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# The characteristics of local government debt governance: evidence from qualitative and social network analysis of Chinese policy texts

Xing Li<sup>a</sup>, Yanli Zhou<sup>b</sup>, Shuai Liu<sup>c</sup> and Xiangyu Ge<sup>d</sup>

<sup>a</sup>Experimental Teaching Centre, Hubei University of Economics, Wuhan, China; <sup>b</sup>School of Finance, Zhongnan University of Economics and Law, Wuhan, China; <sup>c</sup>China Center for Agricultural Policy, Peking University, Beijing, China; <sup>d</sup>School of Statistics and Mathematics, Zhongnan University of Economics and Law, Wuhan, China

## ABSTRACT

This paper takes 66 local government debt governance policy texts from 2009 to 2019 as sample, and constructs an analysis framework of ‘target debt - management measures - mechanism guarantee’, derives up with identifying the characteristics of determining local government debt governance in China. The results show as follow: (i) It attaches more importance to the policy design of ‘borrowing’, ‘repayment’ and ‘management’ on local government debt instead of the ‘usage’ in China. (ii) The evidence supports the relatively average coding distribution of each policy, but the content is quite different. (iii) It manifests the new development value of ‘people-oriented’ and the concept of collaborative governance in the policy design. (iv) It has formed a ‘centre-edge’ model for the governance of the local government debt. This paper provides a new perspective for the study of the problems of local government debt governance, and puts forward policy recommendations for improving the governance of the local government debt.

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## KEYWORDS

Local government; debt governance; policy texts; qualitative text analysis

## JEL CLASSIFICATION

H5; H7; K2

## 1. Introduction

Nowadays the large and growing local government debt in many countries, such as the United States, China, Japan, Spain and Mexico, is alarming policymakers and scholars. Among these countries, China has attracted particular attention. This is because since China has granted local governments the right to issue bonds in 2009, the balance of local government bonds has expanded by 55.85 times in a short decade, i.e., from 400 billion yuan in 2010 to 22341.3 billion yuan in 2020 (WIND database). Theoretically, the moderate borrowing can effectively cover local government’s fiscal deficit and promote economic growth (DeLong and Summers, 2012; Mao &

**CONTACT** Shuai Liu  [liushuai.ccap@pku.edu.cn](mailto:liushuai.ccap@pku.edu.cn)

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Huang, 2018). However, the blind expansion of local government debt without regime constraints will bring tremendous repayment pressure to local government, and even trigger debt crisis (Borck et al., 2015; Navarro-Galera et al., 2020; Yu & Fang, 2016). More seriously in China, except for the large-scale explicit debt represented by local government bonds, local governments are providing guarantees to local financing platforms and facilitating the Public-Private-Partnership (PPP). In this process, the scale of implicit debt is expanding, resulting in an increasing risk of local government implicit debt. Under this situation, China has raised the prevention and resolution of local government debt risks to a national level, and issued a series of policies on local government debt governance.

Regarding debt governance policies, it has been widely agreed that ‘it is difficult to manage local government debts well by relying solely on market constraints’, and ‘effective policy design is very necessary to prevent local government debt risks’ (Allers, 2015; Berman, 2019; Rajbhandari, 2021; Zabler, 2021). Therefore, many scholars have conducted a comprehensive research on the local government debt governance policies. Generally, the existing research can be divided into two categories: one is to set the policy on local government debt as an independent variable in the econometric model to evaluate the effectiveness of policy intervention in debt reduction; the other is to sort out policies and qualitatively analyze the origin, characteristics, changes and evolution of these policies. (i) For example of the first type of research, Balaguer-Coll et al. (2016) set the dummy variable FORAL and found a negative correlation between the FORAL<sup>1</sup> and local government debt scale. Fomina and Vynnychenko (2017) used the Open Budget Index as the proxy indicator for budget transparency, and concluded that the higher the budget transparency, the smaller the scale of local government debt. Chen et al. (2019) set a dummy variable for China’s debt audit time, and found that local governments’ explicit debt risk has reduced significantly since the nation-wide debt audits. (ii) For example of the second type of research, László (2019) explained the policies adopted by EU member states facing high local government debts, and described how countries have designed governance strategies and monitoring mechanisms. An and Ning (2019), by reading China’s policy texts on local government debt governance since 1949, divided the changes of its local government debt regime into four phases. Ishihara (2021) combed Japan’s public sector reform and public management theory from 1945 to 2020.

Although the existing research are very enlightening for studying policy effects and combing policies, there are still the following research gaps: (i) The first type of research adopts empirical techniques to examine the policy effect accurately and scientifically. However, the ‘policy’ is only used as a variable to study the relationship between policies and other economic variables rather than taken as a research object to explore the characteristics of policies. (ii) Although the second type of research is beneficial to study the policies and governance model of local government debt in some countries, the majority is focused on conceptual analysis and summary short of empirical study.

Based on the research gaps, how to use empirical techniques to scientifically sort out policies and study the characteristics of policies has become an interesting topic. China, a country with a large scale of local government debt and rich relevant

policies, provides a good national sample for us to explore the characteristics of local government debt governance. From the perspective of the policy texts, what are the characteristics of China's local government debt governance? What is the focus of the policy texts? What is the value tendency of local government debt governance in China? Which policy text is at the core leading position? What is the relationship between the issuing departments? Can policy design be improved? To answer the questions above, it is necessary to jump out of the appearance, to reveal the evolution, orientation and goals of China's local government debt governance. Only by scientifically exploring these policies can we put forward suggestions for China to improve the policy design of managing local government debt, and provide reference for other countries facing the similar problem.

Since the method of qualitative text analysis from bibliometrics has been proved to be a feasible tool for theoretical research and can provide empirical evidence, this paper applies qualitative text analysis to the actual case of local government debt governance in China, and reviews, interprets the policy texts in terms of the characteristics.

The marginal contributions of this paper are as follows: (i) The qualitative text analysis is introduced into the field of local government debt, which proposes a new feasible method for identifying and analyzing the characteristics of local government debt governance. (ii) It has enriched the research on the topic of China's local government debt governance regime and policies by providing some data proofs such as coding, which has increased the objectivity and credibility of the research.

The rest of the paper is organized as follows. In section 2, we propose a new grounded theory in qualitative text analysis methods, and adopt the steps of 'open coding-axial coding-selective coding' to create nodes, divide different categories, and counts references. Section 3 is the qualitative texts analysis in terms of references and policy texts. Social network analysis of policy texts and issuing departments are considered in section 4, and followed by a conclusion with a discussion in section 5.

## **2. Methodology, sources and research design**

### **2.1. Methodology**

Among many methods of qualitative text analysis, *grounded theory* has turned the potential advantage into generalization, reproducibility and accuracy, by adopting rigorous and scientific research procedures. Therefore, this paper adopts *grounded theory*, to study the characteristics of China's local government debt governance.

Considering that NVivo software developed by QSR company in Australia is a qualitative research software, which can effectively analyze a variety of different words, images and graphics, etc., this paper uses NVivo software as a qualitative text analysis tool.

### **2.2. Sources**

Considering the maneuverability of qualitative text analysis and the year 2009 as an epoch-making year of China's local government debt issuance, this paper uses the website query method to collect the policy texts on local government debt governance

**Table 1.** Basic characteristics of policy text.

Year	Policy type									
	Summation	Measure	Report	Law	Plan	Notice	Opinion	Preplan	Guideline	Standard
2009	3	3	0	0	0	0	0	0	0	0
2010	1	0	0	0	0	1	0	0	0	0
2011	3	2	0	0	0	1	0	0	0	0
2012	4	1	0	0	0	3	0	0	0	0
2013	3	1	0	0	0	2	0	0	0	0
2014	10	3	0	1	1	3	2	0	0	0
2015	8	2	0	0	0	2	4	0	0	0
2016	7	3	0	0	0	2	0	1	1	0
2017	10	3	1	0	0	5	1	0	0	0
2018	11	2	0	0	0	3	5	0	0	1
2019	6	0	0	0	0	4	2	0	0	0

Source: drawn by the authors based on NVivo.11 software.

from 2009 to 2019, and takes these policy texts as a research sample. The sample is collected on the basis of the following principles:

- **Relevance:** Policy texts unrelated to local government debt governance will not be selected.
- **Authority:** The central government portal ([www.gov.cn](http://www.gov.cn)) is taken as the preferred website for sample collection. If the central government portal is not available, the Google or Baidu Encyclopedia is taken as an alternative website.
- **Integrity:** All policy texts downloaded are detailed, including the title, issuing department, content details and issuing time.
- **Normalization:** The content of the policy text conforms to China's official administrative document specifications.

Consequently, this paper collects 66 policy texts issued by the State Council, Ministry of Finance, National Development and Reform Commission, etc. In order to facilitate text management, this paper names these policy texts in the form of 'issuing time + issuing department + title'<sup>2</sup>. The policy types and the corresponding numbers in units of years are shown in [Table 1](#).

From [Table 1](#), the following conclusions can be drawn: since the year 2014, the number of policy texts on local government debt governance has increased significantly in China, and the peaks appeared in 2017 and 2018. It is a concrete manifestation that China's policy regime actively adapts to the rising risks of local government debt. Moreover, in terms of policy type, the policy texts are mainly issued in the form of notices, measures and opinions; while overall laws are lacking. So far, the only law is the 'Budget Law of the People's Republic of China (revised in 2014)', indicating that the construction of local government debt governance laws and regulations needs to be constructed urgently.

### 2.3. Research design

The research ideas and objectives of this paper are shown in [Figure 1](#):

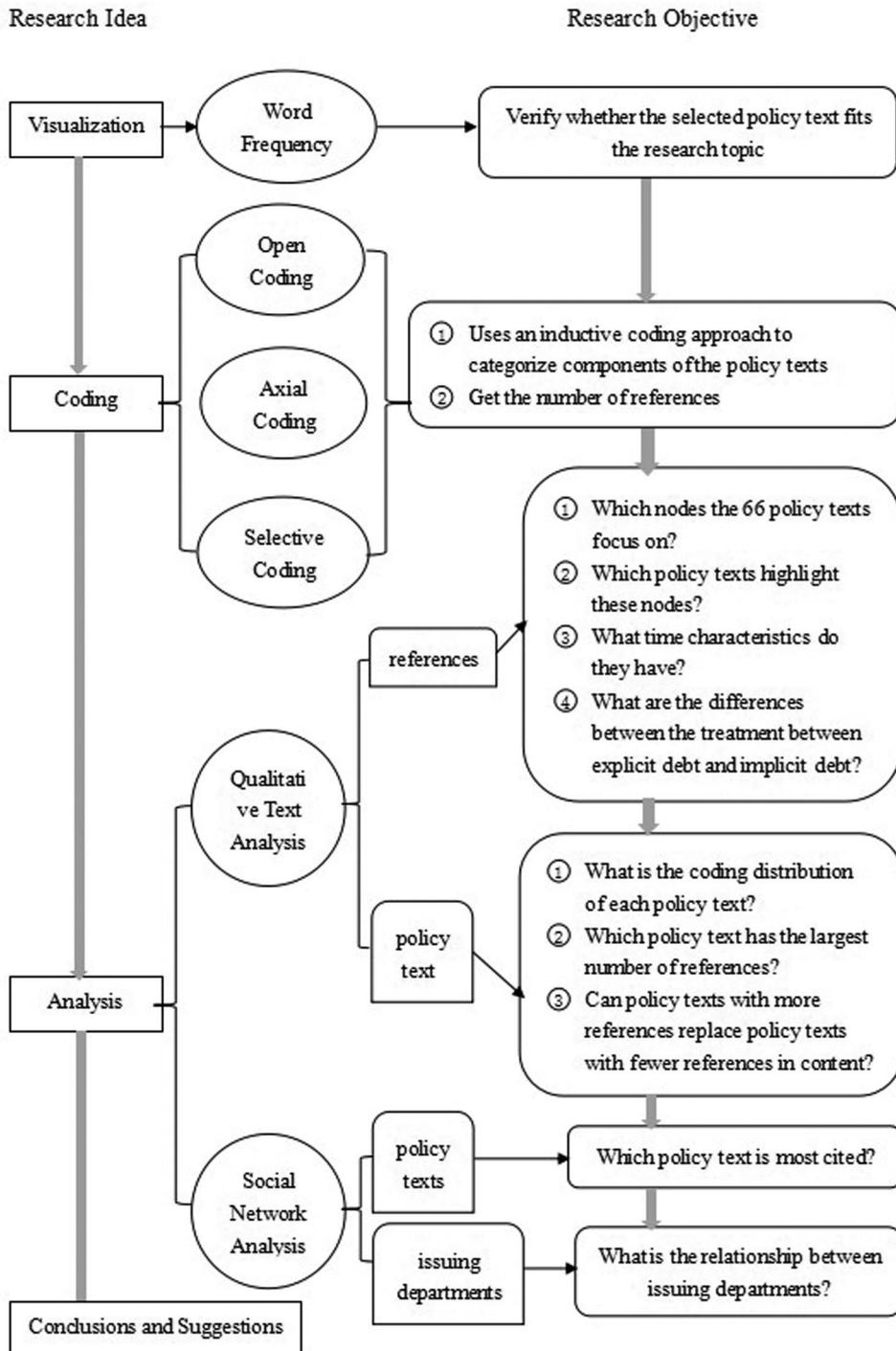


Figure 1. Flow chart of research design.

Source: drawn by the authors based on NVivo.11 software.



**Table 2.** The formation of tree node, reference and source.

Child node	Early concept	Keyword	Reference	Source
<b>Parent Node: Target Debt (reference: 97, source: 66)</b> Government debt	Local government debt	local government debt, government debt, municipal debt, borrowed debt	24	24
Local government bond	Local government general debt	local government general debt	37	37
	Local government special debt	local government special debt		
	Local government general bond	local government general bond		
	Local government special bond	toll road special bond, land reserves special bond, squatter settlement rebuilding special bond, local government special bond		
Implicit debt such as city investment bond	Local government bond	local government bond, local government self-issued bond, self-issued bond, government bond	36	36
	Corporate bond	corporate bond		
	Financing platform	local financing platform, investment and financing platform, financing platform company, urban investment company		
<b>Parent Node: Management Measure (reference: 1429, source: 66)</b> Repayment source management	Implicit debt	implicit debt	290	44
	Contingent debt	contingent liabilities, contingencies		
	Repayment	interest, payment, debt repayment, principal repayment, compensatory, recovery, advance payment, restitution		
	Relief	relief, financial aid		
	Budget	budget, final accounts, call report		
	Scale	scale, increment		
	Limit	limit, amount, quota		
	Issuance	issuance		
	Regime requirement	must, should, can-not, forbid, violation, system, requirement, restriction, rule, regulation		
	Compliance	permission, norms, compliance, specification		
Financing process management	Issuance arrangement	issue, arrangement, pricing management, on-site management, on-site observation, decision-making, procedure, process, agreement, underwriting, bidding, project library	274	50
	Apply	apply, declare	268	55
Review	review, recheck			
Demonstrate	demonstrate, verify, expound and prove			
Authorize	authorize, reply, approve			
Register	register, filing, record			
Report	report, submit			

(continued)

Table 2. Continued.

Child node	Early concept	Keyword	Reference	Source
Risk management	Supervision and administration Emergency response Audit and inspection	supervision, monitoring, early warning, tracking, risk emergency response, major circumstance, major event spot check, inspection, investigation, audit, Commissioner's Office	270	48
Fund usage management	Rectification and clean-up Use Invest	clean-up, withdraw, clear-back, rectify use invest, support, expenditure	92	39
<b>Parent Node: Mechanism guarantee (reference: 487, source 60)</b> Responsibility mechanism	Punishment and reprimand Performance evaluation Accountability	punish, penalize, discipline, reprimand performance evaluation accountability, notification, alarm, blame, crime	124	42
Market mechanism	Diligence and responsibility Market-oriented bidding Market-oriented underwriting Market-oriented operation PPP Third-party organizations such as exchanges Information disclosure Credit rating Responsibility division Organization and coordination Cooperation	duty, diligence, responsibility, obligation market-oriented bidding market-oriented underwriting marketization, commercialization, market transaction social capital cooperation, PPP Shenzhen Stock Exchange, exchanges, exchange market, third- party institution, investors disclosure, publicity, media, news credit rating division of responsibilities coordination, consultation, organization joint efforts, cooperation, share, unite, teamwork, harmonize, lead	265	51
Coordination mechanism			98	37

Source: drawn by the authors based on NVivo.11 software.

issuance', which emphasize the market-oriented way of bond issuance. Then, these nodes are assigned to the 'market-oriented underwriting'. While some nodes with 'underwriting' describe certain formalities such as 'signing and filing must be performed in the process of underwriting issuance'. Such nodes refer to the 'issuance arrangement'. Some nodes with 'underwriting' explain 'what can't be done in the underwriting', which are classified in the 'regime requirement'.

The second step is *axial coding*. As more and more early concepts are recognized, the number of nodes is increasing. In order to extract logical conclusions, it is necessary to construct a *tree node* composed of *parent nodes* and *child nodes*. Then, relationship between the early concepts is analyzed to sum up them into 13 child nodes, such as 'government debt, repayment source management, responsibility mechanism', etc., shown in Table 2.

The third step is *selective coding*. In this step, core categories are selected from all the discovered conceptual categories by systematic analysis, and the analysis is continuously focused on the nodes related to the core categories. According to the core meaning of the 13 child nodes, three highly generalized *parent nodes* have been extracted, which are the 'target debt', 'management measure' and 'mechanism guarantee', shown in Table 2.

### 2.3.3. Consistency test

The coding completed by User Group A and User Group B are compared to measure the consistency between the two users, thus the reliability of the research can be examined. In this process, User Group B randomly selects one policy text per year from the 66 policy texts and recodes the 11 policy texts. The percentage agreement detailed in Eq. (1) can be obtained by the Import Project function of NVivo.11:

$$PA = \frac{TNN - NNC}{TNN} \quad (1)$$

where *PA* is Percentage Agreement, *TNN* and *NNC* can be defined as a total number of nodes and number of nodes coded by only one of the two users, respectively.

As shown in Table 3, the percentage agreement of the sampled policy texts are all above 90%, reflecting the high reliability of this paper.

## 3. Qualitative text analysis

Theoretically, the more references a node has, the more information is gathered on the node, and the more attention has been paid to the node (He et al., 2018; Liu & Li, 2017). By using the Query function of NVivo.11, the references and sources for parent nodes and child nodes can be obtained, as shown in Table 2.

From Table 2, the parent node 'target debt' captures 97 references, accounting for 4.82%; whereas the parent node 'management measure' shares 1429 references, making up more than 70.99% of the total; and the parent node 'mechanism guarantee' absorbs 487 references, compared to 24.19%. The number of references reflect that the policy texts are designed with much emphasis on specific 'management measures' for local government debt.

**Table 3.** Percentage agreement.<sup>a</sup>

Policy Text	Percentage Agreement
2009.02.18	94.28%
2010.06.10	96.48%
2011.10.17	93.71%
2012.12.24	93.27%
2013.08.22	92.54%
2014.10.23	95.99%
2015.03.12	95.74%
2016.11.09(2)	97.13%
2017.12.23	98.07%
2018.02.24	96.67%
2019.06.10	98.15%

<sup>a</sup>Due to the limited space of tables and figures, the name of the policy text is simplified by its issuing time. It should be noted that there are two policy texts issued on November 9, 2016, i.e., 'Measures for Local Government General Debt Budget Management' and 'Measures for Local Government Special Debt Budget Management'. In order to distinguish between the two policy texts, the former is named after 2016.11.09 (1) and the latter is named after 2016.11.09(2). The same below.

Source: drawn by the authors based on NVivo.11 software.

### 3.1. Target debt- in terms of references

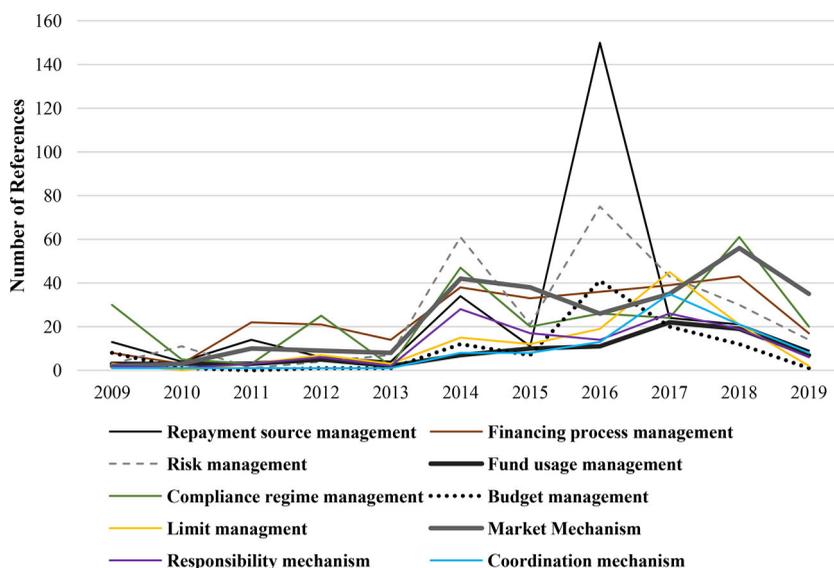
'Target debt' is one of the parent nodes in Table 2. In the 'target debt', there is a similarity in the number of references and sources between the child nodes 'local government bond' and 'implicit debt such as city investment bond', which reflects that implicit debt and explicit debt are treated equally in China. Another 24 references from 24 policy texts refer to the child node 'government debt', which reveals that China has a comprehensive concept of local government debt governance, without any prejudice to explicit debt or implicit debt. Then, the child nodes of 'management measure' and 'mechanism guarantee' will be focused on to observe:

- Which policy texts highlight these child nodes?
- What temporal characteristics do these child nodes have? A time limit or peak?
- If there is no obvious time limit or peak, a tree map will be conducted to further analyze its content.

### 3.2. Management measure- in terms of references

From Table 2, the number of references for the child nodes of 'management measure' shows that China particularly emphasizes the 'repayment source management', 'financing process management' and 'risk management'. Although the 'fund usage management' have been mentioned by 39 policy texts, its references are relatively small in number, which reflects that the policy design of 'borrowing', 'repayment' and 'management' of local government debt are paid more attention than the 'usage'.

For the 10 child nodes of 'management measure' and 'mechanism guarantee', what temporal characteristics do they have? To answer the question, Figure 3 is formed. Then, the standard deviation of the number of references is calculated for each child node. It is found that 17.01 is the mean value of these standard deviations. Thereupon, a stable temporal distribution is defined- if the number of references of the child node in Figure 3 does not fluctuate a lot with a standard deviation lower



**Figure 3.** The temporal characteristics of child nodes of ‘management measure’ and ‘market mechanism’ based on the number of references.

Source: drawn by the authors based on NVivo.11 software.

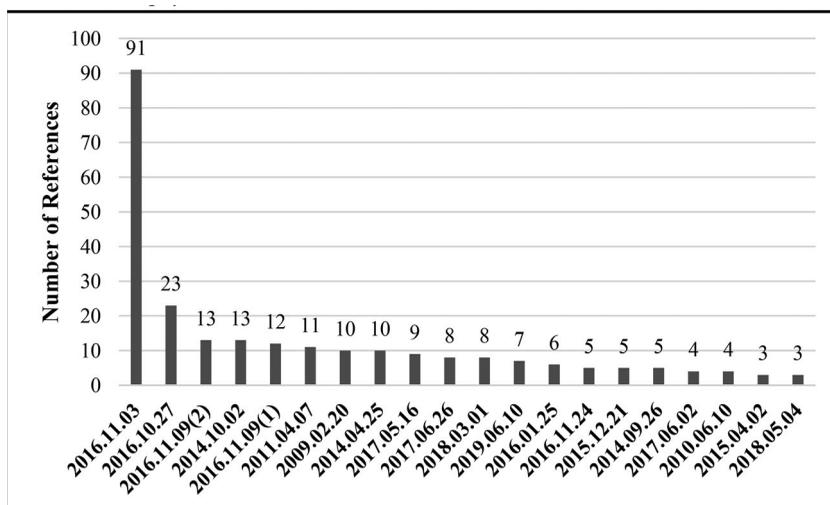
than 17, and the issuing time of the policy texts ranking the top 20 does not concentrate in a certain year, then the child node will be considered to be stably distributed.

### 3.2.1. Repayment source management

It can be seen from Figure 3 that the references disclosing the ‘repayment source management’ show a peak<sup>3</sup> of the year 2016. The peak can be confirmed again in Figure 4, in which the three policy texts with the most disclosure on ‘repayment source management’ are all issued in 2016. By tracing the nodes of the three policy texts, it is found that the repayment responsibilities of different types of local government debt are described, the scope of revenue and expenditure and the treatment methods of principal and interest repayment are detailed in their content.

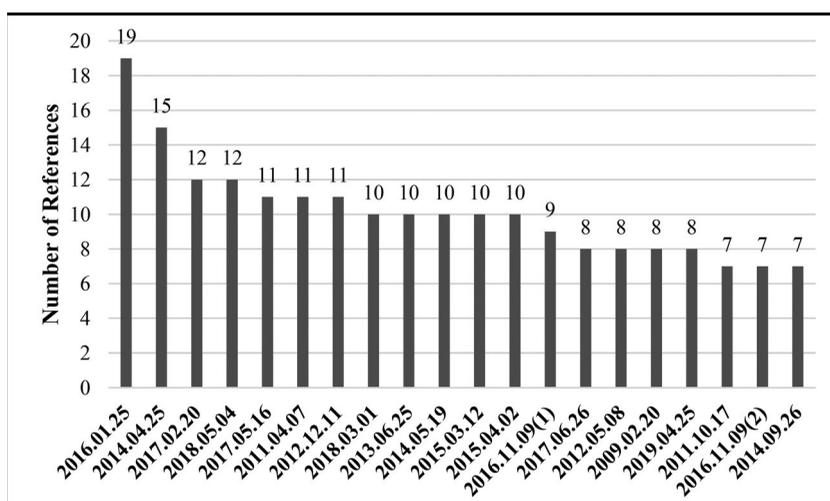
### 3.2.2. Financing process management

It can be seen from Figure 3 that references disclosing the ‘financing process management’ do not concentrate in a certain year as those of the ‘repayment source management’. Specifically, the standard deviation of references of this child node is only 13.63, lower than the mean value of 17. Further, it can be seen from Figure 5 that the top 20 policy texts basically span the entire sample interval, and the top 3 policy texts are distributed in 3 different years, without showing a very obvious time limit. Then, a tree map is conducted to study the content of ‘financing process management’ and the results are shown in Figure 6. Excluding those words without semantic meanings, high frequency words can be extracted such as ‘underwriting, register, pricing’, etc., which fully demonstrate the ‘process control’ model of local government debt governance in China.



**Figure 4.** Repayment source management.

Source: drawn by the authors based on NVivo.11 software.



**Figure 5.** Financing process management.

Source: drawn by the authors based on NVivo.11 software.

### 3.2.3. Risk management

The results of Figures 3 and 7 for the ‘risk management’ are presented as follows: (i) From Figure 3, the policy texts issued in 2016 disclose more about ‘risk management’. In addition, the standard deviation of the number of references is calculated to be 25.10, above the mean value. (ii) It can be seen from Figure 7 that most of the top 20 policy texts are promulgated since 2014. Since then, China has paid more attention to prevent the local government debt risk. (iii) The most disclosed policy text for ‘risk management’ is the ‘Emergency-handling Preplan for Local Government Debt Risks’, which lists the controlling work of China’s local government debt risks from two aspects. One is to set up an emergency-handling mechanism, the other is devoted to

Underwriting	Debt	Annual	Review	Means	End	National Treasury	In Time	Abbreviation	Tender	Distribution		
		Capital	Demand	Working Days	Toll	Submit	Case	Trusteeship	China	Work		
Pilot Project	Region	Pricing	Handle	Road	Announce	Settlement	Determine	Confirm	Formulate	Special Account	Procedure	
					Issue Bond	Stipulate	Inform	Agency	Corresponding Level	State Land	Pay	Conduct
Register	Treasury Bond	Land	Management	Interest Rate	Liability	County Level	Market	Security	Win the Bid	Resource	Organize	
					Full	Measures	Receive	Arrange	Website	Worksite	Information Network	
Provincial Level	Project	Claims	Bidding	Clarify	Amount	Report	Propose	Adopt	Province	Cash	Limit	All Localities
					Plan	Report	Agreement	Responsible	Member	Subscribe	Time	In Advance
Provincial Level	Company	Reserve	Central	Approve	Suggest	Filing	Limited	Programme	Act as Agent	Society	System	Require

Figure 6. Tree Map of ‘Financing process management’<sup>12</sup>.  
 Source: drawn by the authors based on NVivo.11 software.

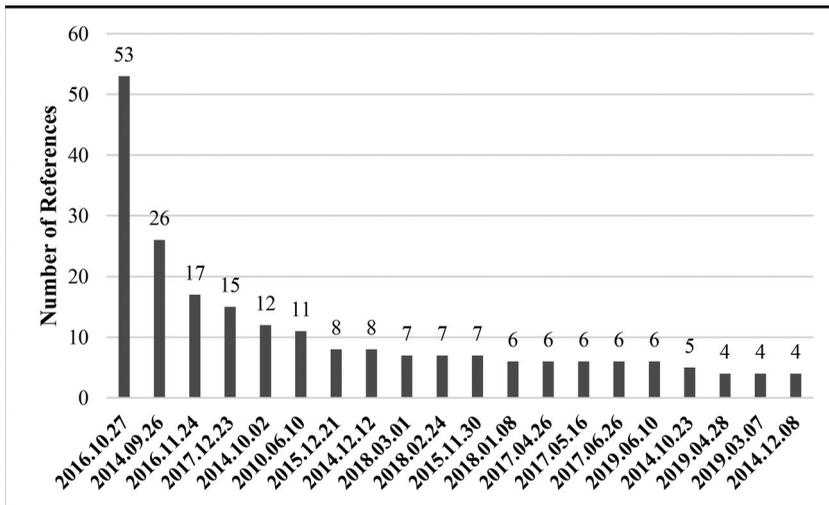
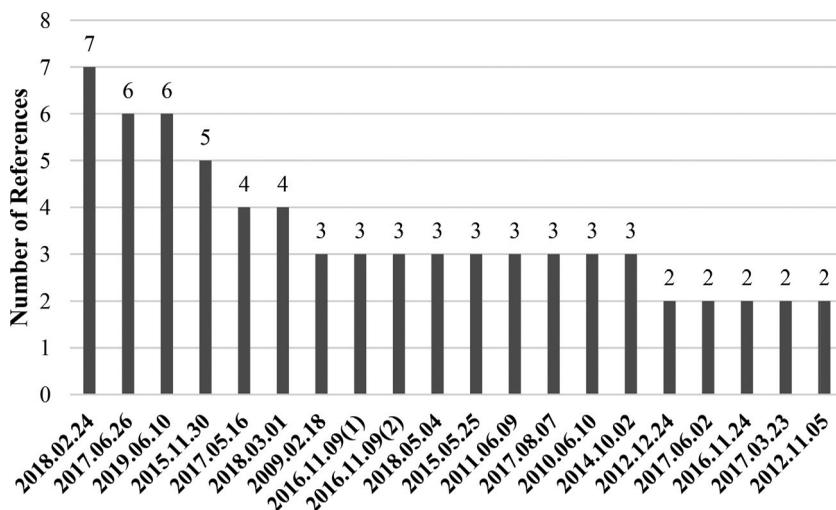


Figure 7. Risk management.  
 Source: drawn by the authors based on NVivo.11 software.

strengthen the assessment and early warning of risk events, which fully shows a more comprehensive design of risk control for China’s local government debt.

### 3.2.4. Fund usage management

From Table 2, the fewest references in the ‘management measure’ is the ‘fund usage management’. It can be seen from Figure 3 that the references of ‘fund usage management’ are not like either those of ‘repayment source management’ having a policy



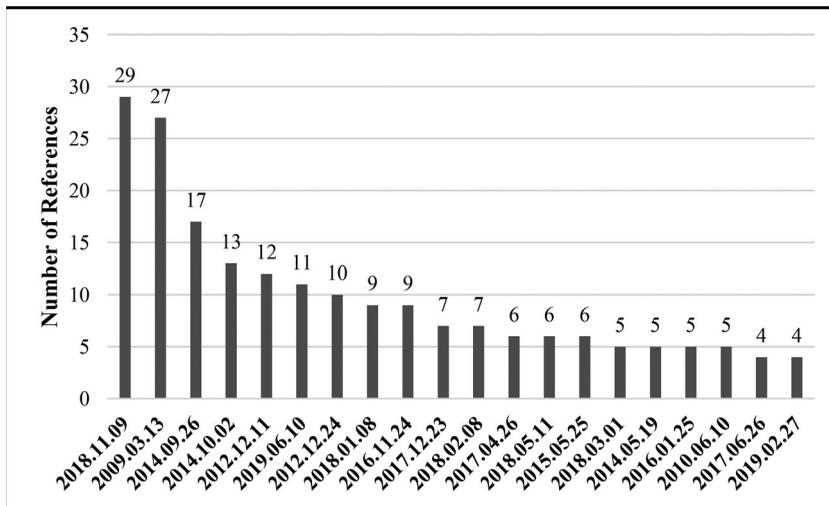
**Figure 8.** Fund usage management. Source: drawn by the authors based on NVivo.11 software.

Public Welfare	Recurrent	Squatter Settlement	Ministry of Finance	Investor	PPP	Museum	Large and Medium-sized Cities	Central Committee	
			State Council	Workload	Act According to Ability	Farmland Water Conservancy	Order of Priority	Prospectus	
		Economic Zone	Structural	Public Utility	Investment and Financing	Integration	One to One Correspondence	Banking	
		Housing Project	Marketization	Tough Battle	Transparency	Strategic	Municipality	Manufacturing	
	National			Library	Yangtze River Delta	Natural Disaster	Autonomous Region		
	Issuer	Squatter Settlement	Economic Zone	Structural	Tough Battle	Transparency	Strategic	Municipality	Manufacturing
		Housing Project	Marketization	National	Library	Yangtze River Delta	Natural Disaster	Autonomous Region	
Housing Project									Marketization

**Figure 9.** Tree Map of ‘Fund usage management’. Source: drawn by the authors based on NVivo.11 software.

peak, or those of ‘risk management’ having an obvious time limit. In fact, its standard deviation is only 6.71, which is the minimum value among the 10 child nodes. Moreover, it can be seen from Figure 8 that the policy texts from 2009 to 2012 appear many times in the top 20 policy texts, without showing obvious temporal characteristics.

Then, a tree map is constructed and the results are as follows: (i) Excluding some non-semantic words, some high frequency words are presented in Figure 9, such as ‘public welfare, squatter settlement’, etc. After tracing the corresponding nodes, it is found that the flow of local government debt funds in China has a tendency to education, medical care, pensions and other public welfare undertakings rather than inefficient project, repetitive construction, high energy consumption and pollution field, which fully demonstrates the new development value of ‘people-oriented’. (ii) After analyzing the contents of the nodes, it is known that some policy texts clearly stipulate the usage of local government debt funds, such as ‘toll road special bond funds



**Figure 10.** Compliance regime management.

Source: drawn by the authors based on NVivo.11 software.

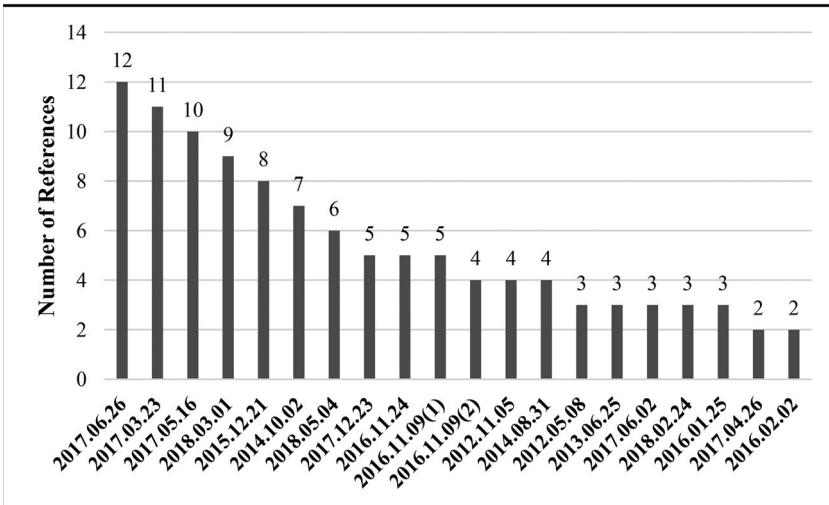
should be used exclusively for government toll road project construction', making the usage of local government debt funds more standardized and stricter. (iii) The nodes about the 'fund usage management' only focus on the issue of 'where to use' rather than 'how to use', which fail to address the way to improve the efficiency of local government debt allocation and maintain the solvency of local governments. (iv) There is no escaping the fact that the projects of public welfare undertakings always have a long payback period. Therefore, the key point to prevent and defuse local government debt risks will lie in maintaining public welfare as well as improving the quality and efficiency of local government debt funds.

### 3.2.5. Compliance regime management

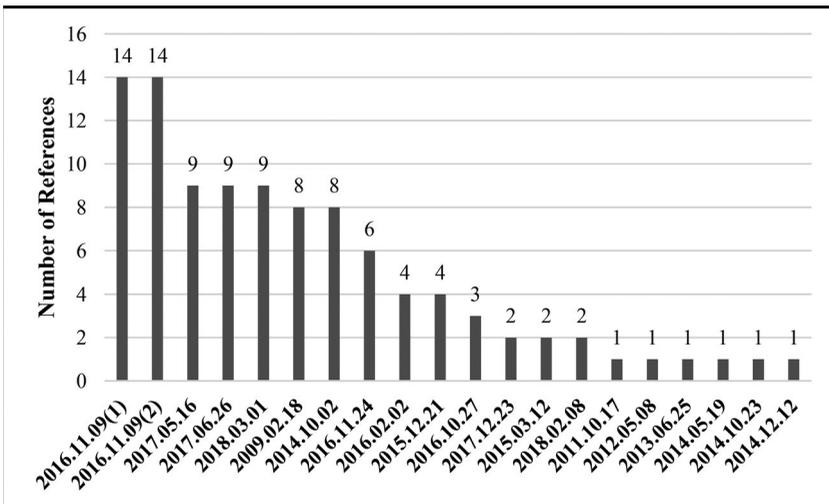
The 'compliance regime management' in Table 2 deserves attention due to its largest number of sources and a large number of references. In Figure 3, the number of its references fluctuates a lot with a larger standard deviation of 18.05, which is above the mean value. In addition, two subtle peak of the year 2014 and 2018 are shown in Figure 3, especially the year 2018, which can be confirmed again by the top 1 policy text in Figure 10. That is, the 'Government Accounting Standards No.8-Liabilities' issued on November 9, 2018, aiming to establish a regulation system of government accounting in China.

### 3.2.6. Limit management and budget management

Although the references and sources of the 'limit management' or 'budget management' do not account for much in the 'management measures', there are still some temporal characteristics for them. It can be seen from Figure 3 that the policy texts issued in 2017 disclosing the most on the 'limit management', and the top 3 policy texts in Figure 11 are all from 2017, showing an obvious peak. Coincidentally, the 'budget management' shows an obvious peak in 2016, which can be confirmed again by the top 20 policy texts in Figure 12.



**Figure 11.** Limit management.  
Source: drawn by the authors based on NVivo.11 software.



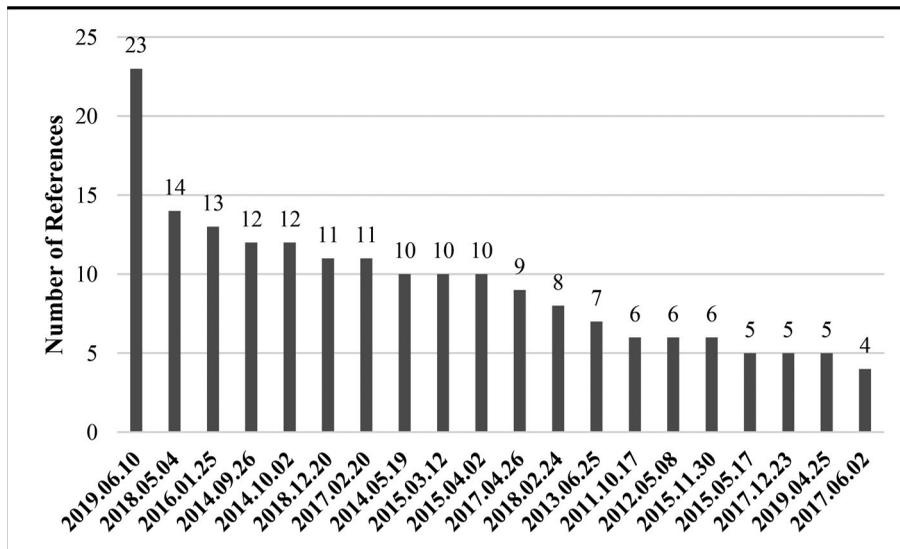
**Figure 12.** Budget management.  
Source: drawn by the authors based on NVivo.11 software.

**3.3. Mechanism guarantee- in terms of references**

**3.3.1. Market mechanism**

It can be seen from Table 2 that the ‘market mechanism’ is the most important component of the ‘mechanism guarantee’. And in Figure 3, more and more references have disclosed about the ‘market mechanism’<sup>4</sup> since the year 2014, reflecting a time limit. Further, it is known from in Figure 13 that the 20 top policy texts span the entire sample interval, and the top 1 policy document is from 2019.

By tracing the corresponding nodes, it is found that the market-oriented measures are aimed at stimulating the vitality and development potential of market participants. Although marketization is advocated in China, there are still many problems



**Figure 13.** Market mechanism.

Source: drawn by the authors based on NVivo.11 software.

in current practice. For example, in terms of credit rating, China's current credit rating mode places emphasis on 'entrusted rating' and 'issuer pays', which leaves room for rent-seeking<sup>5</sup>. In addition, there are few qualified and widely recognized credit rating agencies in the market, which further affects the objectivity and impartiality of the credit rating (Hong, 2019; Chan & Yang, 2020). In terms of promoting the market-oriented transformation of financing platforms, it is common to make transformation announcements by some platforms, without solving problems about the internal modern corporate system, rather than a scientific corporate development strategic plan. Therefore, it has a long way to realize what's the real transformation for the financing platforms in China (Gu et al., 2017).

### 3.3.2. Responsibility mechanism

The 'market mechanism' is not the whole story. Without the support of 'responsibility mechanism' and 'coordination mechanism', China's local government debt governance will return to the old path filled with traditional growth logic. Therefore, there are 124 references from 42 policy texts make contribution to the 'responsibility mechanism', while 98 references from 37 policy texts lie in emphasizing the 'coordination mechanism', as detailed in Table 2.

It can be seen from Figure 3 that the references of the 'responsibility mechanism' are stable during the sample period, with a standard deviation of 9.99, which is much lower than the mean value. In addition, policy texts from 2012 and before have appeared many times in the top 20 policy texts of this child node<sup>6</sup>.

Then, a tree map is conducted and the results are shown in Figure 14. Excluding some non-semantic words, some high frequency words can be extracted such as 'judiciary, punishment, diligence, disciplinary action'. By tracing the corresponding nodes, it is found that punishment accountability and policies of 'lifelong

Rating	Work	Financial	Conduct	Borrow	Deportation	All Levels		
Inviting Suspicion	Standard	Disposition	Exist	Fulfil	Stringent	Provide	Disciplinary Action	
	Punishment	Enrolment	Implement	Violation	Project	Suggestion	Give	
Judiciary		Discover	Intendant	Unit	Issue Debt	Head	Correction	Company
	Measures							
Information		Publicity	Subject	Sound	Market	Cities and Counties	Informed Criticism	Land
	Administration							
Undertake		Supervise	Method	Examine	Problem	Emergency	Budget Law	Person Liable
	Publish							
Issue		Conscientiousness	The Ministry of Finance	Leader	Solemnity	Directly	Report	Take
	Firm	Diligence	Reprimand	Implementation	Serious	Fund	Ascertain	Issuer

**Figure 14.** Tree Map of ‘Responsibility mechanism’.  
 Source: drawn by the authors based on NVivo.11 software.

accountability, reverse investigation responsibility, implementation of inter-departmental joint disciplinary action’ have been frequently mentioned in recent years. In addition, not only local officials have to take responsibilities, but also financial institutions and intermediaries.

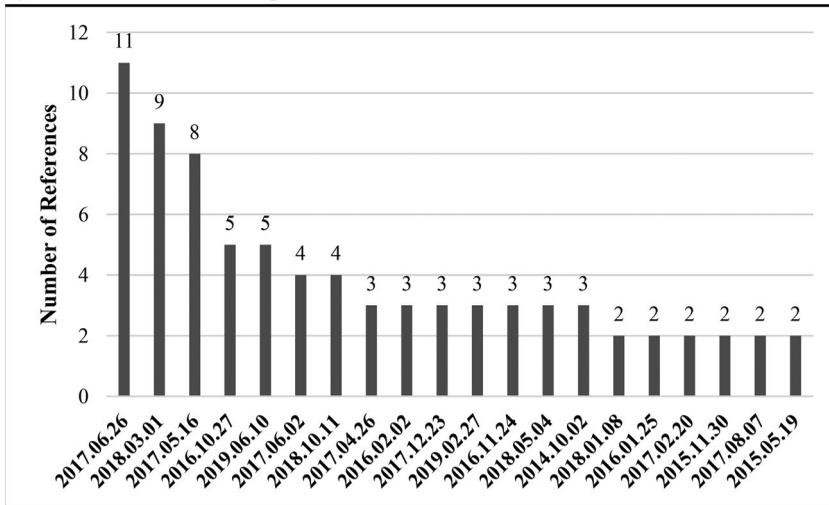
**3.3.3. Coordination mechanism**

It is known from Figure 3 that the peak of the ‘coordination mechanism’ appeared in 2017, which can be confirmed again by the top 20 policy texts in Figure 15<sup>7</sup>. By tracing the nodes of the ‘coordination mechanism’, it is found that the corresponding departments include several departments, such as the State Council and Ministry of Finance, etc., and China tries to mobilize multi-department and multi-industry participation in local government debt governance in order to improve the matching, consistency and effectiveness in cooperation.

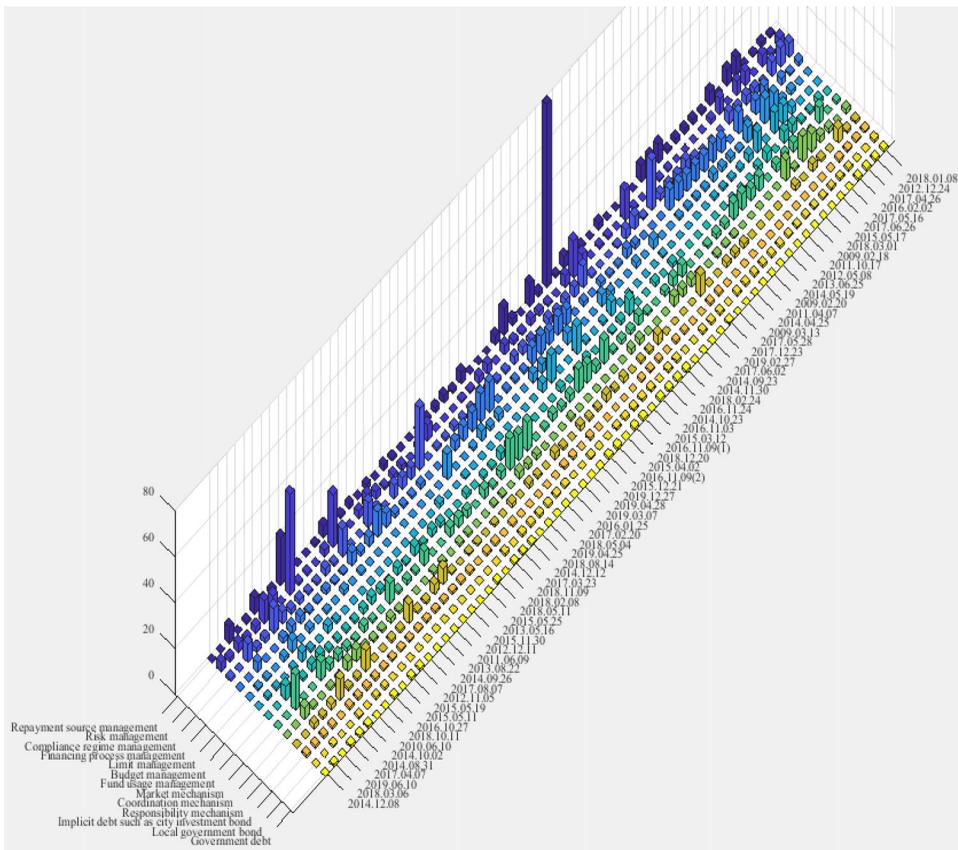
**3.4. In terms of policy texts**

The following of this paper analyzes the coding distribution of each policy text. The results are shown in Figure 16, where the X axis is the 13 child nodes in turn, Y axis is the name of the policy texts, and Z axis is the number of the corresponding references.

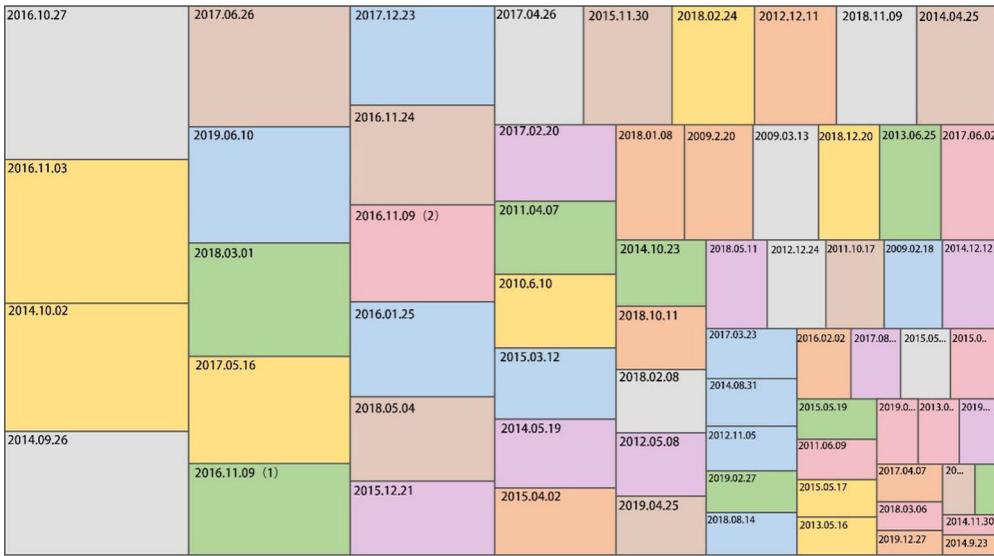
From Figure 16, it is known that the ‘repayment source management’ in the ‘Guidelines for Classified Disposal of Local Government Debt Risk’, the ‘risk management’ in the ‘Emergency-handling Preplan for Local Government Debt Risks’ and ‘Opinions on Comprehensively Strengthening the Risk Prevention of Corporate Bonds’, the ‘compliance regime management’ in the ‘Government Accounting



**Figure 15.** Coordination mechanism.  
Source: drawn by the authors based on NVivo.11 software.



**Figure 16.** Matrix coding query.  
Source: drawn by the authors based on NVivo.11 software.



**Figure 17.** Source comparison by the number of references.  
 Source: drawn by the authors based on NVivo.11 software.

Standards No.8-Liabilities’ and ‘Measures for the General Budget Accounting for Local Government Bonds Issued by the Ministry of Finance’ have obviously more references, but the coding distribution of other policy texts is relatively balanced, which reflects that China has taken a very comprehensive consideration in the policy design.

Unfortunately, the details of the largest number of references and maximum amount of information cannot be shown in Figure 16, thus a tree map is conducted, shown in Figure 17. It can be seen from Figure 17 that the largest area is occupied by two columns on the left, leading to the corresponding policy texts with more references and more information<sup>8</sup>. Can policy texts with more references replace the policy texts with fewer references? With the ‘cluster analysis’ function of NVivo.11 and the Pearson coefficient detailed in Eq. (2), the word similarity of policy texts can be obtained:

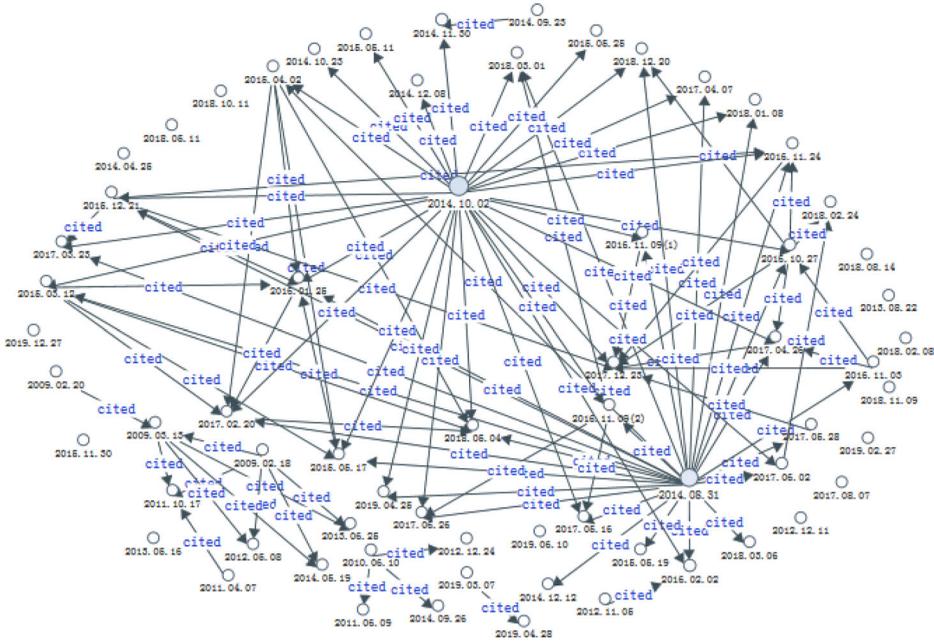
$$PC = \frac{\sum XY - \sum X \sum \frac{Y}{N}}{\sqrt{\left(\sum X^2 - \frac{(\sum X)^2}{N}\right) \left(\sum Y^2 - \frac{(\sum Y)^2}{N}\right)}} \quad (2)$$

*X* = The number of times the word appears in the text of the source A,  
*Y* = The number of times the word appears in the text of the source B.

where *PC* is the Pearson coefficient. Then, the policy texts with the Pearson coefficient greater than 0.7 are clustered and form Figure 18.

It can be seen from Figure 18 that there are some similarities in content of some policy texts. For example, the five policy texts with more references in Figure 17 are shown to be similar in content to 6, 1, 8, 4 and 1 policy texts, respectively. While the





**Figure 19.** Social network analysis of policy texts.  
Source: drawn by the authors based on NVivo.11 software.

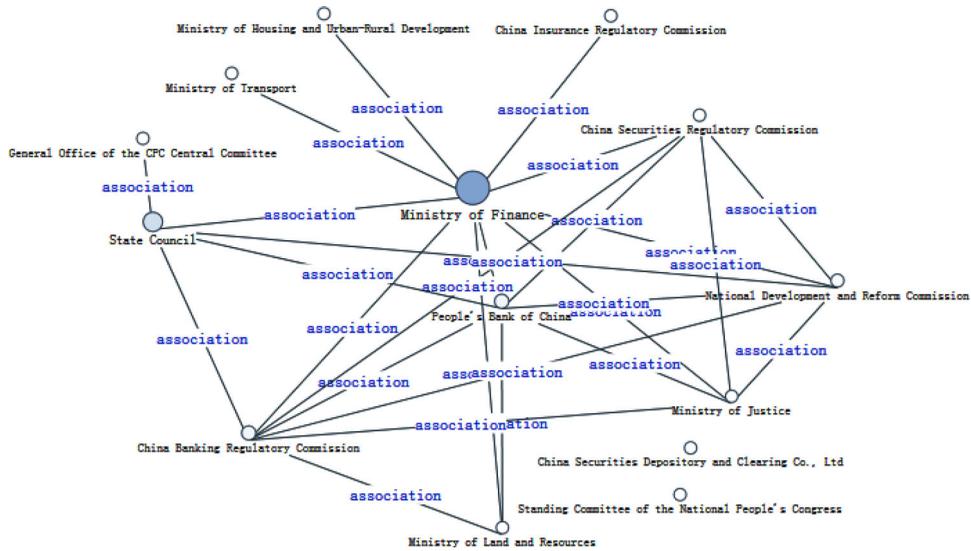
With the help of the ‘graph’ function in NVivo.11, the most highly cited policy texts can be obtained. The result is shown in Figure 19, with the area of the dot representing the betweenness centrality detailed in Eq. (3):

$$BC = \sum_{k \neq j: i \in \{k, j\}} \frac{P_i(kj)/P(kj)}{(n-1)(n-2)/2} \tag{3}$$

$P(kj)$  : the number of the shortest paths between node  $k$  and node  $j$ ,  
 $P_i(kj)$  : the number of node  $i$  in the shortest path between  $k$  and  $j$ .

Where  $BC$  is betweenness centrality.

From Figure 19, the betweenness centrality of the ‘Opinions of the State Council on Strengthening the Management of Local Government Debt’ and ‘Budget Law of the People’s Republic of China (revised in 2014)’ are significantly higher than those of other policy texts. In fact, the betweenness centrality of the two policy texts are calculated to be 666.23 and 527.23, respectively. Such high betweenness centrality is in line with the following discoveries in some previous papers: a study found by Zhao (2015) is that ‘the promulgation of the ‘Opinions of the State Council on Strengthening the Management of Local Government Debt’ has a significant impact on breaking the original local debt ecosystem and making the transformation of local government’. Preliminary work was undertaken by Gu et al. (2017) who claimed that ‘the new budget law can be called China’s economic constitution, which will lay the foundation for the legalization of local government debt’.



**Figure 20.** Social network analysis of issuing departments.

Source: drawn by the authors based on NVivo.11 software.

#### **4.2. Social network analysis of issuing departments**

The 66 policy texts involved 14 issuing departments of China, i.e., the Ministry of Finance, National Development and Reform Commission, etc. From the perspective of policy texts, there are 14 policy texts jointly issued by different departments, and the jointly issued policy texts have increased since 2017, reflecting that China has focused on the inter-departmental ties and collaborations in local government debt governance<sup>11</sup>. Among the jointly issued policy texts, the Ministry of Finance participated in 13 texts, People's Bank of China made up 7 texts, China Banking Regulatory Commission accounted for 6 texts, National Development and Reform Commission hit the percentage of 5 texts, State Council and Ministry of Land and Resources each absorbed a share of 3 texts, and the rest of departments have been shrink to only 1 text or issued independently, reflecting that the Ministry of Finance plays a major role in contact with other departments.

In order to dig out the relationship between the issuing departments, a social network analysis is conducted with the area of dot representing the centrality degree of the issuing department. It can be seen from Figure 20 that the Ministry of Finance, State Council, People's Bank of China, China Banking Regulatory Commission and National Development and Reform Commission are important central points. Among them, the Ministry of Finance is most closely connected with other issuing departments, followed by the State Council, People's Bank of China, China Banking Regulatory Commission and National Development and Reform Commission. Whereas, other issuing departments are at the edge of the social network. To sum up, China has formed a 'centre-edge' model for the governance of local government debt, where the Ministry of Finance is responsible for the core, the State Council, People's Bank of China, China Banking Regulatory Commission and National Development and Reform Commission play the role of central points, and other departments respond to the core and central points.

From another perspective, China's local government debt governance requires inter-departmental collaboration with some warnings: (i) The coordination faces some challenges. So far, China has not issued any relevant policies on how to restrict these departments, how to define the cross functions among them, how to prevent inter-departmental responsibility shifting. In other words, this inter-departmental collaborative governance has still to be found and discovered. (ii) The cooperation with the marginalized departments in [Figure 20](#) needs to be deepened in the future.

## 5. Conclusion

The goal of this paper is to study the characteristics of governance of China's local government debt from the perspective of policy texts issued. Different from the existing research, this paper does not take the 'policy' as a variable to empirically test the relationship between policies and other economic variables, nor subjectively analyze policies by combing the policy texts. Instead, this paper introduces the qualitative analysis and social network analysis into studying the policy texts, and uses an inductive coding approach to categorize components of these policy texts. Phrases are first inductively assigned to categories in the NVivo software, which are then grouped into larger categories in two rounds (child nodes and parent nodes). Finally, the characteristics of local government debt governance in China are identified:

(i) China has formed an institutional framework with the main body of notices, measures and opinions and a 'centre-edge' governance model with the Ministry of Finance as the core, the State Council, People's Bank of China, China Banking Regulatory Commission and National Development and Reform Commission as the central points, and other departments as the response points. (ii) The implicit and explicit debt are treated equally based on the references and sources. (iii) In the 'management measures', China more concerns the policy design of 'borrowing', 'repayment' and 'management'. Additionally, the policy texts about 'repayment' and 'management' show peak and time limit. (iv) In the 'management measure', the 'fund usage management' has the fewest references without obvious temporal characteristics. However, the flow control of local government debt funds highlights China's new development value of 'people-oriented'. (v) The 'compliance regime management' has a peak. The relevant policy texts aim to establish a regime of government accounting standards and a unified regulation of local government debts. (vi) Both the 'limit management' and 'budget management' have subtle peak. (vii) In the 'mechanism guarantee', the 'market mechanism' has been emphasized mostly, followed by the 'responsibility mechanism' and 'coordination mechanism'. Both the 'market mechanism' and the 'coordination mechanism' show a peak, while the 'coordination mechanism' does not. (viii) The evidence supports the relatively average coding distribution of each policy, but the content is quite different. (ix) The 'Opinions of the State Council on Strengthening the Management of Local Government Debt' and 'Budget Law of the People's Republic of China (revised in 2014)' play the programmatic role on subsequent policy texts.

Based on the above conclusions, there are some policy recommendations to be put forward for China: (i) There is an urgent to promote government debt legislation and

enact local public debt laws as soon as possible. (ii) It is suggested to establish a market to retransfer local government bonds and develop a social monitoring mechanism for the usage of local government debt funds. (iii) Local governments should take the responsibility to carry out market-oriented 'mixed reforms' on financing platforms. (iv) It is necessary to set up a problem-oriented policy-making mechanism, and carry out in-depth analysis and multi-party demonstrations on how to improve the effectiveness of coordinated governance.

This paper also sheds new light on local government debt risks to other countries facing similar problems. Other countries or regions can learn from this paper to study their own debt management policies, identify the characteristics of their own debt governance, and find policy improvements. In addition, other countries or regions can draw useful experience from China's local government debt governance model. However, there still exists a limitation of this paper. That is, the research materials are limited to policy texts due to too few relevant audio and video materials.

Future research is expected to focus on the following points: (i) When China issues a large number of relevant audio and video materials, we will conduct in-depth research on these non-text materials. (ii) Since China has a series of lively practices and innovations in the local government debt governance with a unique political, cultural and institutional environment, we will not only study the research materials, but also extract management theories from these materials and put forward more interesting research topics.

## Notes

1. Since Spanish local governments in foral regions are more independent in managing transferred taxes than local governments in non-foral regions.
2. Details are in Appendix.
3. The standard deviation of this child node is 42.03, far above the mean value.
4. The standard deviation of number of references for "market mechanism" is 18.42, above the mean value.
5. In practice, almost all provincial government bonds in China are rated as the highest AAA grade, with obvious inflated rating (An & Ning, 2019; Lam & Wang, 2018).
6. Due to the limited space of the paper, there is no figure here, interested readers can ask the author for a copy.
7. Policy texts issued in 2017 appear the most in the top 20 policy texts.
8. The top five policy texts are the "Emergency-handling Preplan for Local Government Debt Risks", "Guidelines for Classified Disposal of Local Government Debt Risks", "Opinions of the State Council on Strengthening the Management of Local Government Debt", "Opinions on Comprehensively Strengthening the Risk Prevention of Corporate Bonds" and "Measures for the Management of Local Government Toll Road Special Bond (Trial)", with the number of references of 416, 392, 348, 336 and 288 respectively.
9. The number of references of this policy text is 144.
10. The number of references of this policy text is 96.
11. In fact, more than half of the jointly issued policy texts are issued since 2017.
12. The larger the area of the rectangle, the higher frequency of the word. In addition, all policy texts imported in NVivo are in Chinese, and the selected word length of Chinese characters is 2. After we got the Chinese version of the tree map, we translated it into English, the same below.

## Disclosure statement

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## Appendix

Issue time	Issuing department	Name
2009.02.18	Ministry of Finance	Measures for 2009 Local Government Bond Budget Management
2009.02.20	Ministry of Finance	Measures for the Issuance and Payment of the 2009 Local Government Bonds Issued by the Ministry of Finance
2009.03.13	Ministry of Finance	Measures for the General Budget Accounting for Local Government Bonds Issued by the Ministry of Finance
2010.06.10	State Council	Notice of the State Council on Strengthening the Management of Local Government Financing Platform
2011.04.07	Ministry of Finance	Measures for the Issuance and Payment of the 2011 Local Government Bonds Issued by the Ministry of Finance
2011.06.09	National Development and Reform Commission	Notice on the Use of Bond Financing to Support the Construction of the Low-income Housing Project
2011.10.17	Ministry of Finance	Pilot Measures for Self-issuance of 2011 Local Government Bonds
2012.05.08	Ministry of Finance	Pilot Measures for Self-issuance of 2012 Local Government Bonds
2012.11.05	Ministry of Land and Resources, Ministry of Finance, People's Bank of China, China Banking Regulatory Commission	Notice on Strengthening Land Reserve and Financing Management
2012.12.11	National Development and Reform Commission	Notice on Further Strengthening Risk Prevention Management of Corporate Bonds
2012.12.24	Ministry of Finance, National Development and Reform Commission, People's Bank of China, China Banking Regulatory Commission	Notice on Suppression of Illegal Financing by Local Governments
2013.05.16	National Development and Reform Commission	Notice on Special Verification of Some Enterprises Applying for Corporate Bond Issuance
2013.06.25	Ministry of Finance	Pilot Measures for Self-issuance of 2013 Local Government Bonds
2013.08.22	National Development and Reform Commission	Notice on the Use of Corporate Bond Financing to Support the Squatter Settlement Rebuilding Project
2014.04.25	Ministry of Finance	Measures for the Issuance and Payment of the 2014 Local Government Bonds Issued by the Ministry of Finance
2014.05.19	Ministry of Finance	Pilot Measures for Self-issuance and Self Repayment of 2014 Local Government Bonds
2014.08.31	Standing Committee of the National People's Congress	Budget Law of the People's Republic of China (revised in 2014)
2014.09.23	Ministry of Finance	Notice of the Ministry of Finance on Issues related to the Promotion and Application of Public Private Partnership
2014.09.26	National Development and Reform Commission	Opinions on Comprehensively Strengthening the Risk Prevention of Corporate Bonds
2014.10.02	State Council	Opinions of the State Council on Strengthening the Management of Local Government Debt
2014.10.23	Ministry of Finance	Measures for Clearing and Screening of Local Government's Stock Debts into Budget Management
2014.11.30	Ministry of Finance	Notice of the Ministry of Finance on Issues related to the Implementation of Public Private Partnership

(continued)

**Appendix. Continued.**

Issue time	Issuing department	Name
2014.12.08	China Securities Depository and Clearing Co., Ltd	Notice on Strengthening the Risk Management of Corporate Bond Repurchase
2014.12.12	Ministry of Finance	Reform Plan of Comprehensive Government Financial Reporting System based on Accrual Basis
2015.03.12	Ministry of Finance	Interim Measures for Local Government General Bond Issuance Management
2015.04.02	Ministry of Finance	Interim Measures for Local Government Special Bond Issuance Management
2015.05.11	State Council, Ministry of Finance, People's Bank of China, China Banking Regulatory Commission	Opinions on Properly Solving the Follow-up Financing Problems of Projects under Construction by Local Government Financing Platform
2015.05.17	Ministry of Finance, People's Bank of China, China Banking Regulatory Commission	Notice on Issuing 2015 Local Government Bonds by Targeted Underwriting
2015.05.19	State Council, Ministry of Finance, National Development and Reform Commission, People's Bank of China	Guiding Opinions on Promoting the Public Private Partnership in the Public Service
2015.05.25	National Development and Reform Commission	Notice on Giving Full Play to the Function of Corporate Bond Financing to Support the Construction of Key Projects and Promote Steady and Rapid Economic Development
2015.11.30	National Development and Reform Commission	Opinions on Simplifying the Reporting Process for Corporate Bonds, Strengthening Risk Prevention and Reforming the Way of Supervision
2015.12.21	Ministry of Finance	Opinions on the Implementation of Limit Management for Local Government Debt
2016.01.25	Ministry of Finance	Notice on the Successful Issuance of 2016 Local Government Bonds
2016.02.02	Ministry of Finance, Ministry of Land and Resources, People's Bank of China, China Banking Regulatory Commission	Notice on Regulating Land Reserve, Fund Management and Other Related Issues
2016.10.27	State Council	Emergency-handling Preplan for Local Government Debt Risks
2016.11.03	Ministry of Finance	Guidelines for Classified Disposal of Local Government Debt Risks
2016.11.09(1)	Ministry of Finance	Measures for Local Government General Debt Budget Management
2016.11.09(2)	Ministry of Finance	Measures for Local Government Special Debt Budget Management
2016.11.24	Ministry of Finance	Interim Measures for the Supervision of Local Government's Debt by the Office of the Financial Ombudsman of the Ministry of Finance
2017.02.20	Ministry of Finance	Notice on the Successful Issuance of 2017 Local Government Bonds
2017.03.23	Ministry of Finance	Interim Measures for the Allocation of New Limits on Local Government Debt
2017.04.07	China Banking Regulatory Commission	Guiding Opinions of China Banking Regulatory Commission on Risk Prevention and Control of the Banking Industry
2017.04.26	Ministry of Finance, National Development and Reform Commission, Ministry of Justice, People's Bank of China, China Banking Regulatory Commission, China Securities Regulatory Commission	Notice on Further Regulation of Local Governments' Debt Financing
2017.05.16	Ministry of Finance, Ministry of Land and Resources	Measures for the Management of Local Government Land Reserves Special Bond (Trial)

*(continued)*

**Appendix.** Continued.

Issue time	Issuing department	Name
2017.05.28	Ministry of Finance	Notice of the Ministry of Finance on Resolutely Stopping Illegal Financing in the name of Local Government Purchase Service
2017.06.02	Ministry of Finance	Notice of the Ministry of Finance on Pilot Development of Local Government Special Bonds with Balanced Project Income and Self-financing
2017.06.26	Ministry of Finance, Ministry of Transport	Measures for the Management of Local Government Toll Road Special Bond (Trial)
2017.08.07	National Development and Reform Commission	Notice on Further Preventing Risks in the Corporate Bond Field, Strengthening Supervision and Serving the Real Economy
2017.12.23	Ministry of Finance	Report of the Ministry of Finance on Resolutely Stopping Local Governments' Illegal Borrowing and Curbing the Increase of Implicit Debts
2018.01.08	Ministry of Finance, China Insurance Regulatory Commission	Guiding Opinions on Strengthening the Management of the Use of Insurance Funds to Support the Prevention and Resolution of Local Government Debt Risks
2018.02.08	National Development and Reform Commission, Ministry of Finance	Notice on Further Enhancing the Ability of Corporate Bonds to Serve the Real Economy and Strictly Preventing Local Government Debt Risks
2018.02.24	Ministry of Finance	Notice of the Ministry of Finance on the Effective Management of 2018 Local Government Debt
2018.03.01	Ministry of Finance, Ministry of Housing and Urban-Rural Development	Measures for the Management of Pilot Issuance of Local Government Special Bond for Squatter Settlement Rebuilding Project
2018.03.06	General Office of the CPC Central Committee	Guiding Opinions on Expanding the Focus of the NPC's Budget Review to Expenditure Budgets and Policies
2018.05.04	Ministry of Finance	Opinions on the Successful Issuance of 2018 Local Government Bonds
2018.05.11	National Development and Reform Commission, Ministry of Finance	Notice on Improving the Market Restraint Mechanisms and Strictly Preventing the External Debt Risks and Local Government Debt Risks
2018.08.14	Ministry of Finance	Opinions on the Successful Issuance of Local Government Special Bonds
2018.10.11	State Council	Guiding Opinions on Continuously Overcoming Shortcomings in the Field of Infrastructure
2018.11.09	Ministry of Finance	Government Accounting Standards No.8-Liabilities
2018.12.20	Ministry of Finance	Measures for the Disclosure of Local Government Debt Information (Trial)
2019.02.27	Ministry of Finance	Notice of the Ministry of Finance on the Issuance of Local Government Bonds through Commercial Bank Counter Markets
2019.03.07	Ministry of Finance	Opinions on Promoting the Standardized Development of Public Private Partnership
2019.04.25	Ministry of Finance	Opinions on the Successful Issuance of Local Government Bonds
2019.04.28	Ministry of Finance	Notice on Sorting Out PPP Projects that Increase the Local Government Implicit Debt
2019.06.10	General Office of the CPC Central Committee, State Council	Notice on the Issuance of Local Government Special Bonds and the Supporting Financing Work
2019.12.27	Ministry of Finance	Notice on the Implementation of the Information Disclosure Template for New Special Bond Projects for Local Governments

Source: drawn by the authors based on NVivo.11 software.