring options would help reduce excessive indebtedness in an orderly fashion. The capacity of the insolvency system will increase with further support to the specialization of judges and insolvency administrators.

- *Introduction of a comprehensive bank restructuring approach.* Banks will need to significantly strengthen their loss absorption capacity in the form of common equity buffers to cope with potential losses from failing LGFVs. Some weaker banks may need to be resolved and closed, necessitating a legal resolution framework in line with international standards that allows enforcement of the recognition of losses, the sale and/or transfer of assets, the execution of bail-in, and the preservation of critical bank functions. A temporary and fiscally backed centralized resolution fund could be established to complement the deposit insurance scheme once a resolution regime is in place, contingent on mechanisms to recover losses from industry over time.

- *Legal and institutional fiscal reforms to address excessive government debt and strengthen intergovernmental risk sharing.* Intergovernmental reforms should be introduced to reduce local

[11] For detailed policy recommendations, see (Kang and others, 2022))

[12] See IMF, Global Financial Stability Report, October 2021 (forthcoming).

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governments' need to borrow over the long term by aligning central government revenue with provincial spending and centralizing some responsibilities in education and healthcare previously shouldered by provincial governments. A sound public debt management legal framework should also be introduced requiring strong financial oversight by the central government over local government debt via administrative controls for local borrowing. This should be complemented by improved reporting systems to provide timely and reliable data on local government debt and extra-budgetary activities. More robust accountability mechanisms, especially audits and proportional sanctions for non-compliance, would also be helpful. Furthermore, enhancing fiscal risk sharing between financially weaker and stronger provinces (for example, through conditional central government transfers) could help address unsustainable public finances of the former and mitigate potential macrofinancial feedback loops in provinces with relatively weak public finances (Han, 2021).

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