The Relationship between Internal Control and Enterprise Performance

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Abstract. In the current fierce competitive environment, the good performance and profitability of enterprises are bound to be the competitive advantages for good operation. If a company has a sound internal control system, its activities will be strictly supervised, and operating efficiency or financial performance will be improved thanks to reasonable regulations. Additionally, the shareholding ratio of major shareholders may affect the improvement of financial performance by internal control. The paper takes China's A-share listed companies from 2012 to 2020 as samples, uses Excel and Stata software to process data, establishes a model based on theoretical basis and makes empirical analysis, and draws the following conclusions: firstly, higher internal control quality will improve the financial performance of enterprises; Second, a higher shareholding ratio of major shareholders will inhibit the improvement of financial performance by internal control; Third, there are marginal differences in internal control effects of different property rights, and the promotion effect is more significant in non-state-owned enterprises.

Keywords: Financial performance; Internal control; Major shareholders' shareholding ratio ; Property right nature

1 Introduction

As a powerful guarantee for the truthfulness and integrity of enterprise accounting information, internal control is an important mechanism established by the company to control daily business activities, improve operating efficiency and achieve established goals. Besides, in order to standardize the internal control of enterprises at home and abroad, corresponding policies have been set up to promote the construction and improvement of internal control and enhance the management ability of enterprises. However currently, many enterprises in the world are at a low level of internal control or have defects, resulting in financial fraud. In addition, when the major shareholders form a large monopoly of holding shares, it is likely to damage the enterprise value for their own interests. Meanwhile, the effect of internal control on performance is different in diverse types of enterprises. Therefore, it is significant to study the quantitative relationship between internal control and financial performance of corporates and the moderating effect between marginal differences of enterprise types and shareholding ratio of major shareholders. In order to refine the relationship between variables, based on literature research, theoretical analysis and empirical processing methods, this paper makes a quantitative analysis of China's A-share listed companies from 2012 to 2020, explores the relationship between internal control and financial performance, and introduces regulatory

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variables such as the shareholding ratio of major shareholders and the nature of property rights to conduct regulatory and heterogeneous analysis.

2 Theoretical basis and research assumptions

2.1 Theoretical basis

The theoretical basis of this paper mainly includes internal control theory, information asymmetry theory, principal-agent theory and signal transmission theory. Internal control theory is an important theoretical system to support the high-level operation and management of enterprises, which involves the control entity, controllability, humanity and non-collusion hypothesis. The established internal control system can restrain and reliably control the illegal behavior of enterprises and improve financial performance. The theory of information asymmetry is a market economy theory first put forward by American economist George Ackell Love and others, which means that people who have a good grasp of information will have certain advantages, and the introduction of internal control can reduce information asymmetry, strengthen the sharing of information resources and improve enterprise performance. Principal-agent theory was first put forward by two famous American economists, Burley and Means. It means that clients and agents have conflicts of interest and differences in demands when obtaining information, while companies with perfect internal control can better grasp their operating conditions, effectively alleviate the agency cost problem between clients and agents and improve their performance. Signal transmission theory means that most enterprises will transmit information to the outside world by issuing announcements, and external information users can only obtain the information disclosed to the outside world, which has serious information asymmetry compared with internal personnel. High-quality internal control can improve the accuracy of information to realize the owner's incentive to agents, reduce agency costs and improve the company's financial performance.

2.2 Existing research and research assumptions

2.2.1 H1: Internal control can improve the financial performance of enterprises.

At present, there are abundant researches on the influence of internal control on financial performance. [1]Ogneva et al. (2007) took the data of American listed companies as samples, and found that enterprises with internal control defects would generate higher equity costs and worse financial performance.[2]Whisenant et al. (2003) proved that the company's share price may be reduced after the disclosure of information with internal control defects, reflecting internal control quality’s significance. Domestic scholars explored the effect of internal control on performance through theoretical and empirical analysis.[3]Li Xiao (2019) proved the influence of internal control on financial performance by establishing an empirical model. [4]-[5]Moreover, some scholars have found that internal control can improve financial performance by reducing cost stickiness and narrowing salary gap (Xu Chaoyang et al., 2021; Yin Chongtao, 2020).

2.2.2 H2:The major shareholders'shareholding ratio inhibit improvement of internal control on financial performance.

[6]Based on the theory of principal-agent, information asymmetry, etc., major shareholders may take advantage of holding the absolute control of the enterprise to hollow out minor shareholders and seek personal gain by occupying funds and insider trading (Wei Minghai et al., 2013).[7]Meanwhile, the high shareholding ratio and centralized monopoly of major shareholders will make it impossible for small and medium-sized shareholders to restrict power and infringe on their interests, while small and medium-sized shareholders can only "vote with their feet" to protect themselves, which will also damage the company's performance (Wang Xiaojun, etc. 2020). Due to the unreasonable shareholding ratio of major shareholders, internal control can only restrict some personnel in operation, and the internal control system will become a decoration in the case, which will inhibit the improvement of financial performance.

2.2.3 H3: Compared with state-owned enterprises, the internal control of non-state-owned enterprises has a more significant effect on improving the financial performance.

The nature of property rights may affect the relationship between internal control and financial performance. China's listed companies are mainly divided into state-owned and non-state-owned enterprises. State-owned enterprises are large in scale. [8]Due to the supervision and management of the government (Liu Qiliang et al., 2012), the fund allocation and management system are relatively stable, less affected by environmental factors, and their internal control and financial level will be higher than that of non-state-owned enterprises. Non-state-owned enterprises, on the other hand, are based on self-employment, with high investment risk and uncertainty, more disturbing factors and poor insurance effect, and will be more motivated to resist risks and establish an internal control system to improve financial performance.

3 Research design

3.1 Source of sample data

In the paper, all A-share listed companies in China from 2012 to 2020 are selected as samples, and following treatments are carried out: excluding financial industry companies, data missing and ST and *ST company samples.Moreover, in order to avoid the influence of abnormal values, the continuous variables are truncated by 1% ~ 99%, obtaining 3505 enterprises and 23210 sample observations. Data of internal control indicators come from Dibo database, and other financial data come from CSMAR database. This paper uses Excel and Stata in data processing.

3.2 Variable design

3.2.1 The explanatory variable-internal control

[9]According to Cao Yue et al. (2020), the internal control index /100 in DIB database is used to measure the internal control level. The larger the value, the higher the internal control level.

3.2.2 The explained variable -company's financial performance

In this paper, the return on total and net assets are proxy variables of financial performance.

3.2.3 The moderator variable -shareholding ratio of major shareholders and the nature of property rights

The proportion of the largest shareholder, the proportion of the top ten shareholders and the nature of property rights are introduced as regulatory variables.

3.2.4 The control variables

[10]The selection of control variables is based on Wang Bixue and Wang Xiaojun (2021).In conclusion, the explanation of all variables is listed in **Table 1.**

Table 1. Variable Selection.

Type	Name	Symbol	Definition
Independent variable	Rate of return on total assets	ROA	Net profit/total assets
	Rate of return on net assets	ROE	Net profit/net assets
Explanatory variable	Internal control level	IC	Internal control index in Dibo database /100
Regulated variable	Major shareholders' shareholding proportion	Top1	The shareholding ratio of the largest shareholder
		Top10	The shareholding ratio of the top ten shareholders
	Property right nature	SOE	Dummy variable, state-owned enterprises 1, non-state-owned enterprises 0
Control variable	Operating income growth rate	Growth	Operating income growth/total operating income in the previous year
	Asset-liability ratio	Lev	Total liabilities/total assets
	Scale	Size	Logarithm of the company's total assets
	Four major audits	Big4	Are the auditors from the four major accounting firms in China?
	Currency ratio	CashRatio	Closing balance of cash and cash equivalents/current liabilities
	Separation rate of two rights	Separation	The difference between control right and ownership of the actual controller listed company
	Turnover of total assets	TAT	Operating income/total assets at the end of the period
	Cash holdings	Cash	Monetary funds/cash holdings
	Industry	Industry	Industry virtual variable
	Age	Year	Annual dummy variable

3.3 Model construction

In this paper, panel data processing method is used for empirical analysis, and the following model is constructed to verify the relevant assumptions:

Test hypothesis 1:

$$ROA_{i,t} = \alpha_0 + \alpha_1 IC_{i,t} + \alpha_2 \sum Controls_{i,t} + \sum year + \sum Industry + e_{i,t} \quad (1)$$

$$ROE_{i,t} = \alpha_0 + \alpha_1 IC_{i,t} + \alpha_2 \sum Controls_{i,t} + \sum year + \sum Industry + e_{i,t} \quad (2)$$

If the correlation coefficient between the explained variables ROA and ROE and the internal control IC is significantly positive, assumption 1 holds.

Test hypothesis 2:

$$ROA_{i,t} = \beta_0 + \beta_1 IC_{i,t} + \beta_2 Top1_{i,t} + \beta_3 IC_{i,t} \times Top1_{i,t} + \beta_4 \sum Controls_{i,t} + \sum year + \sum Industry + e_{i,t} \quad (3)$$

$$ROE_{i,t} = \beta_0 + \beta_1 IC_{i,t} + \beta_2 Top1_{i,t} + \beta_3 IC_{i,t} \times Top1_{i,t} + \beta_4 \sum Controls_{i,t} + \sum year + \sum Industry + e_{i,t} \quad (4)$$

$$ROA_{i,t} = \beta_0 + \beta_1 IC_{i,t} + \beta_2 Top10_{i,t} + \beta_3 IC_{i,t} \times Top10_{i,t} + \beta_4 \sum Controls_{i,t} + \sum year + \sum Industry + e_{i,t} \quad (5)$$

$$ROE_{i,t} = \beta_0 + \beta_1 IC_{i,t} + \beta_2 Top10_{i,t} + \beta_3 IC_{i,t} \times Top10_{i,t} + \beta_4 \sum Controls_{i,t} + \sum year + \sum Industry + e_{i,t} \quad (6)$$

If the coefficients of interaction terms in models (3), (4), (5) and (6) are significantly negative, then it is assumed that 2 holds.

Test hypothesis 3:

$$ROA_{i,t} = \gamma_0 + \gamma_1 IC_{i,t} + \gamma_2 SOE_{i,t} + \gamma_3 IC_{i,t} \times SOE_{i,t} + \gamma_4 \sum Controls_{i,t} + \sum year + \sum Industry + e_{i,t} \quad (7)$$

$$ROE_{i,t} = \gamma_0 + \gamma_1 IC_{i,t} + \gamma_2 SOE_{i,t} + \gamma_3 IC_{i,t} \times SOE_{i,t} + \gamma_4 \sum Controls_{i,t} + \sum year + \sum Industry + e_{i,t} \quad (8)$$

If the correlation coefficient between model (7) and model (8) is significantly negative, then assumption 3 holds.

4 Empirical results and analysis

4.1 Descriptive statistics

Table 2. Descriptive statistical results of core variables

Variable	N	Mean	Min	Max	p25	p50	P75	SD
ROA	23210	0.0350	-0.276	0.193	0.0130	0.0350	0.0640	0.0630
ROE	23210	0.0500	-0.931	0.319	0.0270	0.0650	0.110	0.152
IC	23210	6.271	0	8.214	6.136	6.627	6.991	1.518
Top1	23210	0.346	0.0940	0.745	0.231	0.324	0.445	0.147
Top10	23210	0.584	0.241	0.903	0.478	0.592	0.696	0.149
SOE	23210	0.371	0	1	0	0	1	0.483

According to the descriptive statistical results in **Table 2,** the mean and median of independent variable internal control (IC) are 6.271 and 6.627, with the minimum of 0, the maximum of 8.214 and the standard deviation of 1.518, indicating that although the level of enterprise internal control system is concentrated at 6-7, there are certain differences. The maximum ROA of the dependent variable is 0.193, the minimum is -0.276, and the standard deviation is 0.0630. The minimum return on net assets (ROE) is -0.931, the maximum is 0.319, and the standard deviation is 0.152, showing that there are great differences in enterprise performance, including the return on total assets and net assets. Enterprises can basically reap positive returns, but they need to be improved through internal control systems.In order to further verify the multicollinearity problem, VIF test was carried out as **Table 3**,and it was found that there was no obvious multicollinearity relationship between variables.

Table 3. Multicollinearity test results

Variable	VIF	1/VIF
CashRatio	2.370	0.422
Lev	1.870	0.536
Cash	1.850	0.541
Size	1.580	0.632
Big4	1.150	0.870
IC	1.100	0.906
TAT	1.080	0.924
Separation	1.020	0.982
Growth	1.020	0.984
Mean	1.450	

4.2 Principal test, adjustment effect and heterogeneity analysis

Table 4. Regression results of core variables

Variables	(1) ROA	(2) ROE	(3) ROA	(4) ROE	(5) ROA	(6) ROE	(7) ROA	(8) ROE
IC	0.011***	0.029***	0.013***	0.035***	0.009***	0.034***	0.013***	0.034***
	(44.57)	(48.31)	(25.04)	(26.13)	(11.11)	(16.09)	(43.81)	(44.41)
Top1	—	—	0.091***	0.0191***	—	—	—	—
	—	—	(8.89)	(7.42)	—	—	—	—
IC*Top1	—	—	-0.009***	-0.021***	—	—	—	—
	—	—	(-6.00)	(-5.27)	—	—	—	—
Top10	—	—	—	—	0.027***	0.127***	—	—
	—	—	—	—	(2.76)	(5.23)	—	—
IC*Top10	—	—	—	—	0.002	-0.009**	—	—
	—	—	—	—	(1.52)	(-2.47)	—	—
SOE	—	—	—	—	—	—	0.037***	0.072***
	—	—	—	—	—	—	(12.41)	(9.48)
IC*SOE	—	—	—	—	—	—	-	-

							0.007***	0.012***
	—	—	—	—	—	—	(-14.05)	(-10.28)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.720***	3.185***	0.364	2.506***	0.783***	3.271***	0.787***	3.168***
	(2.60)	(4.58)	(1.31)	(3.59)	(2.84)	(4.71)	(2.82)	(4.52)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	23,210	23,210	23,210	23,210	23,210	23,210	23,210	23,210
R-squared	0.303	0.241	0.309	0.245	0.311	0.245	0.309	0.245

t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 4 above is the regression condition of the core variables.According to the regression results of models (1) and (2), the coefficients between internal control and total return on assets and return on equity are 0.011 and 0.029, respectively, which are significantly positively correlated at the level of 1%, assuming that 1 holds. According to column (3) and column (4), the coefficients of the interaction between Top1 and internal control and the two dependent variables are both negative, and they are significantly correlated at the level of 1%. From the results of models (5) and (6), the interaction between the shareholding ratio of the top ten shareholders and the independent variable IC*Top10 and ROA coefficient is not significant, but it is negatively correlated with the return on net assets (ROE) at the level of 5%, with a coefficient of -0.009. Thus, the shareholding ratio of the top ten shareholders will inhibit the improvement effect of internal control on performance, while compared with the shareholding ratio of the top ten shareholders, the shareholding ratio of the top ten shareholders is significantly negative. According to model (7) and model (8), the coefficient between the IC*SOE interaction term and the explained variable is significantly negative at the level of 1%, and hypothesis 3 holds.

4.3 Robustness and lag test

In order to make the conclusion more stable and objective,,this paper takes the following methods.Firstly,the financial performance of the dependent variable is replaced. [11]According to Liang Yanzhen (2021), earnings per share (EPS), that is, the ratio of EPS to paid-in capital at the end of the period, is used as the explained variable to verify the main test.In addition, to solve the problem of lag endogenesis, the independent variables and control variables are delayed for one period and re-tested.The results are presented at **Table 5** below.

Table 5. Robustness and lag test results

	Robustness test	Lag test	
VARIABLES	EPS	ROA	ROE
IC	0.094***	0.007***	0.019***
	(39.79)	(23.55)	(23.63)
Controls	Yes	Yes	Yes
Constant	-28.414***	0.808**	3.188***
	(-10.53)	(2.09)	(3.29)
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes

Observation	23,210	19,164	19,164
R-squared	0.264	0.139	0.088

t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

The results are consistent with the previous ones, and the assumptions are robust and objective.

5 Conclusion and enlightenment

5.1 Research conclusion

Based on the empirical analysis and hypothesis verification of sample enterprises from 2012 to 2020, this paper draws the following conclusions: firstly, internal control can improve the financial performance of enterprises; Secondly, the shareholding ratio of major shareholders has a negative inhibitory effect on the effect of internal control on improving the company's financial performance; Finally, the improvement effect of internal control on financial performance is better in non-state-owned enterprises.

5.2 Research suggestions

[12]Internal control plays a positive role in enterprises, so enterprises should first actively establish and improve the internal control mechanism to assure safety, and then promote the sustainable development of enterprises(William R,Kinney,2000).Secondly, the company should pay attention to improving the ownership structure and further weaken the "tunneling behavior" of major shareholders, so that internal control can better play its role in improving financial performance. Finally, non-state-owned enterprises should pay more attention to the establishment of internal control, deal with increasingly complex business risks and market risks, and improve their financial performance.

5.3 Research significance

This study is helpful to improve the empirical analysis of the influence of internal control on corporate financial performance and explore the quantitative relationship between them, which has theoretical and practical value; In addition, this paper is conducive to enriching the logical relationship between the shareholding ratio of major shareholders, internal control and corporate financial performance; At the same time, this paper tests the heterogeneity of enterprises with different property rights, which is helpful to improve and adjust the internal control system in combination with the specific conditions and types of enterprises.

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