The Government-Led Credit Cycle in China's LGFV Bonds and the Real Effects

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Abstract

Examining China's decade-long policies aimed at mitigating local government debt risk, we identify a government-led credit cycle in Local Government Financing Vehicle (LGFV) bonds, reflected in the evolving credit spread gap between high- and low-risk cities. After three waves of cross-regional divergence between 2014 and 2022, the 2023 "Debt Resolution" policy triggered a sharp convergence. We show this cycle is driven primarily by shifting market perceptions of central government bailout probability, rather than by regional economic fundamentals or bond market liquidity. Studying the real effects, we find the "Debt Resolution" policy has a dual impact on local commercial banks. It benefits those in high-risk cities by narrowing subordinated bond spreads via LGFV pricing spillovers, but also hurts them by depressing profitability, reducing market share, and increasing consolidation risk.

Keywords: Local government debts; LGFV bonds; Credit cycle; Government bailout; Commercial banks; Bank subordinated bonds

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Since the 2008 Global Financial Crisis, the public debt overhang has emerged to be a global challenge.[1] Against this backdrop, China experiences rapid accumulation in its local government debts.[2] By the end of 2024, the total balance amount of local government debts in China soars to over 104.6 trillion CNY, accounting for 77.5% of its GDP. Together with collapsing land revenue since the real estate bubble bust in 2021, local governments are pushed to the brink of insolvency. Their interest coverage ratio is on the verge of falling below 1 in 2024, meaning that local governments can scarcely cover interest payments, let alone repay the substantial principle. To address this pressing issue, Chinese authorities have implemented a sequence of polices over the last decade to mitigate local government debt risk. We first provide a comprehensive examination of these policies through Local Government Financing Vehicle (LGFV) bond pricing.

Identifying the Government-Led Credit Cycle in LGFV Bonds – To investigate the market reaction to these policies, we focus on bonds issued by LGFVs. As unofficial off-budget obligations, LGFV bonds can be viewed as "junior" debts of local governments. Their close connection to local governments, together with their juniority, render them great sensitivity to these policies, and therfore make them the most suitable asset class for our analyses.

From a cross-regional perspective, we identify a government-led credit cycle in LGFV bonds. To capture this cycle, we classify cities into "risky" versus "healthy" by sorting them into terciles each month, based on the average credit spreads of 1-5 year maturity LGFV bonds over the preceding 12 months. Cities in the top tercile are defined as "risky".[3] Risky cities are typically located in western provinces such as Guizhou, Yunnan, Qinghai, and Gansu, whereas healthy cities are typically located in eastern regions like Beijing, Shanghai, Zhejiang, and Jiangsu. Panel (a) in Figure 1 plots the IssueSize-weighted average credit spreads for LGFV bonds in risky and healthy cities, along with their spread difference. Panel (b) plots cross-city spread difference after controlling for bond characteristics, LGFV fundamentals, and potential market-wide fluctuations in credit spreads. We observe a credit cycle in LGFV bonds, reflected in the cross-city spread gap and characterized by three waves of divergence followed by a sharp convergence.

This credit cycle in LGFV bonds is "government-led" in the sense that each wave is triggered by a remarkable policy. The first policy – "Guidelines on the Improvement of Local Government Debt Management" (commonly referred to as "Directive No.43") released in October 2014 – is the first policy trying to disentangle local governments with

[1]Global non-financial sector debts grow from 60.13 trillion USD (174% of GDP) in 2001 to 236.44 trillion USD (229.5% of GDP) in 2024. This expansion accelerates after 2008, driven primarily by general government debt, whose share rises from 29.52% in 2007 to 37.11% in 2024.

[2]The surge in local government debts, particularly local government financing vehicle debts, was fueled by the "CNY 4 Trillion" stimulus launched in November 2008 to counter the Global Financial Crisis (Chen, He, and Liu (2020)); see also Bai, Hsieh, and Song (2016) and Cong et al. (2019).

[3]The credit cycle in LGFV bonds is robust to alternative classification methods, persisting when regions are sorted by debt-to-GDP ratios or classified by official designations.

LGFVs. Despite its symbol of the beginning of mitigating local government debt risk, it just spurs a modest wave in credit cycle, due to the mixed market interpretation to the implicit government bailout embedded in LGFV bonds.[4]

The market reaction to the second policy – "New Regulations on Asset Management" ("New Regulation") released in April 2018 – is substantial, as the cross-city spread gap expanded from an average of 32.1 bps to an average of 108.4 bps. The "New Regulation" prohibits asset management products, predominantly in the shadow banking sector,[5] from providing principal and return guarantees to investors, thereby aiming to dismantle the practice of implicit guarantees (rigid redemption). This move signals the government's intent to foster a more market-oriented asset management industry in which risks and returns are properly priced and borne by investors. Although the regulation directly targets the asset management sector, it is broadly interpreted by the market as part of a wider policy shift toward reducing implicit guarantees. Consequently, market participants reassess the likelihood of bailouts for other implicitly guaranteed assets, including LGFV bonds. The resulting decline in perceived bailout probability leaves LGFV bonds in riskier cities more exposed to outright default, thereby driving up a divergence wave in the credit cycle.

The most pronounced divergence wave, during which the cross-city spread gap surges to around 300 bps, emerges after November 2020, when a series of strict regulations on the credit markets are gradually implemented following the Yongmei default (hereafter "Strict Regulation"). The Ministry of Finance classifies provinces into four tiers by debt risk and publicly states that local governments should take responsibility for their hidden debts, demonstrating a firm stance against bailouts for local government debts.[6] A dramatic reduction in perceived central bailout probability further amplifies the divergence wave in the LGFV bond credit cycle.

In recent years, collapsing land revenue has dragged local governments to the brink of insolvency. Facing this pressing challenge, in July 2023 central authorities pledge to implement "A Basket of Debt Resolution Plans" (hereafter "Debt Resolution") to resolve the urgent local debt risks. Measures include resolving existing LGFV debts by restructuring them via banks or swapping them into municipal bonds, alongside stringent regulation over new issuance. These measures demonstrate central government's aversion to outright defaults on LGFV debts, strengthening market belief in central bailout. This triggers a sharp convergence in the LGFV bond credit cycle, with cross-city spread difference shrinking from around 300 bps to around 50 bps in just half a year.

[4] Investors may interpret this policy as shifting guarantee provider from city-level governments towards provincial governments, as argued by Liu, Lyu, and Yu (2021).

[5] including wealth management products, trust products, and asset management products issued by securities firms, fund subsidiaries and private funds.

[6] Finance Minister Kun Liu vividly expresses this stance: "Whoever incurs the debt must take responsibility for it – just as each family must take responsibility for its own children."

Explaining the Government-Led Credit Cycle in LGFV Bonds – We show that the credit cycle in LGFV bonds is driven primarily by shifting market perceptions of central government bailout probability, rather than by regional economic fundamentals or bond market liquidity. We formalize this idea in a simple intensity-based credit risk model in which credit spreads are determined by three components – fundamental-based default risk (Duffie and Singleton (1999)), liquidity premium (Longstaff, Mithal, and Neis (2005)), and central government bailout probability (Geng and Pan (2024)). This model implies three mechanisms behind the time variation in cross-sectional spread differences, thereby shaping the credit cycle. The first is a *fundamentals mechanism*, under which the cycle arises from time-varying heterogeneity in economic fundamentals. The second is a *liquidity mechanism*, under which the cycle is driven by time-varying heterogeneity in the liquidity premium. The third is a *bailout mechanism*, under which the cycle is generated by a time-varying multiplier that scales the sensitivity of credit spreads to fundamentals, driven by evolving perceptions of central government bailout probability.

Empirically, we find that the bailout mechanism is the primary driver of the LGFV bond credit cycle. First, the sensitivity of LGFV bond credit spreads to regional fundamentals exhibits a pronounced cyclical pattern aligned with the credit cycle – rising during divergence episodes and falling during the convergence episode – consistent with the bailout mechanism. Second, while the fundamental and liquidity differences between high- and low-risk cities also show similar cyclical patterns, their magnitudes are relatively smaller. At the divergence peak in December 2022, these components account for 28% and 7% of the total spread gap increase, respectively. The remaining 65% is attributable to the bailout mechanism. We further estimate a schedule of bailout probabilities – in January 2017, December 2019, December 2022, and July 2025 – that are jointly consistent with the data. For example, assuming a bailout probability of 90% in January 2017, we estimate that it declined to 71% by December 2019, fell further to 36% by December 2022, and recovered to 86% by July 2025 following the "Debt Resolution" policy. Other estimated schedules are provided and plotted later in the paper.

Dual Impacts on Local Commercial Banks – After identifying the credit cycle in LGFV bonds, we examine its impact on local commercial banks.[7] The susceptibility of local commercial banks arises from the fact that LGFVs are their key borrowers – by the end of 2024, LGFV loans account for 37.86% of total corporate loans and 22.42% of total loans among listed local commercial banks. We focus on the "Debt Resolution" policy, which provides the cleanest setting to study how shocks to LGFVs propagate to the banking sector. Overall, we find a dual impact on local commercial banks. It benefits those in

[7]Theoretical studies on government-bank interactions highlight the "sovereign-bank nexus" (Acharya, Drechsler, and Schnabl (2014), Farhi and Tirole (2018), and Cooper and Nikolov (2018)). Empirical works examine the bailout pricing for banks (Kelly, Lustig, and Nieuwerburgh (2016), Hett and Schmidt (2017), Atkeson et al. (2019), and Berndt, Duffie, and Zhu (2025)). Studies on China include Chen, He, and Liu (2020), Gao, Ru, and Tang (2021), Liu, Wang, and Zhou (2024), and Zhu et al. (2025).

high-risk cities by narrowing subordinated bond spreads via LGFV pricing spillovers, but also hurts them by depressing profitability, reducing market share, and increasing consolidation risk, elevating their reliance on financial investments.

Regarding the beneficial effects, we show that the cross-regional spread gap of bank subordinated bonds converges after "Debt Resolution". We find cross-sectional predictability whereby changes in LGFV bond spreads in month t predict subsequent changes in bank subordinated bond spreads in month $t+\tau$, with predictive strength increasing in τ. This pattern indicates that, while contemporaneous correlation exists, investors gradually price in the policy-induced improvement in LGFV solvency over time, leading to stronger spillovers to bank subordinated bonds as τ rises. Because LGFVs are major borrowers from local banks, bank solvency is closely tied to LGFV solvency through balance-sheet contagion. Subordinated bonds, as the most junior type of bank debt, have the highest loss given default and are thereby the most sensitive to bank credit risk. Through this spillover channel, the "Debt Resolution" policy benefits banks in high-risk cities by narrowing their subordinated bond spreads.

In contrast to the beneficial effects, we also find that the "Debt Resolution" policy adversely affects local commercial banks in high-risk cities along three dimensions. First, banks in riskier cities experience a larger decline in profitability, as measured by net interest margins. This occurs because the sharper reduction in LGFV bond yield-to-maturity in riskier cities translates into a proportionally larger decline in the interest rates charged on new LGFV loans. The "Debt Resolution" policy requires local banks to restructure existing matured but insolvent LGFV debts – which often originated as high-interest bank loans or, especially, as even higher-interest shadow-banking loans – by extending them into lower-interest bank loans. As a result, the interest income earned by banks in riskier cities experiences a pronounced and persistent decline.

Second, the local banking sector becomes more concentrated in low-risk cities. This is initially reflected in the shrinking market shares of banks in high-risk cities. Under the "Debt Resolution" policy, existing LGFV debts are partly swapped into municipal bonds, while new issuance is strictly regulated. These measures are implemented more intensively in high-risk cities, generating a more pronounced contraction in LGFV borrowing demand for their banks. Moreover, as profitability declines and LGFV lending contracts, banks in riskier cities are pushed closer to the margin of exit, typically in the form of consolidation.

Finally, in response to these adverse shocks, banks in high-risk cities reduce reliance on traditional lending and increase dependence on financial investments, most of which are long-term government bonds. Consequently, these banks are exposed to greater duration risk, reminiscent of the conditions surrounding the collapse of Silicon Valley Bank in the United States.

Related Literature – Our paper is related to the vast literature on resource allocation under government intervention. On the theoretical side, Song, Storesletten, and Zilibotti (2011) model differential credit access between state-owned enterprises ("SOEs") and non-SOEs in China; Song and Xiong (2024) show how local officials' career incentives generate short-termism and overleveraging; and Sockin and Xiong (2024) model a government-centric equilibrium in which the market's role in information discovery is weakened. On the empirical side, studies document credit favoring state-owned firms and government-connected businesses in China (Bai, Hsieh, and Song (2016), Cong et al. (2019), and Hu et al. (2025)), which tightens private firms' funding constraints and dampens real activities (Huang, Pagano, and Panizza (2020)). Related, Whited and Zhao (2021) show significant misallocation of financial liabilities in China's manufacturing firms. The closest to our study is Geng and Pan (2024), who quantify credit misallocation by estimating a time series of SOE premium from corporate bond pricing. As this literature largely focuses on resource allocation toward conventional SOEs, we contribute by studying LGFVs. While legally classified as SOEs, LGFVs exhibit a stronger and more direct linkage to local governments, effectively functioning as quasi-municipal entities. We identify a government-led credit cycle in the cross-regional spread gap of LGFV bonds, which is driven primarily by evolving market perceptions of central government bailout probability.

Our paper contributes to the credit pricing literature by providing the first comprehensive analysis of LGFV bond pricing in China. For the U.S. market, factors of corporate bond credit spreads are well established, including default risk (Merton (1974) and Duffie and Singleton (1999)), liquidity (Longstaff, Mithal, and Neis (2005), Bao, Pan, and Wang (2011), He and Xiong (2012), and Chen et al. (2018)), and bailout expectations (Hett and Schmidt (2017), Berndt, Duffie, and Zhu (2025), and Geng and Pan (2024)). For China's LGFV bonds, prior studies identify factors such as local debt ratios (Liu, Lyu, and Yu (2021)), flight-to-safety behavior (Zhu et al. (2022)), real estate GDP and political risk (Ang, Bai, and Zhou (2023)), and biodiversity costs (Chen et al. (2024)). However, most studies focus on static pricing relationships, leaving the evolution of information content – one of the most striking features of LGFV bond market – largely unexplored. Supplementing this literature, we provide the first comprehensive analysis of how LGFV bond pricing evolves across all major policies aimed at mitigating local debt risk.

Our paper also relates to studies on government-bank interactions. Theoretical work highlights the "doom loop" or "sovereign-bank nexus" between sovereign and bank balance sheets (Acharya, Drechsler, and Schnabl (2014), Farhi and Tirole (2018), and Cooper and Nikolov (2018)). Empirical work studies the pricing of government bailout for U.S. banks after the 2008 financial crisis (Kelly, Lustig, and Nieuwerburgh (2016), Hett and Schmidt (2017), Atkeson et al. (2019), and Berndt, Duffie, and Zhu (2025)). For China, existing studies examine shadow banking upsurge fueled by local government debt expansion (Chen, He, and Liu (2020)), selective LGFV defaults toward politically weak banks (Gao, Ru, and Tang (2021)), and NCD pricing of government guarantees (Liu, Wang, and Zhou (2024) and Zhu et al. (2025)). Relative to this literature, we show how policies aimed at mitigating local debt risk embedded in LGFV bonds feed back into local banks' funding costs and real outcomes. Our focus on subordinated bank bonds also complements existing work on bank bonds, which has largely centered on NCDs, and connects to broader analyses of how policy shocks shape bank funding conditions and credit supply (Drechsler, Savov, and Schnabl (2023)).

Finally, we contribute to the literature linking credit cycles to real economic outcomes. Gilchrist and Zakrajšek (2012) construct the GZ credit spread index and show that innovations in its unpredictable component – the excess bond premium – robustly predict economic activity. Ghaderi et al. (2025) extend this series back to 1926 and document its long-run predictive power for future activity and recessions. At a global level, Boyarchenko and Elias (2024) identify a global credit cycle that jointly drives corporate bond returns, credit allocation, and real outcomes, and Krishnamurthy and Muir (2025) characterize credit and output dynamics across financial crisis cycles using a 150-year, 17-country credit spread dataset. Our study adds to this literature by identifying a government-led credit cycle in China's LGFV bonds and tracing its effects on both asset pricing and the real outcomes of local banks.

The rest of our paper is organized as follows. Section 1 provides background information. Section 2 displays summary statistics. Section 3 identifies the government-led credit cycle in LGFV bonds, and tests the mechanisms based on an intensity-based credit risk model. Section 4 investigates the pricing spillovers of LGFV bonds to local bank subordinated bonds. Section 5 examines the real effects. Section 6 concludes. More detailed analyses are provided in Appendix.

1 Institutional Background

1.1 China's LGFVs and Municipal Bonds

The Local Government Financing Vehicles (LGFVs, or "Chengtou" in Chinese) were born of local governments' financing demand. The 1994 tax-sharing reform centralized revenues while kept expenditures decentralized, leading to a huge fiscal deficit faced by local governments. Prohibited from directly issuing municipal bonds at that time, they resorted to off-budget financing channels though LGFVs.

Firstly birthed in 1998, LGFVs were created to both engage in infrastructure investment and broaden financing channels. Typically, local government injects land-use rights or existing assets such as highways or bridges to LGFVs, which they use as collateral to raise money. Besides bank loans, LGFVs can also issue bonds, which are corporate bonds in a legal sense but are viewed as quasi-municipal bonds due to their embedded implicit guarantees from local governments.

LGFVs surged rapidly following the "CNY 4 Trillion" stimulus plan in November 2008 in response to the global financial crisis, as more than two-thirds of the program were expected to be funded by local governments. Central government also introduced a series of credit expansion policies, encouraging local governments to raise bank loans through LGFVs (Bai, Hsieh, and Song (2016) and Cong et al. (2019)). As the aggressive credit policy reverts back to normal in 2010, LGFVs resort more to bond financing to roll over bank loans coming due around 2012 (Chen, He, and Liu (2020)), opening up a surging period of LGFV bonds.

As shown in Panel (a) of Figure 2, the total balance of LGFV debts expanded rapidly over the past decade, rising from 5.32 trillion CNY at the end of 2010 to 57.02 trillion CNY by the end of 2024. This growth was accompanied by a shift in composition toward greater reliance on bond financing, with the share of LGFV bonds increased from 7.14% (0.38 trillion CNY) in 2010 to 26.52% (15.12 trillion CNY) of total LGFV debts in 2024.[8] It is only after 2015 that local governments are allowed to issue municipal bonds independently. Although the Ministry of Finance has been issuing municipal bonds on behalf of provincial governments since March 2009, their market size was negligible before 2015. This scenario changes after the new Budget Law amendment in August 2014, which became effective in 2015, when provincial governments are allowed to issue municipal bonds by themselves. Municipal bonds grow rapidly since then, surging to 47.54 trillion CNY by the end of 2024.

Against this backdrop, in October 2014, the State Council releases "Guidelines on the Improvement of Local Government Debt Management", which tries to disentangle local governments with LGFVs by banning off-budget financing channels though LGFVs, and additionally encourages to swap existing LGFV debts using municipal bonds. However, the resulting disentanglement between local governments and LGFVs, if any, is subtle.

The central authority promulgates a series of deleveraging policies during 2017 to 2018, the most influential one of which is "New Regulations on Asset Management" released on April 2018. It prohibits asset management products, predominantly in the shadow banking sector, from providing principal and return guarantees to investors, thereby aiming to dismantle the practice of implicit guarantees (rigid redemption). This move signals the government's intent to foster a more market-oriented asset management industry in which risks and returns are properly priced and borne by investors. Although the regulation directly targets the asset management sector, it is broadly interpreted by the market as part of a wider policy shift toward reducing implicit guarantees. Consequently, market participants reassess the likelihood of bailouts for other implicitly guaranteed assets, including LGFV bonds. The resulting decline in perceived bailout probability leaves LGFV

[8] Wind estimates the 2024 LGFV bond balance at 10.49 trillion CNY, below our estimate. The gap comes from LGFVs that requested removal from Wind's list by claiming to have become ordinary enterprises. We continue to treat these entities as LGFVs, as such transitions are unlikely to be immediate.

bonds in riskier cities more exposed to outright default, thereby driving up a divergence wave in the credit cycle.

Following the Yongmei default in November 2020, a series of strict regulations on the credit market are gradually implemented. The Ministry of Finance publicly expressed concerns on the risks of hidden local government debts, stating that central authority will not provide bailouts such that local governments should take responsibility for their hidden debts (most of which are LGFV debts). Dramatic reduction in perceived central bailout probability amplifies the divergence wave in the LGFV bond credit cycle.

The prolonged downturn in China's economy growth and property market leads to a decline in both local government tax revenues and land concession revenues, dragging the municipality's interest coverage ratio down to below 1.5 as of 2023.[9] Given the urgency of resolving local debt risks, in July 2023, central authorities pledge to implement "A Basket of Debt Resolution Plans" to resolve local debt risks, whose measures include commanding local banks to restructure matured but insolvent LGFV debts with capped interest rates, and swapping LGFV debts with municipal bonds or even central government bonds. These measures demonstrate central governments' aversion to outright defaults on LGFV debts, strengthening market belief in central bailout and thereby triggering a sharp convergence in the LGFV bond credit cycle.

1.2 China's Commercial Banks

China's commercial banks comprise four major categories: the six largest commercial banks, twelve joint-stock commercial banks, urban commercial banks, and rural commercial banks, as well as additional types of small-sized banks (including private banks, foreign legal-person banks, and small rural cooperative institutions). The six largest banks (accounting for 44.7% of total assets among four major categories in 2024) and twelve joint-stock banks (accounting for 25.4%) operate nationwide. In contrast, urban and rural commercial banks rely greatly on local markets. We refer to them as "local banks" in this sense.

Local banks have become increasingly important in China's banking system. Panel (a) of Figure 3 shows their asset share among the four major bank types rising from 13.4% in 2010 to 29.9% in 2024, with 125 urban and 1,578 rural commercial banks by the end of 2024. Beyond their growing size, local banks play a central role in LGFV debt accumulation. After the 1998 vertical reform of the six largest banks, local governments lost direct control over their credit approval, but still retained substantial influence over local banks through equity stakes, executive appointments, fiscal subsidies, and tax incentives. Under pressure from regional economic tournaments (Song and Xiong (2024)),

[9] Local governments in China rely on land concession revenue to fund both municipal special debts and off-budget LGFV debts. Rogoff and Yang (2024) suggest that real estate is running into diminishing returns to China' growth, while at the same time being a significant driver of local government debt.

local officials direct local banks to support local entrepreneurs, including LGFVs, thereby exacerbating local government leverage and tightly intertwining local banks with LGFVs. Panel (b) of Figure 3 shows that LGFVs are key borrowers from local banks. As of 2024, LGFV loans account for 37.86% of total corporate loans and 22.42% of all loans in the listed local bank sample.

The expansion of China's banking system is also reflected in the growing balance of bank bonds. Commercial banks issue three types of bonds in the interbank market, ranked by seniority: interbank negotiable certificate of deposit (IBNCD), senior bonds, and subordinated bonds. Established in December 2013, IBNCDs are short-term instruments typically with maturities under one year. By the end of 2024, their outstanding balance reached 19.3 trillion CNY, 34% (6.6 trillion CNY) of which is issued by local banks. Senior bonds are used for routine purposes, such as replenishing working capital and facilitating loan origination. Their market size is the smallest among the three types, with only 3.5 trillion CNY in 2024, 40% (1.4 trillion CNY) of which is issued by local banks. Subordinated bonds are a standard Tier 2 capital instrument aimed at satisfying regulatory capital adequacy requirements. Since the introduction of the Basel III framework in 2010, they have been increasingly adopted by commercial banks to enhance capital quality and loss-absorbing capacity. Their outstanding balance amounts to 9.2 trillion CNY in 2024, with local banks contributing 20% (1.8 trillion CNY).

2 Data and Summary Statistics

2.1 LGFV Bond Sample

In this paper, we focus our analyses mainly on LGFV bonds in China. We obtain our data from Wind, a Chinese financial data provider. In addition to Wind's LGFV classification, we continue to treat entities that recently requested removal from Wind's list by claiming to have become ordinary enterprises as LGFVs, as such transitions are unlikely to be immediate. Legally as corporate bonds, LGFV bonds are categorized into three types similar in structure to their counterparts in the U.S.: the medium-term notes traded in the inter-bank market, the exchange-traded corporate bonds, and the enterprise bonds traded in both markets. Within our traded LGFV bond sample, these three types account for 61%, 2%, and 37% of the total bond number, while their shares in total issuance size are 47%, 1%, and 52%, respectively. We obtain fixed-rate LGFV bonds of these three types, exclude private placement bonds or bonds with maturity less than one year, and focus on the sample of traded bonds to leverage their market price information.

Table 1 summarizes our LGFV bond sample. The sample period, starting from January 2011 to July 2025, is divided into five phases by four policies: "Directive No.43" in October 2014, "New Regulation" in April 2018, "Strict Regulation" in November 2020, and "Debt Resolution" in July 2023. Panel A summarizes bond-level variables. Following the convention in this market, we use the Chinese Development Bank (CDB) bonds as the reference curve (constructed by linear interpolation) for calculating credit spreads. *CreditSpread* is calculated as the YTM minus the CDB yield of the same maturity, computed using the last transaction price of the month. We convert letter grades of *Ratings* into numerical numbers by assigning 1 to AAA, 2 to AA+, 3 to AA, 4 to AA-, and so on. *Maturity* is the remaining years to the maturity day. *Age* is the passing years from the carry date. *IssueSize* is the total amount at issuance. *Exch* equals 1 for exchange-traded bonds and 0 for interbank-traded bonds. *Callable* (*Puttable*) is 1 for bonds issued with callable (puttable) options.

Two price-based bond-level liquidity measures are constructed. The first is the *Amihud* ratio of Amihud (2002), defined as the monthly average ratio of daily absolute returns to trading amount, capturing the price impact per unit of trading in the Kyle (1985) model. The second is the *TwoDayHighLow* estimator of Abdi and Ranaldo (2017), which infers bid-ask spreads for illiquid securities when quote data are unavailable – a setting that fits LGFV bonds well, given their low trading frequency and largely missing quote data. LGFV bonds with higher *Amihud* and *TwoDayHighLow* face higher transaction costs and are less liquid. From Table 1, we can recognize that through phases, LGFV bonds exhibit shortening maturity, shrinking issuance size, greater interbank-traded proportion, and improved liquidity condition.

Panel B summarizes firm-level variables of LGFVs, including size, profitability and leverage. The profitability indicator *ROA.LastYear* is calcaulted as the LGFV's prior-year ratio of net profit to total asset, and the leverage indicator *Leverage.LastYear* is the LGFV's prior-year ratio of total liability to total asset. To prevent potential data errors or outliers from driving our results, we take the conservative treatment by winsorizing the credit spreads, liquidity measures and accounting variables at lower 0.5% and upper 99.5% of the sample. Over time, LGFVs suffer from collapsing profitability and accumulating leverage, despite an expanding firm size.

Panel C summarizes provincial economic and fiscal variables, including two revenue indicators, one leverage indicator, and one market-perceived indicator. The first indicator *LnGDP.LastQuarter* measures general economic revenue of each province. The second indicator that measures local government revenue condition is *SelfSufficiencyRatio.LastYear* – the prior-year ratio of a local government's general budget revenue to its expenditure.[10] Third, leverage of the local government is measured by *DebttoGDPRatio.LastYear* – the prior-year municipal debt-to-GDP ratio. Finally, the market perception of local government's fundamental credit risk is measured by *AvgMuniSpread.Past12M*, calculated as

[10] The general budget – analogous to the U.S. municipal general fund – captures routine fiscal revenues and expenditures. Accordingly, the self-sufficiency ratio calculated using the general budget best measures a municipality's fundamental revenue coverage capacity.

the IssueSize-weighted average credit spreads of 3-7 year maturity municipal bonds over the prior 12 months.[11] The last two indicators became available only after local governments were allowed to issue municipal bonds independently, so they don't show up in the "Pre Directive No.43" phase. All firm-level and provincial variables are lagged to prevent possible forward-looking bias in LGFV bond pricing analyses. Over time, local governments suffer from decreasing self-sufficiency ratio and increasing municipal bond credit spreads.

2.2 Municipal and Local Bank Bond Sample

In addition to LGFV bonds, we also collect municipal bonds and local bank bonds to study the pricing spillover effects. For municipal bonds, we only incorporate those independently issued by provincial governments after 2015, or equivalently exclude those issued by Ministry of Finance before 2015. The sample period of municipal bonds begins from October 2015 when they became sufficiently available for analyses. For local bank bonds (issued by urban and rural commercial banks), they fall into three types, ranked by seniority: inter-bank negotiable certificate of deposit (IBNCD), senior bonds, and subordinated bonds. Within our local bank bond sample, these three types account for 72%, 12.6%, and 15.4% of the total issuance size, respectively. The sample period of local bank bonds begins from January 2015 when they became sufficiently available for analyses. For all bonds other than IBNCDs, we obtain fixed-rate traded bonds and exclude those with maturity less than one year.

Table 2 summarizes this bond sample. From the table, we can notice that all bank subordinated bonds are callable bonds, which are generally exercised on the execution day. Therefore, *MaturityToExecution* – the remaining years to the execution day – fits bank subordinated bonds better than *Maturity*. Consistently, *CreditSpread* of bank subordinated bonds are calculated as the yield-to-execution (YTE) minus the CDB yield of matching maturity-to-execution. Other variables have the same definitions as in Table 1.

Compared with LGFV bonds, municipal bonds have lower credit spreads, better ratings, longer maturity, large issuance size, greater interbank-traded proportion, and less options embedded. Comparing three types of local bank bonds, none of them are exchange-traded or puttable bonds. Among them, bank subordinated bonds have the highest credit spreads, the worst ratings, and the longest maturity.

2.3 Local Bank Sample

Table A1 displays summary statistics of local bank samples around 2023Q3 "Debt Resolution". Two coverages of local banks are used. For a narrow coverage, disclosed

[11] In calculating municipal bond credit spreads, we adopt the CDB yield as a unified reference rate to maintain comparability across bond types, which can result in negative municipal bond credit spreads. This is not a concern, as we focus on cross-regional differences rather than the level of credit spreads.

local bank sample (in Panel A) is constituted of urban and rural commercial banks with publicly-disclosed financial statements each quarter.

Dependent variables of the disclosed local bank sample fall into three categories. The first category is a bank-specific profitability indicator *NetInterestMargin*, which is the ratio of net interest income to interest asset. This indicator is specifically suitable for banks because their profits mainly come from the net interest income. The second category contains size variables like the amount of total asset, total loan, and net profit. The cross-sectional variation in these variables represents the variation in market shares, shedding light on the market concentration of local bank industry. Finally, the third category contains operation indicators. *LoanToAsset* (the ratio of total loan to total asset) and *LoanDepositRatio* (the ratio of total loan to total deposit) represent local banks' reliance on loan asset, while *FinInvestmentToAsset* (the ratio of financial investment to total asset) represents their reliance on financial investments.

For a broader coverage, Panel B also incorporates local banks without publicly-disclosed financial statements. Its unique dependent variable *BankConsolidatedDummy* is a dummy variable indicating whether the bank has been consolidated or not. This facilitates our investigation on the banking industry exit, supplementing a perspective of external margins.

Among all independent variables, the core variable of interest is *CityRiskyMeasure*, measured by the city-level IssueSize-weighted average credit spreads of 1-5 year maturity LGFV bonds over pre-policy 1Y window. It proxies for each city's pre-policy exposure to LGFV debt credit risk, and thus reflects the policy intensity. Control variables include three bank fundamental indicators, two city-level economic indicators, and two provincial economic indicators. Among them, *ROA.LastQuarter* is the bank's prior-quarter ratio of net profit to total asset, and *CoreTier1CapitalAdequacyRatio.LastQuarter* is the bank's prior-quarter ratio of core tier1 net capital to risk-weighted asset. To prevent potential data errors or outliers from driving our results, we take the conservative treatment by winsorizing all accounting variables at lower 0.5% and upper 99.5% of the sample.

3 The Government-Led Credit Cycle in LGFV Bonds

In this section, we investigate the market reaction to policies aimed at mitigating local government debt risk, through the lens of LGFV bond pricing. In Section 3.1, we identify a government-led credit cycle in LGFV bonds, characterized by three waves of cross-regional divergence followed by a sharp convergence, each triggered by a remarkable policy. Then in Section 3.2, we propose fundamentals, liquidity, and bailout mechanisms based on an intensity-based credit risk model, and empirically show the bailout mechanism as the primary driver.

3.1 Measuring the Credit Cycle

In the last decade, there are four landmark policies aimed at mitigating local government debt risk. First, "Directive No.43" released in October 2014 permits provincial governments to issue municipal bonds and tries to disentangle local governments with LGFVs. Second, "New Regulations on Asset Management" released in April 2018 prohibits asset management products from providing principal and return guarantees to investors, signaling the government's policy shift toward reducing implicit guarantees. Third, a series of strict regulations on the credit market are gradually implemented since November 2020, demonstrating a firm stance against bailouts for local government debts. Finally, "A Basket of Debt Resolution Plans" announced in July 2023 demonstrates central governments' aversion to outright defaults on LGFV debts.

Market interpretations of these policies are best priced in LGFV bonds, which can be viewed as "junior" debts of local governments. We indeed identify a credit cycle in LGFV bonds, which is "government-led" in the sense that each wave is triggered by a remarkable policy. To capture this cycle, we classify cities into "risky" versus "healthy" by sorting them into terciles each month, based on the city-level IssueSize-weighted average credit spreads of 1-5 year maturity LGFV bonds over the preceding 12 months. Cities in the top tercile are defined as "risky". This classification method is based on the fact that credit spread ranks reflect credit risk ranks of LGFV bonds across cities, despite the evolving absolute levels. Risky cities are typically located in western provinces such as Guizhou, Yunnan, Qinghai, and Gansu, whereas healthy cities are typically located in eastern regions like Beijing, Shanghai, Zhejiang, and Jiangsu.

Panel (a) in Figure 1 plots the IssueSize-weighted average credit spreads for LGFV bonds in risky and healthy cities, along with their spread difference. The cross-city spread difference exhibits a credit cycle, characterized by three waves of divergence, followed by a sharp convergence. This credit cycle in LGFV bonds is robust to the classification method. Figure A1 shows the credit cycle still exists under two alternative classification methods.

We perform monthly panel regression (1) to control for bond characteristics (including ratings, maturity, age, issuance size, trading venues, and optionality), LGFV fundamentals (including size, profitability, and leverage), and potential market-wide fluctuations in credit spreads (by adding month fixed effect). Slope coefficient b_t of *RiskyCityDummy* measures the cross-city spread difference after controlling for these variables. Panel (b) in Figure 1 plots monthly slope coefficients b_t from rolling 12-month regressions (1) with 95% confidence intervals using two-way clustered standard errors. We can find the credit cycle in LGFV bonds is robust to these controls.

$$CreditSpread_{i,c,t} = a + \boldsymbol{b_t} RiskyCityDummy_{c,t} + \sum_k Controls^k + \epsilon_{i,c,t} \tag{1}$$

To quantitatively compare across phases, we perform monthly panel regression (1) in each phase separately. The regression results are summarized in Table 3. We can read that the cross-city LGFV bond spread difference is firstly 21.6 bps before October 2014, slightly increases to 32.1 bps after "Directive No.43", surges to 108.4 bps following "New Regulation", rockets to 249.1 bps induced by "Strict Regulation", and plummets to an average of 106.4 bps in response to the "Debt Resolution", which finally stabilizes around 56.6 bps in the recent one year window. These changes in cross-city LGFV bond spread gap are statistically significant except for the one following "Directive No.43", told by event study regressions reported in Table A2. We therefore focus on the last three policies in the following sections.

3.2 Explaining the Credit Cycle

To explain the credit cycle in LGFV bonds, we propose three potential mechanisms – fundamentals, liquidity, and bailout – within a simple intensity-based credit risk model built on the Duffie and Singleton (1999) framework. Empirically, we find that the bailout mechanism is the primary driver. At the divergence peak in December 2022, fundamentals and liquidity account for 28% and 7% of the total spread gap increase, respectively, with the remaining 65% attributable to the bailout mechanism.

We model all LGFV bonds in the same region homogeneously as a representative bond borne by local government. The abbreviation of within-region heterogeneity facilitates conciseness in illustrating cross-regional difference, which is our main focus. Consider a representative zero-coupon LGFV bond in region p at month t with principal F and maturity T. Its default time $\widetilde{\tau}_{p,t}$ is assumed to be the stopping time of a Poisson process with risk-neutral default arrival intensity (hazard rate) $q_{p,t} > 0$, and thus its survival probability at any given month $t + \tau$ is $S_{p,t}(\tau) = \mathbb{P}(\widetilde{\tau}_{p,t} > \tau) = e^{-q_{p,t}\tau}$.[12] Therefore, its default probability at maturity month $t + T$ is $\mathbb{P}(\widetilde{\tau}_{p,t} \leq T) = 1 - S_{p,t}(T) = 1 - e^{-q_{p,t}T} \approx q_{p,t}T$, and thereby the risk-neutral expected value that bondholders will receive at maturity is

$$E_t^Q[D_{t+T}] = F((1 - q_{p,t}T) + q_{p,t}T(1 - l_{p,t})) = F(1 - q_{p,t}l_{p,t}T) \tag{2}$$

where $l_{p,t}$ is the risk-neutral expected fractional loss of face value given default. Then the bond market price at the current month t can be computed as $D_t = e^{-rT}E_t^Q[D_{t+T}]$ where r is the risk-free rate. It can also be alternatively expressed as $D_t = e^{-y_{p,t}T}F$, where yield-to-maturity $y_{p,t}$ is the equivalent return on the bond conditional on its being held to maturity without default or trading. Equating these two expressions, the credit spread can be derived approximately as the annualized risk-neutral expected default fractional

[12]This reduced-form approach can be micro-founded by a structural default model with imperfect information about firm value, as shown by Duffie and Lando (2001).

loss:

$$s_{p,t} \equiv y_{p,t} - r = -\frac{1}{T} ln\left(\frac{E_t^Q[D_{t+T}]}{F}\right) = -\frac{1}{T} ln(1 - q_{p,t} l_{p,t} T) \approx q_{p,t} l_{p,t} \tag{3}$$

Building on the benchmark equation (3), we now introduce the liquidity premium. Investors demand an ex ante liquidity premium for illiquid securities as they cannot continuously hedge the transaction costs. Similar to Longstaff, Mithal, and Neis (2005) and He and Xiong (2012), we model the overall liquidity condition of the secondary LGFV bond market in month t by liquidity-shocked bond investors experiencing idiosyncratic liquidity shock, whose arrival follows a Poisson process with the risk-neutral intensity $\xi_t > 0$. Upon the arrival of liquidity shock, the bond investor has to pay $k_{p,t}$ fraction of the bond's market value as a transaction cost of selling the bond. Then the annualized risk-neutral expected fractional loss caused by the liquidity shock is $\xi_t k_{p,t}$, which translates to a higher required return (discount rate) for the bond. In this case, the LGFV bond's credit spread can be expressed as:

$$s_{p,t} \approx q_{p,t} l_{p,t} + \xi_t k_{p,t} \tag{4}$$

Furthermore, central government bailout also affects credit spreads, as shown in Geng and Pan (2024) and Berndt, Duffie, and Zhu (2025). Similar to their specifications, we assume the risk-neutral probability of central government bailout in the event of default as π_t, and assume central government helps to pay back the full bond principal F in the event of bailout. Now the risk-neutral expected fractional loss given default can be derived as $l_{p,t} = 1 - (\pi_t + (1 - \pi_t)(1 - L_{p,t})) = (1 - \pi_t)L_{p,t}$, where $L_{p,t}$ is the risk-neutral expected fractional loss given default in the event of no bailout. This means that the annualized risk-neutral expected default fractional loss $q_{p,t} l_{p,t}$ can be expressed as the product of the annualized risk-neutral expected default fractional loss in the event of no bailout $q_{p,t} L_{p,t}$, and the risk-neutral probability of central government non-bailout $1 - \pi_t$. Applying this decomposition to equation (4), the LGFV bond's credit spread is determined by three components – fundamental-based default risk $q_{p,t} L_{p,t}$, liquidity premium $\xi_t k_{p,t}$, and central government bailout probability π_t:

$$s_{p,t} \approx q_{p,t} L_{p,t}(1 - \pi_t) + \xi_t k_{p,t} \tag{5}$$

The LGFV bond credit spread difference between risky region r and healthy region h in month t can be further derived as

$$s_{r,t} - s_{h,t} \approx (q_{r,t} L_{r,t} - q_{h,t} L_{h,t})(1 - \pi_t) + \xi_t (k_{r,t} - k_{h,t}) \tag{6}$$

Equation (6) implies three potential mechanisms behind the time variation in cross-regional spread gap, thereby shaping the credit cycle. The first is a *fundamentals mech-*

anism, under which the cycle arises from time-varying heterogeneity in economic fundamentals $(q_{r,t}L_{r,t} - q_{h,t}L_{h,t})$. The second is a *liquidity mechanism*, under which the cycle is driven by time-varying heterogeneity in the liquidity premium $\xi_t\,(k_{r,t} - k_{h,t})$. The third is a *bailout mechanism*, under which the cycle is generated by a time-varying multiplier $(1 - \pi_t)$ that scales the sensitivity of credit spreads to economic fundamentals.

To facilitate the empirical examination of these mechanisms, we first construct four proxies for regional fundamentals. Our proxy selection is motivated by the structural model of Merton (1974), in which the risk-neutral default probability depends positively on leverage and negatively on growth prospects. Applied to our setting, regional fiscal leverage and economic prospects should be relevant. We thus proxy regional fundamental profiles using a public leverage indicator (the prior-year municipal debt-to-GDP ratio, *DebttoGDPRatio.LastYear*), an economic revenue indicator (the prior-quarter log GDP, *LnGDP.LastQuarter*), a municipal revenue indicator (the prior-year self-sufficiency ratio, *SelfSufficiencyRatio.LastYear*), and a market-perceived indicator of recent regional fundamental credit risk (the IssueSize-weighted average credit spreads of 3-7 year maturity municipal bonds over the prior 12 months, *AvgMuniSpread.Past12M*).[13] We collect provincial rather than city-level indicators over 2017-2025 due to better data availability and quality.[14] LGFV bonds in province p with a higher debt-to-GDP ratio, lower GDP, lower municipal self-sufficiency ratio, and higher average municipal bond spread should bear a higher default probability $q_{p,t}$, as well as higher fractional loss given default in the event of no bailout $L_{p,t}$, and thus command higher credit spreads $s_{p,t}$.

We also construct two price-based bond-level liquidity measures. The first is the *Amihud* ratio of Amihud (2002), which captures the price impact per unit of trading in the Kyle (1985) model. The second is the *TwoDayHighLow* estimator of Abdi and Ranaldo (2017), which infers bid-ask spreads for illiquid securities when quote data are unavailable – a setting that fits LGFV bonds well, given their low trading frequency and largely missing quote data. LGFV bonds with higher *Amihud* and *TwoDayHighLow* face higher transaction costs k_t, and should therefore command higher liquidity premia and credit spreads.

We empirically find that the bailout mechanism is the primary driver of the LGFV bond credit cycle. First, we estimate the monthly rolling 12-month regression (7), controlling for bond and LGFV characteristics as well as two liquidity measures. In line with equation (5), the monthly slope coefficient b_t is driven by the central government non-bailout probability $1 - \pi_t$. Figure 4 plots the monthly slope coefficients b_t for each fundamentals proxy, all of which display a pronounced cyclical pattern aligned with the credit cycle. This pattern implies that the central government bailout probability π_t

[13] We don't construct Merton's distance-to-default measure because we lack equity volatility data, as almost all LGFVs are unlisted.

[14] Although this period omits the "Directive No.43" policy, it is not central to our analysis given its insignificant impact on cross-regional LGFV spread gap.

decreases after the "New Regulation" and "Strict Regulation" policies, and subsequently recovers following the "Debt Resolution", consistent with the bailout mechanism. We also run panel regression for each phase, as summarized in Table A3.

$$CreditSpread_{i,p,t} = a + \boldsymbol{b_t} ProvFundamental_{p,t} + Liquidity_{i,p,t} + \sum_k Controls^k + \epsilon_{i,p,t} \quad (7)$$

Second, although fundamentals and liquidity differences between risky and healthy cities also display similar cyclical patterns (shown in Figure A2), their magnitudes are relatively smaller. Panel (a) of Figure 5 plots the rolling 12-month slope coefficients b_t on *RiskyCityDummy* from regression (1) after further controlling for fundamentals and liquidity. From January 2017 to the divergence peak in December 2022, fundamentals and liquidity account for 28% and 7% of the total spread gap increase, respectively, with the remaining 65% attributable to the bailout mechanism. We further estimate a schedule of bailout probabilities – in January 2017, December 2019, December 2022, and July 2025 – that are jointly consistent with the data. For example, as Panel (b) of Figure 5 shows, assuming a bailout probability of 90% in January 2017, we estimate that it declines to 71% by December 2019, falls further to 36% by December 2022, and recovers to 86% by July 2025 following the "Debt Resolution" policy.

4 Pricing Spillovers to Local Bank Subordinated Bonds

After identifying the credit cycle in LGFV bonds, we examine its impact on local commercial banks. We focus on the "Debt Resolution" policy, which provides the cleanest setting to study how shocks to LGFVs propagate to the banking sector. Overall, we find a dual impact on local commercial banks. In this section, we show its beneficial effects on banks in high-risk cities, while adverse effects are presented in Section 5.

Figure 6 plots the cross-regional credit spread gaps for three types of local bank bonds as well as municipal bonds. Over our sample period, there are three major events affecting the bank bond market. The first is the collapse of Baoshang bank in May 2019, which marks a departure from the longstanding full bailout practice for distressed city commercial banks, thereby reducing confidence in future bailouts and sharply widening IBNCD spreads (Liu, Wang, and Zhou (2024)). We observe a similar widening not only in IBNCDs but also in senior and subordinated bank bonds, with the latter two reacting even more strongly due to their juniority.

Two further events occur contemporaneously in November 2020. One is "Strict Regulation", whose impact on LGFVs can be transmitted to bank bonds through credit exposures. The other is the write-off of Baoshang bank's subordinated bonds, which directly lowers perceived bailout probabilities for bank bonds. Together, these events generate a divergence in cross-regional spread gaps among all types of local bank bonds after November 2020.

In contrast, the "Debt Resolution" policy announced in July 2023 impacts the bank bond market through the transmission of LGFV credit conditions – specifically, by raising the perceived bailout probability for LGFVs, which lowers their credit spread and thereby spills over to bank bond pricing. This transmission occurs because LGFVs are major borrowers from local banks, linking bank solvency closely to LGFV solvency through balance-sheet contagion. Subordinated bonds, as the most junior type of bank debt with the highest loss given default, are particularly sensitive to bank credit risk. Through this spillover channel, the "Debt Resolution" policy benefits banks in high-risk cities by narrowing their subordinated bond spreads. We therefore focus our subsequent analysis on this policy, as it provides the cleanest setting for studying how shocks to LGFVs propagate to the banking sector, given that its transmission mechanism is directly tied to LGFV bailout adjustments, whereas earlier events reflect broader banking-system shocks not exclusively originating from the LGFV market.

We test this pricing spillover effect using cross-sectional predictability. We also examine spillovers to municipal bonds, given their close linkage to LGFV bonds. For each local bank subordinated bond or municipal bond i, we calculate $\Delta Spread_{i,t}$ in each month t after the "Debt Resolution" as the credit spread in month t minus the IssueSize-weighted average spread over the pre-policy 6-month window. Similarly, we calculate the regional IssueSize-weighted average $\Delta Spread_{c,p,t}$ of 1-5 year maturity LGFV bonds in city c or province p. We then estimate the bond-level panel regression (8) over the one-year window after "Debt Resolution". With month fixed effects, b_τ captures the cross-sectional predictability of changes in LGFV bond spreads for subsequent changes in bank subordinated or municipal bond spreads τ months ahead. We perform both contemporaneous regression ($\tau = 0$) and predictive regressions with $\tau > 0$, to study the dynamic pricing predicting relationship from LGFV bonds to local bank subordinated and municipal bonds.

$$\Delta Spread_{i,c,p,t+\tau} = a + \boldsymbol{b_\tau} \Delta AvgLGFVSpread_{c,p,t} + \sum_k Controls^k + \alpha_t + \epsilon_{i,c,p,t+\tau} \tag{8}$$

Table 4 reports regression results. Following the "Debt Resolution", we find cross-sectional predictability whereby changes in LGFV bond credit spreads in month t predict subsequent changes in bank subordinated bond spreads as well as municipal bonds spreads in month $t + \tau$, indicating pricing spillovers from LGFVs to bank subordinated bonds and municipal bonds. Although contemporaneous co-movements are present, the larger and more significant predicting coefficients suggest that market takes several months to digest these spillover effects.

5 Real Effects on Local Banks

In this section, we examine the real effects of the LGFV credit cycle on local commercial banks, focusing on the "Debt Resolution" policy, which provides the cleanest setting to study how shocks to LGFVs propagate to the banking sector. In contrast to the beneficial effects documented above, we find that the "Debt Resolution" policy also adversely affects local commercial banks in high-risk cities along three dimensions. First, in Section 5.1, we find that banks in riskier cities experience a larger decline in profitability. Second, in Section 5.2, we show that the local banking sector becomes more concentrated in healthier cities along both internal and external margins – internally through a reallocation of market shares toward healthier cities, and externally via a higher exit rate of banks in riskier cities. Finally, in Section 5.3, we show that in response to these adverse impacts, banks in riskier cities reduce reliance on traditional lending and elevate dependence on financial investments.

5.1 Depressing Profitability

We find that banks in riskier cities experience a larger decline in profitability after the "Debt Resolution". As LGFVs are important debtors to local banks, the interest income from credits to LGFVs also accounts for a large portion of local banks' profit. Therefore, the sharper reduction in LGFV bond yield-to-maturity in riskier cities translates into a proportionally larger decline in the interest rates charged on new LGFV loans. Moreover, the "Debt Resolution" policy requires local banks to restructure existing matured but insolvent LGFV debts – which often originated as high-interest bank loans or, especially, as even higher-interest shadow-banking loans – by extending them into lower-interest bank loans. As a result, the interest income earned by banks in riskier cities experiences a pronounced and persistent decline.

We perform DID regression (9) around 2023Q3 "Debt Resolution". Here the dependent variable $Y_{i,c,t}$ is each bank's profitability, measured by net interest margin (NIM). We measure the intensity of policy impact to city c by a continuous variable $CityRiskyMeasure_c$, calculated as the city-level IssueSize-weighted average credit spreads of 1-5 year maturity LGFV bonds over pre-policy one-year window. Cities with higher pre-policy LGFV spreads are more exposed to LGFV debt credit risk in the absence of policy, thus should face intenser policy shocks. $Post_t$ is a dummy variable of post-policy quarters. The coefficient b of the interaction term measures the heterogeneous response of local bank profitability to the "Debt Resolution" policy. We control for bank's size and core-tier1 capital adequacy ratio, as well as city and province economic indicators. We also add quarter fixed effect to control for potential market-wide fluctuations in local bank profitability, and we add bank-type fixed effect to control for structural difference between urban and rural commercial banks. The sample period around each event spans from pre-policy 1 year to post-policy 6 quarters.

$$Y_{i,c,t} = a + \boldsymbol{b}\, CityRiskyMeasure_c \times Post_t + \sum_k Controls^k + \epsilon_{i,c,t} \tag{9}$$

Column (1-2) in Table 5 displays the DID regression results. Local banks in riskier cities suffer from significantly severer profitability decrease in response to the "Debt Resolution", compared with banks in healthier cities. In terms of economic magnitude, local banks located in a city with a one-standard-deviation higher pre-policy average LGFV bond credit spread suffer from 0.089% more profitability decrease in response to "Debt Resolution", after controlling for bank characteristics and regional economic conditions.

We further test the parallel trend assumption and analyze the dynamics in response heterogeneity by performing the dynamic event study regression (10). Event study dummy $D_t^k = \mathbb{I}\{t - EventQuarter = k\}$ indicates the current quarter t leads (lags) policy quarter (2023Q3) by $|k|$ quarters when $k \leq 0$ ($k \geq 0$). Note that the benchmark quarter is the prior-policy quarter ($k = -1$), and the policy quarter is labeled as $k = 1$ for clearer illustration. Panel (a) in Figure 7 plots the slope coefficients b_k. Pre-policy coefficients are insignificantly different from 0, supporting the parallel trend assumption that the difference between cross-city local bank profitability should be stable in absence of the policy. Therefore, it is the heterogeneous response to the policy that drives the results. Moreover, post-policy coefficients exhibit increasing magnitude, reflecting the expanding heterogeneity after the "Debt Resolution".

$$\begin{aligned} Y_{i,c,t} = & \sum_{k=-4}^{-2} \boldsymbol{b_k^{lead}} CityRiskyMeasure_c \times D_t^k + \sum_{k=1}^{6} \boldsymbol{b_k^{lags}} CityRiskyMeasure_c \times D_t^k \\ & + \sum_k Controls^k + CityRiskyMeasure_c + a_t + a_{BankType} + \epsilon_{i,c,t} \end{aligned} \tag{10}$$

Taken together, the profitability effect documented in this section and the pricing spillover effect documented in Section 4 imply that, following the 2023Q3 "Debt Resolution" policy, local banks in riskier cities experience a greater improvement in solvency than those in healthier cities, while also suffering a larger decline in profitability. The improvement in solvency comes from the reduced risk in their credits to the same-city LGFVs. However, this reduction in risk is accompanied by lower expected returns – i.e., lower yields to maturity – which in turn depresses bank profitability. While an overall welfare analysis is beyond our scope, we document a range of policy effects along these dimensions.[15]

[15] Absent the "Debt Resolution" policy, LGFV debts would have been more likely to default, imposing larger ex post losses on local bank profitability.

5.2 Increasing Market Concentration

In this subsection, we show that the local banking sector becomes more concentrated in healthier cities following the "Debt Resolution" policy. This is reflected internally in the shrinking market shares of local banks in riskier cities, and externally in a higher rate of exit of them.

5.2.1 Internal Margin

The internal margin refers to the distribution of market shares within incumbent banks. Under the "Debt Resolution" policy, existing LGFV debts are partly swapped into municipal bonds, while new issuance is strictly regulated. These measures are implemented more intensively in high-risk cities, generating a more pronounced contraction in LGFV borrowing demand for their local banks, and thereby leading to a sharper shrinkage of their market shares.

The effects from this angle can be examined using DID regression (9) around 2023Q3 "Debt Resolution" policy. Here the dependent variable $Y_{i,c,t}$ is each bank's amount of total asset, loan, or net profit. We control for bank's ROA and core-tier1 capital adequacy ratio, as well as city and province economic indicators. Other specifications are aligned with Section 5.1. The coefficient b of the interaction term measures the heterogeneous response of local bank market share to the "Debt Resolution" policy.

Column (3-8) in Table 5 displays the DID regression results. Local banks in riskier cities shrink in asset, loan, and profit amount in response to the "Debt Resolution" policy compared with banks in healthier cities. With the quarter fixed effect, these results translate into higher market concentration towards healthier cities after the "Debt Resolution" policy. In terms of economic magnitude, local banks located in a city with a one-standard-deviation higher pre-policy average LGFV bond credit spread experience, on average, an additional decrease of 17.02 billion CNY in total assets, 8.67 billion CNY in total loans, and 0.135 billion CNY in net profit, after controlling for bank characteristics and regional economic conditions.

We further test the parallel trend assumption and analyze the dynamics in response heterogeneity by performing the dynamic event study regression (10). Panel (b-d) in Figure 7 plot the slope coefficients b_k. Pre-policy coefficients are insignificantly different from 0, supporting the parallel trend assumption that there should be no increased concentration in absence of "Debt Resolution" policy. Therefore, it is the heterogeneous response to the policy that drives the results. Moreover, post-policy coefficients exhibit increasing magnitude, reflecting the crescendo concentration after the "Debt Resolution" policy shock.

An alternative explanation is that the decreased profitability and increased concentration in response to "Debt Resolution" policy could instead arise endogenously from cities' economic fundamentals. Cities more exposed to LGFV debt credit risk are generally poorer and more leveraged, such that local banks in these economically weaker cities may respond more to the policy. Against this alternative channel, we justify our story by three arguments. First, coefficients of the DID interaction term are still significant after controlling for city and province economic indicators such as GDP and leverage. Second, if city-level economic fundamentals were the main driver, dependent variables would exhibit inherently heterogeneous trends in absence of "Debt Resolution" policy. However, dynamic event study plots show no pre-policy trends.

Third, in addition to cross-city concentration, we also find within-city concentration towards banks with lower pre-policy reliance on LGFV lending following the "Debt Resolution" policy, which is difficult to be reconciled by the economic fundamentals story. For each bank i in city c, we measure its pre-policy reliance on LGFV lending by a continuous variable $BankLGFVExposure_{i,c}$, defined as the ratio of LGFV loan amount to total corporate loan amount as of the end of 2022. We then estimate a triple-differences (DDD) regression (11) around the "Debt Resolution" policy. The coefficient b of the triple interaction term captures differential changes in market shares across banks with different levels of pre-policy LGFV exposure, even within the same city. Results in Table 6 confirm that banks with higher pre-policy reliance on LGFV lending experience more severe declines in profitability and sharper contractions in market share. Banks exposed to LGFV loans more heavily are more affected by the contraction in LGFV borrowing demand and therefore experience larger losses in market share.

$$Y_{i,c,t} = a + \boldsymbol{b}\, CityRiskyMeasure_c \times Post_t \times BankLGFVExposure_{i,c} + \sum_k Controls^k + \epsilon_{i,c,t} \quad (11)$$

5.2.2 External Margin

The external margin refers to creative disruption within the banking sector. As profitability declines and LGFV borrowing demand contracts, banks in riskier cities are pushed closer to the margin of exit, typically in the form of consolidation. Figure A3 shows a sharp rise in the number of consolidated banks following the "Debt Resolution" policy, with the consolidation rate in riskier cities outpacing that in healthier cities by more than 2 percentage points cumulatively. These aggregate patterns indicate that "Debt Resolution" policy has triggered a higher rate of bank exit in riskier cities.

To examine these effects, we perform a DID Probit regression (12) around 2023Q3 "Debt Resolution" policy. The panel data is constituted of all urban and rural commercial banks including both institutions with and without publicly disclosed financial statements. $BankConsolidatedDummy_{i,c,t}$ equals 1 if the bank i has already exited the industry (which typically means having been consolidated) in quarter t, and 0 otherwise. The Probit link function $\Phi(\cdot)$ is the cumulative distribution function of the standard normal distribution. As before, the intensity of policy impact to city c is measured by the continuous variable $CityRiskyMeasure_c$, and $Post_t$ is a dummy variable of post-policy quarters. The coefficient b of the interaction term measures local banks' heterogeneous changes in the probability of being consolidated following "Debt Resolution" policy. We control for city and province economic indicators as well as quarter fixed effect.[16] The sample period spans from one year prior to the "Debt Resolution" policy to the most recent available quarter.

$$\Phi^{-1}(BankConsolidatedDummy_{i,c,t}) = a + \boldsymbol{b}\,CityRiskyMeasure_c \times Post_t + \sum_k Controls^k + \epsilon_{i,c,t} \quad (12)$$

As shown in Table 7, local banks in riskier cities experience significantly more increase in probability of being consolidated after the "Debt Resolution" policy. In terms of the marginal effect, local banks located in a city with a one-standard-deviation higher pre-policy average LGFV bond credit spread are exposed to 0.9% more increase in the probability of being consolidated after the "Debt Resolution" policy, controlling for city and province economic fundamentals.

We further test the parallel trend assumption and analyze the dynamics in response heterogeneity by performing the dynamic event study regression (10). Panel (e) in Figure 7 plots the slope coefficients b_k. Pre-policy coefficients are insignificantly different from 0, supporting the parallel trend assumption that there should be no increased concentration along external margin in absence of "Debt Resolution" policy. Therefore, it is the heterogeneous response to the policy that drives the results. Moreover, post-policy coefficients exhibit increasing magnitude, reflecting the widening concentration along external margin after the "Debt Resolution" policy shock.

5.3 Operation Adjustment

Under pressures from declining profitability, shrinking market share, and heightened consolidation probability, banks in high-risk cities reduce reliance on traditional lending and elevate dependence on financial investments after the "Debt Resolution" policy.

We measure a bank's reliance on traditional lending by *LoanToAsset*, the ratio of total loan amount to the total assets, and *LoanDepositRatio*, the ratio of total loan amount to the total deposits. Similarly, we measure a bank's reliance on financial investment by scaling its amount to total assets, denoted as *FinInvestmentToAsset*. Serving as dependent variables in DID regression (9) around 2023Q3 "Debt Resolution" policy, the coefficient b of the interaction term measures the heterogeneous operation adjustment of banks in different cities in response to the "Debt Resolution" policy. Table 8 displays the DID regression results. Banks in riskier cities attenuate reliance on loans, and meanwhile heighten reliance on financial investments. In terms of economic magnitude, banks located in a city with a one-standard-deviation higher pre-policy average LGFV bond credit

[16] We do not control for bank accounting indicators (size, ROA, core tier-1 ratio) because most banks in this extended sample do not disclose such data.

spread experience 0.9% more decrease in the ratio of loans to assets, 1.4% more decrease in the ratio of loans to deposits, and 1.6% more increase in the ratio of financial investments to assets, controlling for bank characteristics and regional economics.

We further test the parallel trend assumption and analyze the dynamics in response heterogeneity by performing the dynamic event study regression (10). Panel (f-h) in Figure 7 plot the slope coefficients b_k. Pre-policy coefficients are insignificantly different from 0, supporting the parallel trend assumption that there should be no operation adjustment in absence of "Debt Resolution" policy. Therefore, it is the heterogeneous response to the policy that drives the results. Moreover, post-policy coefficients exhibit increasing magnitude, reflecting the gradual operation adjustment after "Debt Resolution" policy.

Banks' financial investments are heavily concentrated in bonds, particularly treasury and municipal bonds. Against the backdrop of an expanding supply of municipal bonds and ultra-long special treasury bonds authorized under the "Debt Resolution" policy to swap out LGFV debts, banks have increased their holdings of these long-maturity government instruments[17]. Consequently, banks face greater duration risk, especially those in riskier cities. This elevated susceptibility to interest rate risk is reminiscent of the Silicon Valley Bank collapse in the U.S.[18]

6 Conclusion

Since the 2008 Global Financial Crisis, the public debt overhang has emerged to be a global challenge. Against this backdrop, China experiences rapid accumulation in its local government debts. Chinese authorities have implemented a sequence of polices over the last decade to mitigate local government debt risk. We first provide a comprehensive examination of these policies through the lens of LGFV bond pricing.

Investigating the market reaction to these policies, we identify a government-led credit cycle in LGFV bonds, characterized by three waves of cross-regional divergence followed by a sharp convergence. We propose fundamentals, liquidity, and bailout mechanisms based on an intensity-based credit risk model, and empirically show the bailout mechanism as the primary driving force.

Examining real effects, we find the "Debt Resolution" policy has a dual impact on local commercial banks. It benefits those in high-risk cities by narrowing subordinated bond spreads via LGFV pricing spillovers, but also hurts them by depressing profitabil-

[17] According to PwC China's China Banking Review 2023, bonds account for over 70% of the financial assets of surveyed city and rural commercial banks, and 42.7% (i.e., 70%×61%) of these bonds are issued by governments, public entities, or quasi-government entities. Consistent with our story, the report notes that banks' holdings of such bonds have risen, driven by the implementation of "Debt Resolution" policy.

[18] PBOC expressed concerns about smaller banks' bond-market risk exposure in July 2025 (Caixin Global). Subsequent bond-market downturns in 2025Q3 led to mark-to-market losses on banks' bond holdings, putting pressure on noninterest income and overall revenue at a number of listed Chinese banks (Cailian Press and Shanghai Securities News).

ity, reducing market share, and increasing consolidation risk, elevating their reliance on financial investments.

In summary, our paper provides a comprehensive examination on China's policies targeting local government debts, the dynamic evolution of LGFV bond pricing, and the dual impacts on local commercial banks. While an overall welfare analysis is beyond our scope, we document a range of policy effects that may inform future policy design.

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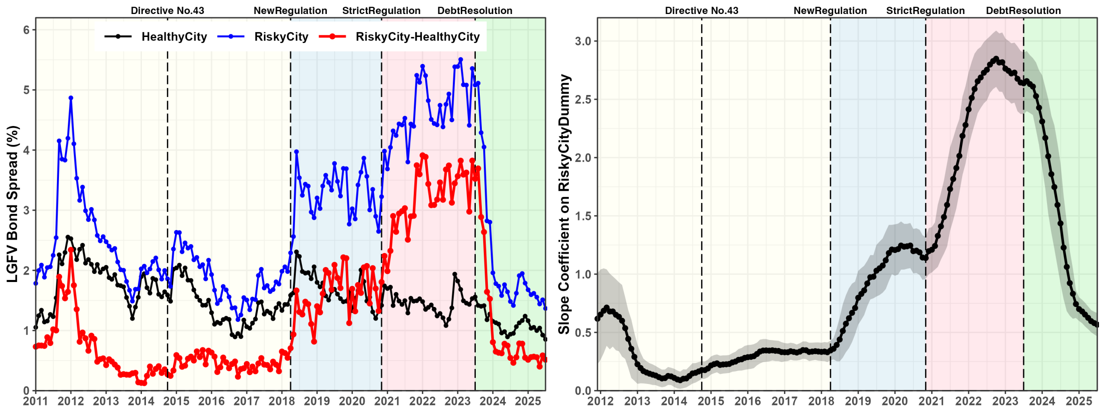
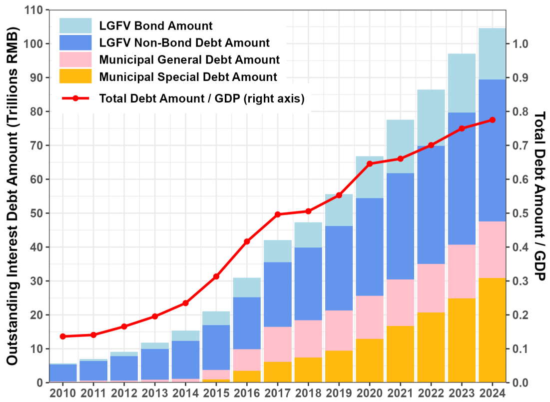
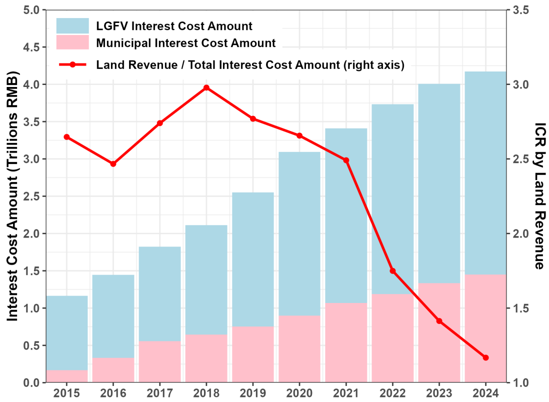


(a) **Average LGFV Bond Spread** (b) **Coefficient on RiskyCityDummy**

Figure 1. The Government-Led Credit Cycle in LGFV Bonds. Panel (a) plots IssueSize-weighted average credit spreads for LGFV bonds in risky and healthy cities, along with their spread difference. Panel (b) plots monthly slope coefficients from rolling 12-month regressions of LGFV bond credit spreads on *RiskyCityDummy* with control variables. Shaded areas indicate 95% confidence intervals using two-way clustered standard errors. Risky cities are defined as top-tercile cities by city-level IssueSize-weighted average credit spreads of 1-5 year maturity LGFV bonds over the prior 12 months.

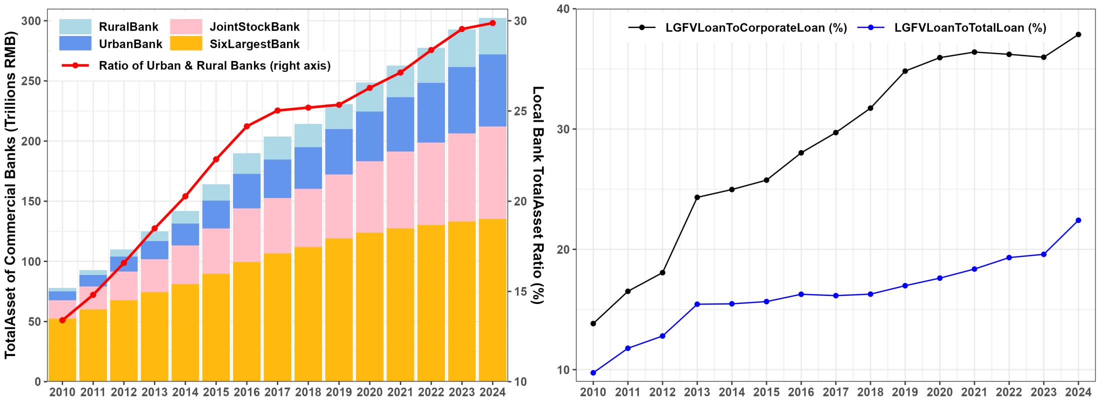


(a) Total Local Debt Amount



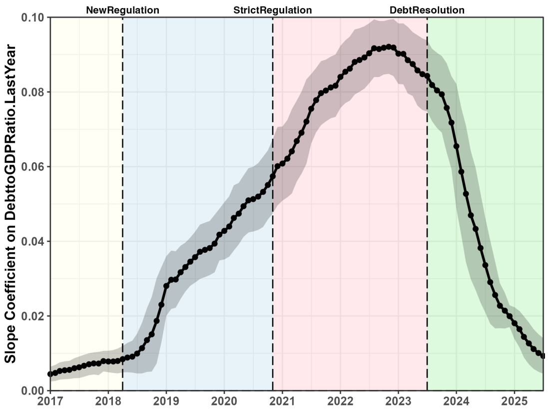
(b) Total Interest Cost Amount

Figure 2. Local Debt Amount and Interest Cost. Panel (a) displays the total outstanding amount of local interest-bearing debt on the left axis, categorized into LGFV bonds, LGFV non-bond debt (primarily loans), municipal general debt, and municipal special debt. The right axis expresses the aggregate local debt as a percentage of GDP. Panel (b) plots total interest costs of LGFV and municipal debts on the left axis, while the right axis shows the interest coverage ratio – calculated as total land revenue divided by total local debt interest costs.

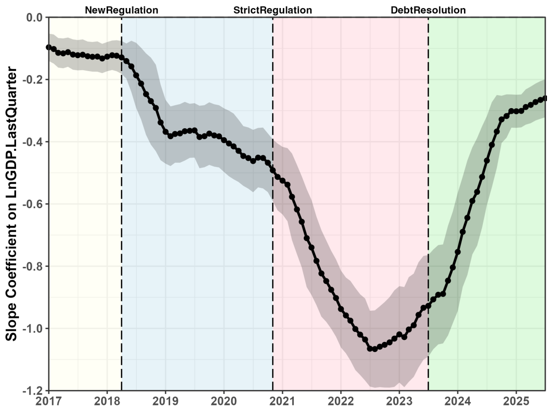


(a) Total Asset of Commercial Banks **(b) Proportion of LGFV Loans**

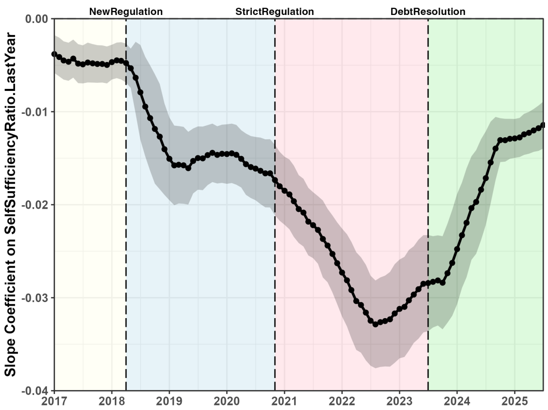
Figure 3. China's Commercial Banks. Panel (a) displays the total asset amount of China's commercial banks on the left axis, categorized into the six largest banks, twelve joint-stock banks, urban commercial banks, and rural commercial banks. The right axis plots the asset ratio of urban and rural commercial banks. Panel (b) presents the ratio of LGFV loan amount to total corporate loan amount (in black line), or to total loan amount (in blue line), among listed urban and rural commercial banks.



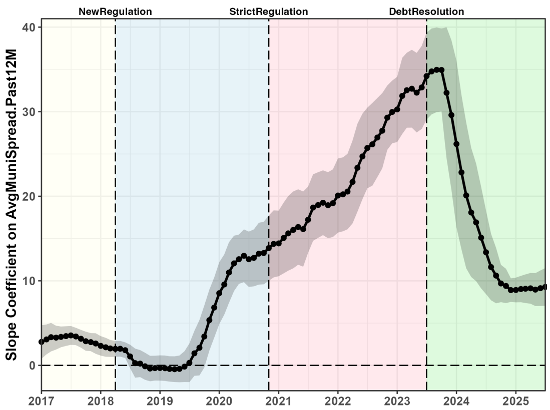
(a) **Coef. on DebttoGDPRatio.LastYear**



(b) **Coef. on LnGDP.LastQuarter**

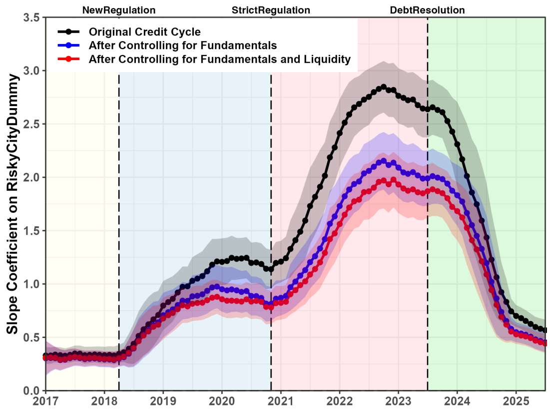


(c) **Coef. on SelfSufficiencyRatio.LastYear**

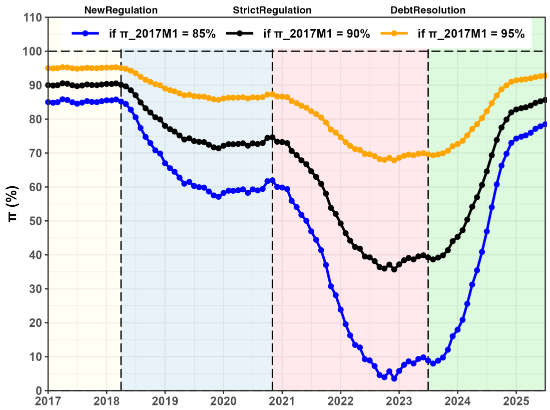


(d) **Coef. on AvgMuniSpread.Past12M**

Figure 4. Sensitivity of LGFV Bond Credit Spreads to Fundamental Profiles. Panel (a)-(d) present monthly slope coefficients from rolling 12-month regression (7) of LGFV bond credit spreads on: (a) prior-year provincial debt-to-GDP ratio, (b) prior-quarter provincial log GDP, (c) prior-year provincial fiscal self-sufficiency ratio, and (d) provincial IssueSize-weighted average credit spreads of 3-7 year maturity municipal bonds over the prior 12 months. Shaded areas indicate 95% confidence intervals using two-way clustered standard errors. All variables expect for *LnGDP.LastQuarter* are in percentages.

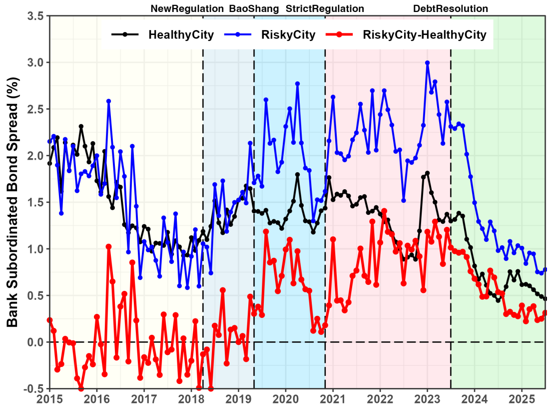


(a) **Decompose Credit Cycle**

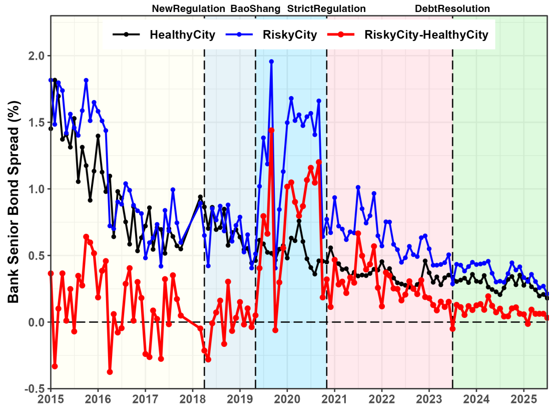


(b) **Implied Bailout Probability** π_t

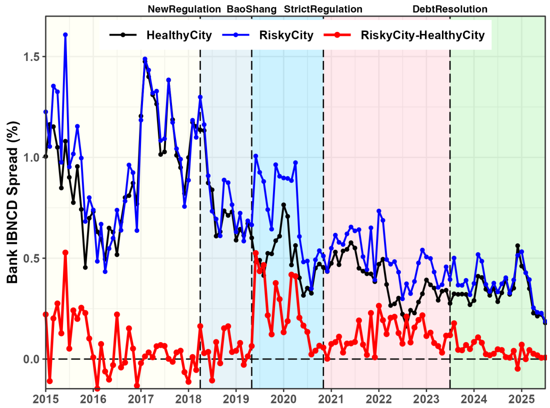
Figure 5. Decompose Credit Cycle. Panel (a) plots monthly slope coefficients from rolling 12-month regressions of LGFV bond credit spreads on *RiskyCityDummy*, with different sets of control variables. Shaded areas indicate 95% confidence intervals using two-way clustered standard errors. Panel (b) plots the implied central government bailout probability.



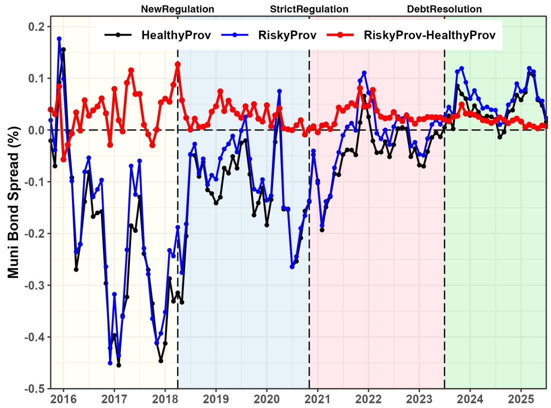
(a) Local Bank Subordinated Bonds



(b) Local Bank Senior Bonds

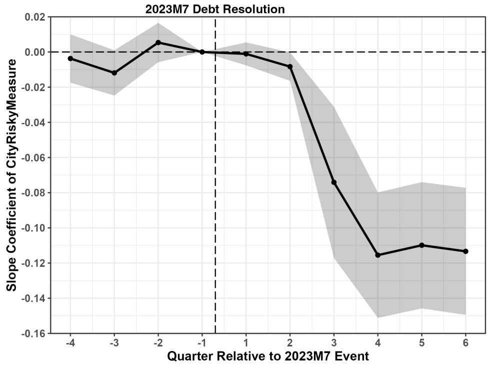


(c) Local Bank IBNCDs

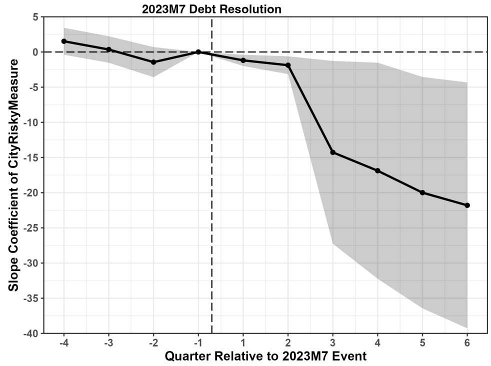


(d) Municipal Bonds

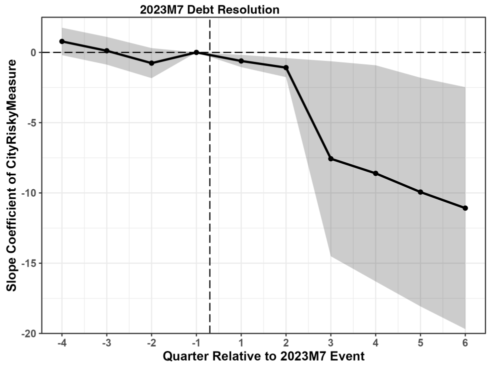
Figure 6. Cross-Regional Spread Difference of Local Bank and Municipal Bonds. These panels plot IssueSize-weighted average credit spreads for (a) local bank subordinated bonds, (b) local bank senior bonds, (c) local bank inter-bank negotiable certificates of deposit (IBNCD), and (d) municipal bonds, separately for risky and healthy regions, along with their spread differences. Risky cities (provinces) are defined uniformly as top-tercile cities (provinces) by city-level (provincial) IssueSize-weighted average credit spreads of 1-5 year maturity LGFV bonds over the prior 12 months.



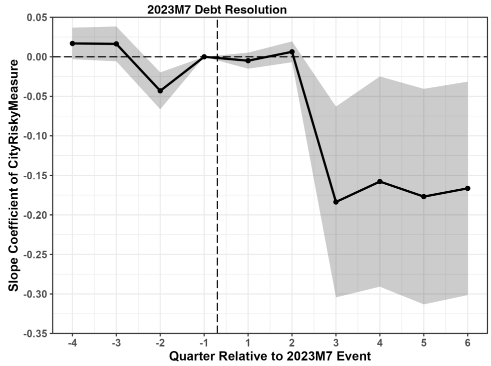
(a) NetInterestMargin



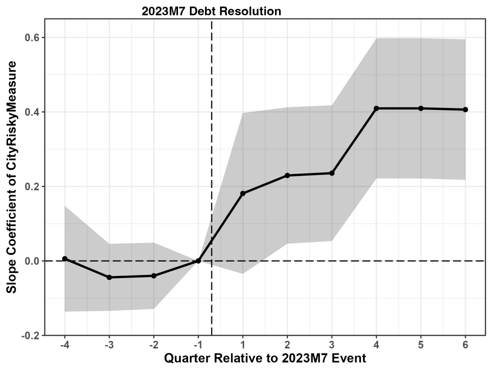
(b) TotalAsset



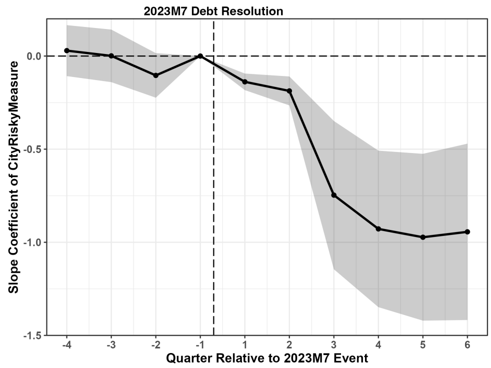
(c) TotalLoan



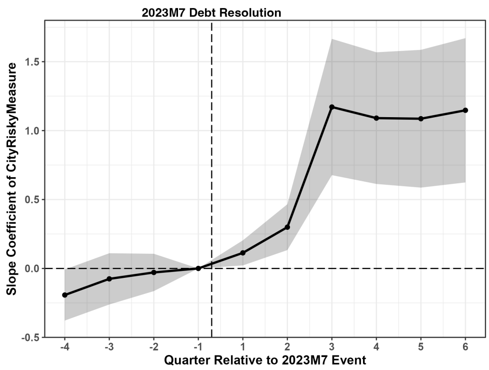
(d) NetProfit



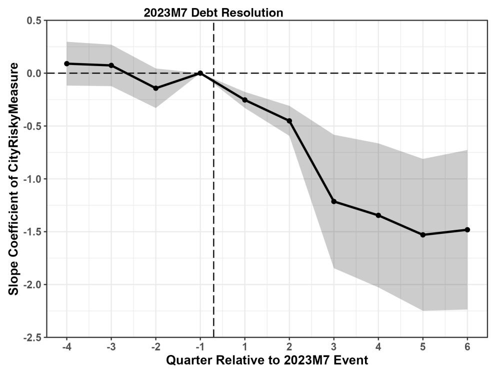
(e) $\boldsymbol{\Phi^{-1}(BankConsolidatedDummy)}$



(f) LoanToAsset



(g) FinInvestmentToAsset



(h) LoanDepositRatio

Figure 7. Dynamic Event Study Plots. Each panel plots b_k estimated from panel regression (10) with different dependent variables. *CityRiskyMeasure*, *NetInterestMargin*, *LoanToAsset*, *FinInvestmentToAsset*, *FinInvestmentToAsset*, and *LoanDepositRatio* are in percentages. *TotalAsset*, *TotalLoan*, and *NetProfit* are in billion CNY. The shaded area indicates the 95% confidence intervals using standard errors clustered by bank.

Table 1. Summary Statistics of LGFV Bonds Each Phase. The LGFV bond sample only includes bonds that traded in the corresponding month. The sample period, starting from January 2011 to July 2025, is divided into five phases by four policies: "Directive No.43" in October 2014, "New Regulation" in April 2018, "Strict Regulation" in November 2020, and "Debt Resolution" in July 2023.

	Pre Directive No.43 2011M1∼2014M9		Post Directive No.43 2014M10∼2018M3		Post NewRegulation 2018M4∼2020M10		Post StrictRegulation 2020M11∼2023M6		Post DebtResolution 2023M7∼2025M7	
Panel A: Sample Size By Phase										
NumObs	8,644		23,004		16,643		27,691		23,650	
NumBond	1,292		3,328		3,799		5,467		5,767	
NumFirm	604		1,377		1,465		1,571		1,434	
Panel B: Bond-Level Variables										
	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std
CreditSpread (%)	2.03	0.79	1.54	0.84	2.14	1.57	2.11	1.98	1.43	1.28
Rating	2.50	0.63	2.51	0.66	2.19	0.77	2.04	0.76	2.00	0.85
Maturity (yr)	5.10	1.69	4.41	1.72	3.45	1.72	3.07	1.55	3.04	1.56
Age (yr)	1.84	1.55	2.36	1.71	2.35	1.76	2.03	1.61	1.66	1.52
IssueSize (billion CNY)	1.35	0.75	1.23	0.62	1.10	0.62	0.93	0.52	0.84	0.45
Exch	0.40	0.49	0.19	0.39	0.06	0.24	0.05	0.21	0.04	0.20
Callable	0.01	0.10	0.02	0.13	0.04	0.20	0.03	0.17	0.05	0.21
Puttable	0.26	0.44	0.10	0.29	0.16	0.36	0.41	0.49	0.43	0.49
Amihud (% per billion CNY)	59.67	92.18	52.32	91.22	34.81	74.40	24.66	59.65	16.74	44.56
TwoDayHighLow (%)	0.60	0.57	0.44	0.57	0.17	0.33	0.14	0.29	0.11	0.21
Panel C: Firm-Level Variables										
LnTotalAsset.LastYear (log billion CNY)	3.16	0.88	3.20	0.83	3.71	0.98	4.00	0.86	4.27	0.88
ROA.LastYear (%)	1.77	1.57	1.27	1.15	0.88	0.77	0.66	0.60	0.44	0.60
Leverage.LastYear (%)	47.99	14.72	49.01	13.62	55.27	11.83	58.46	10.12	60.84	9.26
Panel D: Province-Level Variables										
LnGDP.LastQuarter (log billion CNY)	7.68	0.66	7.97	0.69	8.27	0.68	8.55	0.62	8.61	0.62
SelfSufficiencyRatio.LastYear (%)	62.70	19.13	58.82	17.94	55.56	16.61	52.52	15.53	50.14	13.36
DebttoGDPRatio.LastYear (%)	—	—	24.93	15.42	21.72	9.72	26.16	9.76	31.86	12.74
AvgMuniSpread.Past12M (%)	—	—	-0.25	0.08	-0.16	0.08	-0.07	0.06	0.01	0.04

Table 2. Summary Statistics of LGFV, Municipal, and Local Bank Bonds. The bond sample only includes bonds that traded in the corresponding month. Municipal bonds only include those independently issued by provincial governments after 2015. Three types of bank bonds only include those issued by urban and rural commercial banks. The sample of municipal bonds (local bank bonds) begins from October 2015 (January 2015), when they became sufficiently available for analyses.

	LGFV Bonds 2011M1∼2025M7		**Municipal Bonds** 2015M10∼2025M7		**Bank Subordinated Bonds** 2015M1∼2025M7		**Bank Senior Bonds** 2015M1∼2025M7		**IBNCDs** 2015M1∼2025M7	
	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std
NumObs	99,632		117,114		16,464		8,963		167,505	
NumBond	11,751		14,425		841		819		73,113	
CreditSpread (%)	1.82	1.49	0.00	0.12	1.58	0.94	0.51	0.35	0.60	0.44
Rating	2.20	0.78	1.00	0.00	2.71	1.09	1.44	0.71	1.51	0.88
Maturity (yr)	3.61	1.78	10.06	8.30	6.41	2.40	2.24	0.75	0.38	0.31
MaturityToExecution (yr)					2.81	1.40				
Age (yr)	2.05	1.66	1.67	1.54	2.20	1.43	0.98	0.81	0.30	0.30
IssueSize (billion CNY)	1.04	0.60	7.08	7.09	3.08	4.08	4.63	5.07	1.41	1.79
Exch	0.11	0.32	0.03	0.17	0.00	0.00	0.00	0.00	0.00	0.00
Callable	0.03	0.17	0.00	0.04	1.00	0.00	0.00	0.02	0.00	0.00
Puttable	0.29	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 3. The Government-Led Credit Cycle in LGFV Bonds. This table reports monthly panel regression (1) for LGFV bonds. The sample period, starting from January 2011 to July 2025, is divided into five phases by four policies: "Directive No.43" in October 2014, "New Regulation" in April 2018, "Strict Regulation" in November 2020, and "Debt Resolution" in July 2023. Credit spreads are in percentages. Reported in parentheses are t-stats using standard errors clustered by bond and month.

Dependent Variable:	**LGFV Bond Spread**					
	Pre Directive No.43 (2011M1-2014M9) (1)	Post Directive No.43 (2014M10-2018M3) (2)	Post NewRegulation (2018M4-2020M10) (3)	Post StrictRegulation (2020M11-2023M6) (4)	Post DebtResolution (2023M7-2025M7) (5)	Recent 1Y (2024M8-2025M7) (6)
RiskyCityDummy	**0.216*****	**0.321*****	**1.084*****	**2.491*****	**1.064*****	**0.566*****
	(6.336)	**(11.734)**	**(15.311)**	**(23.319)**	**(6.751)**	**(12.464)**
Rating	0.275***	0.296***	0.487***	0.524***	0.122***	0.060***
	(9.811)	(6.703)	(13.284)	(12.450)	(3.983)	(3.907)
Maturity	0.070***	0.023*	0.085***	0.046***	0.013	0.010
	(4.991)	(1.928)	(4.494)	(3.053)	(1.363)	(1.033)
Age	0.007	-0.057***	-0.039**	0.124***	0.058***	0.010
	(0.391)	(-5.549)	(-2.475)	(7.236)	(3.758)	(0.899)
IssueSize	-0.080**	-0.007	-0.037	-0.135***	-0.097**	-0.091***
	(-2.661)	(-0.202)	(-0.827)	(-2.969)	(-2.376)	(-3.227)
Exch	-0.218***	0.261***	0.959***	2.202***	0.736**	-0.029
	(-5.531)	(3.808)	(5.458)	(10.330)	(2.647)	(-0.183)
Callable	0.361***	2.157***	3.467***	3.222***	2.833***	2.727***
	(5.288)	(11.451)	(26.555)	(19.890)	(25.829)	(26.648)
Puttable	-0.074	0.081*	-0.124*	-0.205***	0.368***	0.502***
	(-1.456)	(1.820)	(-1.846)	(-3.461)	(5.968)	(10.475)
LnTotalAsset.LastYear	-0.203***	-0.101***	-0.236***	-0.227***	-0.086***	-0.048**
	(-6.813)	(-6.100)	(-7.042)	(-6.272)	(-3.868)	(-2.954)
ROA.LastYear	-0.010	-0.014	-0.005	0.018	-0.039*	-0.063***
	(-0.914)	(-1.672)	(-0.226)	(0.511)	(-1.884)	(-3.368)
Leverage.LastYear	-0.003**	-0.002*	-0.005***	-0.008***	-0.006***	-0.003*
	(-2.213)	(-1.784)	(-2.958)	(-3.337)	(-3.000)	(-1.954)
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,644	23,004	16,643	27,691	23,650	10,100
Adjusted R^2	0.534	0.408	0.442	0.522	0.451	0.528

Table 4. Spillover to Local Bank Subordinated Bonds and Municipal Bonds. This table reports bond-level panel regression (8) which captures the cross-sectional predictability of changes in LGFV bond spreads for subsequent changes in bank subordinated or municipal bond spreads τ months ahead, over the one-year window after "Debt Resolution". All $\Delta Spread$ are in bps. Reported in parentheses are t-stats using standard errors clustered by bond.

Dependent Variable:	**Δ Local Bank Subordinated Bond Spread$_{t+\tau}$**						
	$\tau = 0$	$\tau = 1$	$\tau = 2$	$\tau = 3$	$\tau = 4$	$\tau = 5$	$\tau = 6$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔCityAvgLGFVSpread$_t$	**0.068*****	**0.075*****	**0.082*****	**0.084*****	**0.111*****	**0.116*****	**0.126*****
	(2.935)	**(2.971)**	**(2.998)**	**(3.083)**	**(4.185)**	**(4.610)**	**(3.720)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,460	2,228	1,981	1,755	1,566	1,373	1,163
Adjusted R^2	0.58	0.56	0.54	0.49	0.43	0.39	0.35
	Δ Municipal Bond Spread$_{t+\tau}$						
	$\tau = 0$	$\tau = 1$	$\tau = 2$	$\tau = 3$	$\tau = 4$	$\tau = 5$	$\tau = 6$
	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ΔProvAvgLGFVSpread$_t$	**0.002****	**0.002****	**0.003*****	**0.003*****	**0.004*****	**0.004*****	**0.006*****
	(2.258)	**(2.491)**	**(2.989)**	**(3.225)**	**(3.580)**	**(3.499)**	**(4.304)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,546	13,163	11,975	10,704	9,823	8,475	6,957
Adjusted R^2	0.14	0.13	0.14	0.13	0.14	0.13	0.11

Table 5. Real Effects on Local Bank Profitability and Market Shares. This table reports results of DID regression (9) performed on bank-level quarterly panel data. The panel data is constituted of all urban and rural commercial banks with publicly-disclosed financial statements each quarter. The sample period spans from one year prior to the 2023Q3 "Debt Resolution" policy to the most recent available quarter. *NetInterestMargin*, *CityRiskyMeasure*, *DebtToGDPRatio.City.LastYear*, *DebtToGDPRatio.Prov.LastYear*, *CoreTier1CapitalAdequacyRatio.LastQuarter* and *ROA.LastQuarter* are in percentages. *TotalAsset*, *TotalLoan*, *NetProfit* and *LnTotalAsset.LastQuarter* are in unit of billion CNY. Reported in parentheses are t-stats using standard errors clustered by bank.

Dependent Variable:	**NetInterestMargin**		**TotalAsset**		**TotalLoan**		**NetProfit**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CityRiskyMeasure × Post	**-0.050***** **(-6.423)**	**-0.041***** **(-5.930)**	**-9.918***** **(-3.037)**	**-7.809**** **(-2.546)**	**-5.196***** **(-3.167)**	**-3.977***** **(-2.590)**	**-0.087***** **(-3.236)**	**-0.062**** **(-2.484)**
CityRiskyMeasure	0.131*** (9.195)	0.082*** (4.018)	-15.932*** (-4.624)	21.178** (2.118)	-8.390*** (-4.900)	10.782** (2.122)	-0.161*** (-5.094)	0.189** (2.179)
LnGDP.City.LastYear		0.159*** (3.400)		218.410*** (5.652)		109.914*** (5.681)		1.559*** (4.892)
DebtToGDPRatio.City.LastYear		0.006** (2.079)		7.037*** (3.584)		3.368*** (3.435)		0.045*** (2.783)
LnGDP.Prov.LastYear		0.291*** (4.394)		-139.195** (-2.119)		-63.370** (-1.995)		-0.785 (-1.473)
DebtToGDPRatio.Prov.LastYear		0.017*** (2.895)		-11.197** (-2.452)		-5.359** (-2.402)		-0.077** (-2.071)
CoreTier1CapitalAdequacyRatio.LastQuarter		0.058*** (5.147)		-15.748*** (-3.977)		-8.784*** (-4.184)		-0.137*** (-3.878)
ROA.LastQuarter				80.700** (2.246)		42.936** (2.303)		1.592*** (4.680)
LnTotalAsset.LastQuarter		-0.199*** (-6.330)						
Quarter & BankType FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,535	4,535	4,734	4,734	4,696	4,696	4,734	4,734
Adjusted R^2	0.21	0.34	0.24	0.40	0.25	0.41	0.15	0.30

Table 6. Real Effects on Local Banks with Heterogeneous LGFV Loan Exposure. This table reports results of DDD regression (11) performed on bank-level quarterly panel data. The panel data is constituted of all urban and rural commercial banks with publicly-disclosed financial statements each quarter. The sample period spans from one year prior to the "Debt Resolution" policy to the most recent available quarter. *NetInterestMargin*, *CityRiskyMeasure*, *DebtToGDPRatio.City.LastYear*, *DebtToGDPRatio.Prov.LastYear*, *CoreTier1CapitalAdequacyRatio.LastQuarter* and *ROA.LastQuarter* are in percentages. *TotalAsset*, *TotalLoan*, *NetProfit* and *LnTotalAsset.LastQuarter* are in unit of billion CNY. *BankLGFVExposure* is not in percentages. Reported in parentheses are t-stats using standard errors clustered by bank.

Dependent Variable:	NetInterestMargin		TotalAsset		TotalLoan		NetProfit	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CityRiskyMeasure × Post × BankLGFVExposure	**-0.145*****	**-0.141*****	**-0.052****	**-0.060****	**-0.023***	**-0.026****	**-0.371***	**-0.401***
	(-2.921)	**(-2.993)**	**(-2.052)**	**(-2.501)**	**(-1.717)**	**(-1.980)**	**(-1.742)**	**(-1.882)**
CityRiskyMeasure × Post	0.066***	0.060***	0.011	0.014*	0.004	0.005	0.090	0.097
	(3.325)	(3.155)	(1.478)	(1.770)	(0.973)	(1.212)	(1.369)	(1.341)
CityRiskyMeasure × BankLGFVExposure	0.296	0.224	-0.027	0.048	-0.013	0.028	0.015	0.376
	(1.547)	(1.204)	(-0.418)	(0.583)	(-0.415)	(0.692)	(0.026)	(0.496)
Post × BankLGFVExposure	0.303**	0.270*	0.205***	0.259***	0.102***	0.127***	1.147*	1.697***
	(2.089)	(1.950)	(2.959)	(3.529)	(2.815)	(3.299)	(1.947)	(2.721)
CityRiskyMeasure	-0.134*	-0.087	-0.051*	-0.006	-0.025*	-0.003	-0.646**	-0.051
	(-1.721)	(-1.137)	(-1.709)	(-0.181)	(-1.665)	(-0.215)	(-2.398)	(-0.176)
BankLGFVExposure	-0.518	-0.157	0.565***	-0.071	0.257**	-0.070	4.525**	0.283
	(-1.107)	(-0.336)	(2.634)	(-0.310)	(2.507)	(-0.636)	(2.240)	(0.133)
LnGDP.City.LastYear		0.005		0.325***		0.161***		2.371***
		(0.081)		(5.394)		(5.299)		(4.811)
DebtToGDPRatio.City.LastYear		0.005		0.008**		0.004**		0.048*
		(1.236)		(2.531)		(2.320)		(1.677)
LnGDP.Prov.LastYear		0.245***		-0.182**		-0.087*		-1.111
		(3.260)		(-1.996)		(-1.960)		(-1.509)
DebtToGDPRatio.Prov.LastYear		0.000		-0.016**		-0.008**		-0.110*
		(0.050)		(-2.216)		(-2.226)		(-1.826)
CoreTier1CapitalAdequacyRatio.LastQuarter		0.010		-0.019**		-0.012***		-0.140*
		(0.453)		(-2.142)		(-2.725)		(-1.821)
ROA.LastQuarter				0.205**		0.103**		3.615***
				(2.409)		(2.405)		(4.472)
LnTotalAsset.LastQuarter		-0.137***						
		(-3.365)						
Quarter & BankType FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,080	2,080	2,090	2,090	2,089	2,089	2,089	2,089
Adjusted R^2	0.11	0.21	0.21	0.41	0.21	0.41	0.14	0.35

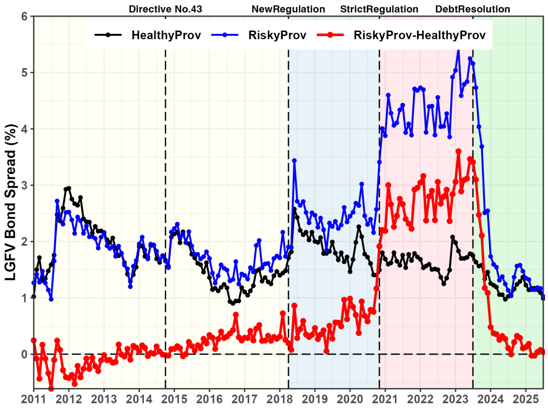
Table 7. Real Effects on Local Bank Consolidation Probability. This table reports results of DID Probit regression (12) performed on bank-level quarterly panel data. The panel data is constituted of all urban and rural commercial banks including both institutions with and without publicly disclosed financial statements. The sample period spans from one year prior to the "Debt Resolution" policy to the most recent available quarter. *CityRiskyMeasure*, *DebtToGDPRatio.City.LastYear* and *DebtToGDPRatio.Prov.LastYear* are in percentages. Reported in parentheses are z-stats using standard errors clustered by bank. The McFadden's adjusted pseudo R^2 (typically < 0.4 for discrete outcomes) is computed as $Adj.R^2_{McFadden} = 1 - \frac{ln\mathcal{L}_{model} - K}{ln\mathcal{L}_{null}}$, where $\mathcal{L}$ denotes the likelihood, and K represents the number of independent variables.

Dependent Variable:	$\Phi^{-1}(BankConsolidatedDummy)$	
	(1)	(2)
CityRiskyMeasure × Post	**0.270*****	**0.371*****
	(2.983)	**(3.400)**
CityRiskyMeasure	-0.261***	-0.403***
	(-2.786)	(-3.319)
LnGDP.City.LastYear		-0.418***
		(-2.727)
DebtToGDPRatio.City.LastYear		-0.004
		(-0.396)
LnGDP.Prov.LastYear		-0.050
		(-0.236)
DebtToGDPRatio.Prov.LastYear		-0.001
		(-0.059)
Quarter & BankType FE	Yes	Yes
Observations	12,915	12,915
Pseudo R^2	0.08	0.11

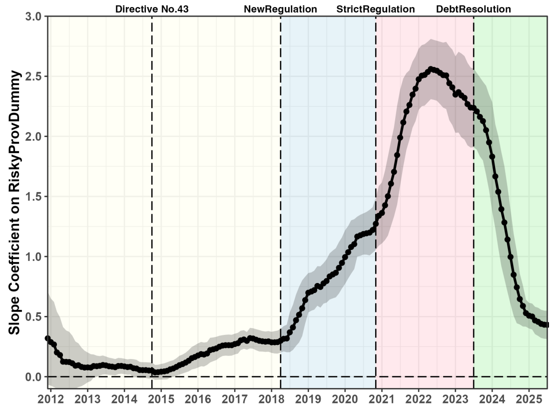
Table 8. Real Effects on Local Bank Operations. This table reports results of DID regression (9) performed on bank-level quarterly panel data. The panel data is constituted of all urban and rural commercial banks with publicly-disclosed financial statements each quarter. The sample period spans from one year prior to the "Debt Resolution" policy to the most recent available quarter. All dependent variables, *CityRiskyMeasure*, *ROA.LastQuarter*, *CoreTier1CapitalAdequacyRatio.LastQuarter*, *DebtToGDPRatio.City.LastYear* and *DebtToGDPRatio.Prov.LastYear* are in percentages. Reported in parentheses are t-stats using standard errors clustered by bank.

Dependent Variable:	**LoanToAsset**		**FinInvestmentToAsset**		**LoanDepositRatio**	
	(1)	(2)	(3)	(4)	(5)	(6)
CityRiskyMeasure × Post	**-0.504*****	**-0.414*****	**0.727*****	**0.655*****	**-0.901*****	**-0.740*****
	(-5.454)	**(-4.922)**	**(5.148)**	**(5.004)**	**(-5.838)**	**(-5.265)**
CityRiskyMeasure	0.493***	0.284	-0.880***	-0.354	0.614***	0.667**
	(4.001)	(1.326)	(-4.732)	(-1.317)	(3.120)	(2.006)
LnTotalAsset.LastQuarter		-2.229***		2.550***		-0.143
		(-5.350)		(5.971)		(-0.252)
CoreTier1CapitalAdequacyRatio.LastQuarter		-0.614***		0.343***		-0.315
		(-4.144)		(2.589)		(-1.141)
NetProfitToTotalAsset.LastQuarter		4.411***		-2.314**		7.237***
		(4.709)		(-2.510)		(4.832)
LnGDP.City.LastYear		1.393***		-1.986***		2.902***
		(2.631)		(-3.575)		(3.728)
DebtToGDPRatio.City.LastYear		-0.005		-0.045		0.005
		(-0.148)		(-1.290)		(0.093)
LnGDP.Prov.LastYear		2.851***		-1.170		2.459**
		(3.617)		(-1.138)		(2.058)
DebtToGDPRatio.Prov.LastYear		0.159***		-0.129*		0.236***
		(2.799)		(-1.847)		(2.846)
Quarter & BankType FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,715	4,715	4,424	4,424	4,663	4,663
Adjusted R^2	0.07	0.18	0.08	0.15	0.04	0.15

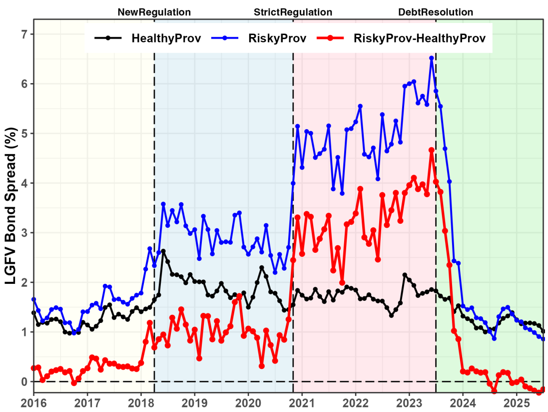
Appendix



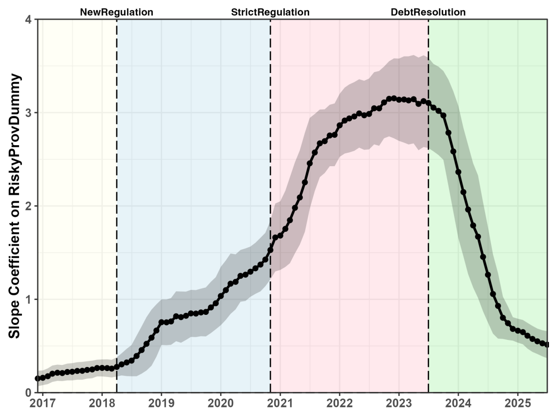
(a) **Avg Spread by RiskyProv.Policy**



(b) **Coefficient on RiskyProvDummy**

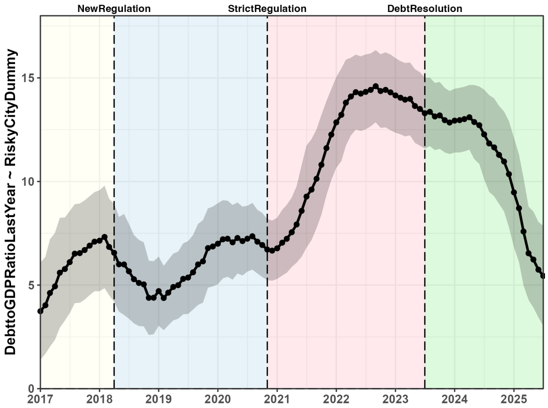


(c) **Avg Spread by RiskyProv.DebttoGDPRatio**

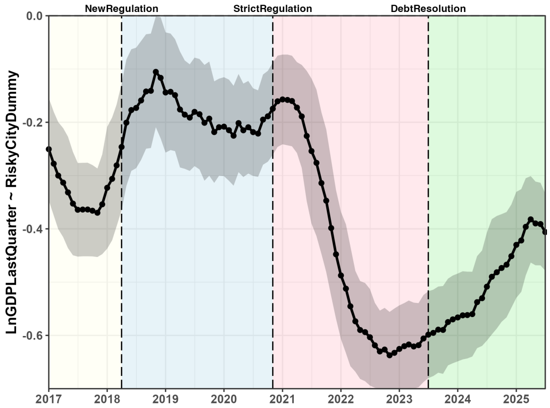


(d) **Coefficient on RiskyProvDummy**

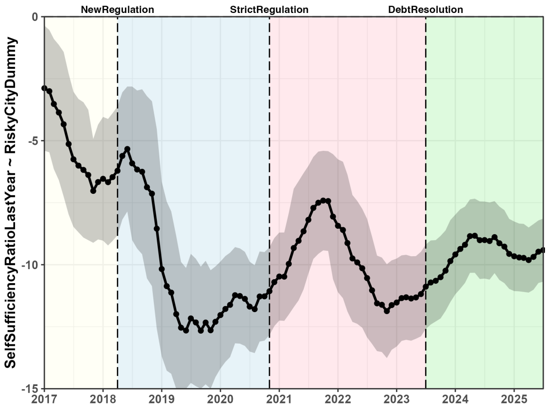
Figure A1. The Government-Led Credit Cycle in LGFV Bonds (Alternatively Defined RiskyProv). Risky provinces are defined differently in each panel as: (a-b) 12 provinces officially designated as high-risk by July 2023; and (c-d) top-tercile provinces by ex-ante debt-to-GDP ratio. Panel (a, c) plot IssueSize-weighted average credit spreads for LGFV bonds in risky and healthy provinces along with their spread difference. Panel (b, d) plot monthly slope coefficients from rolling 12-month regressions of LGFV bond credit spreads on *RiskyProvDummy* with control variables and month fixed effects. Shaded areas indicate 95% confidence intervals using two-way clustered standard errors.



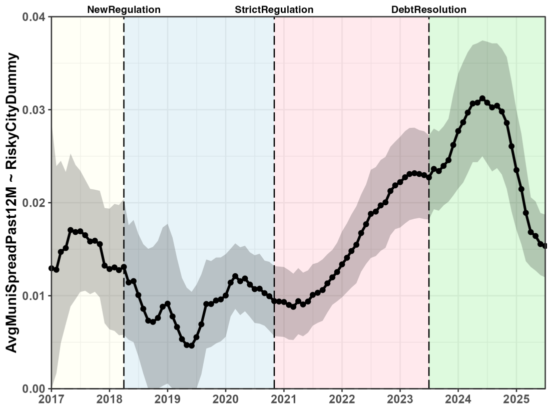
(a) **DebttoGDPRatio.LastYear**



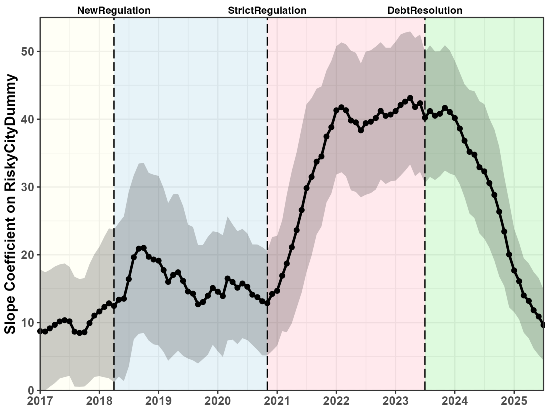
(b) **LnGDP.LastQuarter**



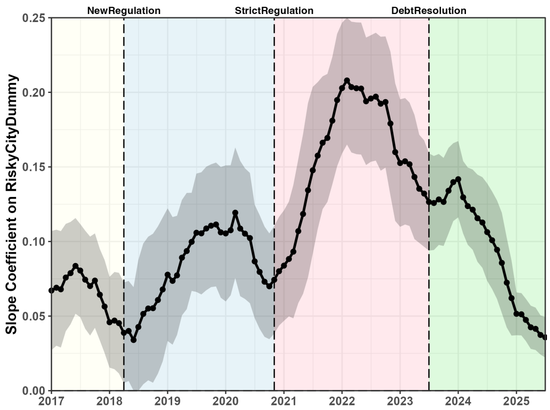
(c) **SelfSufficiencyRatio.LastYear**



(d) **AvgMuniSpread.Past12M**

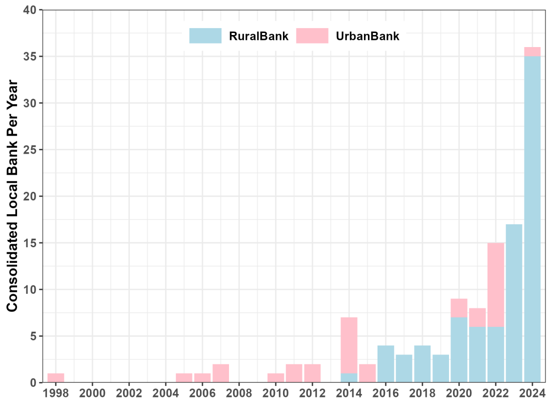


(e) **Amihud**

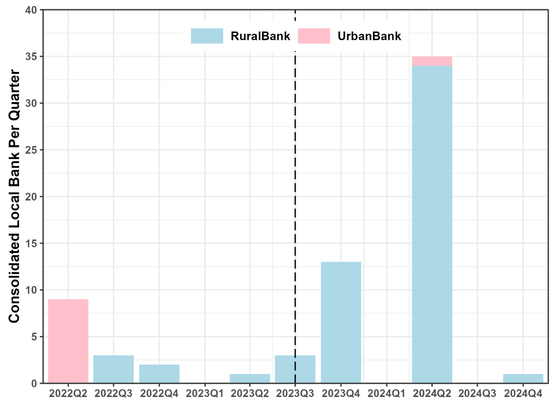


(f) **TwoDayHighLow**

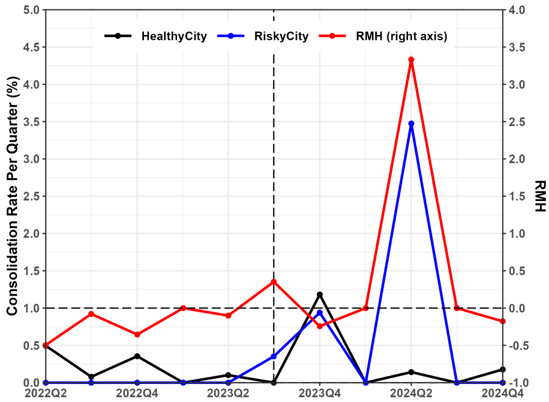
Figure A2. Fundamental and Liquidity Difference between Risky and Healthy Cities. These panels plot monthly slope coefficients from rolling 12-month window bond-level regressions of (a) prior-year provincial debt-to-GDP ratio (%), (b) prior-quarter provincial log GDP, (c) prior-year provincial fiscal self-sufficiency ratio (%), (d) provincial IssueSize-weighted average credit spreads (%) of 3-7 year maturity municipal bonds over the prior 12 months, (e) Amihud liquidity measure (% per billion CNY), and (f) two-day high-low liquidity measure (%) on *RiskyCityDummy*. Shaded areas indicate 95% confidence intervals using two-way clustered standard errors. Risky cities are defined as top-tercile cities by city-level IssueSize-weighted average credit spreads of 1-5 year maturity LGFV bonds over the prior 12 months.



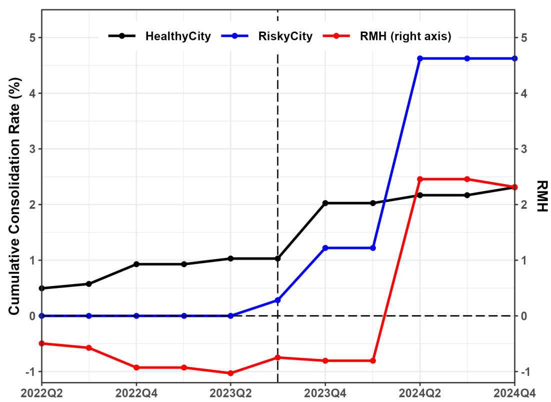
(a) Consolidated Local Bank Per Year



(b) Zoom in: Around "Debt Resolution"



(c) Consolidation Rate Per Quarter



(d) Cumulative Consolidation Rate

Figure A3. Local Bank Consolidation. Panel (a, b) plot the consolidated number of urban and rural commercial banks (a) per year and (b) per quarter around debt resolution in July 2023, including both institutions with and without publicly disclosed financial statements. Panel (c, d) plot the average consolidation rate and the cumulative rate since 2022Q2 of urban and rural commercial banks in risky and healthy cities, along with their differences.

Table A1. Summary Statistics of Local Banks around "Debt Resolution". Disclosed local bank sample (in Panel A) is constituted of urban and rural commercial banks with publicly-disclosed financial statements each quarter, while all local bank sample (in Panel B) also includes those without publicly-disclosed financial statements. Sample period spans from pre-policy 1 year to post-policy 6 quarters around 2023Q3 "Debt Resolution".

Panel A: Disclosed Local Bank Sample					
	Mean	Std		Mean	Std
NumObs	4,739		CityRiskyMeasure (%)	2.46	2.18
NumBank	582		LnGDP.City.LastYear (log billion CNY)	6.10	0.87
NetInterestMargin (%)	2.09	0.74	DebtToGDPRatio.City.LastYear (%)	29.76	12.87
TotalAsset (billion CNY)	166.58	391.38	LnGDP.Prov.LastYear (log billion CNY)	8.64	0.63
TotalLoan (billion CNY)	90.04	198.19	DebtToGDPRatio.Prov.LastYear (%)	30.49	12.12
NetProfit (billion CNY)	1.13	3.26	LnTotalAsset.LastQuarter (log billion CNY)	3.92	1.40
LoanToAsset (%)	57.24	7.94	ROA.LastQuarter (%)	0.69	0.37
FinInvestmentToAsset (%)	29.66	8.23	CoreTier1CapitalAdequacyRatio.LastQuarter (%)	11.65	2.88
LoanDepositRatio (%)	73.45	11.06			
Panel B: All Local Bank Sample					
	Mean	Std		Mean	Std
NumObs	12,915		LnGDP.City.LastYear (log billion CNY)	5.83	0.75
NumBank	1,293		DebtToGDPRatio.City.LastYear (%)	30.51	12.83
BankConsolidatedDummy	0.01	0.12	LnGDP.Prov.LastYear (log billion CNY)	8.44	0.60
CityRiskyMeasure (%)	2.79	2.09	DebtToGDPRatio.Prov.LastYear (%)	32.71	11.41

Table A2. Event Study for Policies in LGFV Bond Pricing. This table presents monthly event study regression for each policy that triggers a wave in LGFV bond credit cycle. The window around each event spans from pre-policy six months to post-policy two years. There are four policies: "Directive No.43" in October 2014, "New Regulation" in April 2018, "Strict Regulation" in November 2020, and "Debt Resolution" in July 2023. *RiskyCityDummy* is a dummy for top-tercile cities by city-level IssueSize-weighted average credit spreads of 1-5 year maturity LGFV bonds over the prior 12 months. *Post* is the 0-1 variable for post-window of each event. The dependent variables (credit spreads) are in percentages. Reported in parentheses are t-stats using standard errors clustered by bond and month.

Dependent Variable:	**LGFV Bond Spread**			
	DirectiveNo43 2014M10 (2014M4-2016M9) (1)	NewRegulation 2018M4 (2017M10-2020M3) (2)	StrictRegulation 2020M11 (2020M5-2022M10) (3)	DebtResolution 2023M7 (2023M1-2025M6) (4)
RiskyCityDummy × Post	**0.061**	**0.834*****	**1.446*****	**-1.849*****
	(1.411)	**(9.139)**	**(8.733)**	**(-7.659)**
RiskyCityDummy	0.245***	0.243***	1.031***	2.882***
	(7.756)	(6.296)	(9.398)	(18.280)
Rating	0.321***	0.461***	0.569***	0.181***
	(4.952)	(14.138)	(12.778)	(5.061)
Maturity	0.021	0.097***	0.050***	0.014
	(1.555)	(5.269)	(3.113)	(1.444)
Age	-0.058***	-0.040**	0.100***	0.083***
	(-4.335)	(-2.651)	(4.998)	(5.327)
IssueSize	-0.002	-0.052	-0.121**	-0.086**
	(-0.042)	(-1.155)	(-2.408)	(-2.237)
Exch	0.098	0.781***	2.046***	1.120***
	(1.455)	(6.407)	(7.605)	(4.364)
Callable	2.076***	3.162***	3.629***	2.769***
	(5.592)	(21.030)	(29.084)	(25.721)
Puttable	0.014	-0.164**	-0.148**	0.213***
	(0.288)	(-2.429)	(-2.385)	(2.843)
LnTotalAsset.LastYear	-0.111***	-0.201***	-0.228***	-0.102***
	(-5.861)	(-6.206)	(-5.793)	(-4.253)
ROA.LastYear	-0.009	-0.005	-0.002	-0.022
	(-0.953)	(-0.259)	(-0.044)	(-0.884)
Leverage.LastYear	-0.001	-0.005***	-0.007***	-0.008***
	(-0.829)	(-2.892)	(-3.279)	(-3.717)
Month FE	Yes	Yes	Yes	Yes
Observations	15,632	14,749	22,784	29,305
Adjusted R^2	0.402	0.439	0.500	0.492

Table A3. Sensitivity of LGFV Bond Credit Spreads to Fundamental Profiles. This table reports monthly panel regression (7) for LGFV bonds. The sample period is divided into four phases by three policies: "New Regulation" in April 2018, "Strict Regulation" in November 2020, and "Debt Resolution" in July 2023. All variables expect for *LnGDP.LastQuarter* are in percentages. Reported in parentheses are t-stats using standard errors clustered by bond and month.

Dependent Variable:	**LGFV Bond Spread**							
	Pre NewRegulation (2017M1-2018M3)				Post NewRegulation (2018M4-2020M10)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DebttoGDPRatio.LastYear	0.008***				0.043***			
	(6.287)				(12.160)			
LnGDP.LastQuarter		-0.137***				-0.419***		
		(-6.289)				(-11.617)		
SelfSufficiencyRatio.LastYear			-0.005***				-0.016***	
			(-5.890)				(-12.270)	
AvgMuniSpread.Past12M				2.308***				3.496**
				(5.199)				(2.682)
Characteristics Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Liquidity Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,976	7,976	7,976	7,976	16,643	16,643	16,643	16,643
Adjusted R^2	0.359	0.352	0.350	0.350	0.473	0.439	0.436	0.416
	Post StrictRegulation (2020M11-2023M6)				Post DebtResolution (2023M7-2025M7)			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
DebttoGDPRatio.LastYear	0.087***				0.021***			
	(29.683)				(5.358)			
LnGDP.LastQuarter		-0.968***				-0.400***		
		(-19.098)				(-8.079)		
SelfSufficiencyRatio.LastYear			-0.029***				-0.015***	
			(-16.356)				(-9.440)	
AvgMuniSpread.Past12M				27.453***				12.909***
				(15.500)				(7.372)
Characteristics Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Liquidity Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,691	27,691	27,691	27,691	23,650	23,650	23,650	23,650
Adjusted R^2	0.544	0.478	0.444	0.475	0.422	0.421	0.411	0.445