

Influence Of Internal and External Governance on The Effectiveness of Internal Control

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Abstract. This paper takes the listed companies of China's Shanghai Stock Exchange from 2017 to 2019 as the research samples. It selects interior factors and exterior factors such as capital structure, executive rights, external audit pressure and media supervision respectively, and analyzes the influence of various factors on the quality of internal control of the company, providing reference for the listed companies. The results show that the ratio of debt financing and executive rights are negatively correlated with the effectiveness of internal control, but the negative correlation between executive rights and the quality of internal control will be disturbed by executive compensation incentives and external governance factors. In terms of external governance, external audit pressure and high media attention can improve the effectiveness of internal control of listed companies, but the impact of audit opinions has a certain lag. Further analysis shows that although the model is more convincing when both positive and negative media reports are taken into account, media supervision has a stronger supervisory effect on the quality of internal control of the company when negative media reports are dominant, compared with the situation when positive media reports are dominant.

Keywords: Internal control; corporate governance; agency problem.

1. Introduction

1.1. Background of Research

Due to the separation of control and ownership, besides internal governance, listed companies need to introduce relevant external governance factors to reduce management's behavior of seeking personal interests and agency costs. Generally speaking, the internal governance of a company mainly includes the game equilibrium arrangement and the game equilibrium path between the shareholders' meeting, the board of directors, the monitoring meeting and the manager, while the external governance of a company refers to the supervision and incentive effect of other stakeholders on the listed company through the market systems such as the company's external product market, capital market and manager market and the legal safeguard mechanism, including external audit pressure, media supervision, market and information disclosure system, etc. It is generally believed that corporate internal governance is an endogenous system of external governance, which provides a level playing field for corporate internal governance. With the continuous improvement of information disclosure system in capital market, the cost for other stakeholders of listed companies to obtain information has decreased, and the role of external governance has been paid more attention to. In fact, there is a certain synergy between the external governance mechanism and some internal governance mechanisms of the company, which also affects the internal control of the company.

Corporate internal governance is the foundation of corporate governance, and financing structure is an important part of internal governance. Generally speaking, the corporate financing structure includes a securities-oriented financing structure that focuses on securities financing and a bank-oriented financing structure that focuses on bank financing. The game among the shareholders' meeting, the board of directors, the monitoring meeting and the manager reflects the extent of the company's executive rights to a certain extent. Therefore, this paper selects the executive rights as an inspection index of the company's internal governance, and selects the concentration degree of the top ten shareholders' equity, the situation of holding two positions concurrently, and the situation of

management's shareholding to measure comprehensively. The above indicators have a higher degree of impact on corporate internal governance, the data are easier to obtain, and the operability is strong. Therefore, the governance of financing structure and executive rights are selected to represent corporate internal governance factors.

By analyzing the financing structure of listed companies in our country, we can find that currently listed companies in our country are more dependent on equity financing and the governance effect of debt financing is poor, which is different from the incentive and restraint theory and control transfer theory of debt financing governance put forward by western scholars. The traditional western governance theory of financing structure may not be applicable in our market. Executive rights are an important factor affecting the quality of internal control of a company. When executive rights are too large, it may aggravate agency problems and weaken the relationship between monetary compensation and performance of management. Executive compensation incentive is one of the important ways to solve agency problems. Therefore, executive compensation incentive may also have a certain regulating effect on the internal control of a company. Based on the study of the relationship between executive rights and the quality of internal control, this paper further discusses whether executive compensation incentive can alleviate agency problem and improve the quality of internal control.

The external governance of a company includes the supervision and encouragement of other stakeholders to listed companies through market systems such as the company's external product market, capital market and manager market, and legal safeguard mechanisms. In the aspect of information disclosure, except for the contents of annual reports as required by law, the information disclosure of listed companies mostly relies on voluntary disclosure, the actual information disclosed is insufficient, and the amount of data is large; The market environment faced by listed companies is also complex, difficult to measure simply, and affected by the nature of the enterprise. The market faced by listed companies in our country sometimes cannot fully reflect the external governance of the company. In contrast, the impact of external audit and media supervision can better reflect the external governance of each listed company. Therefore, in order to ensure the operability, this paper selects external audit pressure and media supervision as the main factors to study external governance.

Studying the audit opinions disclosed by listed companies in 2019, we can find that out of a total of 3,551 samples in Shanghai and Shenzhen stock exchanges, about 5% of the samples obtained non-standard audit opinions, which shows that there are less "unclean" audit opinions in our capital market, and therefore it is more likely to attract the attention of stakeholders. Although the internal control of listed companies receiving non-standard audit opinions may be poor, due to the concerns of stakeholders, the non-standard audit opinions may also adversely affect the internal control mechanism of the companies and promote the quality of internal control of the companies. Media attention also has the same restrictive effect, that is, although companies with internal control problems are more likely to receive media attention, media reports, especially negative media reports, may also promote companies to improve internal control; In addition, there are some differences in the governance function of media supervision due to different media and reporting tendentiousness. At present, domestic and foreign scholars pay more attention to the negative media reports.

Based on the sample data of A-share listed companies in Shanghai Stock Exchange, this paper investigates the above-mentioned problems, aiming at analyzing how various internal and external governance factors affect the internal control of listed companies in our country, further analyzing the impact degree, and exploring how to improve the governance structure of listed companies. By studying the data of A-share listed companies on the Main Board of Shanghai Stock Exchange from 2017 to 2019, this paper makes the following empirical research: (1) A brief analysis of the effectiveness of internal control of listed companies and the distribution of the data of various influencing factors, and an analysis of their correlation; (2) Examining the influence of relevant internal and external governance factors on the effectiveness of internal control of listed companies; (3) Further analyze the influence degree and interaction of various governance factors.

1.2. Significance of Research

This paper considers both internal and external governance factors, avoiding the error caused by only one factor and ensuring the comprehensiveness of the research. At the same time, this paper also empirically tests the relationship between various factors and the quality of internal control of the company, and raises objection to "debt financing can be used as an effective internal control means" held by some scholars, which confirms the views of Song Xiaobao and other scholars; Based on the study of the relationship between executive rights and the quality of internal control, the moderating effect of executive compensation incentive is further discussed. In addition, this paper also makes use of the results of the above analysis to put forward relevant suggestions for listed companies and government departments, providing reference for corporate governance and government supervision.

1.3. Literature Review

1.3.1 Agency Issues and Internal Control

According to the agency theory of Jensen(1976) and others, there is an agency conflict between the actual manager and the shareholders of the company, and the managers of the enterprise may act against the interests of the shareholders out of their own interests, such as improving on-the-job consumption and avoiding risks [1]. Due to the agency problem, the enterprise increases the supervision cost, compliance cost and residual loss, among which the supervision cost refers to the cost incurred by the shareholders to supervise the actual managers through various mechanisms, and the compliance cost refers to the cost incurred by the actual managers to report to the shareholders and obtain the trust of the shareholders. Yang Youhong et al. (2004) proposed that both corporate governance and internal control stem from the existence of principal-agent problem. If there is no agency conflict between shareholders and managers, neither corporate governance nor internal control problem exists [2]. On the one hand, high-quality internal control can strengthen the company's supervision mechanism, reduce the self-interest behavior of managers, and thus reduce agency costs. Ma Pengfei et al. (2019) proposed that good internal control can make hard constraints on the business process of an enterprise, which is the premise and foundation for alleviating agency conflicts [3]. On the other hand, good internal control can effectively reduce misstatement and manipulation of financial information, and reduce information asymmetry between actual managers and stakeholders, thus reducing agency costs. Zhang Guoqing and others (2015) believe that high-quality internal control can effectively mitigate agency conflicts, reduce information asymmetry, realize checks and balances among stakeholders, prevent and resolve conflicts of interest, mitigate agency problems and achieve higher performance [4].

To sum up, the principal-agent problem has led to the need for companies to improve internal control through various governance. Good internal control can react to the agency problem, strengthen the company's supervision mechanism, and constrain the actual managers' on-the-job consumption.

1.3.2 Internal governance and internal control

The internal governance of a company can be considered from two aspects: financing structure and executive rights.

As far as financing structure is concerned, Guo Yanyan (2018) believes that there is a correlation between the effectiveness of internal control of listed companies and the stability of their capital structure, and listed companies with stable capital structure have higher quality of internal control and lower operating risks, which can steadily improve the value of enterprises [5]. When the company's internal control quality is high, the company will also tend to disclose more accounting information in order to obtain better resource allocation and financing efficiency, i.e. good internal control can act on the company and reduce the company's financing cost. Specifically, the corporate financing methods are mainly equity financing and debt financing. Although the risk of equity financing is relatively small, the company may face some negative impacts in the later stage of development when the company relies too much on equity financing. First, the scattered equity of the

company may affect the control rights of the original shareholders, thus affecting the original governance system of the company; Second, the concentration of equity may be too high, which may concentrate the decision-making power in the hands of some major shareholders and weaken the internal control system of the company, resulting in serious internal control defects. Zhonghuaigong et al. (2017) considered that the better the effectiveness of internal control, the lower the probability of equity financing for the company by studying the A-share listed companies in Shanghai and Shenzhen stock exchanges from 2010 to 2015 [6]. Zhang Yazhou (2020) believes that good internal control can ease the company's financing constraints and reduce the cost of debt financing [7].

As far as executive rights are concerned, Liu et al. (2010) proposed that executives with higher rights would tend to maintain an opaque information environment in order to weaken the supervision of stakeholders [8], i.e. when executive rights are greater, the company's internal control system will weaken its constraints. Xiao Hailian (2016) proposed that the improvement of internal control effectiveness requires the internal control construction of senior executives [9], and Wang Xiao et al (2019) also proposed that the financial background characteristics of senior executives play an active role in supervising and urging the internal control defects [10], indicating that the construction of internal control of a company relies on the cooperation of senior executives to a large extent. Xu Yu et al. (2020) further proposed that although the existing literature generally believes that there is a certain relationship between executive rights and the effectiveness of internal control, due to the diversity of executive motives, the actual impact of executive rights on the quality of internal control is uncertain [11]. In addition, the content of executive rights is also complicated, including organization rights, ownership rights, expert rights and reputation rights. Therefore, the relationship between executive rights and the quality of internal control needs further research.

To sum up, most of the research conclusions at home and abroad are consistent, that is, when the financing structure of an enterprise is stable, a higher proportion of debt financing will have a better governance effect on the effectiveness of the internal control of the company, but this conclusion is more in line with the situation of the more developed areas in the capital market. According to the above analysis, under the special economic system of our country, debt financing does not play an effective governance role. The reason for this situation may be that the listed companies in our country have narrow financing channels and prefer equity financing. In the process of corporate management, the status of creditors has not been given enough attention. Domestic research also generally believes that executive rights have governance effect on internal control, but its actual effect is somewhat complicated. No research has yet proposed which of the factors that embody executive rights have better governance effect.

1.3.3 external governance and internal control

From the perspective of game theory, listed companies are constrained by both internal control and external supervision. Information disclosure of listed companies is actually a game process between internal control and external supervision. As the legal environment faced by each company is roughly the same, the external governance of the company can be mainly considered from two aspects: external audit pressure and media supervision.

Zeng Hao (2018) proposed that external audit is a strong external governance measure [12]. As the audit report issued by the external non-governmental audit on the listed companies is an important basis for stakeholders, especially the small and medium shareholders, to judge whether to invest in the company, the audit opinion directly affects the share price of the listed companies, Wang Xiao et al. (2019) also proposed that the listed companies have a strong dependence on the external audit opinion, and after receiving the non-standard opinion, the listed companies will make more active rectification [13]. As there are a large number of state-owned enterprises in China's listed companies, the internal control quality of state-owned enterprises is also affected by government audit in addition to private audit. Chu Jian et al. (2018) believe that although government audit can improve the effectiveness of the internal control design and operation of the audited enterprise, the situation is short-term [14], while Zhang Zenglian et al. (2019) believe that government audit at this stage cannot improve the internal control design and operation of the centrally controlled listed companies, and

may even reduce the effectiveness of internal control [15]. It can be found that the effect of government audit on the quality of internal control is not very obvious, and its effect on the effectiveness of internal control is still controversial.

Media is an important part of corporate external governance mechanism. The direct and rapid dissemination of media information makes the defects of corporate internal governance mechanism exposed. Liang Hongyu et al. (2012) believe that media supervision can activate the internal governance mechanism and reduce the degree of information asymmetry between management and shareholders [16]. Zeng Wei and others (2016) also believe that the higher the media attention, the higher the effectiveness of the internal control of the company and the lower the risk of fluctuations in various financial indicators of the company [17]. However, the role of media supervision in corporate governance may be lagging behind to some extent, and the extent of its role in different types of companies is also different. Zeng Wei and others (2016) believe that managers of non-state-owned enterprises are more sensitive to media attention than state-owned enterprises [17]; Xu Yu et al. (2017) believe that the governance effect of media supervision on corporate internal control is different among companies with different property right structures [18]; Mo Dongyan and others (2018) study that the media pay different attention to companies in different life cycles, with the highest attention to growing companies and a more significant governance effect on their internal control [19].

It is generally believed in the research that private audit has a good governance effect on the internal control of listed companies. However, this paper analyzes that the principle of the governance effect of external audit on companies is that the audit report issued by the auditor will affect the confidence of the capital market in the company, and then affect the company's share price, which in turn will react on the listed companies and urge them to improve the internal control system. Therefore, the governance effect of external audit is usually manifested after the company receives the non-standard audit opinion. The existing research lacks the discussion on the lag of governance effect of non-governmental audit. Therefore, when analyzing the quality of non-governmental audit and corporate internal control, this paper takes into account the impact of the lag of two internal audit opinions on corporate internal control. Scholars at home and abroad generally believe that media supervision plays a governance role in the internal control of listed companies. Based on this, this paper further analyzes the impact of positive and negative public opinion environment on corporate internal control governance, and further tests the conclusions of some scholars.

To sum up, external non-governmental audit and media supervision are both important contents of corporate external governance, but the joint effect of internal governance and external governance is more critical to enhance the effectiveness of corporate internal control [19](2018).

2. Theoretical analysis and research assumptions

2.1. Internal governance factors

2.1.1 Financing structure

The financing structure and internal control of the company can influence and restrict each other. Although Zhong Huai Gong et al. (2017) think that the quality of internal control of the company is negatively correlated with the degree of equity financing [5], when the company increases equity financing, the internal control of the company will be subject to more supervision from the government and society, thus reducing the managers' on-the-job consumption and ineffective investment. From this point of view, although equity financing itself may damage the quality of internal control of the company, it can drive external governance factors and produce certain synergistic effect, thus reducing agency cost of the company and improving the effectiveness of internal control of the company. As far as debt financing is concerned, on the one hand, debt financing has pre-tax deductible effect and low financing cost; On the other hand, according to the theory of debt governance, debt can restrain managers to a certain extent and reduce agency costs of the

company, which plays an important role in the internal control of the company, i.e. debt financing may affect the quality of the company's internal control by affecting the company's performance. At the same time, good internal control can also significantly reduce the financial risk of the company and reduce the cost of debt financing, which promote each other. Generally speaking, when a company borrows money, it will also be required to issue a financial statement, subject to certain external supervision, but this effect is far smaller than equity financing.

According to the above analysis, in the presence of external governance factors, debt financing plays a significant role in improving the effectiveness of the internal control of the company. Therefore, this paper makes the following assumptions.

H1: Corporate debt financing is positively correlated with the effectiveness of internal control.

2.1.2 Executive Rights

Due to the agency problem, under the assumption of rational person, the greater the management's power, the more likely it is that there will be on-the-job consumption and ineffective investment. However, in the actual situation, due to the complexity of managers' motives, the above-mentioned relationship may be weakened. The effectiveness of the company's internal control depends to a large extent on the formulation and implementation of the managers. A good internal control system can strengthen the supervision of the board of directors over the company's senior executives and inhibit the senior executives from abusing power for personal gains. When the management owns shares, although their rights are not more restricted, the senior management is more likely to consider for their own interests and have a higher willingness to strengthen internal control and expand information transparency. At the same time, corporate owners can also influence managers' motivation through over-compensation incentives and the introduction of external governance factors.

In summary, although it is generally believed that executive rights have a negative correlation with the effectiveness of corporate internal control, this relationship will also be affected by salary incentives and external governance factors, and managers' own motives, such as self-realization, are more likely to make some research data completely deviate from the above relationship, that is, the correlation between executive rights and the quality of corporate internal control is likely to be based on managers' motives, and will be interfered by internal salary system and external governance factors. Therefore, this paper makes the following assumptions, and further puts forward two sub-assumptions.

H2: Executive rights are negatively correlated with the effectiveness of internal control.

H2a: External governance moderates the relationship between executive rights and the effectiveness of internal control.

H2b: Compensation incentives have a moderating effect on the relationship between executive rights and the effectiveness of internal control.

2.2. External governance factors

2.2.1 External audit

The annual audit report issued by the auditor for the listed company is an important basis for stakeholders, especially small and medium shareholders, to judge whether to invest in the company. The non-standard audit opinion can send relevant signals to the capital market, affect investors' confidence in the company, directly affect the financing situation of the company in future years, and even attract the attention of the regulatory authorities. Under the risk-oriented external audit model, measuring the internal control status of a company is the basis for auditors to judge audit risks and conduct control tests, which directly affects the audit procedures and the final audit opinion. According to the above analysis, external audit has direct pressure on the internal control of listed companies. Therefore, internal control is an important part of external audit, and external audit has governance effect on internal control [12](2019). Although the number of listed companies obtaining non-standard audit opinions in our country is relatively small, and the effect of external audit pressure on the improvement of internal control quality of most companies may not be obvious enough, the external audit opinion may have a "threshold" effect, that is, once the listed companies obtain non-

standard audit opinions, the external audit pressure on the companies to improve the quality of internal control will increase sharply.

According to the above analysis, after receiving the non-standard audit opinion, the listed companies will generally take active measures to rectify and correct the defects of internal control to restore the market. However, due to the periodicity of annual report audit, this effect is likely to be manifested in future years. Therefore, the following assumptions are made.

H3: External audit pressure can improve the effectiveness of internal control of listed companies with certain lag.

2.2.2 Media Supervision

According to the media governance theory, the media, as an information intermediary, can effectively reduce the information asymmetry between corporate executives and other stakeholders and alleviate agency problems; The media plays a supervisory role in information mining and analysis, and can also drive other external factors, such as attracting the attention of regulators. Companies with higher media attention are more likely to maintain higher internal control quality. Therefore, the following assumptions are made.

H4: Increased media attention can improve the effectiveness of internal control in enterprises.

Specifically, media reports are divided into positive reports and negative reports. When the media has an advantage over the company in positive reports, the company will tend to maintain this favorable public opinion environment for itself; When the negative media coverage of the company dominates, the pressure of media supervision on the company will increase, and the company will tend to improve its own internal control system to get rid of the unfavorable public opinion environment. Based on the above analysis, this paper presents two competing assumptions.

H4a: When positive media coverage is dominant, it has a stronger role in monitoring the effectiveness of the Company's internal control.

H4b: When the negative media coverage is dominant, it has a stronger role in monitoring the effectiveness of the Company's internal control.

3. Research design

3.1. Sample Selection and Data Sources

In order to better examine the effectiveness of internal control of listed companies, this paper selects the companies listed on the A-share Main Board of Shanghai Stock Exchange from 2017 to 2019 as the initial sample. At the same time, in order to ensure the validity of the research results, this paper has done some screening on the samples: (1) excluded the samples of delisting risk warning (*ST) and other special treatment (st); (2) removing some missing samples; (3) The sample of companies with partial insolvency has been removed; (4) the financial industry sample is removed; (5) perform winsorize processing of 1% up and down on the data. After the above treatment, 1258 samples were obtained. The internal control index used in this paper is from DIBO's internal control database, and the rest of the data are from CNRDS database and Guotai 'an database.

3.2. Major variables and definitions

The internal control quality of an enterprise can be mainly measured by consulting the internal control audit report disclosed by the listed company, or by relying on the relevant index given by the rating agency, such as DIBO Internal Control Index. For the sake of fairness, this paper chooses DIBO Internal Control Index as the standard to measure the effectiveness of listed companies' internal control.

The independent variables in this paper include capital structure, executive power, external audit pressure and media supervision. The measurement of the senior management rights index refers to the practices in the previous literature: selecting the degree of concentration of equity, the size of the board of directors, the situation of holding both positions, the proportion of independent directors and

the management shareholding to measure the senior management rights; Among them, the shareholding ratio of the top ten largest shareholders is used to reflect the degree of equity concentration, and the natural logarithm of the number of board members is used to reflect the size of the board of directors, and two-position concurrently is set as a virtual variable. When the CEO concurrently serves as a director of the company, the value of this variable is 1, otherwise it is 0. Set external audit pressure as a virtual variable. When the listed company obtains non-standard audit opinion, its value is 1; otherwise, it is 0. Media supervision is measured by calculating the Janis-Fadner coefficient. Considering that newspaper media, such as china securities journal, are more authoritative and represent the supervision of mainstream media to a certain extent, while some online media have a large number of reports and are repetitive, positive, negative and neutral report data of newspaper media are selected as the statistical content; Among them, the calculation steps of Janis-Fadner coefficient are as follows: p, n and total represent the positive, negative and total number of media reports on the company respectively; if $P > N$, media vision = $(p2 - pn) / total2$; If $P = N$, mediavision = 0; If $P < N$, mediavision = $(pn - n2) / total2$. The value of J-F coefficient ranges from -1 to 1, and the closer the value of J-F coefficient is to 1, the more positive reports the listed company receives. At the same time, the executive compensation is set as the adjustment variable.

The controlling variables in this paper include the size of the company, the degree of market competition and the growth of the enterprise. The size of the company is reflected using the natural logarithm of total assets; The degree of market competition is measured by HHI index; Corporate growth is measured using net profit growth rates. See the following table for a detailed description of each variable.

Table 3.1 Definition and Description of Variables

Variable property	Variable name	variable symbol	Variable definition
dependent variable independent variable	Effectiveness of internal control capital structure	ICI CAPITAL STRUCTURE	Dibo internal control index Asset-liability ratio
	Executive power	CR_10	Percentage of Shares Held by Top Ten Shareholders
		Executive power _1	Double-hatting
		Executive power _2	Number of independent Directors/Number of Directors
		Executive power _3	Natural logarithms of management shareholding
	External audit pressure	AUDIT PRESSURE	Whether a non-standard audit opinion has been obtained
	Media supervision	MEDIA	J-F coefficient
		MEDIA _P	Positive news
regulated variable Control variable	executive pay industry	MEDIA _N SALARY INDUSTRY	Number of negative news Natural logarithm of top three total executive compensation industry
	age	YEAR	Year of data
	Company size	SCALE	Natural logarithm of total assets
	Degree of market competition	Competition	Herfindal-Hirschman Index HHI
	Enterprise growth	GROWTH	net profit growth rate

3.3. Model design

In order to test the relationship between internal and external governance factors and internal control, a regression model (1) is established in this paper.

$$ICI = \alpha_1 \text{CAPITAL STRUCTURE} + \alpha_2 \text{CR}_{-10} + \alpha_3 \text{Executive power}_{-1} + \alpha_4 \text{Executive power}_{-3} + \alpha_5 \text{Executive power}_{-4} + \alpha_6 \text{AUDIT PRESSURE} + \alpha_7 \text{MEDIA} + \alpha_9 \text{SCALE} + \alpha_{10} \text{Competition} + \alpha_{11} \text{GROWTH} + \alpha_0 \quad (1)$$

Regression models (2-1) and (2-2) were established to test the moderating effect of executive compensation on internal control quality in Hypothesis 2.

$$ICI = \alpha_1 \text{CAPITAL STRUCTURE} + \alpha_2 \text{CR}_{-10} + \alpha_3 \text{Executive power}_{-1} + \alpha_4 \text{Executive power}_{-2} + \alpha_5 \text{Executive power}_{-3} + \alpha_8 \text{SCALE} + \alpha_{10} \text{Competition} + \alpha_{11} \text{GROWTH} + \alpha_0 \quad (2-1)$$

$$ICI = \alpha_1 \text{CAPITAL STRUCTURE} + \alpha_2 \text{CR}_{-10} + \alpha_3 \text{Executive power}_{-1} + \alpha_4 \text{Executive power}_{-2} + \alpha_5 \text{Executive power}_{-3} + \alpha_6 \text{AUDIT PRESSURE} + \alpha_7 \text{MEDIA} + \alpha_8 \text{SALARY} + \alpha_9 \text{SCALE} + \alpha_{10} \text{Competition} + \alpha_{11} \text{GROWTH} + \alpha_0 \quad (2-2)$$

In order to test the lag effect of external audit on internal control in hypothesis 3, a regression model (3) is established, in which ICI_YEAR represents DIBO's internal control index in different years and AUDIT PRESSURE_YEAR represents audit opinions in different years. The lag effect of external audit pressure can be tested by analyzing the correlation between audit opinions in the current year and DIBO's internal control index which is one to two years behind.

$$ICI_YEAR = \alpha_1 \text{CAPITAL STRUCTURE} + \alpha_2 \text{CR}_{-10} + \alpha_3 \text{Executive power}_{-1} + \alpha_4 \text{Executive power}_{-2} + \alpha_5 \text{Executive power}_{-3} + \alpha_6 \text{AUDIT PRESSURE_YEAR} + \alpha_7 \text{MEDIA} + \alpha_9 \text{SCALE} + \alpha_{10} \text{Competition} + \alpha_{11} \text{GROWTH} + \alpha_0 \quad (3)$$

Regression models (4-1) and (4-2) were established to test the two competing assumptions in Hypothesis 4.

$$ICI = \alpha_1 \text{CAPITAL STRUCTURE} + \alpha_2 \text{CR}_{-10} + \alpha_3 \text{Executive power}_{-1} + \alpha_4 \text{Executive power}_{-2} + \alpha_5 \text{Executive power}_{-3} + \alpha_6 \text{AUDIT PRESSURE} + \alpha_7 \text{MEDIA_P} + \alpha_9 \text{SCALE} + \alpha_{10} \text{Competition} + \alpha_{11} \text{GROWTH} + \alpha_0 \quad (4-1)$$

$$ICI = \alpha_1 \text{CAPITAL STRUCTURE} + \alpha_2 \text{CR}_{-10} + \alpha_3 \text{Executive power}_{-1} + \alpha_4 \text{Executive power}_{-2} + \alpha_5 \text{Executive power}_{-3} + \alpha_6 \text{AUDIT PRESSURE} + \alpha_7 \text{MEDIA_N} + \alpha_9 \text{SCALE} + \alpha_{10} \text{Competition} + \alpha_{11} \text{GROWTH} + \alpha_0 \quad (4-2)$$

4. Empirical results and analysis

4.1. Descriptive Statistics

Table 4.1 is a descriptive statistical breakdown based on the external audit opinions received by the listed companies. Among them, 1243 samples of standard unqualified audit opinions and 15 samples of "unclean" audit opinions were received. By analyzing the data in the table, it can be found that the average quality of internal control of listed companies with standard unqualified opinions is much higher than those with non-standard audit opinions, the number of board members and media attention are also higher than those with non-standard audit opinions, and the asset-liability ratio is relatively low.

Table 4.1 Descriptive Statistics

variable	AUDIT PRESSURE=0				AUDIT PRESSURE=1			
	minimal value	max.	average/mean value	standard deviation	minimal value	max.	average/mean value	standard deviation
ICI	189.77	941.31	666.09	79.84	226.68	689.61	511.76	158.54
CAPITAL STRUCTURE	0.01	1.15	0.45	0.20	0.12	0.99	0.55	0.24
CR_10	14.59%	97.18%	62.33%	15.34%	34.91%	88.97%	54.56%	14.96%
Executive power_1	0	1	0.24	0.43	0	1	0.19	0.40
Executive power_2	25.00%	80.00%	37.72%	5.74%	33.33%	50.00%	38.30%	5.09%
Executive power_3	0	21	11.16	7.35	0	19	10.90	7.98
MEDIA	-1	one	0.18	0.28	-0.56	one	0.11	0.33
SCALE	13.98	278819.00	3427.48	14241.78	31.99	19653.49	3194.19	5825.89
Competition	0.02	1.00	0.11	0.11	0.03	0.28	0.12	0.08
GROWTH	-78.01	52.16	-0.22	4.99	-59.27	3.17	-4.99	15.66
N	1243				15			

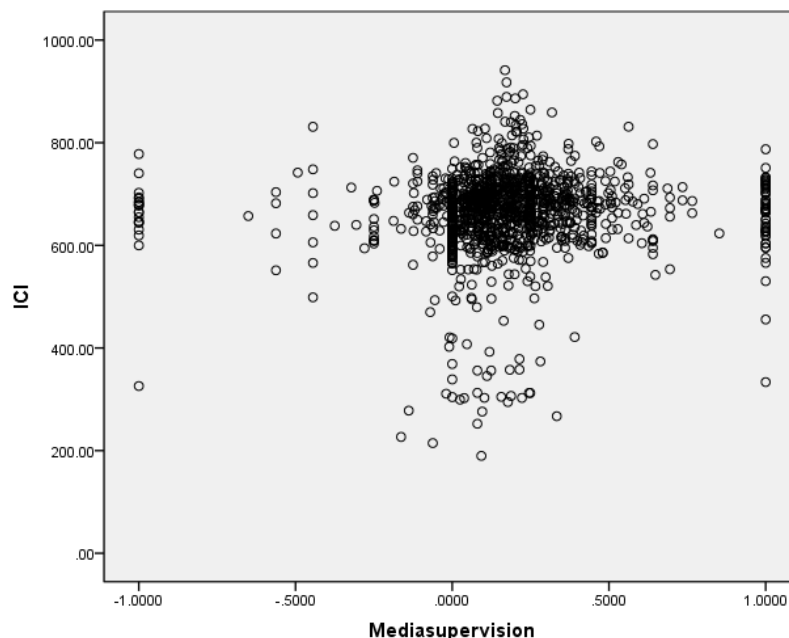


Figure 5.1 Quality Distribution of Media Supervision and Internal Control

According to the scatter plot of the quality of media supervision and internal control, the positive media coverage of most companies is dominant; Except for the companies with only negative reports, the J-F coefficients of the companies with dominant negative reports are concentrated in the range of -0.2 to 0, indicating that they receive less media attention, while the J-F coefficients of the companies with dominant positive reports are evenly distributed in the range of 0 to 0.5. The peak value of the

effectiveness of internal control appears at the point where the J-F coefficient is about 0.2. When the J-F coefficient approaches the extreme values of -1 and 1, the quality of internal control of the company is generally high. Except for some extreme values, the J-F coefficients of companies with low internal control effectiveness are distributed around 0, indicating that media supervision plays a role in promoting the quality of internal control, and both positive and negative media supervision play a role in promoting the quality of internal control. The above descriptive analysis roughly illustrates the relationship between the effectiveness of internal control and various internal and external governance factors.

4.2. Regression analysis and goodness of fit test

Table 4.2 Regression Results of Effectiveness of Internal Control and Internal and External Governance Factors

	(1)	(2-1)	(2-2)	(3)	(4-1)	(4-2)
α_0	579.608*** (32.420)	569.105*** (33.537)	521.223*** (8.510)	575.340*** (32.326)	584.354*** (33.121)	585.974*** (33.091)
α_1	-50.364*** (-5.551)	-63.571*** (-3.112)	-48.433*** (-3.741)	-57.062*** (-3.250)	-52.432*** (-3.043)	-52.716*** (-3.066)
α_2	-0.545*** (-6.044)	-0.554*** (-4.637)	-0.510*** (-4.015)	-0.485*** (-4.144)	-0.468*** (-4.020)	-0.473*** (-4.319)
α_3	-7.300 (-0.191)	-8.268 (-0.351)	-8.773 (-0.420)	-7.267 (-0.257)	-6.898 (-0.427)	-7.168 (-0.500)
α_4	-19.702 (-1.342)	-12.841 (-0.111)	-19.431 (-0.337)	-14.635 (-0.051)	-20.308 (-0.192)	-21.124 (-0.337)
α_5	-0.836*** (-2.676)	-0.751** (-2.414)	-1.023*** (-3.328)	-1.033*** (-3.334)	-1.083*** (-3.361)	-0.805** (-2.545)
α_6	-136.917*** (-8.156)		-128.540*** (-7.489)	-98.126*** (-5.978)	-137.217*** (-6.002)	-136.986*** (-7.487)
α_7	14.667* (1.775)		13.908* (1.481)	13.890* (2.306)	0.002 (0.192)	0.085* (1.976)
α_8			18.537*** (4.308)			
SCALE	17.153*** (7.522)	18.033*** (7.440)	15.710*** (6.761)	16.232*** (7.595)	16.328*** (7.397)	16.253*** (7.211)
Competition	-14.028 (-1.073)	-16.682 (-1.184)	-12.260 (-0.927)	-15.493 (-1.256)	-13.126 (-1.122)	-14.057 (-0.955)
GROWTH	1.671*** (4.653)	2.157*** (5.757)	1.666*** (4.515)	1.794*** (4.800)	1.779*** (4.691)	1.779*** (4.563)
YEAR	control	control	control	control	control	control
N	1258	1258	1258	1258	1258	1258
adj_R2	0.389	0.332	0.407	0.373	0.372	0.373

Note: *, **, *** are significant at the levels of 10%, 5% and 1%, respectively, with t values in brackets.

Table 4.2 shows the regression results of models (1), (2-1), (2-2), (3), (4-1) and (4-2). According to the results of regression model (1), the value of α_1 is significantly negative at 1%, indicating that the corporate debt financing ratio is negatively correlated with the effectiveness of internal control, assuming that 1 is not tested. According to the results of model (2-1), executive rights have a negative correlation with the effectiveness of internal control, and the impact of executive rights on internal control is mainly due to the concentration of the company's equity and the management's shareholding. Hypothesis 2 is tested. Comparing the test results of model (1) and model (2-1), when only external

governance exists, the weakening degree of the negative correlation between executive rights and the quality of internal control is not obvious enough; Comparing the test results of model (1) and model (2-2), when there are executive compensation incentives, the negative correlation between executive rights and the quality of corporate internal control will be weakened, and the higher executive compensation incentives, the better the quality of corporate internal control, assuming H2b is tested. According to the results of model (3), after adding the audit opinion of 2017-2019 into the analysis, the coefficient of independent variable AUDIT PRESSURE changed from -136.917 to -98.126, indicating that some listed companies have improved their internal control one to two years after receiving the non-standard audit opinion. Hypothesis 3 is tested. Comparing the results of models (1), (4-1) and (4-2), it can be found that the media attention has a positive correlation with the effectiveness of the internal control of the company, especially in the negative media reports, i.e. when the negative media reports are dominant, they have a stronger monitoring effect on the effectiveness of the internal control of the company, and H4b in the competitive hypothesis is tested; However, the model considering both positive and negative media reports has a better explanation for the effectiveness of internal control than the model considering only negative reports. By comprehensively analyzing the five regression models, we can find that the model has better explanatory effect on the effectiveness of internal control when considering both internal and external governance factors and the moderating effect of executive compensation incentives.

By analyzing the relationship between corporate debt financing and internal control quality, we can find that when controlling the factors of corporate size, the degree of corporate debt financing is significantly negatively correlated with the effectiveness of internal control at 1%. Other scholars generally believe that the listed companies in Europe and the United States are more inclined to use debt financing. The level of debt financing has a positive correlation with the quality of internal control. Combining with the regression analysis results, this paper believes that the negative correlation between debt financing and the quality of internal control of listed companies in A-share market may be related to the particularity of our market. Guo Zeguang and others (2015) believe that China's government has more interference in the market, which distorts the debt contract governance effect of China's listed companies [20]. In addition, China's capital market is not perfect enough, the financing channels of listed companies are not diversified enough, and in order to reduce the short-term risks, listed companies in China prefer equity financing. These reasons may also lead to the negative correlation between China's debt financing level and the effectiveness of internal control, which are different from those in Europe and the United States. Song Xiaobao and others (2021) also believe that the "soft debt constraint" in our business makes debt financing may aggravate the principal-agent problem [21], and the higher risk brought by debt will reduce the motivation of corporate executives to build internal control systems. As far as the current situation of China's capital market is concerned, debt financing cannot be regarded as an appropriate governance mechanism. The regression results of this paper also confirm this conclusion.

Due to the small sample of non-standard audit opinions, measuring the impact of external audit pressure on the quality of internal control of the company based on the above-mentioned methods alone may lead to endogenous problems. In order to alleviate this problem, this paper uses the propensity score matching method (PSM) to test the results. The specific approach is to take the listed companies that have obtained non-standard audit opinions as the experimental group and carry out a ratio of 1:4 to obtain a total of 95 samples. The following results can be obtained from the regression of model (1)(3) based on the new sample. By analyzing the value of α_7 in model (1)(3), it can be found that the value of α_7 has increased, i.e., in general, the quality of internal control of the company has improved within one to two years after obtaining the non-standard audit opinion, assuming that (3) can still be tested.

Table 4.3 Tendency Score Matching Test Results

	(1)	(3)
α_0	511.315**	567.479***
	(1.872)	(2.879)
α_1	-67.888	-135.590***
	(-1.241)	(-4.452)
α_2	-1.197	-1.452*
	(-1.257)	(-1.632)
α_3	-46.465*	
	(-1.979)	
α_4	-9.166	-19.281
	(-0.503)	(-0.785)
α_5	-0.848	-0.299
	(-0.186)	(-0.913)
α_6	-120.829***	45.230*
	(-5.454)	(1.861)
α_7	2.491	13.518
	(0.948)	(0.744)
SCALE	6.518	7.542
	(0.451)	(0.413)
Competition	-138.130	-169.090
	(-0.369)	(-0.183)
GROWTH	3.561**	4.438***
	(2.151)	(3.507)
YEAR	control	control
N	75	75
Adj_R2	0.382	0.537

Note: *, **, *** are significant at the levels of 10%, 5% and 1%, respectively, with t values in brackets.

4.3. Robustness test

In order to ensure the robustness of the test results, this paper uses the following methods to carry out the robustness test: (1) the natural logarithm of the company's current liabilities is used as a measurement index instead of the asset-liability ratio; (2) Refer to the practices in other literatures, and use the shareholding ratio of the largest shareholder and the Z index to comprehensively reflect the internal governance of the company; (3) Using the manager's excess compensation instead of the original top three total executive compensation as the adjustment variable; (4) Change the measurement method of external audit pressure. When the Company obtains audit results with standard unqualified opinion, unqualified opinion with emphasis of matter, qualified opinion and disclaimer of opinion, the values of external audit pressure are 0,1,2,3 respectively, and multiple regression analysis is performed again. The results are shown in the following table.

Table 4.4 Robustness Test

	(1)	(2-1)	(2-2)	(3)	(4-1)	(4-2)
α_0	806.309*** (13.706)	831.369*** (11.516)	828.773*** (11.227)	834.879*** (11.513)	812.312*** (11.157)	815.295*** (11.180)
α_1	-13.929*** (-8.458)	-17.024*** (-8.252)	-13.055*** (-2.582)	-14.953*** (-2.944)	-14.324*** (-2.919)	-14.419*** (-2.943)
α_2	-0.233* (-1.715)	-0.272* (-1.883)	-0.234* (-1.645)	-0.257* (-1.737)	-0.239* (-1.737)	-0.242* (-1.757)
α_3	-11.154** (-2.098)	-12.286** (-2.177)	-10.789** (-1.973)	-11.540** (-2.027)	-11.708** (-2.018)	-11.890** (-2.058)
α_4	-19.126 (-0.835)	-12.452 (-0.757)	-22.601 (-0.218)	-14.431 (-0.728)	-20.024 (-0.856)	-20.813 (-0.873)
α_5	-0.091 (1.573)	-0.018 (-1.380)	-0.605 (-1.524)	-0.508 (-1.557)	-0.037 (-1.623)	-0.047 (-1.585)
α_6	-100.521*** (-7.691)		-105.613*** (-7.558)	-111.033*** (-6.143)	-101.109*** (-6.109)	-101.070*** (-6.105)
α_7	11.126* (1.631)		10.330 (0.989)	10.969* (1.943)	0.005 (0.186)	0.085 (1.251)
α_8			7.905* (1.951)			
SCALE	28.882*** (5.412)	32.171*** (5.616)	27.023*** (4.754)	29.209*** (5.429)	27.458*** (5.318)	27.459*** (5.327)
Competition	-11.071 (-0.615)	-13.151 (-0.722)	-4.193 (-0.201)	-15.534 (-0.795)	-13.511 (-0.659)	-14.387 (-0.702)
GROWTH	1.724*** (4.277)	2.243*** (5.395)	1.745*** (4.316)	1.879*** (4.416)	1.732*** (4.297)	1.730*** (4.309)
YEAR	control	control	control	control	control	control
N	1258	1258	1145	1258	1258	1258
adj_R2	0.395	0.332	0.386	0.369	0.394	0.396

Note: *, **, *** are significant at the levels of 10%, 5% and 1%, respectively, with t values in brackets.

By analyzing the regression results in Table 4.4, it can be found that there is still a significant negative correlation between executive rights and the quality of internal control, but in this regression analysis, the main factors of executive rights on the quality of internal control are the company's Z-index and the situation of two positions concurrently. By analyzing the results of regression model (3), it can be found that after adding the incentive factors of executive excess compensation, the effect of executive rights and media supervision on the effectiveness of internal control is simultaneously affected, especially the external governance factor of media supervision. After adding the incentive factors of executive excess compensation as the adjusting variable, the effect of media supervision on the effectiveness of internal control is not significant. The remaining analysis results are consistent with the above and have not changed materially, which supports the above analysis.

5. Conclusions and recommendations

5.1. Research conclusions

Recent events such as financial fraud in Luckin coffee indicate that there are still problems in the quality of internal control of listed companies in our country. Companies and regulatory authorities need to strengthen the supervision of various internal systems, and many internal and external factors

have certain governance effects on the internal control of companies. This paper examines the correlation between internal and external governance factors and the effectiveness of internal control of listed companies, and draws the following conclusions: (1) Debt financing cannot be an effective way to improve the quality of internal control in China's immature capital market. On the contrary, debt financing will reduce the effectiveness of internal control of companies. The reason for this phenomenon is that China's capital market has certain particularity, and government intervention measures have affected the rigid debt repayment and interest payment requirements of debt financing, which is manifested as soft debt constraints and unable to supervise managers' self-interest behavior; (2) The over-representation of executive rights will aggravate the agency problem and affect the effectiveness of the internal control of the company, but executive compensation incentives have a certain moderating effect on this relationship. The higher the executive compensation incentives, the better the effectiveness of the internal control of the company; (3) The external audit has a strong governance effect on the internal control of the company, but this effect has a certain lag. In the research results of this paper, the external audit can affect the internal control quality of the company for at least the next two periods; (4) Media supervision is also an effective external governance measure. Although the data obtained from positive and negative media reports can better explain the impact on the internal control of the company, the negative media reports will have a stronger governance effect than the positive ones.

5.2. Recommendations and inadequacies

Based on the above conclusions, this paper puts forward the following suggestions to improve the effectiveness of internal control: (1) According to the current situation of China's capital market, debt financing has a negative correlation with the quality of internal control. Listed companies can improve the effectiveness of internal control by appropriately reducing the level of debt financing, but should pay more attention to the control of long-term risks; At the same time, the relevant departments can also appropriately reduce the interference in the capital market, improve the maturity of the capital market, and strengthen the rigid constraint function of debt financing; (2) In addition to controlling the rights of senior executives, companies can also effectively reduce agency problems and strengthen the internal control of the company through managers' compensation incentives; (3) External audit and media can disclose the company's status, make up for the deficiency of government supervision, and play an important role in the governance of internal control. Therefore, government departments can urge external auditors to truthfully reflect the company's status and actively guide the media to play a supervisory role in the governance of the company's internal control.

The research in this paper still has some deficiencies, for example: (1) When studying the governance effect of media supervision on the internal control of the company, this paper only considers the data of newspapers and other media, and does not consider the role of network media. Although there are problems of repeatability and reliability in the network media data, and these problems may make it unable to show obvious correlation with the effectiveness of the internal control of the company, the analysis believes that the wide spread of network media should have better governance effect on the internal control of the company. However, considering the problems of data filtering and processing, this paper does not include them in the model, and the impact of network media supervision on the effectiveness of internal control needs further research. (2) The governance effect of the above internal and external governance factors on the company's internal control may show certain differences among different industries, state-owned enterprises and non-state-owned enterprises. This paper does not analyze the impact of the above governance factors for specific industries and enterprise nature.

References

- [1] Jensen,M.C.,Meckling,W.H..Theory of the Firm: Managerial Behavior, Agency Costs and Capital Structure. *Journal of Financial Economics*,1976,3(4):305-360.
- [2] Yang youhong,Hu yan.A test of the interface between corporate governance and internal control[J].*Accounting research*,2004(10):14-18.
- [3] Ma pengfei,Dong zhu,Zhang xin.A Study of the Threshold Effect of Dividend Agency Theory Based on Internal Control Quality[J].*Systems Engineering Theory and Practice*,2019(8):1966-1975.
- [4] Zhang guoqing,Zhao jingwen,Tian wuxing.Internal control quality and firm performance: a perspective based on internal agency and signaling theory[J].*Global Economy*,2015(1): 126-153.
- [5] Guo yanyan. Research on the Effectiveness of Internal Controls and Capital Structure Stability——Empirical Tests Based on GEM Listed Companies[J]. *Journal of Henan University of Science and Technology*, 2018(19): 36-40.
- [6] Zhong huaigong, Xu hongbo.Internal Control Effectiveness, Accounting Information Quality and Equity Financing Preferences[J]. *Finance and Accounting Newsletter*,2017(33):34-39.
- [7] Zhang yazhou.Internal control effectiveness, financing constraints and firm value[J]. *Research on Financial Issues*,2020(11):109-117.
- [8] Liu Y., Jiraporn P..The effect of CEO power on bond ratings and yields[J].*Journal of Empirical Finance*,2010(4):744-762.
- [9] Xiao hailian.A study on the effectiveness of internal control based on the perspective of senior management--The case of Sanjing Pharmaceutical Company[J]. *Finance and accounting newsletter*,2016(31):5-8.
- [10] Wang xiao,Gao jie,Lu qiang.Audit Opinions, Executives' Financial Background and Internal Control Deficiency Modification[J]. *Operations Research and Management*,2019(10):141-149.
- [11] Xu yu,Feng junke.On the Influence of Executives' Rights on the Effectiveness of Corporate Internal Control[J]. *Finance and Accounting Monthly*,2020(9):21-26.
- [12] Zeng hao.Do Corporate Governance and External Pressures Lead to "Clean" Audit Opinions[J]. *Finance and Accounting Monthly*,2018(6):147-152.
- [13] Chu jian,Fang junxiong.Can Government Auditing Improve the Effectiveness of Internal Controls in Centralized Enterprises? [J]. *Accounting and Economic Research*,2018(5):18-39.
- [14] Zhang zenglian,Liu yiting.Can Government Audit Enhance the Effectiveness of Corporate Internal Control?——An Empirical Analysis of PSM-DID Based on Audit Results Announcement of Central Enterprises by Audit Office[J]. *Economic Restructuring*,2019(3):171-178.
- [15] Liang hongyu,Yao yilong,Ning jian.Media Monitoring, Corporate Governance and Agency Costs[J]. *Research on Finance and Economics*,2012(7):90-100.
- [16] Zeng wei,Liu zhijie,Zhang zhao.A Study of Media Attention, Internal Control Effectiveness and Corporate Performance Volatility[J]. *Journal of Central South University (Social Science Edition)*,2016(2):116-122.
- [17] Xu yu,Feng junke,Li ruoxin.A study of the relationship between CEO incentives, media attention and internal control effectiveness[J]. *Auditing and Economic Research*,2017(2):35-45.
- [18] Mo dongyan,Yang zhenzhen,Xu haoran.Corporate life cycle, media attention and internal control effectiveness[J]. *Research on Financial Issues*,2018(1):108-115.
- [19] Guo zeguang,Ao xiaobo,Wu qiusheng.Internal Governance, Internal Control and Debt Covenants Governance - Empirical Evidence Based on A-share Listed Companies[J]. *Nankai Business Review*,2015(1):45-51.
- [20] Song xiaobao,Guo chun.Governance or risk: debt financing and corporate internal control[J]. *Journal of Nanjing Auditing University*,2021(2):32-40.