A Study of Independent Directors and Corporate Financial Risk

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Abstract. In the field of corporate finance research, the research on corporate financial risk has received a high degree of attention. Modern corporate financial management requires corporate managers to break through the shackles of traditional concepts and establish a correct risk concept: dare to face risks, challenge them, and master them. This paper proposes four hypotheses for the relationship between the characteristics of independent directors and corporate financial risk: there is a negative correlation between the average age of independent directors and corporate financial risk, and there is a negative correlation between independent directors' meeting attendance and corporate financial risk. There is a negative correlation between the relationship, male proportion of independent directors and corporate financial risk, and there is a negative correlation between independent directors' educational background and corporate financial risk.

Keywords: Corporate financial risk; Independent directors; Personal characteristics empirical analysis.

1. Research background

The ability to deal with risks and take bold and rational risks Therefore, corporate financial risks are the focus of corporate managers. The financial activities of an enterprise involve the movement of a series of funds in the financing, operation, investment and distribution activities of the enterprise, and are an important basis for the decision-making of every enterprise manager; in addition, the financial risk of an enterprise involves the smooth operation of the capital market. For the government of China, paying attention to the financial risks of enterprises is an important measure to stabilize the domestic financial stock market and even the overall economy; for financial institutions, paying attention to the financial risks of enterprises can enable them to make more correct and objective judgments in the operation of the capital market. As mentioned above, enterprise financial risk, as an important part of modern enterprise financial management research, has received attention from all walks of life. With the continuous development and changes of the market economy, the challenges faced by enterprises are also more complex. For enterprise managers, if they cannot effectively identify various risk factors in the business operation process, it is difficult to make correct decisions. In the long run, if the enterprise has a high degree of decision-making mistakes, it will cause a huge financial crisis of the enterprise, and then affect the health of the business. Therefore, enterprises need to accurately identify risks in the market, and make decisions through effective financial risk early warning measures, so as to achieve the purpose of preventing and eliminating financial risks.

There are many reasons for the formation of enterprise financial risk, both external to the enterprise and the enterprise itself. The lack of scientificity in financial decision-making and the confusion of financial relations within the enterprise. Although external factors are also one of the causes of corporate financial risks, their fundamental lies in the internal factors of the company. External factors affect the financial risk of enterprises from the macro level, but because macro factors often involve too many aspects, and some are even the result of long-term accumulation, it is difficult for the managers of enterprises to exert an effective influence on this factor, so there should be more Focus on influence from within. Since the financial activities of an enterprise involve the process of corporate financing, operation, investment and distribution, the internal financial risk factors of the enterprise are also very complicated, especially in the context of today's joint-stock company reform, the equity of listed companies is increasingly scattered, and shareholders are not interested in the enterprise. The restraint of managers is also gradually reduced. Due to the increasing separation of company ownership and management rights, corporate governance is becoming more and more important to the overall healthy operation of the company. The power distribution and the mutual

checks and balances between the top management involved in the corporate governance structure are ultimately aimed at ensuring that the company can have a good On the other hand, if the governance structure of a company is not perfect, it will definitely lead to an increase in the financial risk of the enterprise, which will then affect the operation of the enterprise. Therefore, it is necessary to introduce corporate governance into the study of enterprise financial risk. of.

Regarding the case of corporate governance failure, a typical case in China in recent years is the financial fraud incident of Kangmei Pharmaceutical in 2019. According to the investigation, from 2016 to the first half of 2018, Kangmei Pharmaceutical's total inflated operating income was about 30 billion yuan. In order to match the inflated operating income, Kangmei used financial non-accounting, false accounting, forged and realized large-scale deposit certificates. Or bank statements, fake sales remittances to inflate monetary funds. There are many reasons for such a huge amount of financial fraud in Kangmei Pharmaceutical, in addition to the corruption of executives, the collusion of lawyers and accountants, the inaction of independent directors, and more importantly, the imperfect corporate governance structure. Independent directors are regarded as an important role in protecting the interests of the company from an objective and impartial standpoint. It is generally expected that independent directors can assume the responsibility of detecting red flags in the company's operations and warning the company's violations or misconduct. The independent director system originated from the United Kingdom and the United States and was introduced into China's listed company system. The introduction of the independent director system is mainly to play its role of supervision, to ensure that the board of directors abides by the current laws, regulations or professional and industry standards in the decision-making process, and protects the The interests of shareholders, especially small and medium shareholders, are not infringed. In addition to fulfilling the above responsibilities, independent directors should also use the rights conferred by regulations to improve the decision-making efficiency and consulting effect of the board of directors.

Then, as a key part of the corporate governance structure, independent directors' supervision of senior management and the provision of external resources will inevitably affect the development of the enterprise, and then affect the financial risk of the enterprise. Then what characteristics of independent directors will affect the financial risk of enterprises, and how these characteristics will affect the financial risk of enterprises, this article will explore the relationship between independent directors and the financial risk of enterprises.

2. Theoretical analysis and hypothesis formulation

In the actual work environment, there are differences between male and female managers in their management style and the way they deal with problems. Generally speaking, male managers are more inclined to institutionalized management. Although they do not have better affinity in personality, they are more secure in the implementation of rules and regulations; female managers are more aware of the psychological changes of the other party, and they are more able to obtain The support and help of others is more suitable for humanized management.

However, as an independent director, it is often necessary to make objective judgments and express independent opinions. This paper focuses on the relationship between gender differences of independent directors and corporate financial risks. It is easier for male independent directors to maintain an objective and calm attitude, and it is easier to make correct judgments when dealing with the behavior of executives crossing the line and the behavior of large shareholders encroaching on small and medium shareholders. To fulfill the duties of independent directors, maintain the healthy and stable operation of the company, and achieve the goal of reducing the company's financial risks. However, due to the long-standing social evaluation, women often need to show stronger work ability in order to enter the company's senior management and board of directors. On the other hand, compared with men, women have a higher level of morality and a stronger awareness of risk aversion , Because women are more inclined to conservative character, it is determined that they have a stronger awareness of risk aversion. At the same time, some scholars believe that the degree of gender

differentiation of the company's board of directors is significantly positively correlated with the company's financial performance, that is, the higher the proportion of women on the company's board of directors, the better the company's financial performance. Appropriately increasing the number of female executives in the company will be more conducive to enriching the diversity of company information resources, cultivating company friendly culture, improving comprehensive decision-making ability, and thus improving the company's financial performance. Therefore, based on the above analysis, the hypothesis between the gender of independent directors and the financial risk of the company is put forward:

Hypothesis 1: There is a negative correlation between the proportion of female independent directors and corporate financial risk, that is, the higher the proportion of female independent directors, the lower the corporate financial risk.

Independent directors refer to directors who are independent of the company's shareholders and do not hold positions within the company, have no important business or professional connections with the company or the company's management, and make independent judgments on the company's affairs. In general practice, older executives or directors are more comfortable in handling daily affairs due to their rich work experience and social experience. This is because work experience gives older workers more reference, while At the same time, their rich life experience also enables them to keep rational and make correct decisions in the face of daily and unexpected situations. For younger executives or directors, they may be more aggressive in dealing with problems, and more creative initiatives will appear, and due to intergenerational differences, the growth environment is different at a younger age. There may be a conflict between basic concepts of older age. However, for independent directors, the primary responsibility is to put forward objective and calm opinions, which requires a relatively stable character and rich experience as support. Younger independent directors may have creative ideas, but this is not the same as independent directors. Essential work relevance is not strong.

Therefore, in practice, older independent directors can perform their duties better than younger independent directors, make suggestions more objectively and neutrally, and make decisions more calmly when dealing with the behavior of executives, thereby reducing the risk of the financial risk of the business. Based on the above analysis, this paper proposes the following assumptions about the age of independent directors and corporate financial risks:

Hypothesis 2: There is a negative correlation between the average age of independent directors and corporate financial risk, that is, the greater the average age of independent directors, the lower the corporate financial risk.

The basic responsibilities of independent directors are to supervise the behavior of senior executives, safeguard the interests of minority shareholders, and express their independent opinions. As an independent third-party independent director, they cannot participate in business related to the enterprise, but they must be responsible for the enterprise in which they work. Duty performance is the means by which independent directors supervise the operation and management of enterprises, and it is the way in which independent directors play their role. Independent directors reflect the value of their existence by serving in professional committees, attending board meetings, supervising and expressing independent opinions on matters such as related party transactions, loan guarantees, large capital transactions, major investments, profit distribution, and corporate mergers and acquisitions. Therefore, the number of independent directors attending board meetings is used as an indicator for evaluating the performance of independent directors. Generally speaking, if the independent directors often attend board meetings, it means that the independent directors have a positive working attitude and have a responsible attitude towards their responsibilities as independent directors; if the independent directors are often absent from the board of directors meetings, it can generally show that the independent directors lack the responsibility for the company. If they are concerned about affairs, the place where they should express their opinions and exercise power will also be discounted, thus losing the meaning of the existence of independent directors.

On the other hand, independent directors actively attend meetings and actively perform their duties, can supervise the decision-making and behavior of company executives with a greater probability, and can timely prevent the encroachment of minority shareholders' rights and interests, then overall The active participation of independent directors in board meetings can effectively maintain the healthy and stable operation of the enterprise, thereby reducing the financial risk of the enterprise. Therefore, this paper proposes the hypothesis between independent board meeting attendance and corporate financial risk:

Hypothesis 3: There is a negative correlation between the attendance rate of independent board meetings and corporate financial risk, that is, the higher the attendance rate of independent board meetings, the lower the corporate financial risk.

The higher the average educational level of independent directors, the more positive impact they can have on corporate performance. Higher educational background means that independent directors may be better educated. With the continuous development of modern corporate theory and economic theory, corporate managers are very It is difficult to cope with the complex market environment only by relying on one's own work experience. Possessing a good educational background can indicate that independent directors are likely to have a strong ability to collect information, analyze problems, learn new knowledge, and ask questions. In addition, independent directors will have more professional knowledge under the background of good educational experience, and independent directors may be more sensitive to technical issues and express more professional opinions. In addition, having financial, accounting and other educational background also enables independent directors to have more unique understanding and help in dealing with corporate financial problems.

For corporate financial risks, independent directors also have the responsibility of consulting. A good educational background means that they can provide better suggestions for the development of the company, and they have a higher education background and a better educational background in response to the changing market environment. The independent directors of the company can grasp the development of new things more quickly. If they are independent directors with professional skills, they will be more helpful in promoting the technological innovation of enterprises and promoting the transformation of technological achievements. To a certain extent, directors with higher education can make full use of their knowledge to play a certain role in preventing corporate financial risks. Based on the above analysis, the hypothesis between the educational background of independent directors and the financial risk of the company is put forward:

Hypothesis 4: There is a negative correlation between the educational background of independent directors and corporate financial risk, that is, the better the educational background of independent directors, the lower the corporate financial risk.

3. Research design

3.1 Sample selection and data sources

This paper collects relevant data from the Guotai'an database, selects the data of listed companies in Shanghai and Shenzhen stock exchanges in 2018 and 2019, and processes the data as follows: First, the data of listed financial companies is proposed. The capital structure and operating business are quite different from other companies, so their data are excluded. Second, the samples with incomplete data were excluded. In the process of data collection, it was found that the data of individual companies was missing. In order to increase the reliability of the regression results, such companies were excluded, and 6669 samples were finally obtained.

3.2 Variable Definition

In this paper, the F-SCORE model is used to describe the financial risk of an enterprise. The multivariate linear function model represented by the Z-SCORE model has shown an accuracy of up to 94% in empirical evidence. However, due to its cash flow in the design The impact of changes in

indicators on the financial risk of enterprises, Chinese scholars Zhou Shouhua and Yang Jihua added cash flow-related variables, and established the F-SCORE model based on the improvement of the Z model. The Z-SCORE model predicts the bankruptcy risk of an enterprise by weighting a variety of financial indicators into a single value. The following are the financial indicators of the Z model and the corresponding weight coefficients:

Z=1.2x_1+1.4x_2+3.3x_3+0.6x_4+0.999x_5

x_1: working capital/total assets

x_2: retained earnings/total assets

x_3: EBIT/Average total liabilities

x_4: Preferred and common stock market value/total liabilities

x_5: Sales/Total Assets

The Z value is negatively correlated with the risk of enterprise bankruptcy, that is to say, the smaller the Z value, the greater the risk of bankruptcy of the enterprise. Zhou Shouhua, Yang Jihua, and Wang Ping modified and established the F-SCORE model on this basis. The following are the relevant financial indicators and their weight coefficients:

F=-0.1774+1.1091x_1+0.1074x_2+1.9271x_3+0.0302x_4+0.4961x_5

x_1: working capital/total assets

x_2: retained earnings/total assets

x_3: (net income after tax + depreciation)/average total liabilities

x_4: Preferred and common stock market value/total liabilities

x_5: (net income after tax + interest + depreciation) / total assets

The F value in the F-SCORE model also has a negative correlation with the financial risk of the enterprise, that is to say, the larger the F value, the smaller the financial risk of the enterprise. When $F < 0.0274$, the enterprise is in the bankruptcy area, and if $F > 0.0274$, the enterprise is in the safe area. Enterprises in the range of 0.0775 before and after the critical point are in the gray area.

There are a total of four explanatory variables in this paper, which correspond to the four hypotheses proposed above. They are the gender of the independent directors, the age of the independent directors, the meeting attendance rate of the independent directors, and the educational background of the independent directors. In addition to the above-mentioned explanatory variables, this paper also selects some control variables that may have an impact on the explained variables, namely: the nature of company property rights, company size, profitability, and debt ratio. The following table is the definition table of explanatory variables and control variables, of which the first four items are explanatory variables, corresponding to the four assumptions above in turn, and the last four items are control variables.

Table 1. Definitions of explanatory and control variables

variable	name	method of measurement
Gender	GENDER	The summation average of dummy variables of independent directors' gender
Age	AGE	Average age of independent directors
Conference attendance	BOPER	Total average attendance rate of independent directors
Education background	EDUC	The summation average of dummy variables of education of independent directors
Nature of company property	SOE	Type of actual controller
The company size	LNSIZE	The natural log of total assets
Profitability	ROA	Return on assets
Debt ratio	LEV	Total liabilities/total assets

Gender of directors. In this paper, the gender of independent directors is selected as the explanatory variable. The measurement method is to assign different dummy variables to different genders of men and women, and then add up to obtain a numerical average.

Age of independent directors. This paper also selects the age of independent directors as an explanatory variable. There is no clear provision for independent directors in the "Guiding Opinions on Establishing an Independent Director System in Listed Companies", but the "Opinions" clearly states that independent directors must have five years The above legal, economic or other abilities necessary to perform the duties of independent directors, so this article also takes age into account. The measurement method is to add up the ages of the company's independent directors to obtain an average value.

Attendance rate of independent board meetings. For independent directors, if they can perform their duties diligently, it will definitely bring positive effects to the enterprise, while lazy independent directors will not only fail to play their role, but will contribute to the development of unstable factors in the enterprise. The most intuitive way to examine the performance of an independent director is to calculate the attendance rate of its board meetings. The measurement method used in this paper is to calculate the meeting attendance rate of each independent director and average it.

Educational background of independent directors. A well-educated independent director, in addition to having a high probability of good professional ethics, can actively perform his duties, and can also bring more external resources to the company by virtue of his professional ability. In this paper, the educational background of independent directors is selected as the explanatory variable. The measurement method is to divide the educational background into five categories: technical secondary school and below, junior college, undergraduate, postgraduate, and doctoral students. After assigning different dummy variables, add up to get an average value.

This paper selects the nature of company property rights as an important control variable. There is a special state-owned joint-stock listed enterprise in the Chinese market. Compared with private enterprises, the corporate governance structure of state-owned enterprises is different. From a macro perspective , as a special form of enterprise organization, the social responsibility of state-owned enterprises is determined by the nature of state-owned enterprises, which is embodied in the non-economic goals and economic goals of state-owned enterprises. In this paper, the type of actual controller is used as a measurement method, and the purpose is achieved by assigning different dummy variables with different property rights of different companies. Compared with general enterprises, the social responsibility of state-owned enterprises is more complicated.

The size of the company is also an important indicator that can affect the financial risk of a company. Studies have shown that the larger the company is, the smaller the financial risk it may face. This article uses the natural logarithm of total assets as a measure of firm size.

Regarding profitability, this article describes the enterprise's return on assets. Regarding the level of return on assets, some studies believe that when the return on assets is less than the after-tax profit of debt, the higher the return on assets, the greater the financial risk of the enterprise.

(8)This paper uses the ratio of total liabilities to total assets to describe the asset-liability ratio. The asset-liability ratio can reflect the ability of enterprises to repay and develop debt to a certain extent. Research generally believes that the higher the asset-liability ratio of the enterprise, the greater the financial risk it may face.

3.3 Regression model

In this paper, the multiple linear regression model is used to verify the hypothesis. As a widely used statistical analysis method, the multiple regression analysis method can well describe the non-deterministic relationship between an explained variable and multiple explanatory variables. The data are panel data. The explanatory variable in this paper is the F value in the F-SCORE financial risk prediction model. The regression model for the four assumptions is as follows:

$$F = \alpha_0+\beta_1 ENDER +\beta_2 AE +\beta_3 BOPER+\beta_4 EDUC+\beta_5 SOE+\beta_6 LNSIZE+\beta_7 ROA+\beta_8 LEV$$

In addition to the four explanatory variables, the above model also includes four control variables and residual terms. Although the explanatory variables of each hypothesis are different, the control variables remain unchanged in the four hypothesis tests.

4. Empirical Analysis

4.1 Descriptive statistical analysis

The data collected through the Guotai'an database were analyzed by STATA software for descriptive statistical analysis. The following table contains the main variables.

Table 2. Descriptive statistical analysis table

variable	number of observations	mean	maximum	minimum	median	p25%	p75%
Fscore	6669	0.545	11.82	-32.02	0.431	0.0976	0.947
Gender	6669	0.81	1	0	0.833	0.667	1
Age	6669	54.03	73.67	35	54	50.6	57.33
Boper	6669	0.999	1	0.7	1	1	1
Educ	6669	3.174	5	0	3.75	2.5	4.333
Soe	6669	0.3	1	0	0	0	1
Lnsize	6669	22.3	28.64	17.07	22.14	21.37	23.05
Lev	6669	0.446	31.47	0.00836	0.421	0.272	0.578
Roa	6669	0.00634	4.707	-30.96	0.0341	0.0114	0.0645

Note: "P25 %" and "P75 %" represent upper and lower quartile respectively

It can be seen from the table that the mean and median of the F value in F-SCORE are not much different, which indicates that the distribution of the samples is relatively uniform and ideal. The absolute difference between the maximum value and the minimum value is relatively large, indicating that there are large individual differences among the companies listed on the Shanghai and Shenzhen stock exchanges. In the empirical evidence of the F-SCORE model, when the F value is less than 0.0274, the company is in the bankruptcy region. From the p25% value, it can be seen that most companies are in a relatively safe region. From the gender of independent directors, it can be seen that most of the independent directors of enterprises are male, but there are also cases where they are all female. From the perspective of the age of independent directors, the average age of independent directors in listed companies is 54 years old, of which the maximum average age is 73 years old, and the minimum average age is 35 years old. The average age of most independent directors is over 50 years old. Data on meeting attendance shows that the vast majority of independent directors are able to attend every board meeting. In terms of educational background, the average educational background of independent directors is undergraduate or above, and most of the independent directors have the required educational background. From the perspective of the property rights of enterprises, non-state-owned enterprises account for a larger proportion of listed companies.

4.2 Multicollinearity Analysis

In the field of econometrics, multiple linear regression often occurs multicollinearity. The so-called multicollinearity includes not only the exact linear relationship between the explanatory variables, but also the approximate linear relationship between the explanatory variables. When the multicollinearity is severe, it may lead to infinitives in parameter estimation, increase in estimators, and increase in confidence interval regions, thus affecting the authenticity and reliability of regression. Therefore, before performing regression analysis, we must first determine whether there is strong multicollinearity among the explanatory variables of a regression model, and eliminate the influence of multicollinearity as much as possible. Commonly used methods for detecting multicollinearity

include simple correlation coefficient test method, VIF variance inflation factor method, intuitive judgment method, stepwise regression detection method, eigenvalue and ill-conditioned index method. This paper chooses to calculate VIF to detect multicollinearity between variables. , VIF is calculated on the basis of multiple explanatory variables assisted regression to determine multiple coefficients of determination. Experience shows that when VIF ≥ 10, there is serious multicollinearity between the explanatory variables and other explanatory variables. In this paper, the variables involved in the study are put into the STATA software to calculate the corresponding VIF.

Table 3. Multicollinearity test table

variable	VIF	1/VIF
lev	5.81	0.172
roa	5.75	0.174
lnsize	1.51	0.661
soe	1.41	0.71
age	1.07	0.934
educ	1.05	0.955
gender	1.01	0.988
boper	1.01	0.992

Mean VIF:2.06. The above table detects the multicollinearity of the variables involved in the hypothesis in this paper. According to the experience of using VIF, when the average value of VIF is less than 2, or the maximum value of VIF is less than 10, it means that there is no multicollinearity. The data in the table above shows that there is no multicollinearity among the variables involved in the model in this paper, so there is no need to modify the model.

4.3 Regression Analysis

Use STATA software to perform regression analysis on the collected data, and test the four theoretical hypotheses proposed in this paper. The explanatory variables in the table are in the front and the control variables are in the back. The four regression results correspond to the four hypotheses of this paper, respectively Gender of independent directors (GENDER), age of independent directors (AGE), meeting attendance rate of independent directors (BOPER), educational background of independent directors (EDUC), the following table shows the regression results:

Table 4. Regression results of F-Score model

	FSCORE			
	GENDER	AGE	BOPER	EDUC
GENDER	-0.043			
	(-0.71)			
AGE		0.006**		
		(2.38)		
BOPER			1.779	
			(1.36)	
EDUC				0.02**
				(2.41)
SOE	-0.06**	-0.065**	-0.061**	-0.05*
	(-2.01)	(-2.16)	(-2.03)	(-1.65)
LNSIZE	-0.086***	-0.092***	-0.087***	-0.087***
	(-7.88)	(-8.23)	(-7.94)	(-7.91)
LEV	-0.699***	-0.694***	-0.697***	-0.695***
	(-11.51)	(-11.41)	(-11.48)	(-11.45)
ROA	0.907***	0.911***	0.907***	0.911***
	(-0.71)	(14.68)	(14.60)	(14.67)

Note: "*", "**" and "***" in the table respectively represent significant at 10% level, significant at 5% level and significant at 1% level. In brackets are the t value of the variable coefficient.

It can be seen from the first column that the gender of independent directors (GENDER) has not significant impact on the F value and has no positive or negative effect, indicating that there is no clear relationship between the gender of independent directors and corporate financial risks, and the test results do not support This paper proposes a hypothesis about the relationship between the gender of independent directors and corporate financial risk, which shows that the hypothesis test results in this paper cannot verify the hypothesis on the gender of independent directors and corporate financial risk in this paper. It can be seen from the second column that the age of independent directors (AGE) is significant at the 5% level and has a positive impact on the F value, which indicates that there is a negative correlation between the age of independent directors and the financial risk of the company, that is, The older the independent directors are, the lower the corporate financial risk, which is also consistent with the hypothesis put forward in this paper on the age of independent directors and corporate financial risk. In the third column, it can be seen that the impact of independent directors' meeting attendance rate (BOPER) on the F value is not significant and has no positive or negative effect, indicating that there is no clear relationship between independent directors' meeting attendance rate and corporate financial risk , the test results do not support the relevant hypothesis of this paper. It can be seen from the fourth column that the educational background of independent directors (EDUC) has an impact on the F value at the level of 5% and has a positive impact, which means that when the educational background of independent directors increases, the F value will increase, and the corresponding The financial risk of the enterprise will be reduced, that is to say, the educational background of independent directors and the financial risk of the enterprise are negatively correlated. The better the educational background of independent directors, the smaller the financial risk of the enterprise, which is consistent with the hypothesis of this paper.

4.4 Robustness check

In order to better test the robustness of the conclusions of this paper, the method of replacing the explained variables is used to test. The explained variable used in this paper is the F value in the F-SCORE financial risk prediction model. Through the regression between the explanatory variables pointed to by the four hypotheses and the F value, the correlation between the variables is found. In practice, the asset-liability ratio can also be used as an important indicator for financial risk prediction. The asset-liability ratio, also known as the debt ratio or the debt management ratio, is the ratio of the total liabilities to the total assets of the enterprise. It reflects the total assets of the enterprise. What percentage is obtained through borrowing. The asset-liability ratio reflects the comprehensive ability of a company to repay its debts. The higher the ratio, the worse the company's ability to repay its debts and the greater the financial risk; on the contrary, the stronger its ability to repay its debts.

Table 5. LEV regression results

	LEV			
	GENDER	AGE	BOPER	EDUC
GENDER	0.008 (0.62)			
AGE		-0.002*** (-3.31)		
BOPER			-0.537** (-2.04)	
EDUC				-0.004** (-2.37)
SOE	0.021*** (3.41)	0.022*** (3.62)	0.021*** (3.43)	0.018*** (3.31)
LNSIZE	0.068*** (33.50)	0.07*** (33.64)	0.069*** (33.60)	0.068*** (33.55)
ROA	-0.928*** (-176.59)	-0.927*** (-176.65)	-0.927*** (-176.00)	-0.928*** -176.71

Note: "*", "**" and "***" in the table respectively represent significant at 10% level, significant at 5% level and significant at 1% level. In brackets are the t value of the variable coefficient.

However, it should be noted that the asset-liability ratio is also a control variable selected in this paper that may affect the explained variables. This requires that in the robustness test after replacing the explained variables with the asset-liability ratio, the asset-liability ratio is changed from Control variables were excluded from the group to avoid a large impact on the results. The replaced regression model is obtained as follows:

$$LEV = \alpha_0 + \beta_1 END + \beta_2 AE + \beta_3 BOPER + \beta_4 EDUC + \beta_5 SOE + \beta_6 LNSIZE + \beta_7 ROA$$

In the results of the regression on LEV, it can be seen from the first column that the gender of independent directors (GENDER) has no significant impact on LEV, and there is no positive or negative impact, which is consistent with the regression of the F-SCORE model. The results are consistent, but the correlation cannot be determined because the results are not significant. The data in the second column shows that the age of independent directors (AGE) has a negative impact on LEV at a significant level of 1%, that is, the older the independent director's age, the lower the asset-liability ratio, that is, the independent director's age and corporate financial risk are significantly Negative correlation, the older the independent directors age, the lower the financial risk of the company, which is consistent with the previous regression analysis results, so the conclusion about the independent directors' age passed the robustness test. The third column shows that there is a negative correlation between the meeting attendance rate of independent directors and the LEV value at the level of 5%, that is to say, the higher the meeting attendance rate of independent directors, the lower the financial risk of the company, but this is not the same as before replacing the explained variable. The obtained regression analysis results are inconsistent, indicating that the hypothesis test is not robust. The data in the fourth column reflects the negative correlation between the educational background of independent directors and the LEV value at the level of 5%, that is to say, the higher the education level of independent directors, the lower the financial risk of the company, which is consistent with the previous results. It shows that the conclusion is robust.

5. Heterogeneity Analysis

Considering that there may be some differences in the economic, policy and other environments faced by enterprises in different years, in order to make the results more reliable, the heterogeneity analysis of the obtained samples is carried out. Here, this paper chooses to process the sample data together in the same year, that is, divide the sample data into 2018 and 2019, and regress the data of the two years respectively. Here are the results of the grouped regression:

Table 6. Heterogeneity Analysis Table (1)

	FSCORE			
	GENDER	AGE	BOPER	EDUC
GENDER	-0.05			
	(-0.60)			
AGE		0.007**		
		(2.12)		
BOPER			-4.437**	
			(-2.32)	
EDUC				0.015
				(1.33)
SOE	-0.046	-0.053	-0.046	-0.038
	(-1.10)	(-1.25)	(-1.10)	(-0.89)
LNSIZE	-0.113***	-0.12***	-0.114***	-0.114***
	(-7.21)	(-7.51)	(-7.22)	(-7.24)
LEV	-0.736***	-0.729***	-0.743***	-0.731***
	(1.363)	(-7.59)	(-7.74)	(-7.60)
ROA	0.716***	1.368***	1.381***	1.367***
	(9.13)	(13.67)	(13.77)	(13.66)

Note: "*", "**" and "***" in the table respectively represent significant at 10% level, significant at 5% level and significant at 1% level. In brackets are the t value of the variable coefficient.

Table 7. Heterogeneity Analysis Table (2)

	FSCORE			
	GENDER	AGE	BOPER	EDUC
GENDER	-0.033			
	(-0.39)			
AGE		0.004		
		(1.20)		
BOPER			3.569**	
			(2.01)	
EDUC				0.019*
				(1.67)
SOE	-0.073*	-0.076*	-0.075*	-0.063
	(-1.74)	(-1.81)	(-1.78)	(-1.48)
LNSIZE	-0.064***	-0.068***	-0.065***	-0.064***
	(-4.25)	(-4.43)	(-4.29)	(-4.27)
LEV	-0.694***	-0.69***	-0.691***	-0.692***
	(-8.97)	(-8.91)	(-8.93)	(-8.94)
ROA	0.716***	0.719***	0.72***	0.719***
	(9.13)	(9.17)	(9.18)	(9.17)

Note: "*", "**" and "***" in the table respectively represent significant at 10% level, significant at 5% level and significant at 1% level. In brackets are the t value of the variable coefficient.

In the above two tables, table (1) represents the grouped regression results of the 2018 sample data, and table (2) represents the grouped regression results of the 2019 sample data. Comparing the regression results of the two groups, we can see that the significance of the explanatory variables is different under the sample data of different years. In Table (1), the age of independent directors has a positive impact on the F value at the level of 5%, and also That is to say, there is a negative correlation between the age of independent directors and corporate financial risk, that is, the older the average age of independent directors, the smaller the corporate financial risk. The attendance rate of independent directors at the level of 5% has a negative impact on the F value, that is to say There is a positive correlation between the average meeting attendance rate of independent directors and corporate financial risks, that is, the higher the average meeting attendance rate of independent directors, the greater the corporate financial risk. The meeting attendance rate is different from the results of the overall sample regression. Overall, independent directors' attendance at tasting sessions did not have a significant impact on corporate financial risk. Neither gender nor education had a significant effect on the F value.

In Table (2), the meeting attendance rate of independent directors has a positive impact on the F value at the level of 5%, that is to say, there is a negative correlation between the meeting attendance rate of independent directors and corporate financial risk, that is, the higher the meeting attendance rate of independent directors is. The higher the financial risk of the company, the lower the financial risk of the independent director, and the educational background of the independent director has a positive impact on the F value at the level of 10%. The smaller the risk, this is consistent with the regression results of the overall sample. Among them, gender and age were not significant.

From the group regression results of 2018 and 2019, it can be seen that the impact of independent directors' meeting attendance rate on corporate financial risk fluctuates greatly. Significant characteristics, it can be fully suspected that in the process of data selection, due to the large actual difference between the two years, the overall regression result is ultimately insignificant.

6. Research conclusions

This paper proposes four hypotheses for the relationship between the characteristics of independent directors and corporate financial risk: there is a negative correlation between the average age of independent directors and corporate financial risk, and there is a negative correlation between independent directors' meeting attendance and corporate financial risk. There is a negative correlation

between the relationship, male proportion of independent directors and corporate financial risk, and there is a negative correlation between independent directors' educational background and corporate financial risk. Through regression analysis and robustness test, we got the following conclusions:

(1) The proportion of women in independent directors has no significant effect on the F value, that is, there is no strong relationship between the proportion of women in independent directors and corporate financial risk.

(2) There is a negative correlation between the average age of independent directors and corporate financial risk, that is, the greater the average age of independent directors, the lower the corporate financial risk. This conclusion has passed the robustness test.

(3) The relationship between the meeting attendance rate of independent directors and corporate financial risk is not significant, indicating that there is no clear relationship with corporate financial risk.

(4) There is a negative correlation between the educational level of independent directors and corporate financial risk, that is, the higher the educational level of independent directors, the lower the corporate financial risk. This conclusion has passed the robustness test.

7. Policy Recommendations

(1) In view of conclusion 1: This paper finds that there is no significant relationship between the proportion of independent directors and corporate financial risks. Due to the limitations of empirical analysis, this paper can only summarize existing phenomena, but there are extreme differences between different genders. It is gradually being eliminated with the development of society. At the same time, as a listed company, it should take the initiative to undertake part of its social responsibilities, and the gender selection of independent directors should be based on the principle of fairness.

(2) For conclusion 2: the age of independent directors will indeed bring some irreplaceable advantages to them, such as the experience accumulated in long-term work and the good attitude created by rich life experience, which are all necessary for independent directors to perform their duties. , an important factor to better play its role, so companies can use age as a reference standard when hiring independent directors. However, it should also be noted that after a person's age exceeds a certain limit, the thinking ability and work energy will inevitably decline, so companies cannot blindly pursue independent directors with rich life experience. This can be seen in a descriptive statistical analysis, where both the mean and median age point to the number 54.

(3) For conclusion 3: the meeting attendance rate should be an important indicator to check whether an independent director works diligently, but the impact on the financial risk of the enterprise is not significant in the results of this paper, which may indicate the role of independent directors in the enterprise limited. This requires enterprises to further improve their corporate governance structure, or from the perspective of regulatory structure, it is necessary to formulate more effective laws, so that independent directors can participate more deeply in the daily management of the company, and ensure that independent directors can give full play to their performance. effect.

(4) For conclusion 4: There is no doubt that the educational experience of independent directors can enable independent directors to obtain better personal endowments. Under the modern education system, the higher the education level of an independent director, the greater his professional ethics and personal ability. The probability will be higher, and companies may wish to take education as an important reference when selecting independent directors.

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