

The Impact of Chain Leader System on Corporate Audit Quality - A Study Based on Audit Subject-Object Perspective

Ziyue Wang

University of International Business and Economics, Beijing, China,

Abstract: As a new policy of industrial chain governance, the chain length system policy is of great significance to improve the industrial environment and enhance the resilience of the industrial chain. However, its role mechanism and specific effects on the micro behavior of enterprises have not yet been deeply explored. This paper takes China's A-share listed companies from 2012 to 2022 as the research object, based on the data of the chain length system policy at the prefecture-level city level, and empirically examines the effect of the chain length system policy on the audit quality of the enterprises and its mechanism by using the multi-period double-difference model. It is found that the implementation of the chain leader system policy can improve the quality of corporate auditing, which is mainly realized through the paths of promoting the digital transformation of enterprises, suppressing the rent-seeking behavior of enterprises, and improving the intensity of competition in the product market. Heterogeneity analysis shows that the chain-length policy has a more significant effect on improving the audit quality of non-state-owned enterprises, non-Big Four audits, manufacturing industries and enterprises in the Middle East. This paper reveals the micro effects of the chain-length system policy from the perspective of accounting information quality, and provides a reference for improving the policy design.

Keywords: Chain Length System; Audit Quality; Industrial Policy

1. Introduction

Under the dual background of global industrial chain restructuring and the intensification of economic and trade friction between China and the United States, enhancing industrial chain resilience has risen to be an important topic of national strategy. In this context, in order to

further optimize the industrial structure and enhance the overall level of risk resistance of the industry chain, the policy of industry chain leader system came into being. The essence of the policy is that government leaders act as "chain leaders" to coordinate resources, and leading enterprises of the industry chain act as "chain masters" to coordinate development, and promote resource allocation and cooperation between the upstream and downstream of the industry chain through the mechanism led by chain leaders and led by chain masters. This policy not only has the effect of improving the industry chain environment and enhancing the resilience of the industry chain (Lin Shujun and Ni Hongfu, 2022)[1], but also has a potentially favorable impact on the quality of accounting information by changing the business environment of enterprises (Lai Wenfei and Wu Cen, 2019)[2].

Regarding the chain master policy, most of the existing literature focuses on the conceptual interpretation of the policy, including dissecting the theoretical connotation of the policy, the path of its realization (Group of the Institute of Industrial Economics of the Chinese Academy of Social Sciences, 2022)[3], and the form of its implementation (Liu, Zhi Biao, and Kong, Ling Chi, 2021), as well as exploring the functions of state-owned enterprises as chain masters on behalf of the government (Hu, Dengfeng, et al., 2024; Zhao, Jing, et al., 2022)[4], the supply chain governance role played by chain master enterprises in the chain (Yu Su et al., 2023)[5]. Research on the effect of policy implementation is weaker, mainly centering on the dimensions of the industry chain and enterprises. On the one hand, the chain-long system can enhance the resilience of the industry chain and promote the modernization of the industry chain through chain supplementation, chain extension and chain strengthening (Meng Qi, 2023)[6]. On the other hand, the chain-length system can promote enterprise technological innovation (Zhan Xinyu and Liang Lanxin, 2024) and enhance enterprise

risk-taking (Zeng Huixiang et al., 2024) by alleviating financing constraints and optimizing industry chain synergy. However, as an important part of corporate governance, the dynamics of audit quality under the chain-length system remains unexplored, and its underlying mechanism is still a theoretical "black box"[7]. Audit quality is the joint probability that an auditor will detect and report a misstatement (DeAngelo, 1981)[8], and it is the core guarantee of the credibility of financial reporting information. Existing research suggests that government policy guidance has a significant impact on corporate audit quality. First, for capital market policies closely related to accounting information, Tang Xuesong et al. (2024) suggest that the reform of the CPA examination system can improve the quality of annual report audits by compensating for the lack of auditors' industry expertise. Ying Yeh Feng and Gong Manning (2020) find that the audit fee limitation policy curbed the low-priced solicitation phenomenon in the audit market and significantly improved the audit quality of small accounting firms [9]. Hope et al. (2025) conclude that the international convergence of accounting standards facilitates the audit quality improvement by increasing the emphasis on internal control evaluation, fraud risk assessment, and related party transactions. Second, going back to the government's economic policy guidance, Chu and Jian et al. (2018) find that economic policy uncertainty brings higher audit practice risk[10], which prompts auditors to enhance their efforts and has a positive effect on audit quality. Zheng and Sun Shilu (2021) suggest that tax collection policies can reduce audit risk by lowering agency costs and reducing financial restatements, which in turn has an impact on audit quality. Finally, policy intervention also implies a stricter regulatory environment. On the one hand, regulatory instruments such as administrative penalties, accounting information quality inspections, and financial reporting inquiry letters can enhance corporate audit quality through deterrence (Lamoreaux et al. 2023; Zheng, Dengjin, and Wu, Jian, 2021[11]; Ewert and Wagenhofer, 2019)[12]. On the other hand, close scrutiny by regulators can also influence the auditor's to adopt a more conservative auditing strategy[13], making accounting estimates less accurate, which may have a negative impact on audit quality (Stuber and

Hogan, 2021)[14]. In summary, it seems that most of the existing literature explores the impact of capital market policies or macroeconomic policies on corporate audit quality from the perspective of capital market policies or macroeconomic policies, and little literature explores the impact of specific industrial policies on corporate audit quality from the perspective of the industrial chain. So, as a kind of government-led industry chain collaborative governance policy[15], can the chain leader system policy promote the improvement of enterprise audit quality? In order to answer the above question, this paper takes China's A-share listed companies from 2012 to 2022 as the research object, manually organizes the data of chain-length policy implementation in each city, and empirically tests the relationship between chain-length policy and corporate audit quality[16].

Compared with the existing literature, the marginal contributions of this paper are: first, it expands the research boundary of chain-length system policy effect. Existing research focuses on the conceptual analysis of the chain-length system policy, or explores the effect of the policy implementation from the perspective of industrial integration and business operation[17], while this paper examines for the first time the specific efficacy of the chain-length system from the perspective of the quality of corporate accounting information[18]. Second, it enriches the influencing factors of audit quality. Previous literature mainly examines the impact of the capital market environment and macroeconomic factors on audit quality, while this paper clarifies the influence mechanism of the industrial environment on corporate audit quality from the perspective of the chain-long system policy[18]. Thirdly, it provides theoretical support for the further improvement of the "chain-long system" policy[19]. This paper provides empirical evidence for the government to optimize the policy design of the chain leader system in terms of digital transformation[20], government-business relationship, and product market competition, and promotes the synergistic development of industrial chain governance and capital market regulation[21].

2. Policy Background and Research Assumptions

2.1. Policy Background

The chain leader system is an institutional innovation implemented by local governments to strengthen the resilience of the industrial chain and promote the high-quality development of the industry[22], with the core subjects being the "chain leader" as a government leader and the "chain master" as an industry leading enterprise, through which the "chain leader leads, chain master leads, and chain master master leads" is recognized as the "chain master"[23]. The core subject is the "chain leader" as the government leader and the "chain master" as the leading enterprises in the industry, through the mode of "chain leader-led[24], chain master-driven", coordinating the distribution of resources and synergistic development of the upstream and downstream enterprises in the industry chain[25], solving the problem of "breakpoints and blockages" in the key links, and realizing the goal of "extending the chain, complementing the chain and strengthening the chain"[26]. The goal is to realize "chain extension, chain supplementation and chain strengthening"[27].

Specifically, the chain leader system policy has experienced three stages of development: germination, promotion and popularization, and innovation and upgrading. 2017[28], the concept of "chain leader system" was first proposed by Changsha City, Hunan Province, and Xiangtan City in the same province followed in 2018, with the policy initially germinating[29]. In 2019, Zhejiang Province took the lead to implement the chain leader system throughout the province[30], and the policy entered the promotion and popularization stage. Chain leader system, the policy entered the promotion and popularization stage[31]. Seven provinces and municipalities, including Henan, Hebei, Shandong, etc.[32], also implemented the chain leader system in 2020 one after another according to local conditions[33]. In the past three years, cities and municipalities have actively explored new organizational modes of the policy, and the chain leader policy has entered the stage of innovation and upgrading. Jiangxi Province launched the "chain leader system 2.0" version in 2022[34], promoting the seamless connection of industrial chain with innovation chain[35], talent chain and capital chain. Hunan Province launched cross-provincial collaboration under the chain leader system in 2024[36], realizing

cross-regional synergistic development of the industry chain. So far, the chain leader system policy has covered more than 30 provinces across the country, and has continued to exert a positive influence on industrial macro and enterprise micro[37].

2.2 Research Hypothesis

A country's industrial system will further shape the accounting information characteristics of enterprises by influencing the behavior of enterprise management, investors and other market participants (Bushman and Piotroski, 2006)[38]. Based on this view, what are the specific mechanisms through which chain manager policies can affect the audit quality of firms? Combined with the current context of digital economy, anti-corruption and expanding domestic demand, this paper argues that the chain-length policy can promote enterprise audit quality through three paths: promoting enterprise digital transformation, inhibiting enterprise rent-seeking behavior and increasing the intensity of competition in the product market[39].

2.1.1 Promote enterprise digital transformation

With the arrival of the digital economy, enterprise digital transformation has become a key link in promoting high-quality economic development[40], and the design and implementation process of the chain manager system policy around the industry chain digital transformation has a clear focus. For example, Nanjing City, Jiangsu Province, has incorporated digital transformation into the assessment index of the chain leader system, and required the chain leader to coordinate and solve the problems of intelligent transformation of enterprises; Shenzhen City[41], Guangdong Province, has required the chain leader system to focus on supporting the digital upgrading of electronic information, high-end equipment and other industrial chains in the implementation of the opinions; Weifang City, Shandong Province, has emphasized the "chain master" in the report of the work of the chain leader system; the role of enterprises in leading the digital transformation of industrial chains is also emphasized in the report. Weifang City, Shandong Province, emphasized the leading role of "chain masters" in the work report of the chain master system, which greatly promoted the digital transformation of enterprises in the chain[42].

From the point of view of the audit subject, according to the modern risk-oriented audit theory, the auditor's identification and assessment of audit risk is a key link in the audit service, which plays a decisive role in the quality of the audit. Digital transformation means the extensive use of the Internet, big data analysis and other related technologies in the production and operation of enterprises (Tiberius and Hirth, 2019)[43], which optimize the processing and handling of enterprise information, the external transmission process, and can effectively reduce the degree of information asymmetry (Wu Fei et al., 2021). This also improves the efficiency and effectiveness of auditors in obtaining audit evidence, helping them to accurately identify audit risks and implement more targeted audit procedures (Zhai Huayun and Li Qianru, 2022)[44], which effectively improves the quality of auditing. From the perspective of the audit object, digital transformation can improve the operational efficiency of the internal mechanism of enterprises and promote the quality of internal control (Prajogo and Olhager, 2012). And high-quality internal control can effectively find the problems in the company's operation (Zhang Yishu and Feng Jinyu, 2025), reduce erroneous financial information due to negligence, fraud and fraud, and improve the reliability of financial reporting (Ashraf, 2024)[45], so that the audit quality of the enterprise is improved.

2.2.2 Curbing corporate rent-seeking behavior

Rent-seeking refers to enterprises obtaining economic benefits or competitive advantages through political relations (Pan and Tian, 2020)[46], and its occurrence is often related to the imperfection of the institutional environment (Zhao Yunhui et al., 2019) and the opacity of information transmission (Kim and Lee, 2009; Lindstedt and Naurin, 2010)[47]. The chain leader system is a new era of China's characteristic industrial policy, where the administratively appointed "chain leader" and the naturally formed "chain owner" realize the relationship between "active government" and "effective market". The close cooperation between "active government" and "effective market" (Zeng Huixiang et al., 2024) fills the gray area of collusion between government and enterprises in industrial policy, improves the transparency of industrial chain information, improves the industrial institutional

environment (Hong Qunlian, 2021), and effectively inhibits the occurrence of rent-seeking behavior of enterprises.

From the point of view of the auditing body, independent and objective auditors can easily discover the rent-seeking behavior of enterprises through auditing procedures and disclose it to the public through non-standard audit opinions (Chen Jun et al., 2021). According to the signaling theory, non-standard audit opinions will transmit unfavorable signals to the outside world, increasing the possibility of corporate reputation and stock price impairment (Li Shihui et al., 2021). Therefore, rent-seeking firms tend to "buy" false standard audit opinions by paying high audit fees or changing auditors to avoid the negative impact of unclear audit opinions (Newton et al., 2016). The weakening of rent-seeking activities will reduce the tendency of enterprises to buy audit opinions, so that the auditor can maintain independence, issue a true and reliable audit report, and effectively improve the audit quality. From the point of view of the audit object, enterprises tend to carry out downward surplus management in order to hide the excess profits brought by rent-seeking behavior (Chen Jun and Xu Hanjun, 2019). And with the severance of the rent-seeking chain, enterprises can not obtain excess profits in fair competition, and the surplus management motive is significantly weakened, which in turn improves the quality of corporate financial information and improves the audit quality of enterprises.

2.2.3 Improve the intensity of product market competition

Most of China's industrial policies consist of a series of measures such as industrial selection, project approval, financial subsidies, preferential taxation, market access and so on (Buhechulu and Chen Ling, 2021)[48]. The chain leader system policy is no exception, which firstly selects the implementation industry according to the government development plan and the characteristics of the local city, and then implements the supporting policy preferences for the corresponding industry. For example, in the process of policy implementation, Hangzhou compressed the approval timeframe for IC industry chain projects by more than 30%; Qingdao subsidized the intelligent transformation projects of smart home appliance industry chain enterprises by up to 3 million yuan; and Shenzhen implemented enterprise

income tax reduction and exemption and additional deduction of research and development expenses for the semiconductor industry chain. This can effectively reduce the threshold of entry into the industry and enhance the intensity of competition in the product market[49].

From the point of view of the auditing body, more intense competition in the product market means that the substitutability of the enterprise's products is increased, which makes the enterprise face higher business risks (Baggs and De Bettignies, 2007)[50], and for the auditor it also implies higher audit risks. Based on the reputation mechanism theory, auditors face a higher likelihood of audit failure due to increased client risk and will safeguard their reputation by enhancing their efforts (Bell et al., 2001)[51]. For example, sending a more experienced audit team, performing more comprehensive audit procedures, and working longer hours, which in turn leads to higher audit quality. In terms of audit object, the information transmission theory proposes that a firm's selection and hiring of auditors is an effective mechanism for sending signals to investors (Titman and Trueman, 1986)[52]. And in order to send the signal of good business operation and improve their own competitive advantage in the market with increased competition, firms have the incentive to enhance the quality of information disclosure and attract external investors by hiring high-quality auditors (Chen Lirong et al., 2021)[53], which promotes the improvement of audit quality.

Based on the above analysis, this paper proposes the following hypotheses:

H1: The chain-length system policy can promote the improvement of corporate audit quality.

$$DA_{it} = \beta_0 + \beta_1 Chainleader_{it} + \gamma Controls + Firm_i + Year_t + \varepsilon_{it} \quad (1)$$

Where DA_{it} is the enterprise audit quality, represented by the absolute value of manipulated accrued profits calculated by the modified Jones model; $Chainleader_{it}$ is the chain-length policy, represented by the cross-multiplication term of the individual dummy variable of policy implementation and the dummy variable of the year of policy implementation; $Controls$ is the control variables at the enterprise and regional levels; $Firm_i$ and $Year_t$ are the enterprise fixed effects and the year fixed effects, respectively; and ε_{it} is the random error term. If the empirical results are consistent with the theoretical

H2: The chain leader system policy promotes the improvement of corporate audit quality through three mechanisms: promoting the digital transformation of enterprises, inhibiting corporate rent-seeking behavior, and increasing the intensity of competition in the product market.

3. Research Design

3.1 Sample Selection and Data Sources

Considering that the chain-length policy was first implemented in Changsha, Hunan Province in 2017, in order to ensure the symmetry of the time window before and after the policy shock, this paper selects A-share listed firms from 2012 to 2022 as the research sample, and excludes listed firms in the financial industry, excludes ST and *ST firms, and excludes the samples with excessive missing variables, and finally obtains 20,339 firms -Annual observations.

The financial data of enterprises in this paper comes from CSMAR database; the regional level data comes from China Statistical Yearbook; the data of chain leader system policy is manually collated from the documents related to the implementation of chain leader system policy published on the official website of the government of each prefectural-level city. In order to eliminate the influence of extreme values, this paper shrinks all continuous variables at the 1% and 99% quantile.

3.2. Model Construction

Considering that the implementation time of the chain-long system policy has phase differences, this paper sets the benchmark regression as a multi-period double-difference model. Specifically as follows:

analysis, the regression coefficient β_1 should be significantly negative, indicating that the chain-length policy promotes the improvement of enterprise audit quality.

3.3. Variable Measurement

3.3.1 Explained Variables

The explanatory variable DA of this paper is corporate audit quality, referring to the studies of Yan Huanmin et al. (2025), DeFond and Zhang (2014), and using the absolute value of manipulable accrued profits calculated by the modified Jones model as a proxy variable for audit quality. The higher the firm's surplus

manipulation, the higher the absolute value of *DA* and the lower the audit quality[54].

3.3.2 Core Explanatory Variables

The core explanatory variable *Chainleader* in this paper is the chain leader policy, which is expressed as the cross-multiplier of the policy implementation individual dummy variable *Treat* and the policy implementation year dummy variable *Post*, with reference to Zhan, Hsin-Yu, and Liang, Lan-Hsin (2024)[55]. For the *Treat* variable, this paper manually collects the industries in which the policy is implemented based on the chain-length system implementation-related documents issued by the governments of each prefecture-level city, and uses the 2012 version of the SEC's industry classification to match the enterprises with the policy shocks, such as the enterprises' main business belongs to the implementation industry of the chain-length system policy in the region where they are located, the enterprises are subjected to the policy shocks and are regarded as the treatment group, and the *Treat* is assigned a value of 1. Enterprises that are not matched on

the policy shocks are For the *Post* variable, if the prefecture-level city where the enterprise is located releases the work program related to the implementation of the chain-length system in a certain year, the enterprise is assigned a value of 1 for *Post* in that year and the following years, and vice versa[56].

3.3.3 Control Variables

Referring to related literature (Liu Yingfei et al. 2024; Yu Minggui and Wang Kong, 2022; Xu Jia et al. 2020), this paper adds control variables at the enterprise and regional levels. The control variables at the enterprise level are: enterprise size (*Size*), gearing ratio (*Lev*), nature of equity (*SOE*), equity concentration (*Top1*), and "Big 4" audit (*Big4*); the control variables at the city level are: regional economic development level (*Gdpper*), industrial structure (*The control variables at the city level are: regional economic development level (Gdpper), industrial structure (Industructure), financial development level (Save), and fiscal revenue share (Fiscal).* See Table 1 for the specific definitions of the variables.

Table 1. Definition and Description of Variables

Variable Type	Variable Symbol	Variable name	Measurement
Explained variable	<i>DA</i>	Audit quality	See description above
Explanatory Variables	<i>ChainLeader</i>	Chain leadership policy	See description above
Control Variables	<i>Size</i>	Size of the firm	Natural logarithm of year-end total assets
	<i>Lev</i>	Gearing ratio	Ratio of total liabilities to total assets at the end of the year.
	<i>SOE</i>	Nature of ownership	State-owned enterprises take 1, otherwise take 0
	<i>Top1</i>	Shareholding Concentration	Proportion of shares held by the first largest shareholder
	<i>Big4</i>	"Audited by "Big 4"	Audited by "Big 4" accounting firms take 1, otherwise take 0.
	<i>GDPper</i>	Regional economic development level	Natural number of per capita GDP of prefecture-level cities
	<i>Industructure</i>	Industructure	Share of secondary industry in GDP
	<i>Save</i>	Financial Development Level	Ratio of deposit balance of financial institutions to regional GDP at the end of the year
	<i>Fiscal</i>	Fiscal Revenue	Ratio of local budget revenue to GDP

4. Empirical Results and Analysis

4.1 Descriptive Statistics

Table 2 shows the descriptive statistics of this paper. As shown in the table, the mean value of enterprise audit quality is 0.063, and the standard deviation is 0.070, indicating that there are some differences in audit quality among different enterprises. In terms

of enterprise characteristics, the average enterprise size is 22.531, the average gearing ratio is 43.4%, and the average shareholding ratio of the first largest shareholder is 33.735%; in terms of regional characteristics, the average regional GDP per capita is 11.47, the average share of the secondary industry is 40.3%, the average level of financial development is 2.307, and the average share of the fiscal revenue is 11%.

Table 2. Descriptive Statistics

Variable Name	Observed value	Mean	Standard deviation	Minimum	Maximum	Median
<i>DA</i>	20339	0.063	0.070	0.000	0.391	0.042
<i>ChainLeader</i>	20339	0.094	0.292	0.000	1.000	0.000
<i>Size</i>	20339	22.531	1.329	20.154	26.518	22.347
<i>Lev</i>	20339	0.434	0.198	0.056	0.866	0.430
<i>SOE</i>	20339	0.421	0.494	0.000	1.000	0.000
<i>Top1</i>	20339	33.735	14.939	8.020	74.300	31.340
<i>Big4</i>	20339	0.070	0.256	0.000	1.000	0.000
<i>GDPper</i>	20339	11.470	0.482	10.103	12.165	11.556
<i>Industructure</i>	20339	0.403	0.112	0.159	0.622	0.413
<i>Save</i>	20339	2.307	1.083	0.761	5.106	2.001
<i>Fiscal</i>	20339	0.110	0.041	0.042	0.205	0.100

Table 3. Benchmark Regression Results

Variables	(1)	(2)	(3)
<i>DA</i>	<i>DA</i>	<i>DA</i>	<i>DA</i>
<i>ChainLeader</i>	-0.0060*** (0.0023)	-0.0068*** (0.0024)	-0.0067*** (0.0024)
Constant term	0.0636*** (0.0002)	0.1910*** (0.0507)	0.1107 (0.0736)
Firm Control Variables	No	Yes	Yes
Region Control Variables	No	No	No
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	20,339	20,339	20,339
Adjusted R ²	0.1318	0.1417	0.1423

Note: ***, **, and * represent 1%, 5%, and 10% significance levels, respectively; robust standard errors for clustering to the city level are in parentheses. The following tables are identical.

4.2 Benchmark Regression

Table 3 reports the results of the benchmark regression in this paper. Since the specific implementation rules of the ChainLeader policy are promulgated by each prefecture-level city government, this paper sets the clustering standard error level to the city level. As shown in the table, the regression coefficients of *ChainLeader* are significantly negative at the 1% level, regardless of whether control variables are added or not. This indicates that the ChainLeader policy has the effect of promoting the improvement of corporate audit quality, which verifies the hypothesis H1 of this paper.

4.3 Robustness Tests

4.3.1 Parallel trend test

In order to verify the validity of the double-difference model, this paper sets the year before the implementation of the policy (*Pre_1*) as the base period and conducts a parallel trend test.

The results, as shown in Figure 1, show that before the implementation of the chain manager policy, there is no significant difference between the treatment group and the control group firms in terms of audit quality. And after the first implementation of the policy, there is a significant negative difference between the treatment group and the control group, indicating that the policy has a more significant effect on the audit quality of enterprises, proving that the model in this paper passes the parallel trend hypothesis. In addition, the difference between the groups is more significant in the fourth and fifth years after the implementation of the policy, indicating that the enhancement effect of the chain-length system policy on the audit quality of enterprises has a good durability, showing a trend of increasing over time.

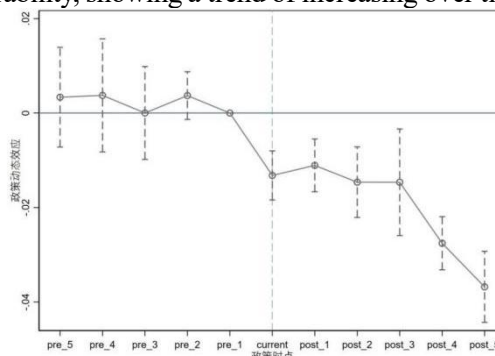


Figure 1. Parallel Trend Test Results

4.3.2 Regression analysis based on PSM-DID

In order to control the effect of sample selection bias, this paper further conducts PSM-DID regression after verifying the parallel trend hypothesis. All firm-level control variables (firm size, gearing ratio, nature of equity, equity concentration, and "Big Four" audits) are first set as matching variables, and the *logit* regression model is used to estimate the propensity score. After passing the model balance test, one-to-one nearest-neighbor matching is adopted to match the treatment group with the control group firms, and

regression is performed on the matched samples. The results are shown in column (1) of Table 4. The regression coefficient of the chain-length policy is significantly negative at the 5% level, indicating that the benchmark regression results are robust.

4.3.3 Placebo test

In order to exclude the impact of other random factors on corporate audit quality, this paper refers to Xue, Nanzhi and Wu, Chao-peng (2023), and sets up a false time point of chain-length policy implementation: the time of chain-length policy implementation is pushed forward by 3 years ($t-3$) as well as backward by 3 years ($t+3$), and the original model is reused for the test. As the regression results shown in columns (2) and (3) of Table 4, the regression coefficients of the spurious chain-length policy *ChainLeader* ($t-3$) and *ChainLeader* ($t+3$) on the corporate audit quality are not significant, suggesting that the results of the improvement of the corporate audit quality are indeed brought about by the chain-length policy.

Table 4. Robustness Test I

Variables	PSM-DID	Placebo test	
	(1)	(2)	(3)
	<i>DA</i>	<i>DA</i>	<i>DA</i>
<i>ChainLeader</i>	-0.0062** (0.0029)		
<i>ChainLeader</i> ($t-3$)		-0.0020 (0.0028)	
<i>ChainLeader</i> ($t+3$)			-0.0074 (0.0055)
Constant term	0.1234 (0.1005)	0.1029 (0.0695)	0.0997 (0.0721)
Control Variables	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	9,990	20339	20339
Adjusted R ²	0.1493	0.1419	0.1419

4.3.4 Excluding other policy interference

In order to avoid the impact of other contemporaneous policies on the quality of corporate auditing, this paper excludes the audit market "filing system" as a more direct contemporaneous policy shock for testing.

The new Securities Law of the People's Republic of China, which has been implemented since 2020, has changed the admission system for firms engaged in securities services from an ex-ante approval system to an ex-post filing system. This initiative has lowered the market access threshold for firms, intensified competition in the auditing market, optimized the structure of the auditing

market through the mechanism of "elimination of the fittest", and promoted the improvement of auditing quality (Yi, Xuan, and Wu, Rong, 2023). In view of this, this paper refers to the practice of Xu Yekun and Zheng Xiufeng (2024), set *Treat1* as the policy shock individual dummy variable, if the enterprise's audit provider belongs to the non-"top ten" firms, it is assigned the value of 1, otherwise it is 0; set *Post1* as the policy implementation time dummy variable, the value of 1 for the year 2020 and the year after, and 0 for the rest of the year. The policy dummy variable *Audit* is represented by the cross-multiplier of *Treat1* and *Post1*.

Finally, this paper refers to Wang Feng and Ge Xing (2022) and adds the above policy dummy variables to the benchmark regression for testing. The results are shown in column (1) of Table 5, and the regression coefficients are significantly negative at the 1% level, indicating that the promotion effect of the chain-length system on the quality of corporate auditing has not changed significantly after the policy is removed, which indirectly verifies the reliability of the findings of this paper.

4.3.5 Replacement of explanatory variables

Table 5. Robustness Test II

Variables	Excluding other policy interference	Replacement of explanatory variables
	(1)	(2)
	<i>DA</i>	<i>Opinion</i>
<i>ChainLeader</i>	-0.0065*** (0.0024)	-0.0133** (0.0060)
Constant term	0.1033 (0.0735)	0.7727*** (0.2001)
Control variables	Yes	Yes
Firm fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	20339	20,339
Adjusted R ²	0.1424	0.2021

In order to mitigate the impact of variable measurement error on the regression results, this paper refers to the practice of Xu Yekun and Zheng Xiufeng (2024), Chen et al. (2010), the use of the auditor's opinion (*Opinion*) as a proxy for audit quality, when the auditor issued a non-standard opinion of the dummy variable takes 1, otherwise 0. Substituting it into the multi-period double difference model regression, the results are shown in columns (2) and (3) of Table 5. The results are shown in column (2) of Table 5, and the regression coefficient is significantly negative at the 5% level, which proves the robustness of the role of the

chain-length policy on the enhancement of corporate audit quality.

4.3.6 Other Robustness Tests

(1) Changing the clustering level

Although the chain leader system policy is implemented at the prefecture-level city level, its ultimate target is the key industries in each city, so this paper refers to Zhan, Xinyu and Liang, Lanxin (2024), and re-runs the regression by adjusting the clustering labeling error to the industry level in the robustness test. The results are shown in column (1) of Table 6, and the regression coefficient of the chain-length policy is significantly negative at the 5% level, indicating that the regression results of this paper are robust.

(2) Sub-sample regression

Considering that some enterprises are located in regions where the "chain leader system" will be implemented only from 2021, the policy implementation time is relatively short, which may affect the empirical results of this paper. Therefore, this paper refers to the practice of Zeng Huixiang et al. (2024), and excludes the sample of enterprises in prefectural-level cities that began to implement the "chain leader system" in 2021 and then conducts a new regression. As shown in column (2) of Table 6, the regression coefficients of the chain leader policy are significantly negative at the 1% level and pass the robustness test.

(3) Adding control variables

In addition to the control variables selected in this paper, corporate losses and audit fees are also important factors affecting corporate audit quality. Therefore, this paper further adds two control variables to the original model, namely, *Loss* and *Auditfee*. Among them, *Loss* is a dummy variable, which is taken as 1 if the enterprise's net profit at the end of the year is negative, and 0 otherwise; *Auditfee* is represented by the logarithm of all audit-related costs in the current year. The results are shown in column (3) of Table 6, the regression coefficient of the chain-length policy is still

$$M_{it} = \beta_0 + \beta_1 Chainleader_{it} + \gamma Controls + Firm_i + Year_t + \varepsilon_{it} \quad (2)$$

Where M_{it} denotes the mechanism variables, which are enterprise digital transformation level, enterprise rent-seeking behavior and product market competition intensity. The level of enterprise digital transformation (*Digital*) refers to the study of Wu Fei et al. (2021), using text analysis to obtain the keyword word frequency of digital transformation in the annual reports of listed companies, and taking the logarithmic value of the word frequency after summing up to measure. *Rent-seeking* behavior (*Rent*) refers to the practice

significantly negative at the 1% level, which again proves the robustness of the conclusions of this paper.

Table 6. Robustness Test III

Variable	Change of clustering level	Sub-sample regression	Add control variables
	(1)	(2)	(3)
	<i>DA</i>	<i>DA</i>	<i>DA</i>
<i>ChainLeader</i>	-0.0067**	-0.0119***	-0.0060**
	(0.0027)	(0.0025)	(0.0022)
Constant term	0.1107	0.1830**	0.0221
	(0.0932)	(0.0885)	(0.0718)
Control Variables	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	20,339	13,103	20,339
Adjusted R ²	0.1423	0.1444	0.1536

5. Further Discussion

5.1 Mechanism Test

In view of the overuse and endogeneity bias of the traditional three-step test of mediation effect, this paper focuses on identifying the causal relationship of core explanatory variables to the explained variables, and then correctly identifies the path of influence, based on the research suggestion of Jiang Boat (2022). Based on the above analysis, it can be seen that the chain-length policy has an enhancing effect on corporate audit quality, and the conclusion passes a series of robustness tests. Therefore, on the basis of existing literature confirming the relationship between the level of enterprise digital transformation, enterprise rent-seeking behavior, product market competition intensity and enterprise audit quality, if we can test and confirm that the chain-length policy also has an impact on the above three factors, then we can verify that the impact mechanism proposed in this paper is effective. Based on this, the following mechanism effect model is constructed:

of Chen Jun et al. (2021), and is measured by the excess management cost of enterprises, which is the difference between the actual management cost and the expected management cost of enterprises, and it can reflect the intensity of enterprises' seeking for political connections, and the higher the value is, it means that the higher the rent-seeking input of the enterprise, and the stronger the rent-seeking behavior is. Product market competition intensity (*HHI*) refers to the practice of Li Zengfu et al. (2022), using the industry

Herfindahl index measure, the smaller the Herfindahl index, representing the more intense competition in the industry in which the enterprise is located. Referring to the benchmark regression practice, a multi-period double-difference model is used to test the impact of the chain-length policy on the level of enterprise digital transformation, enterprise rent-seeking behavior, and the intensity of competition in the product market.

As shown in Table 7, the regression results in column (1) are significantly positive at the 5% level, indicating that the chain-length policy can promote the digital transformation of enterprises; the regression results in columns (2) and (3) are significantly negative at the 1% level, proving that the chain-length policy has the effect of suppressing the rent-seeking behavior of enterprises and improving the intensity of competition in the product market. Combined with the previous analysis, it can be concluded that the chain leader system policy can promote the improvement of enterprise audit quality by improving the level of enterprise digital transformation, inhibiting enterprise rent-seeking behavior and improving the intensity of competition in the product market, which verifies the hypothesis H2.

Table 7. Mechanism Test

Variables	(1) <i>Digital</i>	(2) <i>Rent</i>	(3) <i>HHI</i>
<i>ChainLeader</i>	0.0727** (0.0339)	-0.0169*** (0.0027)	-0.0210*** (0.0036)
Constant term	-4.6858*** (1.3756)	-0.0654 (0.0628)	0.0491 (0.1143)
Control Variables	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	20,339	20,339	20,339
Adjusted R ²	0.7673	0.5494	0.7703

5.2.Heterogeneity Analysis

5.2.1 Heterogeneity of property rights

State-owned enterprises (SOEs) have a natural political relationship with the government, and their influence under industrial policy naturally differs from that of non-SOEs. Therefore, this paper conducts heterogeneity test for the sample group according to the nature of property rights.

The regression results, as shown in columns (1) and (2) of Table 8, show that only non-SOEs have significantly improved their audit quality after the implementation of the chain-length policy, while the effect is not obvious in SOEs. The reason for this is that compared to SOEs with strong

administrative color, non-SOEs face relatively lax government regulation and lower penalty costs for manipulating accounting information, which results in stronger incentives for surplus management in non-SOEs compared to SOEs (Nie Xingkai et al., 2022). The chain manager, as an important embodiment of the government's macro-control role, can effectively curb the surplus manipulation phenomenon of non-SOEs by enhancing the supervision of the enterprises in the chain, which in turn significantly improves the audit quality of non-SOEs.

5.2.2 Audit supply-side heterogeneity

The "Big Four" accounting firms are usually synonymous with high-quality audits (DeFond and Jambalvo, 1993), and the effectiveness of the chain-length policy on the audit quality of enterprises is closely related to the main body of the audit service provider. Therefore, in this paper, the samples are grouped according to whether or not they are audited by the "Big Four" accounting firms to test for heterogeneity.

The results, as shown in columns (3) and (4) of Table 8, indicate that the chain manager policy has a significant effect on the audit quality of non-Big Four firms only. From the perspective of the audit subject, the "Big Four" accounting firms themselves provide high quality audit services and have less room for improvement, so the effect of audit quality improvement is not significant in the context of the policy. Correspondingly, from the perspective of the audit object, most of the enterprises that hired the "Big Four" to conduct audits are leading enterprises in the industry, and the internal control system and financial information system of such enterprises are more perfect, and the financial reports issued by them reflect more accurate accounting information, which naturally produces higher-quality audits, and it is difficult to significantly improve the quality of audits under the high baseline level. It is also difficult to significantly improve the audit quality under this high benchmark level. Therefore, under the Chain Leader Policy, the audit quality of enterprises audited by non-Big Four accounting firms is more obviously improved.

5.2.3 Industry Heterogeneity

Among the industries in which the chain-length policy is implemented in different cities, the manufacturing industry accounts for a larger proportion. So, is the audit quality improvement effect also concentrated in the manufacturing enterprises? Therefore, this paper divides the sample into two groups of manufacturing and

non-manufacturing industries according to the 2012 version of the SEC industry classification for heterogeneity test.

The results shown in columns (1) and (2) in Table 9 indicate that the enhancement effect of the chain-length policy on the audit quality of

manufacturing firms is more obvious. This also verifies the previous hypothesis in reverse to a certain extent, proving that the improvement of enterprise audit quality is indeed brought about by the chain-length system policy.

Table 8. Results of Heterogeneity Analysis I

Variable	Nature of ownership		Audit supply side	
	(1)	(2)	(3)	(4)
	State-owned	Non-State-owned	Big 4	Non-Big 4
ChainLeader	-0.0043 (0.0045)	-0.0084*** (0.0027)	0.0073 (0.0110)	-0.0072*** (0.0027)
Constant term	-0.0532 (0.0864)	0.1864** (0.0922)	0.3567 (0.3965)	0.1188 (0.0728)
Control Variables	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	8,533	11,771	1,414	18,905
Adjusted R ²	0.1516	0.1431	0.1647	0.1426

5.2.4. Regional Heterogeneity

Considering the differences in the implementation of the policy and the degree of economic development among the regions of China, this paper divides the enterprises into three groups, namely, the east, the center and the west, for testing.

From the results shown in Table 9, it can be concluded that the promotion effect of the chain-length system policy on the quality of enterprise auditing is mainly targeted at enterprises located in the eastern and central regions. To explore the reasons, among the 12 provinces and cities divided into the western region, only four provinces and cities, Guangxi, Shaanxi, Yunnan,

and Ningxia, have implemented the chain-length system in some areas, and the popularity of the chain-length system is much lower than that in the central and eastern regions. At the same time, the economic development of the western policy implementation areas is also inferior to that of the central and eastern regions, and there are problems such as poorer supporting facilities, lower government efficiency, and lower degree of industrial agglomeration, which leads to poorer implementation effect and transmission efficiency of the policy, and prevents the western regions from enjoying the obvious auditing quality enhancement effect under the chain length system policy.

Table 9. Results of Heterogeneity Analysis II

Variable	Industry		Region		
	(1)	(2)	(3)	(4)	(5)
	Manufacturing	Non-Manufacturing	Eastern	Central	West
ChainLeader	-0.0062** (0.0024)	0.0044 (0.0045)	-0.0061** (0.0028)	-0.0137*** (0.0049)	0.0107 (0.0157)
Constant term	-0.0721 (0.0962)	0.1528 (0.1112)	0.2167*** (0.0706)	-0.2003 (0.1725)	-0.0910 (0.1857)
Control Variables	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	12,744	7,587	14,395	3,416	2,521
Adjustment R ²	0.1907	0.1607	0.1523	0.1317	0.1247

6. Conclusions and Implications

6.1 Research Conclusion

This paper takes China's A-share listed companies from 2012 to 2022 as the research object, and

constructs a multi-period double-difference model based on the implementation data of the chain-length policy at the prefecture-level city level, and investigates the impact of the chain-length policy on the audit quality of enterprises. It is found that the chain length policy can promote the

improvement of corporate audit quality, and the findings pass a series of robustness tests such as the parallel trend test, PSM-DID, placebo test, exclusion of policy interference, and replacement of explanatory variable indicators.

Specifically, the mechanisms by which the chain-length policy promotes the improvement of enterprise audit quality are: (1) The chain-length policy can reduce the degree of information asymmetry, improve the quality of enterprise internal control, and promote the improvement of enterprise audit quality by promoting the digital transformation of enterprises. (2) Chain-length policy inhibits corporate rent-seeking behavior, which in turn reduces the tendency of corporate audit purchase, weakening corporate surplus management incentives, and improves the quality of corporate audit. (iii) The chain-length policy further improves the auditor's efforts and enhances the quality of corporate disclosure by increasing the intensity of competition in the product market, thus promoting the optimization of corporate audit quality. Heterogeneity analysis shows that the chain length policy has a more significant effect on the improvement of audit quality of state-owned enterprises, non-Big Four audited enterprises, enterprises in the central and eastern regions and manufacturing enterprises.

6.2 Policy Implications

First, this paper suggests that municipalities rely on the existing chain-length policy to build multi-level digital transformation support for enterprises. First, improve the framework of digitization-oriented policies, and provide financial subsidies, tax breaks, and technical support for the key difficulties of digitization, so as to build a basic policy guarantee for the digital transformation of enterprises. Secondly, establish a "digital chain master" enterprise cultivation mechanism, relying on its technology spillover effect and demonstration effect, to realize the role of "passing on" the digital transformation within the industry chain. Finally, the construction of digital information platforms, the realization of the industry chain upstream and downstream resources and technology sharing, reduce the threshold of digital transformation of small and medium-sized enterprises to achieve digital transformation of the whole chain coverage. These measures can not only optimize the business process and improve the operational efficiency of enterprises, but also promote the sharing of information among enterprises in the whole chain, reduce the degree of information asymmetry, and

then improve the quality of information disclosure of the whole industry chain, and realize the two-way empowerment of digital transformation and audit quality improvement.

Secondly, in the process of improving the chain manager system, it is necessary to strengthen the governance requirement of "market-led and government-guided". First, promote the sunny trading of public resources in the industrial chain, incorporate land, data, capital and other resource elements into the public trading platform, realize transparent management and open distribution, further weaken the information asymmetry between the government and enterprises, and inhibit the rent-seeking activities of enterprises. The second is to establish a market-based assessment mechanism for chain-length policies, introduce a third-party agency to conduct cost-benefit analysis of the effects of industrial policies, replace administrative directives with competitive indicators as the basis for resource allocation, constrain the government's discretionary power, effectively compress the gray space of the exchange of interests between the government and enterprises, and restore the market ecosystem of "competition for excellence". This can not only weaken the enterprise through rent-seeking to obtain the incentive of excess returns, but also can force it to turn to rely on the ability to operate in compliance and the quality of information disclosure to obtain market recognition, thus forming the endogenous driving force of audit quality improvement.

Third, the chain length system policy should be in the relaxation of industry access conditions at the same time, focusing on building a dynamic balance mechanism, through the implementation of cross-regional industrial collaboration policy to alleviate the negative effects of competition. On the one hand, the industry chain cross-regional synergistic development fund can be established to support small and medium-sized enterprises to carry out joint technological research and development, share production capacity and market channels, reduce the business risks faced by them, and seek greater development space for them; on the other hand, through the establishment of regional industrial cooperation parks, the implementation of financial and tax subsidies, technology resource sharing, infrastructure construction and other supporting policies, to guide the optimal allocation of production factors across the region. On the other hand, through the establishment of regional industrial cooperation

parks and the implementation of supporting policies such as financial and tax subsidies and the sharing of technical resources and infrastructure construction, the optimized allocation of production factors across regions can be guided. This not only enables enterprises in the chain to learn advanced experience and technology in cross-regional cooperation and improve their own business capacity, but also enables them to offset the risk of industry competition and improve business performance by exploring foreign markets, so as to realize the goals of enhancing the resilience of the industry chain and improving the quality of enterprise audits through the dual mechanism of "competition-driven-collaboration-enabling".

References

- [1] Lin Shujun, Ni Hongfu. Theoretical Connotation and Practical Significance of Chinese Industry Chain Leader System [J]. Yunnan Social Science, 2022, (04): 90-101.
- [2] Li Wenfei, Wu Cen. Industrial policy and accounting robustness [J]. Accounting Research, 2019, (01): 65-71.
- [3] Qu Yongyi, Subject Group, Institute of Industrial Economics, Chinese Academy of Social Sciences. The theoretical connotation of industrial chain length and its functional realization [J]. China Industrial Economy, 2022, (07): 5-24.
- [4] Liu Zhibiao, Kong Lingchi. The chain leader system under the double-cycle pattern: Exploring the new form and function of locally dominated industrial policy [J]. Journal of Shandong University (Philosophy and Social Science Edition), 2021, (01): 110-118.
- [5] Hu Dengfeng, Huang Ziwei, Li Bo, et al. Study on the Cultivation Mechanism of Key Core Technology Breakthroughs in Promoting the Function of Chain Length--Taking China Building Materials as an Example of Complementing and Strengthening the Chain [J]. Management World, 2024, 40 (06): 169-195.
- [6] Zhao Jing, Liu Yujie, FU Keyi, et al. Path and mechanism of large state-owned enterprises in playing the function of industrial chain length--A case study based on extra-high voltage power transmission project [J]. Management World, 2022, 38(05): 221-240.
- [7] Yu Su, Yu Xiaoyue, Wang Zhuquan. Supply Chain Governance of "Chain Master" Firms and Total Factor Productivity of Chain Firms [J]. Economic Management, 2023, 45 (04): 22-40.
- [8] Meng Q. Chain length system and industry chain resilience: an empirical test based on multi-period DID [J]. Xinjiang Social Science, 2023, (01): 55-64.
- [9] Meng Q. Industrial policy and industry chain modernization--Based on the perspective of "chain leader system" policy [J]. Financial Science, 2023, (03): 93-107.
- [10] Zhan Xinyu, Liang Lanxin. How to "Chain" Out Technological Innovation of Enterprises under the Chain Leader System [J]. China Industrial Economy, 2024, (11): 137-155.
- [11] Zeng Huixiang, Zhang Zhixi, Yao Hailin. Policy Innovation and Enterprise Risk Taking in Local Industrial Chains--Evidence from the "Chain Leader System" of Industrial Chains [J]. Journal of Central South University (Social Science Edition), 2024, 30(06): 134-148.
- [12] DeAngelo L E. Auditor size and audit quality [J]. Journal of accounting and economics, 1981, 3(3): 183-199.
- [13] Tang Xuesong, Li Wen, Liao Q. Reform of the CPA examination system and audit quality [J]. Accounting Research, 2024, (06): 177-189.
- [14] Ye Fengying, Gong Manning. Audit Fee Price Control and Audit Quality: A Test Based on Double Difference Model [J]. Accounting Research, 2020, (12): 171-179.
- [15] Hope O K, Wang C, Wu Y, et al. Does convergence with international standards on auditing improve audit quality? [J]. The Accounting Review, 2025, 100(2): 189-218.
- [16] Chu Jian, Qin Xuan, Fang Junxiong. Economic Policy Uncertainty and Audit Decisions - Evidence Based on Audit Fees [J]. Accounting Research, 2018, (12): 85-91.
- [17] Zheng Jianming, Sun Shilu. Tax Administration and Audit Fees - Quasi-Natural Experimental Evidence from "Golden Tax III" [J]. Auditing Research, 2021, (04): 43-52.
- [18] Lamoreaux P T, Mowchan M, Zhang W. Does public company accounting oversight board regulatory enforcement deter low-quality audits? [J]. The Accounting Review, 2023, 98(3): 335-366.
- [19] Zheng Dengjin, Wu Jian. Accounting information quality checking and audit quality [J]. Auditing Research, 2021, (01): 71-82.
- [20] Ewert R, Wagenhofer A. Effects of increasing enforcement on financial reporting quality and

- audit quality[J]. Journal of accounting research, 2019, 57(1): 121-168.
- [21] Stuber S B, Hogan C E. Do PCAOB inspections improve the accuracy of accounting estimates?[J]. Journal of Accounting Research, 2021, 59(1): 331-370.
- [22] Bushman R M, Piotroski J D. Financial reporting incentives for conservative accounting: The influence of legal and political institutions[J]. Journal of accounting and economics, 2006, 42(1-2): 107-148.
- [23] Tiberius V, Hirth S. Impacts of digitization on auditing: A Delphi study for Germany[J]. Journal of International Accounting, Auditing and Taxation, 2019, 37: 100288.
- [24] Wu Fei, Hu Huizhi, Lin Huiyan, et al. Corporate digital transformation and capital market performance-empirical evidence from stock liquidity [J]. Management World, 2021, 37 (07): 130-144+10.
- [25] Zhai Huayun, Li Qianru. Has corporate digital transformation improved audit quality? --An empirical test based on a multi-temporal double difference model [J]. Auditing and Economic Research, 2022, 37(02): 69-80.
- [26] Prajogo D, Olhager J. Supply chain integration and performance: the effects of long-term relationships, information technology and sharing, and logistics integration[J]. International journal of production economics, 2012, 135(1): 514-522.
- [27] Zhang Yishu, Feng Jinyu. Enabling or resisting: has fintech improved audit quality? [J]. Auditing Research, 2025,(02):98-109.
- [28] Ashraf M. Does automation improve financial reporting? Evidence from internal controls[J]. Review of Accounting Studies, 2024: 1-44.
- [29] Pan X, Tian G G. Political connections and corporate investments: Evidence from the recent anti-corruption campaign in China[J]. Journal of Banking & Finance, 2020, 119: 105108.
- [30] Zhao Yunhui, Zhang Zhe, Feng Taiwen, et al. Big data development, institutional environment and government governance efficiency[J]. Management World, 2019, 35 (11): 119-132.
- [31] Kim S, Kim H J, Lee H. An institutional analysis of an e-government system for anti-corruption: the case of OPEN[J]. Government information quarterly, 2009, 26(1): 42-50.
- [32] Lindstedt C, Naurin D. Transparency is not enough: Making transparency effective in reducing corruption[J]. International political science review, 2010, 31(3): 301-322.
- [33] Hong Qunlian. Current status and strategic focus of the 14th Five-Year Plan on the integration of advanced manufacturing and modern service industries in China [J]. Contemporary Economic Management, 2021, 43 (10): 74-81.
- [34] Chen Jun, Xu Hanjun, Lin Jinghua. How Does Corporate Rent Seeking Affect Audit Opinion Purchasing? [J]. Accounting Research, 2021, (07): 180-192.
- [35] Li Shihui, Qing Shuijuan, He Yong, et al. Audit Fees, CEO Risk Preferences and Corporate Violations [J]. Auditing Research, 2021, (03):84-95.
- [36] Newton N J, Persellin J S, Wang D, et al. Internal control opinion shopping and audit market competition[J]. The Accounting Review, 2016, 91(2): 603-623.
- [37] Chen J, Xu Hanjun. How corporate rent-seeking affects surplus management[J]. China Industrial Economy, 2019,(12):171-188.
- [38] Buhechulu, Chen Ling. Industrial policy in the digital era: an example of new infrastructure construction [J]. China Science and Technology Forum, 2021, (09):31-41.
- [39] Baggs J, De Bettignies J E. Product market competition and agency costs[J]. The Journal of Industrial Economics, 2007, 55(2): 289-323.
- [40] Bell T B, Landsman W R, Shackelford D A. Auditors' perceived business risk and audit fees: Analysis and evidence[J]. Journal of Accounting research, 2001, 39(1): 35-43.
- [41] Titman S, Trueman B. Information quality and the valuation of new issues[J]. Journal of accounting and economics, 1986, 8(2): 159-172.
- [42] Chen LR, Deng LB, Zheng GH et al. Capital market liberalization, product market competition and auditor choice - an empirical study based on the perspective of dual institutional pressure [J]. Auditing Research, 2021,(01): 83-93.
- [43] Yan Huanmin, Zhao Haodong, CHEN Wenchuan. Firm Growth and Audit Quality[J]. Auditing Research, 2025,(01):77-91.
- [44] DeFond M, Zhang J. A review of archival auditing research[J]. Journal of Accounting and Economics, 2014, 58(2-3): 275-326.
- [45] Liu YF, Zhou YM, Zheng HN, et al. Auditors' regional specialization and audit quality: an analysis based on the perspective of off-site auditing[J]. Auditing Research, 2024, (04):

- 126-138.
- [46] Yu Mingguì, Wang Kong. Local Government Debt Financing, Crowding Out Effect and Labor Employment [J]. *Economic Research*, 2022, 57(02): 58-72.
- [47] Xu Jia, Cui Jingbo. Low-carbon cities and corporate green technology innovation[J]. *China Industrial Economy*, 2020,(12):178-196.
- [48] Xue Nanzhi, Wu Chaopeng. Self-innovation Effect of Mandatory Disclosure of Social Responsibility Information--Based on the Perspective of "Necklace" Technology Breakthrough[J]. *Accounting Research*, 2023, (10): 19-32.
- [49] Yi Xuan, Wu Rong. Market Access Easing, Audit Market Competition Intensity and Audit Quality [J]. *Auditing Research*, 2023, (05): 120-133.
- [50] Xu Yekun, Zheng Xufeng. Can Increased Competition in the Audit Market Improve Audit Quality? --A quasi-natural experiment on the implementation of the "filing system"[J]. *Auditing Research*, 2024, (01): 89-101.
- [51] Wang Feng, Ge Xing. Does low carbon transition impact employment-Empirical evidence from pilot low carbon cities[J]. *China Industrial Economy*, 2022, (05): 81-99.
- [52] Chen S, Sun S Y J, Wu D. Client importance, institutional improvements, and audit quality in China: An office and individual auditor level analysis[J]. *The Accounting Review*, 2010, 85(1): 127-158.
- [53] Jiang Boat. Mechanistic and moderating effects in empirical studies of causal inference[J]. *China Industrial Economy*, 2022, (05): 100-120.
- [54] Li Zengfu, Chen Junjie, LIAN Yujun, et al. Economic Policy Uncertainty and the Long-term Use of Short-term Debt by Enterprises[J]. *Management World*, 2022, 38(01): 77-89+143+90-101.
- [55] Nie Xingkai, Wang Jianhua, Pei Xuan. Will the digital transformation of enterprises affect the comparability of accounting information[J]. *Accounting Research*, 2022, (05): 17-39.
- [56] Defond M L, Jiambalvo J. Factors related to auditor-client disagreements over income-increasing accounting methods [J]. *Contemporary Accounting Research*, 1993, 9(2): 415-431.