A Study on the Influence of Chain Shareholders on Audit Quality

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Abstract: As a special form of equity structure, the discussion on the chain shareholders in the academic circle has gradually deepened. Meanwhile, improving the quality of auditing has become a common demand of the public. Based on the data of Chinese listed companies from 2007 to 2023, this paper empirically examines the impact of chain shareholders on the quality of corporate auditing. The research finds that chain shareholders have exerted a collaborative governance effect, improving the auditing quality of listed companies. Chain shareholders exert their collaborative governance utility by influencing the auditing choices of companies. This study provides new evidence for the collaborative governance effect of chain shareholders.

Keywords: Chain Shareholders; Audit Quality; Synergistic Governance

1. Introduction

Chain shareholders are an increasingly important form of institutional shareholding in the capital market. It is of great significance to clarify the role of chain shareholders in the development of enterprises and the impact on the accuracy of financial reports. In this context, this paper takes Shanghai and Shenzhen A-share listed companies from 2007 to 2023 as research samples to explore the relationship between chain shareholders and audit quality.

2. Literature Review

2.1 Research on Chain Shareholders

First of all, from the perspective of governance motivation, when institutional investors hold shares of multiple enterprises at the same time as shareholders, the goal is to pursue the maximization of the overall return of the portfolio (Harford et al., 2011)[1] .Joint shareholding makes the interests of institutional investors more closely related to the holding companies and promotes cooperation among enterprises. Secondly, in terms of governance mechanism, A.Edmans et al. (2019)[2] found through model derivation that chain shareholders can achieve governance through two ways: active intervention and withdrawal threat. Finally, in terms of governance effect, chain shareholders' shareholding is conducive to inhibiting corporate tax avoidance (Xing Fei et al., 2021)[3], reducing corporate earnings management level (Ramalingegowda et al., 2021) [4], and improving corporate ESG performance (He Qing and Zhuang Pengtao, 2023)[5], promote enterprise digital transformation (Wang Xinguang and Sheng Yuhua, 2023)[6], and increase enterprise cash holdings (Yang Xingquan and Zhao Rui, 2022)[7].

2.2 Research on Audit Quality

2.2.1 Influencing factors at the audit unit level

(1) The size of the firm. De Angelo (1981)[8] found that audit quality is related to the scale of accounting firms. The larger the scale of accounting firms, the more cautious auditors will be when carrying out audit scale.

(2) Personal characteristics of auditors. Alderman's (2017) experiment found that female auditors are more likely to have personal interest conflicts, while male auditors are more likely to have financial interest conflicts[9].

2.2.2 Influencing factors at the level of the audited entity

(1) Corporate governance. Beasley (2001)[10] found that if a company has better internal governance, it is more likely to choose a firm with strong strength, good reputation and high ranking for audit.

(2) Internal control. Whether the internal control of the auditee is effective affects the auditor's identification of audit risks, and then affects the audit quality. The mainstream view is that internal control can improve audit quality. JOHNSTONEK (2011) [11] found that

internal control would prompt companies to strengthen supervision of management, timely replace the incompetent management, and optimize the corporate governance structure.

3. Theoretical Analysis and Research Hypothesis

3.1 Chain Shareholders and Audit Quality

According to social network theory, when different people belong to the same social network, their thinking patterns and behaviors are more similar (Tichy et al., 1979)[12].Specifically, the impact of chain shareholders on audit quality is reflected in the following three aspects.

First, the existence of chain shareholders promotes information sharing among different companies and becomes an important link for information exchange among different companies, enabling them to obtain more information about industry development prospects (HE & HUANG, 2019) [13], providing a high-quality information environment for auditors to carry out their work, thus improving audit quality (Zhai Huayun and Li Qianru, 2019). 2022) [14].

Second, existing studies have found that chain shareholders can inhibit the private interests of controlling shareholders. In order to reduce the huge fines and litigation risks caused by audit failures, auditors will be more diligent and responsible, and issue reasonable and appropriate audit opinions (Yi Xuan and Wu Rong, 2023) [15].

Third, certified public accountants pay special attention to the degree of risk borne by enterprises when conducting audit work. The lower the risk faced by enterprises, the higher the probability of certified public accountants issuing standard audit opinions (Fang Junxiong et al., 2004)[16]

Therefore, this paper proposes the following hypothesis:Hypothesis H1: The existence of chain shareholders will improve the audit quality of enterprises.

3.2 Discussion on the Path of Influencing Audit Quality by Chain Shareholders

As an important external governance mechanism, chain shareholders contribute to the supervision and management of the company, but its supervision and governance effect is also related to the selection of auditors. In order to protect their own interests, institutional investors have the motivation and ability to use their influence to influence corporate decisions and participate in corporate governance (Guo Xiangying, 2016) [17]. It can be expected that in listed companies where chain shareholders play a bigger role, audit supervision can exert greater governance effect and improve audit quality.

Therefore, this paper proposes the following hypothesis:Hypothesis H2: Audit selection has an intermediary effect on the transmission path of chain shareholders and audit quality.

4. Research Design

4.1 Sample Selection and Data Source

In order to ensure the consistency and availability of research data, this paper selects A-share listed companies from 2007 to 2023 as research samples. The data in this paper are from the company's annual report, CSMAR database and wind database.

4.2 Variable Selection and Definition

4.2.1 Explained variable

The explained variable in this paper is audit quality (AQ). Referring to the practice of previous scholars[18], inverse audit report radicality is used as the audit quality index.

4.2.2 Explanatory variable

The selection of explanatory variables refers to the practice of Zhao Kangle (2024)[19], and the chain shareholders are measured by the following steps: (1) At the quarterly level, major shareholders with a shareholding ratio of 5% or more are selected. (2) At the quarterly level, count the number of major shareholders of each enterprise who are also major shareholders of other enterprises in the industry; (3) Calculate the annual average value of the number of chain shareholders at the above quarterly level, and add 1 to take logarithm on this basis to obtain the measurement index of chain shareholders of each company in each year. Among them, the industry is classified in accordance with the classification standards of the CSRC in 2012, and the manufacturing industry is subdivided into the second-level code, and other industries are subdivided into the first-level code.

4.2.3 Intermediate variable

Audit Selection (Big4). It is generally believed that the audit service quality of the Big Four

international firms or the top ten domestic firms is higher, so when the firm is the "Big Four domestic firms", Big4=1; Conversely, Big4=0.

4.2.5 Control variable

With reference to the research results of other scholars, this paper selected the following control variables:

Age of the enterprise, size of the enterprise, asset-liability ratio, growth of the enterprise, return on assets, size of the board of directors, shareholding ratio of the largest shareholder, remuneration of the top three directors and supervisors, independence of the board of directors, integration of the two positions, shareholding ratio of the management, audit opinion.

4.3 Model Construction

(1)To verify hypothesis H1, this paper constructs the following main regression model, where i represents the enterprise and t represents the year (the same below). The specific model is as follows:

$$AQ_{i,t} = \alpha_0 + \alpha_1 \mathrm{Coz}_{i,t} + \sum Controls_{i,t} + \sum Industry_{i,t} + \sum Year_{i,t} + \varepsilon_{i,t} \quad (1)$$

(2)In order to verify hypothesis H2, this paper makes reference to the "two-step method" of Jiangting (2022) [20]to test the mediation effect, and the model is as follows:

$$Big4 = \beta_0 + \beta_1 Cross_{i,t} + \sum \beta_1 Controls + \sum Year + \sum Industry + \varepsilon_{i,t} \quad (2\text{-}1)$$

$$AQ = \gamma_0 + \gamma_1 Cross_{i,t} + \gamma_2 Big4_{i,t} + \sum \gamma_1 Controls + \sum Year + \sum Industry + \varepsilon_{i,t} \quad (2\text{-}2)$$

5. Empirical Analysis

5.1 Descriptive Statistics

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
AQ	21978	-0.032	0.102	-0.998	-0.001
Cross5	21978	0.16	0.307	0	1.609
Age	21978	2.083	0.803	0.693	3.526
Size	21978	22.201	1.352	17.813	28.644
Lev	21978	0.42	0.206	0.008	1.592
Growth	21978	0.369	1.051	-0.926	17.11
ROA	21978	0.041	0.07	-1.859	0.999
Board	21978	2.119	0.204	1.099	2.89
Top1	21978	0.347	0.149	0.034	0.9
Salarytop3	21978	14.57	0.818	0	18.021
Dual	21978	0.292	0.455	0	1
Ind	21978	0.376	0.054	0	0.8
Opinion	21978	0.987	0.113	0	1

Table 1 shows the descriptive statistics of the variables. Among them, the mean value of audit quality (AQ) of the explained variable is -0.036, indicating that the deviation between the auditor's actual audit opinion and the expected probability of issuing an unqualified opinion is small. The mean value of Cross5 of the explained variable is 0.16, that is, the enterprises in the sample range have an average of 1 chain shareholder. There is great room for improvement in the introduction of chain shareholders.

5.2 Correlation Analysis

Table 2 Correlation analysis

Variables	AQ	Cross5	Age	Size	Lev	Growth	ROA	Board	Top1	Salarytop3	Dual	Ind	Opinion
AQ	1.000												
Cross5	0.057***	1.000											
Age	-0.111***	0.163***	1.000										
Size	0.077***	0.304***	0.424***	1.000									
Lev	-0.170***	0.091***	0.391***	0.480***	1.000								
Growth	0.000	-0.004	0.006	-0.005	0.006	1.000							
ROA	0.378***	0.033***	-0.166***	0.032***	-0.305***	0.001	1.000						
Board	0.047***	0.173***	0.195***	0.279***	0.183***	0.003	0.015**	1.000					
Top1	0.115***	0.030***	-0.030***	0.243***	0.071***	0.008	0.133***	0.062***	1.000				
Salarytop3	0.070***	0.102***	0.022***	0.356***	0.021***	-0.011*	0.149***	0.010	-0.036***	1.000			
Dual	-0.002	-0.104***	-0.290***	-0.211***	-0.185***	-0.004	0.017**	-0.211***	-0.086***	0.032***	1.000		
Ind	-0.023***	-0.037***	-0.060***	-0.009	-0.034***	-0.005	-0.016**	-0.525***	0.021***	0.031***	0.122***	1.000	
Opinion	0.887***	0.039***	-0.035***	0.054***	-0.082***	0.001	0.216***	0.047***	0.078***	0.033***	-0.014**	-0.024***	1.000
*** p<0.01, ** p<0.05, * p<0.1													

Table 2 is a table of the relationship between variables in the paper. Among them, the correlation coefficient between audit quality (AQ) and Cross5 is 0.057, which is significant at 1% level, indicating a significant positive correlation between chain shareholders and audit quality, preliminarily verifying H1.

5.3 Regression Analysis

5.3.1 Fundamental regression

In order to test the relationship between chain shareholders and audit quality, the mixed regression (OLS) estimation model was used for regression analysis of 21978 observed values.

Table 3. Fundamental Regression

	(1)	(2)	(3)
VARIABLES	AQ	AQ	AQ
Cross5	0.019***	0.003***	0.005***
	(8.433)	(3.272)	(2.977)
Age		-0.009***	0.002
		(-20.246)	(1.184)
Size		0.007***	0.011***
		(21.124)	(13.616)
Lev		-0.035***	-0.061***
		(-20.065)	(-18.929)
Growth		-0.000	0.000
		(-0.021)	(1.197)
ROA		0.238***	0.234***
		(52.591)	(41.423)
Board		0.001	-0.010***
		(0.540)	(-3.129)
Top1		0.006***	0.023***
		(3.146)	(4.454)
Salarytop3		-0.001***	0.001
		(-3.054)	(0.940)
Dual		-0.001	0.001
		(-1.177)	(0.971)
Ind		-0.007	0.006
		(-1.096)	(0.587)
Opinion		0.760***	0.745***
		(294.708)	(264.367)
Constant	-0.035***	-0.889***	-0.972***
	(-45.421)	(-111.423)	(-52.374)
Industry FE	NO	NO	YES
Year FE	NO	NO	YES
Observations	21,978	21,978	21,978
R-squared	0.003	0.832	0.819

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3 reports the results of chain shareholders' regression on audit quality. Column (3) contains the regression results of fixed effects, and the regression coefficient is 0.005. Chain shareholders are significantly correlated with audit quality at the level of 1%.

5.3.2 Mechanism test

Table 4 is the regression result of the mechanism test, and the Cross5 coefficient is 0.01, which is significantly positive at the 5% level, assuming that H2 is valid。

Table 4. Mechanism Test

VARIABLES	Big4
Cross5	0.010**
	(2.477)
Age	-0.009**
	(-2.511)
Size	0.013***
	(6.427)
Lev	-0.017**
	(-2.123)
Growth	0.000
	(0.064)
ROA	0.005
	(0.346)
Board	0.017**
	(2.141)
Top1	-0.013
	(-1.027)
salarytop3	0.008***
	(4.751)
Dual	0.002
	(0.924)
Ind	0.016
	(0.701)
Opinion	-0.004
	(-0.626)
Constant	-0.346***
	(-7.622)
Industry FE	YES
Year FE	YES
Observations	21,978
R-squared	0.011
Number of id	3,273

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

6. Research Conclusion

Under the background of the increasingly active institutional investors in China's capital market, the audit market continues to expand. Taking Shanghai-Shenzhen A-share listed companies from 2007 to 2023 as research samples, this paper explores the influence of

chain shareholders on audit quality, and tests the mediating effect between audit selection and governance level. The research results show that: Chain shareholders have a positive impact on audit quality, and can promote the provision of audit quality by influencing audit selection and improving internal control quality.

7. Research Deficiency and Prospect

Limited by the author's professional knowledge and personal ability, this study has some shortcomings. The following is the explanation of the limitations of this paper and the prospect of future research:

(1) The standard reference research of chain shareholders in this paper, selected from the list of top ten shareholders published by A-share listed companies on A quarterly basis, failed to achieve innovation in the definition of chain shareholders, resulting in certain limitations in the selection of samples. The scope of sample enterprises only refers to the A-share listed enterprises, and the cross-shareholding of non-listed shareholders is not taken into account. Due to the lack of official data of non-listed companies in China, and the limited personal ability and energy, it is impossible to conduct comprehensive statistics on them, so the sample of chain shareholders selected in this paper is less than the actual situation. In the future in-depth research, we should find a more accurate measurement method of chain shareholders, or adopt a more comprehensive way to collect information, so as to make it more accurate and complete, and show the real situation of chain shareholders as much as possible.

(2) There are many different methods to measure audit quality in existing studies, each of which has its own advantages and disadvantages. There is no index that can accurately measure enterprise audit quality, which may lead to certain deviation between the actual situation and the research conclusion of this paper. In future research, we should collect more data from more angles, adopt a variety of models and calculation methods, and combine the influencing factors of audit quality to develop a more logical measurement method.

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