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The Impact of Independent Directors' Proportion on the Risk-Taking Ability of Listed Companies

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Abstract: In recent years, with the increasing uncertainty of the global economic environment and the increasing complexity of external risks faced by enterprises, the importance of corporate governance structure has become increasingly prominent. As the core component of corporate governance, independent directors play a key role in ensuring the stable operation of the company due to their independence and professionalism. This paper discusses the impact of independent directors on corporate risk bearing capacity, aiming to analyze the key role of independent directors in corporate governance and their specific role in risk management. Through regression analysis and empirical analysis, we find that independent directors can significantly improve the company's risk identification and management ability by enhancing information transparency, strengthening supervision mechanism and providing professional advice. The results show that companies with more independent directors demonstrate greater risk resilience in the face of external shocks. To provide theoretical and empirical support for the sustainable development of the company, some suggestions on the optimization of corporate governance structure and risk management practice are put forward.

Keywords: Independent director, Corporate governance, Risk bearing capacity, Supervision mechanism.

1. Introduction

In modern corporate governance, the important role and function of independent directors have been widely concerned. Independent directors are not only important participants in corporate decision-making, but also key factors to protect the interests of minority shareholders, promote corporate transparency and improve corporate governance [1]. With the constant change of economic environment and the intensification of market competition, the risks faced by enterprises are increasingly complex, and how to effectively manage and deal with these risks has become one of the core issues for the sustainable development of enterprises [2].

In recent years, the influence of independent directors on corporate risk bearing ability has gradually become a hot topic in the academic and practical circles. Studies have shown that independent directors help companies identify, assess and manage risks more effectively by providing professional advice, strengthening supervision and promoting information disclosure [3]. However, there are still many uncertainties about the influence and mechanism of independent directors, and the performance of independent directors in different corporate contexts may also be significantly

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different [4]. Therefore, the research of this paper not only helps to enrich the theory of corporate governance, but also provides practical guidance for enterprises to achieve sustainable development in complex environment.

By analyzing the functions and characteristics of independent directors of listed companies in China, this paper will study their specific role in corporate risk management, combine with empirical data and analyze them, and explore how independent directors affect the company's risk bearing capacity. Through this research, we hope to provide useful enlightenment for the optimization of enterprise governance structure and risk management.

2. Source and Classification of Data

The data used in this paper are collected from Wind Finance, Chinese papers, core journals and SSCI/SCI journals to make statistics on common variables such as finance, accounting, marketing and economics of the research company, and form a data set with a time span from 2003 to 2022, including whether the company is a state-owned enterprise, financial indicators (profit, operating income, operating income, roa, etc.), belong to the industry division, whether heavy polluting enterprises, high-tech enterprises, the proportion of independent directors, management shareholding, market value of listed enterprises, total asset size, earnings volatility, cash flow volatility [5-8], etc. Among the more important data:

1). State-owned Enterprise or not (SOE): This is a binary variable used to distinguish whether a listed company is state-owned or private.

2). Proportion of independent directors: It reflects the degree of independence in the structure of board members and is an important indicator of corporate governance.

3). Management shareholding ratio: The proportion of shares held by the senior management team reflects the degree of insider control and incentive mechanism [7-9].

4). Earnings volatility refers to the range of changes in corporate earnings over a period of time. High volatility means that earnings are volatile and can be affected by market and management factors. This is important for both businesses and investors as it affects financial risk and investment returns.

5). Cash flow volatility refers to the degree of change of cash inflow and outflow in a period of time. High volatility indicates unstable cash flow, which can affect a business's ability to pay and operational efficiency. This volatility is critical to financial management and investment decisions as it is directly related to the liquidity and financial health of the business.

3. Application of Model

In the third part of this study, we first combined the two data sets to ensure the consistency and integrity of the data set used. Next, we conduct a regression analysis to explore the influence of the ratio of independent directors on the volatility of corporate earnings (profitvol1). In the regression model, the independent variable is the proportion of independent directors (indep), and the dependent variable is profiting volatility (profitvol1). We also introduced some control variables to enhance the explanatory power and accuracy of the model, such as price-to-book ratio (PB), Tobin Q, whether it is a state-owned enterprise (SOE), and Dual.

$$\mathbf{profitvol1} = \beta_0 + \beta_1 \boldsymbol{indep} + \beta_2 \boldsymbol{PB} + \beta_3 \boldsymbol{TobinQ} + \beta_4 \boldsymbol{SOE} + \beta_5 \boldsymbol{Dual} + \epsilon \tag{1}$$

Specifically, the price-to-book ratio (PB) reflects the relationship between a company's market value and book value, Tobin's Q measures the attractiveness of a company's investment opportunities, and the state-owned enterprise (SOE) and Dual variables help capture the potential impact of governance structure on company performance. The introduction of these control variables aims to eliminate the interference of other factors on earnings volatility, to more accurately evaluate the direct

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impact of the proportion of independent directors on earnings volatility. Through this analysis, we hope to reveal the significance of independent directors in corporate governance and their actual contribution to risk management.

4. Result Analysis

Based on the results of Table 1: regression analysis, this paper discusses the influence of independent director ratio (indep) on corporate earnings volatility (profitvol1), while controlling for other variables such as Tobin-Q, price-to-book ratio (PB), whether it is a state-owned enterprise (SOE) and Dual. The following are the results of the analysis of each variable (Table 1)

1). The coefficient of independent director ratio (indep) is 0.015, and it is significant at 1% significance level ($p<0.01$), which indicates that the proportion of independent directors is positively correlated with the volatility of corporate earnings. With the increase of the proportion of independent directors, the volatility of corporate earnings has a significant upward trend. This may be because independent directors play a more independent supervisory role in corporate decision-making, prompting companies to take more risks, which leads to an increase in earnings volatility.

2). The coefficient of Tobin-Q was -0.002 and did not reach statistical significance ($p>0.1$). This result shows that Tobin Q has no significant effect on the volatility of corporate earnings. This could mean that the ratio of a company's market value to the replacement cost of its assets is not directly reflected in earnings volatility.

3). The coefficient of price-to-book ratio (PB) is 0.03. It is significant at the significance level of 1% ($p<0.01$), indicates that a positive correlation exists between PB and volatility of corporate earnings. A higher price-to-book ratio may reflect the company's investors' high expectations of future profitability, which is associated with increased earnings volatility.

4). The coefficient of state-owned enterprise (SOE) was -0.156, and did not reach statistical significance ($p>0.1$). This means that in this model, whether an enterprise is state-owned or not has no significant effect on earnings volatility.

5). The coefficient of Dual(-0.134) is significant at the significance level of 10% ($p<0.1$). The results show that the volatility of corporate earnings may be reduced in the case of dual roles. This may be because when the CEO and chairman are combined, decision-making is more concentrated, which reduces the level of uncertainty and risk taking in the company.

In the regression analysis, the positive significance coefficient highlights the high earnings volatility that a high proportion of independent directors may bring, which may be due to independent directors pushing companies to adopt more aggressive business strategies. The positive relationship between P/B also confirms that companies with higher market valuations may face greater earnings instability. On the other hand, the slightly negative relationship between dual roles suggests that a centralized leadership structure may help reduce earnings volatility.

Table 1: regression analysis

	(1) profitvo
Indep	.015***
	(.005)
Torbin-Q	-.002
	(.006)
PB	.03***
	(.002)
SOE	-.156

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Table 1: (continued).

	(.128)
Dual	-.134*
	(.072)
_cons	2.639***
	(.211)
Observations	38394
R-squared	.359

Standard errors are in parentheses
*** p<.01, ** p<.05, * p<.1

Through Table 2: comprehensive investigation of descriptive statistics and regression analysis, this study reveals the significant correlation between the proportion of independent directors, price-to-book ratio and dual employment and corporate earnings volatility. Descriptive statistics reflect that the volatility of corporate earnings has great variability, the average proportion of independent directors shows the general characteristics of corporate governance structure, and the volatility of price-to-book ratio highlights the differences in the market's valuation of corporate assets.

1). The mean value of profitvo is 3.37, the standard deviation is 4.72, the volatility is high, the minimum value is 0.05, the maximum value is 42.69. This indicates that there are significant differences in the earnings volatility of the companies in the sample, and the earnings volatility of most companies is at a low level, but there are also cases of high earnings volatility of some companies, which may be related to operating risks, market environment and other factors.

2). The proportion of independent directors (indep) is 37.15%, with a standard deviation of 5.70%. The minimum value recorded is 0, while the maximum value reaches 80.This means that the proportion of independent directors in most companies is concentrated between 30% and 40%, which is in line with the general situation of corporate governance in China, and independent directors play an important role in corporate decision-making and supervision. However, the proportion of independent directors in individual companies is zero or high, indicating that there may be an imbalance in the governance structure in a small number of companies.

3). Tobin-Q is 2.03, the standard deviation is 4.02, the minimum value is 0.62, and the maximum value is 715.94, indicating that the Tobin Q ratio varies greatly among the sample companies. Most companies are in a relatively reasonable range, but there are also extreme values, and the market value of some companies is significantly higher than the book value, which may be related to market expectations, company growth and other factors.

4). price-to-book ratio (PB) is 4.06, the standard deviation is 17.98, the minimum value is only 0.000043, and the maximum is as high as 2788.70, reflecting the extreme volatility of the company's PB. The price-to-book ratio of most companies is relatively reasonable, reflecting the market's relative recognition of their value, but there are also some companies whose market value seriously deviates from the book value, indicating that the market has a large difference in its future prospects or risk assessment.

5). The average of state-owned enterprises (SOE) in the sample is 0.41, which indicates that about 41% of the companies in the sample are state-owned enterprises. State-owned enterprises occupy an important position in China's economy, and its high proportion reflects the important role of state-owned enterprises in China's capital market.

6). The average value of Dual (0.28) indicates that about 28% of companies have dual roles, meaning that the chairman and CEO of the company are the same person. This data reflects that there

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is a certain proportion of centralized governance structure in the sample companies, which may have an impact on the centrality and efficiency of corporate decision-making.

Table 2: comprehensive investigation of descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
profitvo	3.366949	4.724364	0.05	42.691
Indep	37.15214	5.696585	0	80
Torbin-Q	2.025336	4.023494	0.624542	715.9448
PB	4.059745	17.98345	0.000043	2788.704
SOE	0.411579	0.492125	0	1
Dual	0.277091	0.447567	0	1

In addition, the explanatory power of the model (R-squared = 0.359) indicates that the selected variable can explain some of the variation in earnings volatility, but it also implies that there are other factors that may affect earnings volatility, and future studies can explore these potential influencing factors.

5. Conclusion

Through empirical analysis, this study explored the impact of the ratio of independent directors on the volatility of corporate earnings and controlled for variables such as price-to-book ratio, Tobin's Q, whether the company is a state-owned enterprise, and dual employment. The results show a significant positive correlation between the proportion of independent directors and the volatility of corporate earnings. The higher the proportion of independent directors, the greater the volatility of corporate earnings. This may be due to the increased supervision of independent directors in corporate governance, which prompts companies to take more aggressive business decisions. In addition, the price-to-book ratio is also significantly positively correlated with earnings volatility, suggesting that the market's overvaluation of a company's value is usually accompanied by greater earnings uncertainty. On the other hand, the negative significance of dual roles suggests that when the CEO and chairman of a company are the same person, the volatility of the company's earnings may decrease, which indicates that the centralized decision-making power may reduce the business risk of the company. However, in this study, the effects of Tobin's Q and state-owned enterprise status on the volatility of corporate earnings are not significant, which means that they fail to have a significant effect.

Overall, this study shows a new perspective for understanding the role of independent directors in corporate governance structure and its impact on financial stability. This finding not only provides a reference for enterprise management to optimize corporate governance, also provides an empirical basis for investors to evaluate risks and make decisions. Future studies can further explore other factors affecting earnings volatility to expand the recognition of the relationship between corporate governance and financial volatility.

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