Local Government Financial Strength and Implicit Guarantees: A Textual Analysis Based on the Prospectuses of Urban Investment Bonds

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Abstract

This study empirically examines the impact of local governments' financial strength on the textual information reflecting implicit guarantees in the prospectuses of urban investment bonds, using urban investment bonds issued between 2010 and 2022 as the research sample. The findings reveal that the stronger the financial strength of a local government, the more textual information reflecting government implicit guarantees appears in the prospectus of its urban investment bonds. However, this impact weakened significantly both after the issuance of the "Document No. 43" and the outbreak of the COVID-19 pandemic. Further research indicates that this impact is more pronounced in less developed regions such as the central and western parts of China, when local governments have greater fiscal autonomy, and when the fiscal transparency of local governments is relatively low. The conclusions of this study hold practical significance for exploring local government implicit guarantees from the qualitative perspective of textual descriptions and for formulating effective policies appropriately during the transitional stage of the development of the urban investment bond market.

Keywords: City Investment Bonds, Local Government Financial Resources,Implicit Guarantee, Text Analysis

Competing Interests:

The authors declare that there is no conflict of interest.

1.Introduction

In March 2021, the National Development and Reform Commission (NDRC) stated in the "14th Five-Year Plan (2021-2025) and the Long-Range Objectives Through the Year 2035" that "it is necessary to improve mechanisms for debt risk identification, assessment, early warning, and effective prevention and control, and steadily defuse the risks of local governments' implicit debts". As the main entities for local governments to incur implicit debts, the urban investment bonds issued by financing platform companies have become the focus of attention from all sectors of society in recent years. A series of government documents, such as the *Opinions on Strengthening the Management of Local Government Debts* (hereinafter referred to as "Document No. 43") issued by the State Council in October 2014, the *Guidelines for Classified Disposal of Local Government Debt Risks* promulgated by the Ministry of Finance in November 2016, and the *Opinions on Further Deepening the Reform of the Budget Management System* issued by the State Council in April 2021, all put forward measures and requirements including sorting out and regulating financing platform companies, prohibiting local governments from providing guarantees to financing platform companies any longer, and curbing the increase of new implicit debts of local governments. In recent years, some financing platform companies have also encountered problems such as the deterioration of their financial fundamentals, weak asset profitability, and insufficient own debt-servicing capacity. Nevertheless, urban investment bonds remain one of the most popular high-quality financial assets in the bond market, with their issuance scale growing rapidly in recent years. According to data from Wind (a leading Chinese financial data service provider), the annual new issuance of urban investment bonds exceeded RMB 3.91 trillion between 2018 and 2022, reaching as high as RMB 5.47 trillion in 2021 and RMB 4.87 trillion in 2022 respectively. An important reason for this phenomenon is that the issue of "implicit guarantees" behind urban investment bonds has affected investors' judgment on the risks of financing platform companies (Zhong et al., 2021); that is, when financing platform companies face financial distress or default risks, the market generally expects local governments to use the fiscal and financial resources under their control to bail out these financing platform companies (Cao Jing, 2023).

The academic community has conducted extensive research on the issue of local

government implicit guarantees behind urban investment bonds. The main research paradigm involves measuring implicit guarantees using quantitative information such as the regional fiscal revenue status, economic development level, and bond credit spreads. Examples of such studies include those by Luo Ronghua and Liu Jinjin (2016), Zou et al. (2020), Zhong et al. (2021), and Qiu et al. (2022). However, as Cao Jing (2023) points out, these indicators mainly reflect the implicit support capacity of local governments from different sources, but guarantee capacity is not equivalent to the local government's willingness to guarantee financing platform companies, which increases the ambiguity of research conclusions. To address this, Cao's study uses the exogenous shock of local governments holding debt talks to identify changes in the government's willingness to provide implicit guarantees. It finds that local government debt talks can convey to investors the government's willingness to implicitly guarantee financing platform companies, thereby helping to reduce the credit spreads of urban investment bond issuances. Similarly, Guo Feng and Xu Zhenghui (2019) take the work reports of prefecture-level municipal governments as samples, and through textual analysis, classify local governments' attitudes towards urban investment bonds into two categories: "supportive" and "restrictive". They then study the impact of these attitudes on the issuance volume and risk premium of urban investment bonds. Li et al. (2021) select the exogenous event of the Central Commission for Discipline Inspection (CCDI) conducting regional inspections, and explore how the local government corruption governance led by the central government affects the credit risk of urban investment bonds issued under the leadership of local governments.

It is worth noting that, as the most important communication document between issuers and investors during the bond issuance process, the prospectus not only provides quantitative information such as corporate financial data but also includes textual descriptions of potential risks and future development prospects of the company. Some scholars, such as Wu et al. (2021) and Lin et al. (2021), have found that risk disclosure information and textual tones in bond prospectuses significantly influence credit risk pricing. By reading urban investment bond prospectuses, it can be observed that most urban investment companies include information related to local governments in their prospectuses, detailing various support measures taken by the government during the issuance and repayment processes of the bonds.

In other words, in addition to quantitative data such as financial indicators of the financing platform companies, urban investment bond prospectuses also contain qualitative textual information reflecting implicit guarantees or support from local governments. The question then arises: Does the implicit government guarantee reflected in these textual descriptions accurately represent the fiscal strength of the local government? Currently, research in this area remains largely unexplored.

This paper uses urban investment bond prospectuses from 2010 to 2022 as its sample, statistically analyzes the textual information reflecting government implicit guarantees in the prospectuses, and examines the impact of local government fiscal strength on such textual information through regression models. Baseline regressions and a series of robustness tests indicate that stronger local government fiscal strength is associated with more textual information reflecting government implicit guarantees in urban investment bond prospectuses. However, the issuance of "Document No. 43" and the outbreak of the COVID-19 pandemic significantly weakened the impact of local government fiscal strength on the implicit guarantee textual information in the prospectuses. Furthermore, heterogeneity analysis reveals that the impact of local government fiscal strength on the implicit guarantee textual information in urban investment bond prospectuses is more pronounced in less developed regions such as central and western China, when local governments have greater fiscal autonomy, and when fiscal transparency is lower.

2. Theoretical Analysis and Research Hypotheses

2.1 Fiscal conditions of local governments and textual information in urban investment bond prospectuses

The impact of local government fiscal strength on the textual information regarding implicit guarantees in urban investment bond prospectuses primarily stems from the relationship between local governments and urban investment companies, as well as the motives behind the textual composition of the prospectuses by these companies. Compared to bond investors, urban investment companies experience a lower degree of information asymmetry and maintain closer ties with local governments, as the latter are often the major shareholders of these companies. On one hand, stronger local government fiscal capacity enhances both the willingness and the ability of local governments to provide guarantees for

urban investment bonds (Ang et al., 2023). On the other hand, the prospectus serves as a critical communication document between urban investment companies and investors, offering essential details about the bond issuance. To increase the likelihood of successful fundraising or to reduce issuance costs, urban investment companies have strong incentives to incorporate more government-, policy-, and fiscal-related information in the prospectuses. This strategy aims to highlight local government implicit guarantees and lower investors' expectations of default risks. Consequently, the stronger the local government's fiscal capacity, the more likely it is for urban investment companies to include textual content describing government support, policies, and fiscal conditions in the prospectuses, thereby reflecting implicit government guarantees and facilitating successful bond issuance. Based on this reasoning, the first research hypothesis is proposed as follows:

H1: The stronger the local government's fiscal strength, the more textual information reflecting implicit government guarantees is included in urban investment bond prospectuses.

2.2 The impact of the implementation of regulatory policies on urban investment bonds and changes in the economic environment

On September 21, 2014, State Council Document No. 43 (2014), commonly referred to as "Document No. 43," was promulgated. It required a clear delineation of debt responsibilities between the government and enterprises, stipulating that the government must not incur debts through enterprises, nor can enterprise debts be transferred to the government for repayment. Following the issuance of Document No. 43, a series of specific measures were implemented to ensure the achievement of its policy objectives. For existing debts with previously unclear accountability, methods such as identification, substitution, and categorization were employed to reallocate responsibilities and prevent systemic risks, effectively representing a continuation of the Document No. 43 policy series. As Document No. 43 is considered the most influential policy in the history of urban investment bonds, many scholars have termed it the "watershed" between the old and new eras of urban investment bonds (Liu Jiaxuan, 2022; Fan et al., 2023). Consequently, significant research has focused on the policy effects of Document No. 43. For example, Yan et al. (2019), using a difference-in-differences approach, found that Document No. 43 effectively weakened the implicit guarantee issue of urban investment bonds, though this impact was a reduction rather

than an elimination, as local government fiscal strength continued to significantly affect the credit spreads of urban investment bonds after the policy's implementation. Zhang Xueying and Jiao Jian (2019) found that the promulgation of Document No. 43 reduced market expectations of implicit guarantees for urban investment bonds, leading to a diminished spillover effect of urban investment bond scale expansion on government bonds. Zhong et al. (2021) found that after the introduction of Document No. 43, expectations of "implicit guarantees" for newly issued urban investment bonds temporarily declined. These studies collectively suggest that Document No. 43 effectively delineated the responsibilities of local governments and urban investment enterprises in the issuance and repayment processes of urban investment bonds, thereby weakening the implicit guarantee issue. Regarding the research focus of this paper, the introduction of Document No. 43 is expected to weaken, to some extent, the relationship between local governments and urban investment enterprises. This may result in urban investment enterprises no longer using as much government-, policy-, and fiscal-related text in their bond issuance processes to signal underlying "guarantees." Furthermore, the outbreak of the COVID-19 pandemic introduced significant economic uncertainty, and pandemic control measures led to increased fiscal expenditures. These factors are likely to raise the debt burden assumed by local governments, thereby reducing both their ability and willingness to guarantee urban investment bonds. Accordingly, this paper proposes the following research hypothesis:

H2: The issuance of Document No. 43 and the impact of the COVID-19 pandemic have weakened the influence of local government fiscal strength on the implicit guarantee textual information in urban investment bond prospectuses.

3. Research Design

3.1 Sample selection and data sources

This study aims to examine the impact of local governments' financial strength on the textual information reflecting implicit guarantees in the prospectuses of urban investment bonds. To this end, the study downloads the prospectuses of urban investment bonds issued between 2010 and 2022 from the Wind database, conducts textual analysis using Python software, and counts the number of relevant keywords. Data on urban macroeconomics, characteristics of urban investment bonds, and financials of urban investment bond-issuing

companies are also sourced from the Wind database. Additionally, the study's sample is screened through the following process: samples with missing macroeconomic data, financial indicator data, or bond characteristic data are excluded; continuous variables are winsorized at the 1% level (both upper and lower tails); and finally, a total of 4,533 sample observations are obtained.

3.2 Variable definition and measurement

3.2.1 Dependent variable

With reference to Yan Ruosen and Zhou Ran (2023), this study uses Python software to conduct keyword searches. If an urban investment company uses a relatively large number of government-, finance-, and policy-related terms in its prospectus—such as "high attention and policy support from the government", "strong policy and financial support from the government", "financial subsidies provided by the government to the issuer respectively", "external support obtained by the issuer in terms of government subsidies", "high attention and various policies given by the government", and "government guidance based on the company's own development"—these terms, though not explicitly stating government guarantees, actually reflect government support and thus constitute government implicit guarantees. This study combines "government", "policy", and "finance" with verbs that are often used together with them in government official documents to form keywords, such as "government support", "financial subsidies", "financial support", "government approval", "government guidance", "government commitment", "government organization", and "government subsidies". These keywords are used to identify content reflecting local government implicit guarantees in urban investment bond prospectuses; the number of such keywords (Count) is then counted. To measure the textual information reflecting local government implicit guarantees in urban investment bond prospectuses (denoted as "Gover"), we add 1 to the count and take the natural logarithm of the result.

3.2.2 Independent variables

Following the approach of Yuan et al. (2017) and Shen et al. (2020), this study measures local government financial strength (denoted as "Fin") using the ratio of a city government's fiscal expenditure minus its own fiscal revenue to the city's GDP. Meanwhile, drawing on Shen Yanyan and Li Zhen (2021), this study uses the ratio of a city government's general budget expenditure to its general budget revenue to measure the degree of weakness in local

government financial strength (denoted as "Fin1"). A larger value of either Fin or Fin1 indicates stronger local government financial strength. Fin is used in the main regression analysis, while Fin1 is used in the robustness test.

3.2.3 Control variables

This study designs relevant control variables with reference to the research of Luo Ronghua and Liu Jinjin (2016), Shen et al. (2020), and Liu et al. (2021). These control variables are categorized into three levels: City-level control variables: City GDP growth rate, per capita disposable income, secondary industry growth rate, population size, and fixed-asset investment. Urban investment bond-level control variables: Issuance term of urban investment bonds, issuance scale, issuance interest rate, credit rating, and whether the urban investment bond has a guarantee. Urban investment company-level control variables: Credit rating of the urban investment company, leverage ratio, company size, and outstanding debt balance. This study also controls for year fixed effects and city fixed effects. For the specific definitions and measurement methods of all variables, see Table 1.

Variable definitions and measurement

Table 1

variable name	Variable definition
Gover	The natural logarithm of one plus the count of "government", "fiscal", and "policy" related terms in urban investment bond prospectuses. Logarithm of (1 + the frequency of government-, fiscal-, and policy-related vocabulary in urban investment bond offering circulars)
Fin	(Ratio of Local Government Fiscal Expenditure Minus Own-Source Revenue to GDP (%)
GDP_growth	Annual Growth Rate of GDP (%)
Revenue	Natural logarithm of the average disposable income of urban residents (yuan)
S_industry	Share of value added of the secondary industry in GDP
Population	Natural logarithm of the city's permanent population (10,000 persons)
Fix	Natural logarithm of the fixed asset investment (100 million yuan)
Maturity	Natural logarithm of the bond issuance term (years)
Proceeds	Natural logarithm of the bond issuance size (100 million yuan)
Rating	Credit ratings (AAA, AA+, AA, AA- and below) are assigned values of 4, 3, 2, and 1, respectively.
Coupon	Coupon rate at bond issuance (%)

Guarantee	A dummy variable indicating the presence of a direct guarantee for the bond, taking the value of 1 if yes, otherwise 0.
Rate	Credit ratings (AAA, AA+, AA, AA- and below) are assigned values of 4, 3, 2, and 1, respectively.
Lev	Ratio of the bond-issuing company's total liabilities to its total assets at year-end (%)
Size	Natural logarithm of the bond-issuing company's total assets at year-end
Lbond	Natural logarithm of the total scale of bonds already issued by the bond-issuing company (100 million yuan)
Year	(n-1) year dummy variables are included.
City	Dummy variables are set based on the city where the urban investment bond was issued.

3.3Model Construction

To test the impact of local government financial strength on the textual information about implicit guarantees in the prospectuses of urban investment bonds, this study constructs the following linear regression model:

$$Gover_{it} = \alpha_0 + \beta_1 \times Fin_{it} + \sum_{j=2}^{n} \beta_j \times CVs + City + Year + \varepsilon_{it} \quad (1)$$

Among them, i and t respectively represent the city where the urban investment bond is issued and the bond issuance year; $Gover_{it}$ denotes the quantity of textual information reflecting local government implicit guarantees in the prospectus of the urban investment bond; Fin_{it} stands for the local government financial strength indicator; CVs refer to a set of control variables that potentially affect the textual information in the prospectus, including city-level, urban investment bond-level, and urban investment company-level control variables; $City$ represents city-level fixed effects; $Year$ denotes year-level fixed effects; α_0 is the constant term; β_1 is the coefficient of the independent variable; β_j is the coefficient of the control variables; and $\varepsilon_{it}$is the regression residual.

4. Empirical Analysis

4.1 Descriptive statistics of variables

Table 2 presents the results of descriptive statistical analysis for the main variables in this study. It is found that the mean and median of variable Gover are 3.057, indicating that the average number of textual information reflecting government implicit guarantees in urban

investment prospectuses of urban investment bonds is approximately 20.26, compared with about 4.98 in the prospectuses of corporate bonds of listed companies. This shows that there is a significant amount of textual information reflecting government implicit government guarantees in urban investment bond prospectuses.The mean value of local government financial strength (Fin) is 1%, with a standard deviation of 1%, a maximum value of 5.2%, and a minimum value of -0.1%, indicating a substantial disparity in financial strength among different cities. The average values of urban investment bond credit rating (Rating) and urban investment company credit rating (Rate) are 2.585 and 2.631, respectively, suggesting that most credit ratings related to urban investment bonds fall into the AA and AA+ categories, and the credit ratings of urban investment bonds are relatively higher than those of ordinary bonds.Other variables are generally consistent with existing research findings and the actual situation of urban investment bond-issuing enterprises and urban investment bonds, so they are not reported in this study.

Descriptive statistics of variables

Table 2

variable	N	Mean	Standard Deviation	50th Percentile	Min	Max
Gover	4533	3.057	0.469	3.091	1.609	4.094
Fin	4533	0.010	0.010	0.006	-0.001	0.052
GDP_growth	4533	0.085	0.033	0.084	-0.010	0.166
Revenue	4533	10.45	0.394	10.45	9.583	11.23
S_industry	4533	0.444	0.089	0.451	0.177	0.659
Population	4533	6.401	0.746	6.354	4.559	8.074
Fix	4533	7.920	0.983	7.957	5.011	9.992
Maturity	4533	1.864	0.262	1.946	1.099	2.398
Rating	4533	2.585	0.897	2	1	4
Proceeds	4533	2.200	0.540	2.303	0.693	3.401
Coupon	4533	1.701	0.281	1.773	1.085	2.140
Guarantee	4533	0.166	0.372	0	0	1
Rate	4533	2.631	0.895	2	1	4
Lev	4533	0.060	0.039	0.0610	0	0.123
Size	4533	5.586	2.006	6.366	0	7.132
Lbond	4533	4.699	1.464	4.736	1.792	8.802

4.2 Baseline model regression

This study uses Equation (1) to analyze the relationship between local government financial strength and the textual information reflecting government implicit guarantees in urban investment bond prospectuses. Table 3 reports the regression results in sequence, including models without control variables, with control variables added, with year fixed effects added, and with city fixed effects added. Columns (1) to (4) show that the regression coefficients of local government financial strength (Fin) are all significantly positive, indicating that the stronger the local government's financial strength, the more textual information reflecting government implicit guarantees appears in the urban investment bond prospectus. Therefore, the implicit guarantee provided by local governments for urban investment bonds is already reflected in the textual information of urban investment bond prospectuses at the time of bond issuance, and the above empirical results strongly support Hypothesis H1 of this study.

Baseline regression results

Table 3

variables	(1) Gover	(2) Gover	(3) Gover	(4) Gover
Fin	3.610***	9.082***	2.622***	5.868**
	(5.45)	(10.18)	(2.73)	(2.12)
GDP_growth		-1.768***	1.202***	1.585***
		(-6.32)	(3.46)	(3.36)
Revenue		0.139***	-0.131***	-0.491***
		(4.22)	(-3.32)	(-2.63)
S_industry		0.015	0.174*	-0.013
		(0.16)	(1.88)	(-0.05)
Population		-0.104***	-0.017	0.084
		(-5.99)	(-1.02)	(1.13)
Fix		0.075***	-0.014	-0.003
		(5.09)	(-0.94)	(-0.13)
Maturity		0.010	0.022	-0.015
		(0.36)	(0.82)	(-0.54)
Rating		0.053*	0.012	0.038
		(1.95)	(0.46)	(1.40)
Proceeds		0.056***	0.079***	0.060***

		(3.98)	(5.69)	(4.34)
Coupon		-0.169***	0.088**	0.014
		(-5.12)	(2.19)	(0.31)
Guarantee		-0.104***	-0.102***	-0.125***
		(-5.81)	(-5.94)	(-6.85)
Rate		-0.068**	0.021	0.015
		(-2.50)	(0.78)	(0.55)
Lev		0.585***	0.671***	0.833***
		(2.68)	(3.21)	(3.50)
Size		-0.005	-0.020***	-0.018***
		(-1.41)	(-5.49)	(-4.40)
Lbond		0.007	0.019**	0.015*
		(0.84)	(2.54)	(1.70)
Year FE	no	no	yes	yes
City FE	no	no	no	yes
Constant	3.022***	1.899***	3.478***	7.884***
	(317.61)	(4.64)	(7.71)	(3.78)
Observations	4,533	4,533	4,533	4,516
R-squared	0.007	0.115	0.195	0.335

Note: *** denotes significance at the 1% level, ** at the 5% level, and * at the 10% level; the same notation applies hereinafter. Figures in parentheses are t-values. City FE/Year FE indicates that city-level and year-level fixed effects are controlled for. The same applies to the following tables.

4.3 Robustness tests

4.31 Replacing the Dependent Variable and Independent Variable

Considering the potential omission of keywords in the previous keyword search, this study constructs a tone indicator for urban investment bond prospectuses to reflect local government implicit guarantees. When local governments have stronger financial strength, urban investment companies tend to use more positive words in their prospectuses, resulting in a more positive tone, which in turn reflects a stronger implicit guarantee from local governments. This study uses the open-source financial sentiment dictionary developed by Yao et al. (2021) (including positive and negative word lists) to conduct textual analysis on urban investment bond prospectuses. After obtaining the counts of positive and negative words, we refer to the method of Xie Deren and Lin Le (2015) to define the net positive tone (Tone) as: Tone = (Number of positive words - Number of negative words) / (Number of

positive words + Number of negative words). A larger value of Tone indicates a more positive tone in the urban investment bond prospectus.

Meanwhile, drawing on Lin et al. (2021), we define the negative tone (Tone1) as: Tone1 = (Number of negative words / Total number of words). A larger value of Tone1 indicates a more negative tone in the urban investment bond prospectus. In this robustness test, the dependent variable and independent variable are replaced with the aforementioned prospectus tone indicators (Tone, Tone1) and the indicator for local government financial weakness (Fin1), respectively. Columns (1) to (5) in Table 4 report the results of replacing the dependent variable alone, replacing the independent variable alone, and replacing both variables. All regression coefficients are significant at the 5% significance level. These results indirectly confirm that local government financial strength has a significant impact on the textual information reflecting government implicit guarantees in urban investment bond prospectuses.

4.3.2 Omitted variable issue.

This paper posits that omitted variables primarily stem from province-specific policy factors. To address this, province fixed effects are incorporated into Model (1) to mitigate the influence of policies at the provincial level. While the main regression quantifies urban investment bond credit ratings using a continuous numerical assignment method, the actual differences between rating categories may not be uniform. To reduce potential bias arising from this continuous assignment, credit rating fixed effects are controlled for. The regression results in column (6) of Table 4 demonstrate that the findings remain statistically significant even after controlling for both province fixed effects and credit rating fixed effects. The results presented in Table 4 further confirm the robustness of the aforementioned research conclusions.

Robustness tests

Table 4

variables	(1) Tone	(2) Tone1	(3) Gover	(4) Tone	(5) Tone1	(6) Gover
Fin	1.004***	-0.048**				6.717**
	(2.68)	(-2.36)				(2.42)
Fin1			6.089**	1.012***	-0.049**	

			(2.21)	(2.70)	(-2.39)	
CVs	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
City FE	yes	yes	yes	yes	yes	yes
Province FE	no	no	no	no	no	yes
Rating FE	no	no	no	no	no	yes
Constant	-0.042	0.053***	7.351***	-0.053	0.054***	7.741***
	(-0.16)	(3.44)	(3.71)	(-0.20)	(3.47)	(3.73)
Observations	4,516	4,516	4,516	4,516	4,516	4,516
R-squared	0.584	0.396	0.334	0.584	0.396	0.338

4.4 Impact of the promulgation of document No. 43 and the COVID-19 shock

To further test Hypothesis H2 and, to some extent, mitigate the endogeneity issues in Model (1), this paper follows the approach of Liu et al. (2021) in studying the impact of exogenous events on local government implicit guarantees by conducting subsample analyses to examine temporal changes in the regression equation. Specifically, the full sample is divided into three subsamples based on two key events: the promulgation of Document No. 43 in October 2014 and the outbreak of the COVID-19 pandemic in January 2020. The subsamples are: January 2010 to September 2014, October 2014 to December 2019, and January 2020 to December 2022. In the subsample regressions, due to the reduced number of observations in each subsample – particularly the shortened time dimension, often only about three years – using city fixed effects is not suitable. Therefore, province fixed effects and time fixed effects are employed for the analysis. Hypothesis H2 predicts that the coefficient β_1 of the explanatory variable will be more significant in the first subsample compared to the second and third subsamples. Columns (1) to (3) in Table 5 report the regression results for the three subsamples. The results show that the coefficient for the local government fiscal strength variable is highly significant in the first subsample, but not significant in the second and third subsamples. This indicates that both the promulgation of Document No. 43 and the COVID-19 shock significantly reduced the influence of local government fiscal strength on the textual information reflecting implicit government guarantees in urban investment bond prospectuses. These findings are consistent with the predictions of Hypothesis H2.

Impact of document no. 43 and the COVID-19 pandemic

Table 5

variables	(1) Gover	(2) Gover	(3) Gover
Fin	8.413***	1.717	-0.573
	(4.04)	(0.91)	(-0.27)
CVs	yes	yes	yes
Year FE	yes	yes	yes
City FE	yes	yes	yes
Constant	3.392***	4.953***	5.299***
	(2.62)	(4.81)	(4.42)
Observations	1,249	1,560	1,717
R-squared	0.235	0.128	0.170

5. Extended Research

5.1 Heterogeneity analysis based on regional development level

Currently, there are significant disparities in economic development levels between eastern and western regions of China, with developed regions such as the eastern region having better fiscal conditions than the central and western regions. Studies on urban investment bond credit spreads show that local government implicit guarantees significantly reduce the credit spreads of urban investment bonds in regions with sound economic conditions, while exerting the opposite effect in regions with poor economic conditions (Wang Li and Chen Shiyi, 2015; Hu Yue and Wu Wenfeng, 2018). Regarding the textual information in prospectuses, on one hand, when the regional economic development is sound, urban investment companies themselves have stronger economic strength, and investors have lower expectations for implicit guarantees provided by local governments. Therefore, the issuers of urban investment bonds do not need to include more textual information reflecting government implicit guarantees in the prospectuses to facilitate the successful issuance of urban investment bonds. On the other hand, when the regional economic development is poor, the development of enterprises may be constrained by the local economic conditions, leading to greater reliance on the fiscal support of local governments. Correspondingly, the connection between local governments and urban investment enterprises becomes closer. Thus, to ensure the successful issuance of urban investment bonds, issuers will include more

textual information reflecting government implicit guarantees in the prospectuses. Under the condition of other factors being equal, the textual information reflecting implicit guarantees in the prospectuses of urban investment bonds issued in the central and western regions is more significantly affected by local government financial strength compared with that in the eastern region.

In accordance with the National Development and Reform Commission (NDRC)'s standards for classifying China's eastern, central, and western regions, this study divides the urban investment bond samples into two groups based on the geographical location of the issuers: the eastern region (coded as Area = 1) and the central-western region (coded as Area = 0). A grouped test is then conducted to examine the heterogeneity of the impact of local government financial strength on the textual information in urban investment bond prospectuses. As shown in the empirical results in Table 6, the degree of impact of local government financial strength on the textual information reflecting implicit guarantees in urban investment bond prospectuses varies across regions with different economic development levels. The coefficient of local government financial strength (Fin) is significantly positive at the 1% significance level for the central-western region, while it is not significant for the eastern region. Compared with the eastern region, urban investment companies in the central-western region use more government-related content in their bond prospectuses to facilitate the smooth issuance of urban investment bonds. In these regions (the central-western region), to avoid investing in bonds with high default risk, investors pay greater attention to the close connection between local governments and urban investment companies, as well as the fiscal status of local governments. Consequently, issuers have sufficient incentives to include more content in the bond prospectuses that describes the potential guarantees provided by local governments for urban investment bonds.

Heterogeneity analysis based on regional development levels

Table 6

variables	Area = 0 Gover	Area = 1 Gover
Fin	6.887**	-3.724
	(2.33)	(-0.51)
CVs	yes	yes

Year FE	yes	yes
City FE	yes	yes
Constant	6.596***	10.517***
	(2.67)	(3.07)
Observations	2,262	2,254
R-squared	0.358	0.334

5.2 Heterogeneity analysis based on fiscal decentralization

In essence, fiscal decentralization measures the distribution of financial resources among governments at different levels (Cao Jing and Mao Jie, 2022). A higher degree of fiscal decentralization implies greater fiscal autonomy for local governments, thereby equipping them with stronger economic capacity to achieve their own policy objectives.

The implementation of fiscal decentralization can enhance the sense of responsibility and innovation of local governments, improve government efficiency and service quality, and contribute to local economic development (Zhao Renjie and Fan Ziying, 2020).

With regard to the research question of this study, a higher degree of fiscal decentralization means local governments have more fiscal autonomy, which in turn enables them to provide stronger guarantee for urban investment bonds. This stronger guarantee is reflected in the inclusion of more content related to implicit guarantees in the prospectuses during the bond issuance process.

Drawing on the research of Zhao et al. (2021), this paper defines the degree of fiscal decentralization as follows: Fiscal decentralization degree = municipal-level per capita fiscal expenditure / (municipal-level per capita fiscal expenditure + provincial-level per capita fiscal expenditure + national per capita fiscal expenditure). A higher degree of fiscal decentralization indicates that the local government has greater financial capacity to achieve its policy objectives. Since the degree of fiscal decentralization in municipalities directly under the central government is significantly higher than that in ordinary prefecture-level cities, samples from Beijing, Tianjin, Shanghai, and Chongqing were excluded in this section. Additionally, due to the substantial variation in the degree of fiscal decentralization across different prefecture-level cities, the samples were grouped based on the 25th percentile of the fiscal decentralization degree. If a city's fiscal decentralization degree exceeds the 25th

percentile of the sample, Fiscal_d is set to 1; otherwise, it is set to 0. Table 7 reports the results of the grouped regressions. In regions with a high degree of fiscal decentralization, the regression coefficient for local government financial strength (Fin) is more significant, indicating that the impact of local government financial strength on the textual information reflecting implicit guarantees in urban investment bond prospectuses is more pronounced.

Heterogeneity analysis based on fiscal decentralization

Table 7

variables	Fiscal_d = 1 Gover	Fiscal_d = 0 Gover
Fin	7.480**	7.118
	(2.00)	(1.64)
CVs	yes	yes
Year FE	yes	yes
City FE	yes	yes
Constant	9.427***	-6.207*
	(3.63)	(-1.71)
Observations	3,023	986
R-squared	0.306	0.540

5.3 Heterogeneity analysis based on fiscal transparency

Fiscal transparency is a method to enhance government efficiency and promote accountability. High fiscal transparency implies stronger local government governance capacity (Wu Jiang and Wu Tao, 2022). Numerous studies have shown that fiscal transparency plays a significant role in the issuance of urban investment bonds. Pan et al. (2016) found a significant positive correlation between local government fiscal transparency and the credit ratings of urban investment bonds; Xu Hong and Wang Feng(2019) discovered that in regions with high fiscal transparency, urban investment companies issue bonds on a larger scale, but since there is no direct causal relationship between fiscal transparency and local government fiscal strength, the impact on credit spreads is insignificant, meaning it does not reduce issuance costs. Regarding the issue studied in this paper, on the one hand, high fiscal transparency means that local governments disclose timely, authentic, and comprehensive financial information.

This strengthens societal oversight of local government actions, helps local governments keep their debt within manageable limits, reduces the risk of local government debt default,

and provides stronger assurance for investors. Consequently, in regions with high fiscal transparency, the level of local government fiscal strength provides more substantial backing for urban investment bond issuance, potentially leading to a greater amount of textual information reflecting implicit guarantees in the prospectuses. On the other hand, however, high fiscal transparency also means investors have a better understanding of the local government's fiscal situation. Therefore, the issuer's motivation to use more implicit guarantee-related information in the prospectus to signal investors weakens. From this perspective, the influence of local government fiscal strength on the implicit guarantee text in the prospectuses would be reduced.

To determine which of these effects dominates, this paper uses the fiscal transparency index calculated annually in the "China City Government Fiscal Transparency Research Report" published by the School of Public Policy and Management at Tsinghua University for heterogeneity testing. The sample is grouped based on the 25th percentile of the fiscal transparency index. If a city's fiscal transparency is greater than the 25th percentile of the sample, Fiscal_t is set to 1; otherwise, it is set to 0. The results in Table 8 indicate that the impact of local government fiscal strength on the implicit guarantee textual information in urban investment bond prospectuses is more significant and its coefficient is larger in regions with lowfiscal transparency. In other words, the dampening effect dominates in the heterogeneity analysis. This is largely because when investors possess sufficient information, issuers of urban investment bonds lack the motivation to use more government-related information in the prospectuses to signal to investors.

Heterogeneity analysis based on fiscal transparency

Table 8

Variables	Fiscal_t = 0 Gover	Fiscal_t = 1 Gover
Fin	6.983***	-0.310
	(3.26)	(-0.20)
CVs	yes	yes
Year FE	yes	yes
City FE	yes	yes
Constant	3.631***	5.937***
	(2.59)	(7.36)

Observations	979	2,938
R-squared	0.309	0.137

6. Conclusion

This study investigates, from the perspective of urban investment bond prospectuses, how local government fiscal capacity influences the textual representation of implicit guarantees within these documents. Using textual analysis, we quantify the extent of implicit guarantee-related disclosures and employ regression models to assess the relationship between local government fiscal strength and such textual content. Baseline regression analyses, supported by a battery of robustness checks, demonstrate that stronger local government fiscal capacity is positively associated with more extensive implicit guarantee-related textual information in urban investment bond prospectuses. Further analysis indicates that the introduction of the Ministry of Finance's "Document No. 43"—which recalibrated the relationship between local governments and urban investment companies—significantly attenuated the impact of local government fiscal strength on implicit guarantee disclosures. Additionally, the COVID-19 outbreak and its subsequent macroeconomic repercussions, coupled with rising fiscal expenditures due to containment measures, further weakened this relationship. Heterogeneity analysis reveals that the effect of local government fiscal capacity on implicit guarantee-related textual information is more pronounced in less developed regions (e.g., central and western China), under conditions of greater local fiscal autonomy, and in environments characterized by lower fiscal transparency.

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