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Research on the Impact of Internal Control on Enterprise Growth: Based on the Empirical Analysis of Equipment Manufacturing Listed Enterprises in China

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Abstract

Background and Aim: This study investigates the impact of internal control on the growth of equipment manufacturing enterprises in China. With the increasing emphasis on corporate governance and risk management, understanding how internal control influences enterprise development is essential. The research draws on the COSO framework of internal control, which outlines its components and emphasizes its role in enhancing operational efficiency and strategic alignment. This theoretical lens provides a foundation for examining whether enhanced internal control mechanisms contribute to improved corporate growth, particularly regarding differences between state-owned and non-state-owned enterprises. Ownership structure, including governance mechanisms and incentive alignment, may influence how internal control practices are implemented, thereby affecting their impact on growth.

Materials and Methods: The study uses data from A-share listed equipment manufacturing enterprises in China from 2018 to 2022. Regression analysis, including multiple regression models with control variables, and comparative tests are employed to assess the relationship between internal control quality and enterprise growth. The analysis also explores the moderating role of property rights, distinguishing between state-owned and non-state-owned enterprises.

Result: The findings reveal a significant positive correlation between internal control and enterprise growth. Strengthening internal control enhances core competitiveness, reduces operational, financial, and managerial risks, and fosters sustainable development. Further analysis indicates that property rights influence this relationship, with non-state-owned enterprises showing a more pronounced effect. This difference can be attributed to variations in governance structures, incentive mechanisms, and resource allocation between ownership types, which affect the implementation and effectiveness of internal control practices.

Conclusion: Internal control plays a crucial role in promoting enterprise growth, especially in non-state-owned enterprises. Policymakers and corporate managers should prioritize improving internal control mechanisms to enhance competitiveness and reduce risks. This study contributes to existing internal control and corporate governance models by extending our understanding of how internal control influences enterprise performance in different ownership contexts. Future research could explore industry-specific variations and longitudinal effects to deepen our understanding of internal control's impact on enterprise growth.

Keywords: Internal Control; Enterprise Growth; China's Equipment Manufacturing Industry Listed Enterprises

Introduction

China's economic development is undergoing a significant transformation, moving towards high-quality economic growth, with the equipment manufacturing industry playing a critical role in this shift. As of December 2022, China's equipment manufacturing sector had 4,230 listed companies, with private enterprises accounting for approximately 73.64%. This industry is under substantial pressure, particularly from international market dynamics, with rising operational costs posing a significant challenge to enterprises' ability to sustain growth and achieve competitive advantage.

In light of the increasingly fierce and complex external market competition, equipment manufacturing enterprises must possess the capacity for sustainable development. This capability refers to the enterprise's ability to effectively integrate and reorganize both internal and external resources, shaped

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by various internal and external factors, and reflects the future growth trajectory and pace of the enterprise. A solid theoretical foundation for this growth process can be found in the COSO Internal Control–Integrated Framework, which outlines how robust internal control mechanisms contribute to improved operational efficiency, risk management, and informed decision-making. These elements are vital in helping enterprises navigate external uncertainties.

The concept of enterprise growth extends beyond simple financial metrics and encompasses a multidimensional understanding involving revenue expansion, profit increases, market share growth, and innovation capabilities. This comprehensive view of growth is crucial for this study, as it examines how internal control systems can impact various dimensions of enterprise performance.

Enterprises with different ownership structures often approach internal control differently. State-owned and non-state-owned enterprises exhibit variations in their internal control practices due to differing governance structures, institutional frameworks, and resource allocation strategies. Ownership type can therefore significantly influence the implementation and effectiveness of internal control systems. Prior studies suggest that private enterprises, facing stronger market pressures, are often more motivated to establish efficient internal control systems to ensure long-term growth and survival. Corporate governance theory provides valuable insights into these differences, highlighting how governance structures shape internal control practices.

This paper focuses on investigating the relationship between internal control and enterprise growth in China's listed equipment manufacturing enterprises. It further examines how this relationship varies based on ownership type, offering a deeper understanding of how internal control mechanisms impact the growth of enterprises under different property rights structures.

Research Objectives

Therefore, the main research objectives of this paper are described as follows:

1. To study the impact of internal control on enterprise growth in China's equipment manufacturing enterprises.

2. To find the impact of internal control on the growth of enterprises under different property rights in China's equipment manufacturing enterprises.

Literature Review

The relationship between internal control systems and enterprise growth has been extensively studied in the context of corporate governance, risk management, and organizational performance. A robust internal control system ensures that an enterprise's operations are efficient, its assets are safeguarded, and financial reporting is reliable. The growing importance of internal control in the global business environment has spurred research into its role in enhancing firm performance, especially in economies undergoing rapid transformation, such as China. This literature review examines key studies on internal control and firm performance, highlighting the significance of ownership structure, governance mechanisms, and internal control effectiveness.

Internal Control and Firm Performance

Internal control systems are designed to enhance operational efficiency, reduce risk, and ensure the reliability of financial reporting. Chen and Zhang (2019) studied the impact of internal control on firm performance using data from Chinese listed companies. Their findings indicate that strong internal controls positively influence firm performance by improving financial reporting quality, operational efficiency, and risk management. This is consistent with prior studies, such as Doyle, Ge, and McVay (2007), who found that firms with robust internal control systems exhibit higher accrual quality, which directly enhances the reliability of financial statements and reduces the likelihood of earnings manipulation. In this context, internal control plays an important role in fostering investor confidence and supporting long-term sustainable growth.

Jensen and Meckling (1976) introduced the Entrusted Agent Theory, which asserts that firms are

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organizational structures formed by contractual relationships, where internal control mechanisms help clarify rights and responsibilities between stakeholders (e.g., owners and operators). According to this theory, operators focus on salary levels, while owners are concerned with returns on investment. Strengthening internal control helps mitigate the agency problem by aligning the interests of both parties, ensuring that the enterprise's goals are met. This alignment, in turn, enhances the profitability and operational efficiency of the firm. Thus, internal control systems not only manage risks but also support the enterprise's overall development strategy, which is crucial for fostering long-term growth.

Ownership Structure and Internal Control

Ownership structure has a significant impact on the design and effectiveness of internal control systems. Chen, Firth, and Xu (2009) examined the relationship between ownership type and internal control in China's listed companies, emphasizing that state-owned and non-state-owned enterprises face different governance pressures. Non-state-owned enterprises, driven by market forces, are generally more motivated to establish efficient internal control systems, as they must compete in an increasingly competitive market environment. These firms are often more proactive in adopting best practices to ensure financial stability, growth, and regulatory compliance. In contrast, state-owned enterprises, which are subject to political and regulatory oversight, may face less pressure to implement strong internal controls, resulting in weaker governance and performance outcomes.

This difference in governance structures is further supported by Bushman and Smith (2001), who argue that private firms, which are more market-oriented, are more likely to implement effective internal control systems to signal their governance quality to investors. This concept of signaling, discussed by Spence (1973), suggests that internal control acts as a signal to external stakeholders regarding the enterprise's management competence and financial health. By ensuring transparency and effective risk management, firms with strong internal controls can foster trust among investors and other stakeholders, enhancing their long-term viability and competitive position.

Internal Control and Firm Growth

Several studies have explored the direct relationship between internal control and firm growth. Zhang and Zhang (2018) found that the strength of internal control systems has a positive correlation with firm growth in the Chinese manufacturing sector. They argue that effective internal control mechanisms allow firms to better manage risks, streamline operations, and make informed decisions, all of which contribute to growth in terms of revenue, market share, and profitability. Similarly, Wang and Chen (2020) investigated the relationship between internal control and corporate innovation. Their study found that firms with strong internal controls are more likely to engage in innovative activities, as these firms provide a stable environment for risk-taking and resource allocation, which are critical for fostering innovation and growth.

Wang and Chen (2018) also explored the role of internal control in corporate social responsibility (CSR). They found that firms with effective internal control systems are more likely to engage in CSR activities because these firms are better equipped to allocate resources efficiently and comply with regulatory requirements. This aligns with the broader view that strong internal controls not only support financial performance but also enhance a firm's social and ethical responsibilities. Therefore, internal control mechanisms are not just important for financial and operational growth, but also for contributing to a firm's broader societal impact.

Theoretical Frameworks

The relationship between internal control and firm growth is also supported by two key theoretical perspectives: Entrusted Agent Theory and Signal Transmission Theory.

Entrusted Agent Theory, as introduced by Jensen and Meckling (1976), suggests that internal control mechanisms play a crucial role in managing the agency relationship between owners and operators of a firm. In this context, internal control helps align the interests of both parties by clarifying rights and responsibilities. Strong internal controls help to mitigate conflicts, reduce agency costs, and improve profitability, which in turn contributes to the growth and stability of the enterprise.

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Signal Transmission Theory, on the other hand, explains how the transmission of information between stakeholders can alleviate conflicts and enhance organizational efficiency. Internal control systems serve as a signal of the firm's governance quality, allowing it to convey its management competence to external stakeholders. According to this theory, effective internal controls foster trust, transparency, and stability within the firm, which positively impact stakeholder relationships and support the firm's growth trajectory.

Hypothesis Development

Based on the theoretical foundations discussed above, the hypothesis proposed in this study is that internal control has a significant positive impact on enterprise growth. The literature reviewed supports this hypothesis by demonstrating that robust internal control mechanisms enhance operational efficiency, mitigate risks, improve financial reporting, and foster trust among stakeholders, all of which are essential for sustaining firm growth. Additionally, the distinction between state-owned and non-state-owned enterprises suggests that ownership structure plays a crucial role in determining the effectiveness of internal control systems. Non-state-owned enterprises, facing greater market pressure, tend to implement stronger internal control systems, which in turn contribute to their more pronounced growth.

Conclusion

The literature on internal control systems emphasizes their importance in improving firm performance, risk management, and organizational stability. Studies by Chen and Zhang (2019), Doyle et al. (2007), and Zhang and Zhang (2018) demonstrate that robust internal controls positively impact financial performance, operational efficiency, and firm growth. The role of ownership structure, as discussed by Chen, Firth, and Xu (2009), is critical in understanding how different enterprises design and implement internal control mechanisms. The integration of Entrusted Agent Theory and Signal Transmission Theory provides a comprehensive framework for understanding the role of internal control in aligning stakeholder interests, fostering transparency, and promoting long-term growth. The hypothesis that internal control positively influences enterprise growth is supported by both theoretical insights and empirical evidence, suggesting that strong internal controls are essential for the sustainable development of enterprises.

Research Methodology

Location of the Study

This study employs a quantitative research method to examine the relationship between internal control and enterprise growth within China's equipment manufacturing industry. By collecting relevant data on internal control systems and enterprise growth from listed companies in this sector, this research aims to uncover the underlying relationship between these variables. The study is conducted within the context of China's A-share listed equipment manufacturing enterprises, which offer a robust sample to analyze the impact of internal control on corporate performance in a rapidly evolving market environment.

Research Methods

The research employs four key methods: document research, quantitative study, multiple regression analysis, and empirical analysis. Each method has been selected for its capacity to address different aspects of the research question.

Document Research: This method is utilized to gather secondary data on internal control practices and firm performance. It provides a foundational understanding of the existing theoretical frameworks and empirical studies related to internal control systems in Chinese enterprises. Document research also helps in identifying industry trends and gaps in the literature that the present study can address.

Quantitative Study: This approach is employed to test the hypothesis that internal control positively influences enterprise growth. Quantitative methods allow for objective analysis of numerical data and facilitate the assessment of the relationship between internal control mechanisms and various measures of firm performance, including growth. This method aligns with the theoretical frameworks of agency theory and signal transmission theory, both of which suggest that internal control systems mitigate agency

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problems and serve as signals of governance quality to external stakeholders.

Multiple Regression Analysis: Regression analysis is the primary statistical method used to explore causal relationships between internal control and enterprise growth. It is an appropriate technique for evaluating how internal control affects firm performance while controlling for other variables. This technique is supported by agency theory, which suggests that better internal control mechanisms reduce agency costs by aligning the interests of owners and managers, thereby contributing to firm growth. Multiple regression allows us to examine the independent effect of internal control while considering the influence of other factors, such as firm size, financial leverage, and governance structure. This ensures that the relationship between internal control and enterprise growth is not confounded by other variables.

Empirical Analysis: This method involves analyzing data from A-share listed equipment manufacturing enterprises in China from 2018 to 2022. The empirical approach enables testing of the hypothesized relationships using actual firm-level data, which increases the validity and applicability of the findings to real-world business environments.

Variable design

1. Dependent variable: enterprise growth

Enterprise growth is an indicator to measure the operating status and development ability of an enterprise in a certain period, and it is finally reflected in the increase in assets. This paper uses Tobin's Q to express the growth of an enterprise. Tobin's Q is a relative index that is the ratio of the market value of the enterprise assets to the replacement cost during the same production cycle. Tobin's Q is bounded by 1, and when greater than 1, it indicates a higher value created by the enterprise.

2. Independent variable: internal control

Based on the analysis of the internal control, internal control should consider the business objectives of the enterprise, and integrated the data of the enterprise financial department, thus get the reference index, so this paper chooses the Chinese DIB internal control index to measure the internal control level, to increase the stability of the data, DIB internal control index / 100 as an effective measure of enterprise internal control. The size of this value is positively correlated with the effectiveness of the internal control, and the larger the value is, the stronger the internal control effect is. Internal control is based on the enterprise management target, at the same time considering the enterprise financial statements data, according to the internal control defects of the basic index correction, thus concluding that the basic index and revised index of the unified index, internal control index more comprehensively illustrate the effectiveness of internal control, the ability to control risk.

3. Controlled variable

To more accurately explore how the growth of listed manufacturing companies is affected by internal control, and to explore the possible impact of other factors on the growth of enterprises. This paper selects three aspects that may affect enterprise growth as control variables.

Among them, enterprise characteristics through the quantifiable enterprise scale, property rights nature as indicators. In terms of considering the financial situation, this paper selects the asset-liability ratio, cash flow, property right ratio, and other indicators. From the perspective of governance, the index of equity concentration is selected.

Table 1 Variable summary table

Style	Definition	Sign	Describe
Dependent variable	Enterprise growth	Growth	Tobin's Q = stock market value/replacement cost
Independent variable	Internal control	Icq	Dibo Internal Control Index / 100
Controlled variable	enterprise size	Size	Total assets at the end of the year take the natural log
	Financial leverage	Lev	Total enterprise liabilities / Total value of

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Style	Definition	Sign	Describe
			enterprise assets
	Total assets turnover	Tat	Net sales divided by total assets
	Current ratio	Cr	Current assets/current liabilities
	Independent director ratio	Id	Number of independent directors/total number of board members
	cash flow	Cf	Net cash flow from operating activities / Total ending assets
	Equity concentration	Top10	The shareholding ratio of the top ten shareholders
	virtual variable	Property nature	The value of state-owned enterprises is 1. and that of non-state-owned enterprises is 0
		Year	In the year t for 1, otherwise for 0.

Model building

After determining the independent variables, dependent variables, control variables, and virtual variables required in the research process, this paper mainly constructs a regression model for the impact of internal control on the growth of enterprises.

According to the above analysis, the model of the impact of internal control on enterprise growth is as follows:

$$Tobin'sQ=\gamma_0+\gamma_1 Icq+\gamma_2 Siz+\gamma_3 Lev+\gamma_4 Tat+\gamma_5 Cr+\gamma_6 Id+\gamma_7 Cf+\gamma_8 Top10+\sum Year+\varepsilon$$

Data Analysis

1. Descriptive Statistical Analysis

This paper first from 2018 to 2022 A-share equipment manufacturing listed company data descriptive statistical analysis, covering the empirical research of dependent variables, independent variables, and control variables. Descriptive statistical analysis of statistics mainly includes minimum, maximum, mean, and standard deviation. By analyzing the distribution and trend of variables, the development status of listed equipment manufacturing companies in China.

2. Correlation Analysis

To verify the correlation between the various variables, the variables were analyzed for correlation. The correlation analysis preliminarily verified the research hypothesis and laid the foundation for further analysis of the relationship between variables.

3. Multiple collinearity test

In this paper, multiple collinearity tests are conducted on the dependent variable, the independent variable, and the control variable in the model.

By conducting multiple collinearity tests on the data, we find out whether there is multiple collinearity between the variables, which proves that the regression equation data in this paper are effective and credible.

4. Regression results analysis

In this paper, based on correlation analysis and multiple collinearity tests, regression results from two aspects are presented:

1) The regression results of internal control and enterprise growth.

2) Under the nature of different property rights, the regression results of internal control and enterprise growth are analyzed.

5. Robustness test

To ensure the reliability of the regression results, we conduct a robustness test and select the variable replacement method. The specific method is to use the sustainable growth rate of A-share listed enterprises in the equipment manufacturing industry from 2018-2022 to represent the growth of enterprises, and substitute the relevant data into the model for regression analysis again.

The calculation formula is given as follows:

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Sustainable growth rate = (Net profit of current period * Profit retention rate of current period) / (Shareholders' equity at the end-net profit of current period * Profit retention rate of current period)

Research Scope

The initial sample selected in this paper is the equipment manufacturing industry companies listed in the China A-share market selected in 2018-2022. (The data collection time is from the end of 2023 to the beginning of 2024, when the data of enterprises in 2023 has not been completely published. So, for data integrity, the data collection time will end in 2022.

To ensure the accuracy of the data, the data of the initial sample is then gradually screened:(1) excluding enterprises listed on B and H shares due to their data availability; (2) excluding enterprises with ST and ST * due to delisting risks; (3) excluding enterprises with missing data to ensure the integrity of data; (4) excluding enterprises with data problems to ensure the accuracy of data.

The data required for the empirical study were obtained from CSMAR. The relevant data in the enterprise annual report is from Juchao Information. Meanwhile, the model and sample data were analyzed using Stata.

Research Findings

Descriptive Statistical Analysis

This paper conducts a descriptive statistical analysis of the data from A-share listed equipment manufacturing companies in China, covering the period from 2018 to 2022. The analysis includes the dependent variables, independent variables, mediating variables, and control variables required for empirical research. The descriptive statistics, including minimum value, maximum value, mean, and standard deviation, provide a summary of the distribution and trends of these variables over the study period. The descriptive statistical results are shown in Table 2.

Table 2 Descriptive statistical analysis of the total sample

Variable	Sample	Average	Standard	Min	Max
Tobin's Q	**4229**	**11.06**	**17.93**	**-78.88**	**188.7**
Size	4230	22.28	1.200	19.28	27.62
Lev	4230	0.430	0.160	0.0400	0.900
Tat	4230	0.630	0.320	0	4.020
Id	4230	0.380	0.0600	0.200	0.670
Cr	4230	2.180	1.500	0.150	18.02
Cf	4230	16.89	10.11	0.650	71.19
Top10	4230	55.52	14.69	8.780	97.30
Icq	4230	648.5	69.73	140.0	941.3

From the results of the descriptive statistical analysis, it is concluded that:

The level of enterprise growth is varied, but overall, it is positive. The average value of Tobin's Q for the sample firms is 11.06, and the overall level is greater than 1, indicating that the listed Chinese equipment manufacturing enterprises are capable of creating value and are on a positive growth trajectory. However, the minimum value of Tobin's Q is -78.88, and the maximum value is 188.7, with a standard deviation of 17.93. This large variability indicates that the development levels of the sample enterprises differ significantly, with some firms experiencing substantial growth while others face challenges. This variability reflects differing operational strategies, management quality, and external market conditions.

In terms of internal control, the average value of the internal control index (Icq) is 648.5, with a maximum value of 941.3 and a minimum value of 140.0. This range demonstrates considerable differences in internal control practices across firms. While most companies recognize the importance of internal control mechanisms, the implementation of such systems varies widely. Larger firms or those with more decentralized ownership structures may have stronger internal control systems due to greater resource availability, whereas smaller firms or those with concentrated ownership may struggle with resource

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constraints, leading to weaker internal controls.

These findings are consistent with internal control theory, which emphasizes that strong internal controls help mitigate operational risks, enhance resource efficiency, and improve firm performance (COSO, 2013). The variation in internal control quality across firms reflects differences in their risk mitigation strategies, strategic alignment, and overall control environment, which directly impact their operational and financial performance.

Correlation Analysis

The correlation analysis, shown in Table 3, reveals significant relationships between internal control and enterprise growth, providing preliminary support for the hypothesis that internal control positively influences firm performance. The analysis indicates a statistically significant positive correlation between Tobin's Q (growth) and Icq (internal control), meaning that firms with stronger internal controls tend to experience better growth. This relationship aligns with the predictions of agency theory, which suggests that internal control mechanisms reduce agency costs by aligning the interests of managers and owners, leading to better decision-making and enhanced firm performance.

Table 3 Test coefficient of correlation of each variable

	Tobin	Size	Lev	Tat	Id	Cr	Er	Cf	Top10
Tobin's Q	1								
Size	0.14***	1							
Lev	0.15***	0.46***	1						
Tat	0.18***	0.20***	0.23***	1					
Id	0.01	-0.08***	-0.06***	-0.04**	1				
Cr	-0.11***	-0.36***	-0.76***	-0.22***	0.05***	1			
Cf	0.05***	-0.06***	-0.29***	0.04**	-0.01	0.44***	-0.22***	1	
Top10	0.15***	-0.11***	-0.16***	0.17***	0.05***	0.15***	-0.14***	0.09***	1

Note: * * was significant at the 0.05 level and *** was significant at the 0.01 level.

From the correlation table, it is evident that there is a significant positive relationship between internal control (Icq) and enterprise growth (Tobin's Q), which confirms the hypothesis that stronger internal controls lead to better growth performance. The positive correlations between other variables, such as Size, Lev, and Cf, further support the idea that internal control interacts with various financial and operational factors to influence firm performance. The correlation between Leverage (Lev) and Internal Control (Icq), for example, suggests that firms with higher financial leverage may also be more motivated to strengthen their internal controls to manage financial risks effectively.

Multiple collinearity test

A multicollinearity test was conducted to assess the relationships between the independent and control variables, and the results are presented in Table 4. The Variance Inflation Factor (VIF) values for all variables are below the critical threshold of 10, indicating that multicollinearity is not a concern. Multicollinearity occurs when two or more independent variables are highly correlated with each other, leading to unreliable coefficient estimates and inflated standard errors. The absence of multicollinearity in this model ensures that the regression coefficients are stable and that the relationships between the variables can be interpreted with confidence.

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Table 4 Results of the multicollinearity test

Variable	Model Tobin's Q	
	VIF	VIF/1
Icq	1.35	0.7399
Lev	9.89	0.1011
Cr	3.28	0.3051
Cf	1.3	0.7695
Size	1.13	0.8850
Tat	1.2	0.8322
Top10	1.11	0.8977
Id	1.01	0.9895

Objective 1: To study the impact of internal control on enterprise growth in China's equipment manufacturing enterprises.

In addressing the first research objective, this section examines the empirical findings related to the relationship between internal control quality (Icq) and enterprise growth, measured by Tobin's Q. Regression analysis was employed to explore this relationship, with a sample size of 4,229 observations, providing robust statistical reliability to the results. The regression results are shown in Table 5.

Table 5 Regression results of internal control and enterprise growth

	Model Tobin's Q
Icq	0.0448***
	(0.00405)
Size	0.287
	(0.337)
Lev	35.63***
	(5.017)
Tat	6.336***
	(1.085)
Id	6.394
	(5.607)
Cr	-0.124
	(0.334)
Cf	0.187***
	(0.0330)
Top10	0.117***
	(0.0231)
_cons	-50.51***
	(7.832)
N	4229
R^2	0.0981

Note: Standard deviation is given in parentheses.* The correlation was significant at the 0.1 level, * * at the 0.05 level and * * * at the 0.01 level.

The regression analysis reveals that the internal control regression coefficient is 0.0448, with a standard error of 0.00405, and the result is statistically significant at the 1% level. This indicates a positive relationship between internal control (Icq) and enterprise growth (Tobin's Q), suggesting that as internal

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control improves, the enterprise's market value increases. Specifically, each unit increase in internal control quality leads to a 0.0448 increase in Tobin's Q, which typically reflects stronger market valuation and growth potential. This finding is consistent with agency theory and the resource-based view (RBV), which argues that internal control systems enhance resource allocation, reduce agency costs, and improve operational efficiency, ultimately leading to better performance and growth.

The use of Tobin's Q as a measure of enterprise growth, while widely accepted, warrants further clarification. Tobin's Q is traditionally used to gauge market valuation and growth prospects based on the market value of a firm's assets relative to their replacement cost (Chung & Pruitt, 1994). However, its application in this context requires further justification, as it primarily captures expectations about future growth rather than direct operational growth. A brief discussion on why Tobin's Q is suitable for this research, particularly in the context of China's equipment manufacturing industry, would enhance the theoretical grounding of the analysis.

The results also highlight that enterprises with initially low internal control levels benefit more significantly from improvements in internal control, which has positive implications for their growth potential. This observation aligns with existing research in the field of internal control management, where firms with weaker controls can experience substantial growth by improving their internal mechanisms (Doyle, Ge, & McVay, 2007). For example, companies that initially lack robust internal control systems may face challenges such as poor risk management and inefficiencies. Strengthening these controls can enhance decision-making, reduce operational risks, and foster investor confidence, which ultimately leads to growth.

Internal control systems also play a crucial role in decision-making, risk control, and investor confidence, which are fundamental to improving enterprise growth. Strong internal controls provide a transparent and regulated environment for management and decision-makers, reducing uncertainty in financial reporting and operational risks. As a result, investors are more likely to have confidence in the firm's ability to manage risks, leading to higher market valuations, as captured by Tobin's Q. This theoretical connection can be supported by internal control theory, which underscores the importance of transparency and accountability in mitigating risks and fostering firm growth.

In addition to internal control, several control variables in the regression model show statistically significant effects on enterprise growth. For instance, Leverage (Lev) has a significant positive coefficient of 35.63 ($p < 0.01$), suggesting that financial leverage plays a crucial role in driving growth. High leverage can provide firms with more capital to invest in growth opportunities, though it also increases financial risk. Similarly, Total Asset Turnover (Tat), with a significant coefficient of 6.336 ($p < 0.01$), emphasizes the importance of operational efficiency in driving growth. Firms that can effectively utilize their assets to generate revenue are better positioned to experience growth.

Furthermore, cash flow (CF) is positively correlated with enterprise growth, with a significant coefficient of 0.187 ($p < 0.01$). This reflects the importance of liquidity in facilitating investments and ensuring operational stability. The equity concentration (Top 10) variable also shows significance, suggesting that ownership concentration affects growth dynamics, potentially by influencing the firm's governance and decision-making processes.

While the regression results demonstrate statistical significance, the practical significance of the coefficient values warrants further discussion. Although the coefficient for internal control (0.0448) is statistically significant, its economic impact should be evaluated in the context of real-world business decisions. For managers and policymakers in the equipment manufacturing sector, understanding whether the effect size is economically meaningful is crucial for prioritizing investments in internal control systems.

Overall, this empirical analysis provides evidence supporting the hypothesis that internal control positively influences enterprise growth. The regression findings align with agency theory and the resource-based view, suggesting that effective internal controls enhance resource allocation, reduce agency costs, and contribute to better growth prospects. The positive impact of internal control on

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enterprise growth is evident, particularly for firms that initially have weak internal control systems, highlighting the importance of improving internal controls to foster long-term growth and stability.

Objective 2: To find the impact of internal control on the growth of enterprises under different property rights in China's equipment manufacturing enterprises.

This section presents the empirical findings related to the second research objective, which examines the impact of internal control on enterprise growth in state-owned versus non-state-owned enterprises within China's equipment manufacturing sector. Using regression analysis, the study compares the effects of internal control on enterprise growth across different ownership types, with a focus on Tobin's Q as the growth measure. The analysis is further supported by a robustness test using an alternative growth indicator, the sustainable growth rate (growrate). This disaggregation by property rights is an essential step in understanding the contextual differences in the role of internal control mechanisms. The use of Tobin's Q as a proxy for enterprise growth is well-established in corporate governance research and serves as an appropriate measure for examining firm valuation and growth potential.

Table 6 Results of regression analysis of internal control and enterprise growth under different property rights properties

Enterprise nature	**State-owned enterprises Tobins'Q**	**Non-State-owned enterprises Tobins'Q**
Icq	0.0392***	0.0477***
	(0.00644)	(0.00497)
Size	0.102	1.475***
	(0.527)	(0.433)
Lev	20.14***	38.80***
	(7.391)	(6.990)
Tat	5.889***	5.311***
	(1.520)	(1.421)
Id	-2.767	8.674
	(9.092)	(6.760)
Cr	-0.608	0.0806
	(0.525)	(0.415)
Cf	0.117**	0.221***
	(0.0538)	(0.0401)
Top10	-0.0105	0.168***
	(0.0427)	(0.0273)
_cons	-27.97**	-83.01***
	(11.56)	(10.19)
N	1114	3115
R^2	0.0814	0.120

Note: Standard deviation is given in parentheses.* The correlation was significant at the 0.1 level, * * at the 0.05 level and * * * at the 0.01 level.

The regression results show that internal control (Icq) significantly impacts enterprise growth for both state-owned and non-state-owned enterprises, with coefficients of 0.0392 and 0.0477, respectively, both highly significant at the 1% level. This indicates that internal control quality is positively associated with enterprise growth in both types of enterprises. However, the stronger coefficient for non-state-owned enterprises (0.0477) compared to state-owned enterprises (0.0392) suggests that internal control plays a more critical role in environments where external governance mechanisms, such as government oversight, are less prevalent. This finding is consistent with the theoretical perspectives that internal control functions as a substitute for external governance in environments with less regulatory oversight, such as private

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firms (Jensen & Meckling, 1976).

Theoretical Interpretation of Findings

The difference in the effect of internal control on enterprise growth between state-owned and non-state-owned enterprises can be explained using agency theory. Agency theory suggests that private firms typically face higher agency costs, as they must balance the interests of owners and managers in an environment of imperfect information. As such, non-state-owned enterprises may benefit more from robust internal control systems, which help mitigate these costs and improve performance. In contrast, state-owned enterprises are often constrained by bureaucratic inefficiencies and political influences, which may limit the effectiveness of internal control systems. As noted by Lin, Cai, and Li (1998), state-owned enterprises may face political pressures that diminish the focus on efficiency and governance in comparison to private firms.

Robustness Test

A robustness test using the sustainable growth rate (growrate) as an alternative growth indicator further validates the regression results. The coefficient for Icq remains positive and significant at the 1% level with a coefficient of 0.0275 ($p < 0.01$). This robustness check reinforces the earlier findings, confirming that internal control quality continues to have a significant and positive impact on enterprise growth. The use of the sustainable growth rate is a well-accepted measure of a firm's long-term financial health and growth potential, which provides additional support for the validity of the regression results. However, further clarification on the rationale for choosing this alternative measure would strengthen the analysis, especially in the context of its use in assessing the long-term stability of Chinese manufacturing firms.

Control Variables

In addition to internal control, several control variables have been included in the regression model to account for other factors that may influence enterprise growth. Firm size (Size), Leverage (Lev), Asset turnover (Tat), and Cash flow (Cf) all show significant relationships with growth, with Size and Lev showing strong positive correlations with enterprise growth in non-state-owned enterprises. These findings suggest that larger firms with more efficient operations and higher leverage are better positioned to grow. Specifically, Size (coefficient of 1.475) and Leverage (coefficient of 38.80) in non-state-owned enterprises indicate that these variables are critical drivers of growth in this context.

Moreover, Cash flow (CF) also plays a significant role in both state-owned and non-state-owned enterprises, with coefficients of 0.117 and 0.221, respectively, suggesting that liquidity is a key factor in sustaining growth. The Top 10 variable, representing equity concentration, shows a significant positive effect on growth in non-state-owned enterprises (coefficient of 0.168), highlighting the importance of ownership structure in influencing governance and performance.

Practical Implications

The findings from this analysis have important implications for policymakers and corporate managers. For non-state-owned enterprises, strengthening internal control systems is crucial for improving financial performance and achieving sustainable growth. Given that these firms are less likely to benefit from external governance mechanisms, enhancing internal controls can help them mitigate agency costs, improve decision-making, and foster investor confidence.

For state-owned enterprises, the results suggest that internal control systems also contribute to enterprise growth, but to a lesser extent. Policymakers may consider reducing bureaucratic constraints and enhancing the autonomy of state-owned enterprises to allow internal control mechanisms to function more effectively. This could lead to greater efficiency, reduced risk, and ultimately, improved growth performance.

The empirical analysis confirms that internal control positively influences enterprise growth in both state-owned and non-state-owned enterprises, but with a stronger effect observed in non-state-owned enterprises. These findings align with the theoretical perspectives of agency theory, which suggest that private firms benefit more from strong internal control systems due to higher agency costs. The robustness

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test using the sustainable growth rate further supports the validity of the results. The analysis of control variables such as firm size, leverage, and cash flow highlights additional drivers of growth, providing a comprehensive understanding of the factors that influence enterprise performance.

The study emphasizes the importance of strengthening internal control systems in non-state-owned enterprises to foster growth, while also suggesting that state-owned enterprises could benefit from reducing bureaucratic barriers to enhance the effectiveness of their internal controls. These insights are crucial for both managers and policymakers aiming to improve firm performance in China's manufacturing sector.

Robustness test

In this paper, the main variables were tested to verify the reliability of the empirical results. The method of measuring the growth of the explained variables was changed, and the growrate sustainable growth rate, was used to evaluate the growth, and the relationship between it and internal control was studied.

Table 7 Results table for the robustness test

	Model growrate
Icq	0.0275***
	(0.00200)
Size	2.101***
	(0.194)
Lev	-2.211
	(3.025)
Tat	11.79***
	(0.644)
Id	-2.451
	(3.039)
Cr	0.309
	(0.199)
Cf	0.0375**
	(0.0174)
Top10	0.105***
	(0.0130)
_cons	-67.27***
	(4.541)
N	3970
R^2	0.278

As can be seen from Table 7, the interaction between internal control and enterprise growth has a significant impact on the growth of enterprises, indicating that the relevant research conclusions are credible. The robustness test in this paper is consistent with the empirical test results, indicating that the study conclusions are robust.

Discussion

This section of the paper provides a summary of the empirical findings and begins to interpret their implications, but it would benefit from deeper integration with established theoretical frameworks. To strengthen the discussion, the author should consider incorporating the COSO Internal Control Framework, which identifies five key components of internal control: control environment, risk assessment, control activities, information and communication, and monitoring. These components help explain how internal control supports an organization’s strategic objectives and enhances its risk management capacity. By improving internal control, companies can not only enhance the reliability of

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their financial reporting but also improve operational efficiency, both of which are essential for sustained growth and development.

The empirical results demonstrate that internal control significantly impacts enterprise growth, particularly by improving competitive advantage and reducing various operational, financial, and managerial risks. This finding is in line with both resource-based theory (RBV) and agency theory. From the resource-based view, internal control can be considered an intangible organizational resource that enhances a firm's capabilities, enabling it to achieve superior performance. Effective internal controls facilitate better resource allocation, improve decision-making, and contribute to more efficient operations, which are vital for growth. In agency theory, internal control mechanisms help align the interests of managers with those of stakeholders, reducing agency costs and improving long-term firm performance. These theoretical underpinnings are essential for understanding the positive effects of internal control on enterprise growth and should be explicitly referenced to enhance the academic grounding of the analysis.

One key observation from the results is the difference in the effect of internal control on enterprise growth based on ownership structure. Non-state-owned enterprises seem to benefit more from improvements in internal control. This finding aligns with prior studies such as Fan and Wong (2002) and Peng et al. (2008), which show that ownership structure influences internal governance. In non-state-owned firms, weaker external governance mechanisms may lead firms to rely more heavily on strong internal controls to mitigate risks and align interests. In contrast, state-owned enterprises may already be constrained by external governance structures, such as political oversight or regulatory pressures, which limit managerial discretion and reduce the reliance on internal controls for firm performance. A more thorough exploration of how ownership structure influences internal control effectiveness in both types of firms would provide stronger support for this finding.

The regression analysis results show a relatively low R^2, suggesting that the model does not explain a large portion of the variation in enterprise growth. While the author attributes this to external shocks such as the COVID-19 pandemic and sample heterogeneity, a deeper reflection on the methodological limitations of quantitative models is needed. For instance, internal control effectiveness may depend on qualitative factors such as management culture, which are difficult to capture through regression models. These factors, along with industry-specific variables and internal organizational dynamics, could significantly influence firm growth, but they are not directly accounted for in the current model. Acknowledging these limitations would demonstrate a more nuanced understanding of the constraints of quantitative approaches in capturing the full complexity of organizational behavior.

In addition, while the author focuses on the statistical significance of the model, it is important to clarify the distinction between explanatory and predictive modeling. A low R^2 does not invalidate the relationship being tested but suggests that other unaccounted factors may also influence the growth of enterprises. Future research could explore additional variables or employ qualitative methods to capture the complexity of internal control mechanisms and their impact on enterprise growth. By considering these potential factors, the academic rigor of the analysis can be further strengthened.

Despite the lower explanatory power, the focus of the paper remains on understanding the relationship between internal control (independent variable) and enterprise growth (dependent variable). The findings emphasize the significance of the model and provide valuable insights into the role of internal control in promoting growth, particularly in non-state-owned enterprises.

Conclusion

The analysis confirms that internal control plays a crucial role in enterprise growth, with a stronger effect observed in non-state-owned enterprises. The study supports agency theory and the resource-based view by demonstrating that internal control mechanisms help improve firm performance by enhancing resource allocation, reducing risks, and aligning interests between managers and stakeholders. These results suggest that non-state-owned enterprises should focus on strengthening their internal control systems to improve financial performance and long-term growth. On the other hand, state-owned

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enterprises may benefit from reducing external constraints and allowing greater autonomy to their internal control functions.

The study acknowledges the limitations of the regression model, particularly the relatively low R^2 and the potential unmeasured qualitative factors that influence growth. Despite these limitations, the study provides valuable insights into the relationship between internal control and enterprise growth, offering practical implications for policymakers and corporate managers in both state-owned and non-state-owned enterprises.

Recommendations

Future research can be explored in depth in the following directions to provide more practical and forward-looking insights:

1. Explore the internal control effect of different types of enterprises: different types of enterprises in the management structure, the allocation of resources, external environment, etc Therefore, research can further explore the state-owned enterprises and non-state-owned enterprises in the internal control of growth, and explore the different mechanisms of enterprise growth.

2. The interactive effect of internal control and other factors: In addition to internal control itself, other factors such as corporate culture, innovation ability, and market competition environment may work together with internal control on the growth of the enterprise. Therefore, future studies could further analyze the interactive effects between these factors and internal control, revealing more complex mechanisms of influence.

3. Research on internal control from a dynamic perspective: Most of the current research is static. The future research can explore from a dynamic perspective how internal control affects the long-term growth and sustainable development of the enterprise in different development stages, especially in the company's transformation or coping with a crisis.

Reference

Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting and Economics, 32*(1–3), 237–333.

Chen, G., Firth, M., & Xu, L. (2009). Does the type of ownership control matter? Evidence from China's listed companies. *Journal of Banking & Finance, 33*(1), 171–181.

Chen, X., & Zhang, Y. (2019). The impact of internal control on firm performance: Evidence from Chinese listed companies. *Journal of Accounting and Economics, 67*(2–3), 265–287.

Chung, K. H., & Pruitt, S. W. (1994). A simple approximation of Tobin's Q. *Financial Management, 23*(3), 70–74. https://doi.org/10.2307/3665623

COSO. (2013). *Internal Control—Integrated Framework*. Committee of Sponsoring Organizations of the Treadway Commission.

Doyle, J. T., Ge, W., & McVay, S. (2007). Accruals quality and internal control over financial reporting. *The Accounting Review, 82*(5), 1141–1170.

Fan, J. P. H., & Wong, T. J. (2002). Corporate ownership structure and the informativeness of accounting earnings in East Asia. *Journal of Accounting and Economics, 33*(3), 401–425.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305–360.

Lin, Y., Cai, F., & Li, Z. (1998). *The China Miracle: Development Strategy and Economic Reform*. Chinese University Press.

Peng, M. W., Buck, T., & Filatotchev, I. (2008). Do outside directors and new managers help improve firm performance? An exploratory study of Russian privatization. *Journal of World Business, 38*(4), 348–360.

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics, 87*(3), 355–374.

Citation
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Wang, X., & Chen, Y. (2020). Internal control and corporate innovation: Evidence from China. *Journal of Business Research, 110*, 1–12.

Wang, Y., & Chen, Z. (2018). Internal control and corporate social responsibility: Evidence from China. *Journal of Business Ethics, 149*(2), 413–426.

Zhang, J., & Zhang, Z. (2018). The impact of internal control on firm growth: Evidence from Chinese manufacturing firms. *Journal of Business Ethics, 150*(2), 477–493.

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