

Factors Affecting Bankruptcy Risks of Firms: Evidence from Listed Companies on Vietnamese Stock Market

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Abstract

This study aims to investigate the influence of internal factors on the bankruptcy risk of an enterprise through a sample of 439 companies listed on the Vietnamese stock exchange. The research collected secondary data from annual audited financial statements from 2008 to 2019 of listing companies. Using two different regression models with two dependent variables, six independent and control variables, we discovered that three of the model's six factors, namely return on total assets, current payment rate, and financial leverage, influence the risk of bankruptcy and account for 86.78% of the variations in firm bankruptcy risk. Financial leverage has the opposite effect on the Z-score index, increasing the risk of bankruptcy of listed firms. Return on total assets and current ratio have a positive impact on the Z-score index, reducing the risk of bankruptcy of listed companies. The findings also revealed that there is no evidence that the size of a corporation, its fixed asset investment ratio, or the size of an auditing firm have an impact on the Z-score index. These findings provide crucial evidence for business owners and managers, as well as shareholders making future capital investment decisions. Our findings can be applied to other businesses in Vietnam and similar jurisdictions.

Keywords: Bankruptcy, Risk, Z-score, Vietnamese Stock Exchange

JEL Classification Code: A14, G33, M41

1. Introduction

Businesses that show signs of insolvency are more likely to go bankrupt. Researchers can use the following parameters to determine if a company will go bankrupt or not: (1) According to the firm's accounting data, if the amount of debt assets exceeds the overall value of the company's assets, the company is likely to file for bankruptcy. (2) Based on the existing solvency of the business in relation to due debts, if the firm is unable to meet the solvency of due debts, the enterprise is likely to enter business bankruptcy.

Follow the Vietnam's bankruptcy law, the enterprise is in danger of bankruptcy if the enterprise loses its ability to repay its debts within 3 months from the due date. If the enterprise is issued go bankrupt by the Court, the enterprise will terminate its operation and carry out the bankruptcy procedures according to the law. In recent years, in Vietnam, the wave of bankruptcy and dissolution of enterprises is taking place strongly. The number of Vietnamese enterprises going bankrupt, dissolving or suspending operations has been recorded at a high level in recent years. According to data from the General Statistics Office and Ministry of Planning and Investment of Vietnam, in 2020, there are 101.7 thousand enterprises suspending their business for a definite period of time, suspending operations, waiting for dissolution procedures, and going bankrupt by 13.9% over the previous year, on average, nearly 8.5 thousand enterprises withdrew from the market each month. The increase in enterprises being forced to pause, wait for bankruptcy, complete dissolution procedures at present has reflecting the difficulty of production and business conditions and aggregate demand in some industries which have been decreasing deeply due to the impact of the COVID-19 pandemic.

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On the Vietnamese stock market, in recent times, a series of stocks have been warned, specially controlled, suspended from trading and delisted. However, due to the fact that Vietnam's stock market has differences from the stock market of developed countries, so there are stocks of Vietnamese listed companies that are at high risk of bankruptcy but still listed on the Stock Exchanges Securities because these shares are not in the case of delisting according to regulations (Charitou, Lambertides, & Trigeorgis, 2007). Research on the bankruptcy risk and the factors affecting the bankruptcy risk of enterprises listed on the Vietnamese stock market is always the top concern of regulators, investors, analysts. This study uses Edward I. Altman's adjusted Z-index, improved from Edward I. Altman's original Z-index model (Altman, 1968) as a tool to measure the bankruptcy risk of listed firms and examining the impact of factors on the risk of bankruptcy through a quantitative research model with Stata 14 software. Research also helps analysts and investors grasp the signs of recognition the bankruptcy risk of listed companies. Research also contributes to diversifying evaluation methods in investing to companies through the stock market in Vietnam today.

2. Literature Review

In the world, there have been many studies on the risk of corporate bankruptcy, typically the following studies:

Research by the author Edward I. Altman published for the first time on the index of the risk of business bankruptcy Z-score (Abiola & Ashamu, 2012; Altman, 1968; Durana et al., 2021). Through the study of twenty-two financial indexes, Edward I. Altman classified into five groups, including: group of liquidity ratio, group of profit ratio, group of financial leverage ratio, group of liquidity ratio, debt settlement and group of performance ratios. The results of the study, Edward I. Altman used five ratio variables to include in the Z-score model to predict the risk of bankruptcy for equitized enterprises, listed on the stock exchange of the manufacturing industry: $Z = 0.012 X_1 + 0.014 X_2 + 0.033 X_3 + 0.006 X_4 + 0.999 X_5$. After many years to facilitate the research process, the researchers used a pattern model: $Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1 X_5$. If the Z is less than 1.81, the business has serious financial problems and is at high risk of bankruptcy. If Z falls between 1.81 and 2.99, the business is in a warning zone, potentially bankrupt. If the Z index is greater than 2.99, the business is in a safe zone, with no risk of bankruptcy.

Then, the Z-score model was researched, adjusted and modified by the author to suit the forecast for the group of enterprises in the private sector, in which there was a special adjustment in the determination of the variable X4, replace the book value of equity for the market value with variable X4, the coefficients in the Z-score predictive model change:

$Z' = 0.717 X_1 + 0.847 X_2 + 3.107 X_3 + 0.42 X_4 + 0.998 X_5$. The limit also changes, according to which enterprises are in the bankruptcy warning area if the Z 'index is in the range from 1.23 to 2.9. If the Z 'index is greater than 2.9, the business is not in danger of bankruptcy, the Z' 'index is smaller than 1.21 enterprises in danger of bankruptcy.

Altman et al. (1998) studied the Z adjustment model for all industries and businesses. The variable X5 is taken out of the model due to the large difference between the X5 indexes of industries, the model adjusted for adjusted bankruptcy risk $Z = 6.56 X_1 + 3.26 X_2 + 6.72 X_3 + 1.05 X_4$. According to the Z" model, businesses are not at risk of bankruptcy if their Z index is greater than 2.6, the business is at risk of bankruptcy if it has a Z" index in the range of 1.23 to 2.6. If the Z" is less than 1.1, the firm has a high risk of bankruptcy. In which, indexes in the model for forecasting bankruptcy risk are: X1: Working capital on total assets; X2: Retained earnings on total assets; X3: Profit before interest and tax on total assets; X4: Equity on total debt; X5 Sales on total assets.

Ohlson (1980) has proposed a model of O score to predict the risk of bankruptcy of a business. In the model, the author uses significant accounting variables in predicting bankruptcy, including: (1) Firm size, Financial structure measured by leverage measure, (3) Efficiency is measured by profit, (4) A measure of current liquidity. The businesses that fall into bankruptcy are those with O score > 0.038.

Nguyen et al. (2019) has studied the relationship between earnings management behavior and the risk of corporate bankruptcy (Z-score index) through the analysis of 85 listed companies on the Ho Chi Minh City Stock Exchange (HOSE) in 2011. Research results show a positive relationship between the risk of corporate bankruptcy and earnings management behavior of listed companies. However, one of the limitations of the study is that the R^2 determination coefficient is only 6%, possibly due to the cross-data set used by the authors in the analysis has small sample sizes and data collected for only one year.

To study the effects of factors on the risk of bankruptcy of commercial banks in Vietnam, Tung and Phung (2019) applied the Z-score model in the study with 115 observations out of 5 years from 2009 to 2013 from 23 joint stock commercial banks in Vietnam. The research results have found two factors that have a positive relationship with the bank bankruptcy risk that is cost management efficiency and size of bank. Factors: Credit growth; Ratio of bad debt provision: Net income ratio: Equity on total assets; Diversification of income; State ownership and the number of years of operation of a listed bank have an inverse relationship with the risk of bank bankruptcy. Recommendations have been made by the author through research to enhance the stability of the operation of joint stock commercial banks in Vietnam.

With a sample of 109 listed companies in the construction industry in Vietnam for 13 consecutive years with 1,417

observations, Thinh et al. (2021) studied the effect of five factors: Total liabilities on Total assets, working capital on total assets, short-term solvency, return on asset and net income growth rate to bankruptcy risk (O-score) of Vietnam construction companies. The empirical research results show that the factor of total liabilities on total assets has a positive influence while return on asset has a negative impact on the bankruptcy risk of listed enterprises in the Vietnam construction industry. To assess the correct prediction rate of the Z-score model, Hung et al. (2017) has used data of 30 bankrupt and 30 operating enterprises at the time of the study. The results show that the accuracy of the Z-score model for forecasting bankruptcy for an enterprise from prior one year is 76.67% and 70% two years before the bankruptcy. The study confirms that subjects interested in the financial situation of the business can completely use the Z-score model for risk assessment before making investment decisions.

3. Theoretical Framework and Research Hypotheses

3.1. Theoretical Framework

Representative theory is considered as the fundamental theory in researching the risk of corporate bankruptcy and the factors affecting the risk of corporate bankruptcy. Theory is built on the relationship between shareholders and business managers, executives in a joint stock company, according to Altman and Hotchkiss (2010) and Nguyen et al. (2019). The biggest goal that business owners always want is maximizing the profits of the business on the basis of keeping stability and minimize costs, including remuneration to managers. However, there is a fact that, the profit of the business depends entirely on the actions and decisions of the managers' strategies, depends entirely on managers' control talent.

The Managers have very different goals such as: (1) To maximize their wealth, even to achieve this goal, they can cause damages to shareholders. (2) Using their current managerial or executive position to pursue a different position brings more benefits in other companies by using strategic decisions to generate growth in short-term but undermines company's long-term growth target. In the worst case scenario, this action could threaten the continued operation of the business.

Representative theory shows that managers - who operate companies for their own personal purposes - may have actions and decisions in business that do not bring optimal profits for the company but bring benefit themselves through a tool especially accounting policy. This action can push the company into bankruptcy even though the company may not show signs of financial distress in advance, according to

Swalih and Vinod (2017) with a sample of 859 companies in the US from 1986 to 2004 (Dwiarti et al., 2021; Dalwai & Salehi, 2021).

Thus, the study can apply representative theory to explain the effects of factors such as company size, business performance, efficiency of assets, leverage ratio (debt ratio) to the risk of bankruptcy of companies listed on the Vietnamese stock exchange.

3.2. Research Hypothesis

Through studying the published scientific works and related theories, the author has built up specific scientific hypotheses as follows:

Enterprise size (SIZE): According to Ohlson (1980), there is a relationship between the risk of bankruptcy and the size of the business. If the capital of the enterprise is mainly formed through debt capital, this factor will have a great influence on the bankruptcy of the enterprise if the business operation of the enterprise is ineffective. Hypothesis (H1) is set out by the author as follows:

H1: *The size of the business has a positive impact on the Z-score index, reducing the risk of bankruptcy of companies listed on the stock exchange of Vietnam.*

Return on assets (ROA): According to Ninh et al. (2018), Nguyen et al. (2020), and Swalih and Vinod (2017), there is a relationship between the risk of bankruptcy with the rate of return on assets. If the profitability rate of an enterprise is low and lasts for many years, the risk of bankruptcy of the business is very great and vice versa. Companies having ineffective business results will affect the bankruptcy of the business. From there, the hypothesis (H2) is set by authors as follows:

H2: *The return on assets has a positive impact on the Z-score index, reducing the risk of bankruptcy of companies listed on the stock exchange of Vietnam.*

Current payment rate (CR): According to Altman and Hotchkiss (2010) and Gul and Cho (2019), there is a relationship between the risk of bankruptcy and the current payment rate of the business. If the current rate of payment of an enterprise is high, stable and maintained, it will minimize the risk of payment imbalance, and reduce the risk of bankruptcy of the business. From there, hypothesis (H3) is set forth by the author as follows:

H3: *The current ratio has a positive impact on the Z-score index, reducing the risk of bankruptcy of companies listed on the stock exchange of Vietnam.*

Financial leverage: According to the research results (Guerrero-Villegas, Sierra-García, & Palacios-Florencio, 2018; Tung & Phung, 2019; Gul & Cho, 2019; Salim & Indrawati, 2021), there is a relationship between financial leverage and the risk of bankruptcy of the business. If the financial leverage is greater, the business may face risks in debt repayment and the risk of fluctuating interest rates if the use of capital in business is ineffective. Since then, the hypothesis (H4) is set by authors as follows:

H4: *Financial leverage has a negative impact on the Z-score index, increasing the risk of bankruptcy of companies listed on the Vietnamese stock exchange.*

Fixed asset investment ratio (FAR):

Some sectors must invest huge amounts of capital in fixed assets to manufacture goods or provide services, and as a result, depreciation charges will account for a large portion of overall operating expenses during the accounting period. Firms that invest a significant amount of money on equipment, machinery, and other fixed assets are more likely to achieve and sustain solid long-term results, avoiding bankruptcy. Since then, hypothesis (H5) is set by authors as follows:

H5: *The level of capital investment in fixed assets has a positive impact on the Z-score index, reducing the risk of bankruptcy of companies listed on the stock exchange of Vietnam.*

Size of auditing company (AUDIT_CO):

Listed companies must be audited by independent auditing firms. The financial statements of companies audited by Big4 auditing firms are appreciated, the quality of audit reports of Big4 auditing firms is assessed to be better than the auditing firms not in the Big4 group. The auditor’s opinions from the audit reports will help listed companies minimize the risk of fraud in the financial statements, minimize the risk of enterprises falling into bankruptcy. Since then, hypothesis (H6) is set by authors as follows (Table 1).

H6: *The size of the auditing firm has a positive impact on the Z-score index, reducing the risk of bankruptcy of companies listed on the Vietnamese stock exchange.*

4. Methodology

4.1. Data Collection

The sample consists of 439 businesses with 5,268 observations collected over 12 years from 2008 to 2019. The data comes from financial statements of firms registered

Table 1: Research Hypotheses

Hypothesis	Description	Sign Expectation
H1	The relationship between the size of the business and the risk of bankruptcy.	+
H2	The relationship between profitability ratio and risk of bankruptcy.	+
H3	The connection between current payment and risk of bankruptcy.	+
H4	The relationship between financial leverage and risk of bankruptcy.	-
H5	The connection between the level of capital investment in fixed assets and the risk of bankruptcy.	+
H6	The connection between the size of auditing company and the risk of bankruptcy.	+

on the Vietnamese stock exchange, which can be found at <http://finance.vietstock.vn>. To calculate the components of each variable, the author uses Excel software to create tables and formulas. For data analysis, the author utilized Stata 14 software with data from the first sample. The study uses descriptive statistics to describe the variables before performing regression using one of three models: the Ordinary Least Square model (OLS), the Fixed Effect Model (FEM), or the Random Effect Model (REM). The study performs the tests on the selection of a model which is suitable for the data set, tests on heterogeneous variance, and implementation of options to overcome the weaknesses of the model.

4.2. Measurements

Dependent variable measurement (Z-score) - Risk of corporate bankruptcy

The dependent variable Z-score is measured according to the adjusted Z-score - Z''- of (Altman & Hotchkiss, 2010) for all industries, businesses. The bankruptcy prediction model is $Z'' = 6.56 X1 + 3.26 X2 + 6.72 X3 + 1.05 X4$. In, the indicators in the model for forecasting bankruptcy risk are: X1: Working capital on total assets; X2: Retained earnings on total assets; X3: Profit before interest and tax on total assets; X4: Equity over total debt.

Measure independent variables:

The independent variables are indicated in Table 2.

4.3. Analytical Procedures

To achieve the research goal of factors affecting the bankruptcy risk of enterprises, the study conducted hypothesis testing from H1 to H6 with the support of data analysis software Stata 14. The multivariate linear regression is applied to the model as follows:

$$Z\text{-SCORE} = \beta_0 + \beta_1 \text{SIZE} + \beta_2 \text{ROA} + \beta_3 \text{CR} + \beta_4 \text{FL} + \beta_5 \text{FAR} + \beta_6 \text{AUDIT_CO} + e$$

5. Results and Discussion

5.1. Bankruptcy Risks of Firms

According to the data described in Table 3 and Figure 1, the results show that the risk of falling into bankruptcy of enterprises tends to fluctuate like the “sin function graph”. From 2008 to 2010, the risk of falling into the risk of corporate bankruptcy gradually decreased; from 2012 to 2016, the risk of falling into the risk of corporate bankruptcy gradually decreased; and from 2018 to the time of research in 2019, the risk of falling into the risk of corporate bankruptcy gradually decreased. According to the estimates of the Z” model, there are a total of 239 on 249 firms with no risk of bankruptcy in 2019, accounting for 54.44 percent of all businesses. This is the trend that all publicly traded corporations are aiming for.

5.2. Correlation Between Variables

The descriptive statistical parameters of the independent and dependent variables are shown in Table 4. The author collected data for a survey of 5,268 observations from 439 companies listed on the Vietnamese stock exchange. The data assures that the regression model can be performed, that

the data is reliable, and that the sample analysis results are statistically significant.

Table 5 presents the results of the test of correlation coefficients between the variables and the results of the multicollinearity test. The results show that there are statistically significant differences between the independent and dependent variables of the model. The bankruptcy risk of the business has a positive relationship (positive correlation) with the following variables: Return of assets; Current ratio and negative relationship (inversely correlated) with firm size, financial leverage, capital intensity, and audit firm size. The study also showed that the VIF coefficient of the independent variables < 2, which proves that there is no multicollinearity phenomenon between the independent variables. The research results in Table 5 show that there are enough conditions to conduct the next step of regression analysis between variables.

5.3. Discussion

Table 6 presents regression results using least squares (OLS), fixed effects model (FEM), and random effects model. Results show that there are differences between the three methods. Therefore, to conclude which results to use, the author conducted the following tests:

- Step 1: Use the Hausman test to decide whether to choose a FEM or REM model. Hausman test results with the value $p = 0.000$, so the FEM model is more appropriate.
- Step 2: Use the *F*-test test to choose the result between the FEM or OLS method. *F*-test test results with $p = 0.000$ value, so the FEM model is more appropriate.

The author tests the variance of variation across entities in the FEM model with the Ho hypothesis, the variance of the error across entities is constant.

Table 2: The Measurements of Independent Variables

Code	Independent Variables	The Way to Measure Variables
SIZE	Enterprise Size	Ln (Total Assets)
ROA	Return on Assets	After-tax profit is divided by total assets
CR	Current payment rate	Short-term assets are divided by total short-term debt
FL	Financial leverage	Total debt is divided by total assets
FAR	Fixed asset investment ratio	Tangible fixed assets are divided by total assets
AUDIT_CO	Size of the auditing company	Dummy variable: takes the value of 1 if the auditing firm belongs to group Big4, takes the value of 0 if the auditing firm is not in group Big4

Table 3: Results of the Risk of Bankruptcy Assessment of Enterprises in the Sample

Year Criteria	Year												
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Enterprises have coefficient of bankruptcy risk < 1.23	Number	101	76	69	99	115	98	89	91	92	97	113	105
	(%)	23.01	17.31	15.72	22.55	26.20	22.32	20.27	20.73	20.96	22.10	25.74	23.92
Enterprises have coefficient of bankruptcy risk ≥ 1.23 and ≤ 2.6	Number	100	107	109	94	100	108	99	99	97	105	96	95
	(%)	22.78	24.37	24.83	21.41	22.78	24.60	22.55	22.55	22.10	23.92	21.87	21.64
Enterprises with coefficient of bankruptcy risk > 2.6	Number	238	256	261	246	224	233	251	249	250	237	230	239
	(%)	54.21	58.31	59.45	56.04	51.03	53.08	57.18	56.72	56.95	53.99	52.39	54.44
Total	Number	439	439	439	439	439	439	439	439	439	439	439	439

The test results show that: $\chi^2(439) = 4.5e + 07$ Prob > $\chi^2 = 0.0000$

Conclusion: p -value < 0.05, rejecting H_0 accepts H_1 : Model has variable variance.

The author has conducted to overcome the phenomenon of the model with variable variance. Regression results after overcoming the variance of the FEM model are presented in Table 7 as follows:

Hypotheses H2, H3, and H4 are accepted based on the model's results, the authors' assumptions, and the variables of return on assets, current ratio, and financial leverage. has an impact on the Z-score index, which measures the likelihood of a company's insolvency. The risk of corporate bankruptcy explains 86.78 percent of the variation in the dependent variables. This outcome is also in line with the findings of other investigations (Altman, Zhang, & Yen, 2007). The regression equation is rewritten as follows:

$$Z\text{-SCORE} = 11.294 \text{ ROA} + 1.39 \text{ CR} - 6.924 \text{ FL} + e$$

6. Conclusion and Recommendations

The findings reveal that there is a significant association between listed company bankruptcy risk and characteristics including return on total assets, current ratio, and financial leverage. When the debt ratio is high, and the profitability rates of listed companies are not high, the business is ineffective, the average ROA of 6.9% will adversely affect liquidity, lowering the value of the Z-score index and increasing the risk of going bankrupt. On the other hand, when the debt ratio is low, and the profitability rates of listed companies are not high, the business is ineffective, the average ROA of 6.9% will adversely affect liquidity, lowering the value of the Z-score index and increasing the risk of bankruptcy of businesses. The results obtained from the model are consistent with economic theory. From the results achieved, the author proposes some of the following recommendations:

To begin, a company's return on assets is a measurement of how well it converts invested money into earnings. The greater the ROA, the more efficient the business's ability to use assets is, and the more profit it makes on its invested capital. The higher the asset profitability, the greater the financial flexibility, the more abundant endogenous capital sources, the lower the rate of reliance on loans, and the greater the financial autonomy. As a result, to reduce the danger of bankruptcy, businesses should take proactive steps to improve the efficiency of their operations, control, save, limit expenses, and increase revenue and market share.

Secondly: Businesses must ensure that the current ratio of payment with value is in the range of 1 to 2 to ensure solvency and efficient use of capital in the short term to prevent slipping into insolvency of due debts and bankruptcy.

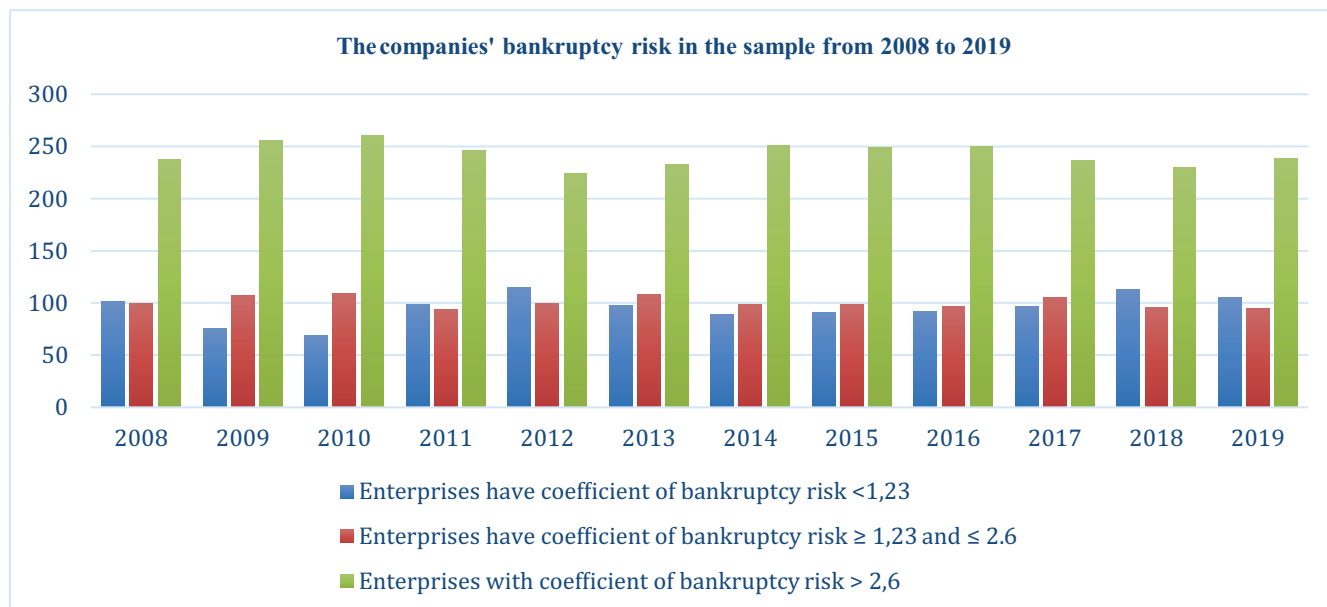


Figure 1: The Companies' Bankruptcy Risk in the Sample from 2008 to 2019

Table 4: Statistics Describing Variables

Variable Criteria	Z-SCORE	SIZE	ROA	CR	FL	FAR	AUDIT_CO
Observations	5.268	5.268	5.268	5.268	5.268	5.268	5.268
Mean	4.373	27.063	0.069	2.330	0.507	0.201	0.263
Std. Dev.	7.113	1.508	0.086	4.272	0.220	0.195	0.440
Min	-26.967	21.154	-0.9	0.057	0.003	0	0
Max	301.161	33.632	0.81	159.106	2.031	0.978	1

Table 5: Correlation and Multi-Collinear Tests

	Z-SCORE	SIZE	ROA	CR	FL	FAR	AUDIT_CO	VIF Coefficient
Z-SCORE	1.000							-
SIZE	-0.1909	1.000						1.51
ROA	0.2990	-0.0883	1.000					1.22
CR	0.9029	-0.1214	0.1054	1.000				1.20
FL	-0.5735	0.3010	-0.4176	-0.3906	1.000			1.58
FAR	-0.0954	0.0161	0.0229	-0.0985	-0.0284	1.000		1.02
AUDIT_CO	-0.0165	0.4913	0.0682	-0.0139	-0.0117	0.0117	1.000	1.37

Table 6: Regression Results

	Constant	SIZE	ROA	CR	FL	FAR	AUDIT_CO	R-squared
OLS	4.468 (0.000)	-0.022 (0.556)	10.888 (0.000)	1.372 (0.000)	-6.511 (0.000)	-0.471 (0.038)	-0.209 (0.114)	86.74%
FEM	-0.624 (0.710)	0.162 (0.010)	11.294 (0.000)	1.390 (0.000)	-6.924 (0.000)	0.380 (0.245)	0.067 (0.861)	86.78%
REM	4.468 (0.000)	-0.022 (0.556)	10.888 (0.000)	1.372 (0.000)	-6.511 (0.000)	-0.471 (0.038)	-0.209 (0.114)	86.74%

Where: The values in the first row in each cell are taken from the Coefficient column. The values in brackets are taken from the *p*-value column of the variable.

Table 7: Results of Regression FEM Model after Overcoming the Change of the Error of Variance

	Constant	SIZE	ROA	CR	FL	FAR	AUDIT_CO	R-squared
FEM	-0.624 (0.811)	0.162 (0.122)	11.294 (0.000)	1.390 (0.000)	-6.924 (0.000)	0.380 (0.676)	0.067 (0.811)	86.78%

Thirdly: Enterprises must balance loan capital with their own capital in their business activities because if the debt ratio remains high, the cost of debt will rise rapidly, and if the cost of debt rises faster than profitability, the business would fail. Businesses will be forced into insolvency as a result of this predicament, which has been ongoing for many years. Enterprises must take steps to enhance equity capital and access new sources of credit to lessen the pressure on collateral when making credit decisions, such as leasing financial assets, to have a suitable capital structure and lower the debt ratio.

The author examined and identified the factors affecting the bankruptcy risk of enterprises listed on the Vietnamese stock exchange using the stata 14 data processing model, and based on the findings, made suggestions for listed companies. However, the authors' research has drawbacks, such as the research model, which solely considers internal company issues and overlooks outside factors. The author wants to address this limitation in future research in this area to obtain better experimental results.

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