"Analysis of factors affecting financial distress in Vietnam – an emerging economy in East Asia"

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BUSINESS PERSPECTIVES

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ANALYSIS OF FACTORS AFFECTING FINANCIAL DISTRESS IN VIETNAM – AN EMERGING ECONOMY IN EAST ASIA

Abstract

Understanding the conditions leading to business failure and predicting them earlier is the best way for companies to overcome and minimize their harm, improve their performance, and avoid financial distress and bankruptcy. This paper aims to measure the level and trends of factors affecting financial distress in Vietnam – an emerging Southeast Asian economy, along with the managerial implications drawn from the research results. Research data were collected from 606 firms listed on the Vietnam Stock Exchange from 2018 to 2022. The Altman Z-score is used to determine the financial distress of these firms. The factors researched and tested in this study are all internal factors divided into two groups with distinct features. Non-financial factors belong to management characteristics; financial factors are typical indicators of a firm's financial statements. The study uses OLS, FEM, and REM models to analyze the influence of financial factors (Total liability to Total assets, Sales growth, Firm size, and Firm age) and non-financial factors (Board size, CEO duality, Institutional ownership level, Independent member, and Foreign CEOs) on financial distress and GLS regression to overcome the model's shortcomings. The results show that the factors in the research model significantly impact financial distress, of which six factors (Board size, CEO duality, Institutional ownership level, Foreign CEOs, Sales growth, and Firm age) are negatively correlated. Three other factors (Independent members, Total liability to Total assets, and Firm size) are positively correlated with financial distress.

Keywords	emerging economy, financial factors, financial distress, non-financial factors, Vietnam
JEL Classification	M41, G32, G33

INTRODUCTION

The current world economy faces many difficulties and challenges due to being heavily affected by epidemics, political instability, natural disasters, climate change, etc. Numerous firms faced financial distress or were compelled to declare bankruptcy after failing to adjust to the unforeseen shifts during the economic downturn. Firms are trying to escape difficulties, which emphasizes the requirement of knowing better the elements causing failure and the most effective ways to mitigate them (Amankwah-Amoah et al., 2021).

Scholars have proposed an organizational life cycle that extends from its creation to its termination, including the 5-stage approach relevant to all organizations (Lester et al., 2003). There are existence, survival, success, renewal, and decline. Although firms have the option to depart the life cycle at any point, insolvency may occur during the decline phase. Many organizational research studies have been published and have practical value in answering the question "How to predict bankruptcy?" (Altman, 1968; Beaver, 1966; Deakin, 1972; Tamari, 1966). However, these predictions come too late in corporate decline to do much more than warn that the final phase of corporate existence

is near (Platt & Platt, 2006). So, managers or board directors need earlier forecasts before the company goes bankrupt. On the other hand, bankruptcy occurs after a period of financial distress. Samir et al. (2023) demonstrated a positive relationship between financial distress and stock market crash risk. Financial distress prompts corrective measures that lead to improved company performance (Whitaker, 1999). Therefore, predicting the possibility of financial distress for businesses has become a necessity, an issue that increasingly attracts the attention of investors, creditors, and managers.

Vietnam is one of the emerging economies that has experienced significant development recently. However, in recent years, the global economy has faced many difficulties and challenges, so Vietnam's economy is heavily influenced. To maintain economic activity in a positive trajectory, the Vietnamese government has implemented policies that are designed to control inflation. However, Vietnamese businesses are still "struggling" in a harsh situation.

While there are empirical studies on financial distress in comparable economies within similar regions, the issue arises in part from the fact that research findings from different economies are not always universally applicable to other economic contexts (Thim et al., 2011). In addition, there is little empirical evidence about factors that determine the financial distress of firms in Vietnam.

The first motivation for this paper comes from the great attention the Vietnamese Government pays to the business sector. This sector makes the most significant contribution to the development scale of the economy, equivalent to about 65-70% of GDP. The Vietnamese Government has many policies to support and develop strong businesses in quantity and quality. The second motivation comes from concerns about the causes of the financial distress of many Vietnamese firms in recent years. The number of Vietnamese enterprises withdrawing from the market has continuously increased. According to data published by the General Statistics Office of Vietnam, the number of firms withdrawing from the market has continually increased in the past few years. In 2023, the number of firms temporarily suspending business will be 89,100, an increase of 20.7% compared to 2022; 65,500 firms stopped operating waiting for dissolution procedures, an increase of 28.9%; 18,000 firms completed dissolution procedures, down 3.1%. On average, each month, nearly 14,400 firms are withdrawing from the market (General Statistics Office, 2024). This reality necessitates a study into the elements that influence the financial distress of most Vietnamese firms, thereby showing Vietnamese firms what to pay attention to stabilize their financial health.

1. LITERATURE REVIEW

Financial distress arises when a company suffers a deterioration in its financial conditions prior to declaring bankruptcy (Platt & Platt, 2006). The probability of firms encountering financial distress rises substantially during periods of economic downturns and financial crises (Taffler, 1983). Thim et al. (2011) provided evidence that the Asian financial crisis of 1997 led many financially robust companies into financial distress, with nearly all of them eventually shutting down. Financial distress occurs when a company may soon be technically insolvent; that is, unable to pay interest or principal on its debt (Gordon, 1971; Lau, 1987; Purnanandam, 2008). When a company cannot pay its obligations on schedule, such as interest payments and debt covenants, its financial distress will occur. According to Andrade and Kaplan's study (1998), highly leveraged firms that defaulted on debt payments later encountered financial distress. A firm facing financial distress will have an imbalance between assets and liabilities, difficulty accessing new capital, and an inability to absorb increased capital costs (Van Gestel et al., 2006).

There is a distinction between "financial distress" and "insolvency" and "bankruptcy". (Purnanandam, 2008). A firm might experience financial trouble without bankruptcy, but default and bankruptcy always happen after the financial distress stage. In a financial distress state, a company has two choices: restructuring its debts to overcome its illiquidity or filing for bankrupt-

cy (Asquith et al., 1994). Three major factors contribute to deadweight losses from financial distress: firms may lose important personnel, suppliers, and customers; they are more likely to miss coupon or principal payments or break their debt covenants; and they may have to turn down profitable projects because they require expensive outside financing without being insolvent (Froot et al., 1993; Purnanandam, 2008).

Financial statements, which were published, are now very important records for many users and fundamental decision-making needs. It seems that the risk index included in their financial statement is a reliable indicator of the true level of risk that a business faces in terms of financial difficulty (Taffler, 1983). Financial ratios have regularly been shown to be an effective management tool, favored by them when synthesizing, analyzing, and providing useful information for making management decisions, as well as having important forecasts about the state of business in an organization (Beaver, 1966; Chen & Shimerda, 1981; Singh & Schmidgall, 2002). Similarly, financial distress can be measured through some of the main financial ratios.

Asquith et al. (1994) define financial distress based on interest coverage ratios. According to this study, a firm is regarded in financial distress if, in either of the last two years, its reported interest expenditures are greater than its profits before interest, taxes, depreciation, and amortization (EBITDA), or if EBITDA is less than 80% of interest expenses. Some other financial ratios can be found in many studies, such as the change in equity price (John et al., 1992; Queen & Roll, 1987), a negative EBIT (John et al., 1992), or net income that is negative before special items (Hofer, 1980).

As early as the 1960s, Edward Altman, then an assistant professor at New York University, soon developed a model that incorporated financial ratios. Altman's Z-score model combines five financial ratios: liquidity, profitability, leverage, solvency, and activity (Altman, 1968). The model is known as the Z-score, which can predict bankruptcy for one year before bankruptcy is entered. The Altman Z-score gained widespread adoption as a valuable tool for assessing credit risk and assessing the financial health of enterprises. For the most part, the generic Z-Score model performs rather well (prediction accuracy is about 0.75), and by employing a country-specific estimate that takes into account extra factors, classification accuracy may be further enhanced (above 0.90) (Altman et al., 2017).

The factors determining a company's financial distress are classified into two groups: internal and external. However, this study only considers internal factors, including financial factors and nonfinancial factors (Ikpesu et al., 2020).

Upper Echelon Theory, created by Hambrick and Mason (1984), provides an approach to better comprehend the role of senior executives in shaping and guiding organizations through their individual decisions and strategies. The theory is predicated on the idea that senior management makes strategic choices for a business. The characteristics of the executives influence the outcomes of the organization. Their personality, experiences, and morals shape how they see the current circumstances and guide their decisions (Boeker, 1997). Several authors emphasize the importance of corporate governance and its impact on financial distress (Ashraf et al., 2021a; Chatterjee & Hadi, 2015; Hambrick & D'Aveni, 1988; Lajili & Zéghal, 2010; Parker et al., 2002). Many factors of CEO characteristics have been mentioned and verified.

In the literature, there were two viewpoints on board size. On one side, earlier scholars argued that smaller boards make better judgments at a lower cost and with more cooperation (Ashraf et al., 2021b; Daily & Dalton, 1994). However, conflicting evidence from various studies suggests that firms with larger boards have better access to resources and a broader range of skills, which enhances the firm's financial performance (Brédart, 2014; Kiel & Nicholson, 2003).

The agency theory (Jensen & Meckling, 2019; Meckling & Jensen, 1976) holds that when the principal authorizes the agent to perform specific tasks or decisions on their behalf, the interests of the two parties do not coincide and could result in a conflict of interest. Additionally, when owners do not directly control the company's operations, managers may exploit their positions to achieve personal gains. According to Resource

Dependency Theory, having a CEO duality results in an organization with more decisive leadership, easier information transfer, lower coordination costs, and fewer conflict opportunities (Ashraf et al., 2021a; Daily & Dalton, 1994; Lajili & Zéghal, 2010; Liahmad et al., 2021).

Institutional ownership refers to the government's holding of shares, institutions, legal entities, financial institutions, and others. Institutional ownership refers to the percentage of common stock shares owned by institutional entities (Ashraf et al., 2021; Liahmad et al., 2021; Parker et al., 2002). According to Ashraf et al. (2021), the growth of a firm is significantly influenced by institutional investors. In addition to providing funding, they exert influence on management to enhance financial performance and lower the risk of financial hardship by using their highly developed managerial abilities, knowledge, expertise, and voting rights.

The data on the connection between financial difficulty and board independence are conflicting. Daily & Dalton (1994) demonstrated that firms with a greater number of independent directors had a lower risk of financial distress, as these directors help the organization take necessary actions to prevent failure. Brédart (2014) failed to detect a significant relationship, while Ashraf et al. (2021) present a negative correlation between these two parameters.

Parker et al. (2002) looked at the relationship between several financial and corporate governance traits and the chance of survival for struggling companies. According to the findings, companies that appointed an outsider as their CEO had a more than twofold increased risk of declaring bankruptcy.

According to the Trade-Off Theory (Kraus & Litzenberger, 1973), firms strive to balance the benefits and costs of debt and equity financing to optimize their capital structure. A firm value is directly proportional to the present value of the tax shield and inversely proportional to the costs of financial distress. This theory suggests that debt can provide tax advantages due to the deductibility of interest payments; it also introduces financial distress costs, such as bankruptcy risk and agency costs. The firms may be in financial distress if

they frequently use loans from outside sources to finance their operations, particularly if it becomes harder for them to pay their regular debts (Colak, 2021; Titman & Wessels, 1988; Wesa & Otinga, 2018).

Signaling Theory was first introduced by Michael Spence (Spence, 1978), who explains that investors look at company signals like earnings reports and market behavior to gauge financial health and make investment decisions. There is a relationship between sales growth and financial distress (Colak, 2021; Giarto & Fachrurrozie, 2020; Sutra & Mais, 2019). Increased revenue is a sign that firms are doing well and are not experiencing financial distress. On the other hand, slow sales growth results in a decline in the firm's assets and income, which may cause financial distress. Sales growth is a good indicator of future business growth since it shows how well previous investments performed (Mahardini, 2023).

Agency theory (Jensen & Meckling, 1976) refers to the conflict of interest of shareholders, managers, and creditors. Managers can harm the interests of shareholders and creditors for immediate benefits. Therefore, large-scale firms often have a control department so they will reduce the risk of financial distress. At the same time, small firms are believed to encounter distress conditions more readily. For this reason, several noteworthy studies have also shown that a firm's size affects its level of financial distress (Ikpesu et al., 2020; Thim et al., 2011; Turetsky & McEwen, 2001; Zeitun & Tian, 2007).

Theories concerning organizational failure assert that the causes of a company's failure may vary according to the firm's age and life cycle stage (Kücher et al., 2020). It is assumed that younger firms are at a disadvantage over more established ones due to obstacles to market entrance, a lack of network connections, difficulty hiring qualified employees, and worse financing conditions. Young firms might not yet have established dependable practices or provide the stability that many stakeholders want (Brüderl et al., 1992; Kücher et al., 2020).

Compared to previous studies, this article has fundamental differences. Firstly, this paper focuses on clarifying the influence of internal fac-

tors; external factors are considered to have the same impact on all businesses. Previous studies provided evidence that organizational failure might be partially attributed to challenging external circumstances (Amankwah-Amoah, 2016; Andrews et al., 2006; Kücher et al., 2020; Silverman et al., 1997); or management characteristics which are internal causes (Kücher et al., 2020; Lee & Yeh, 2004; Shahwan, 2015), or combine both internal and external causes (Lukason & Hoffman, 2015). However, any firm functioning in a certain environment has to deal with external problems as well. The core reasons for firm failure include bundles of firm features such as firm age, resources and competencies, management, and leadership (Kücher et al., 2020; Lee & Yeh, 2004; Mellahi & Wilkinson, 2004; Shahwan, 2015; Whitaker, 1999).

Secondly, the model used in this study is optimal. The dependent variable is determined according to Altman's Z-core (Altman, 1968), with a prediction accuracy rate of up to 95% (Platt & Platt, 2002). The dependent variables are internal factors but are carefully considered financial and non-financial factors. Among the few studies that mention factors affecting the financial distress of firms in Vietnam, some studies focus too much on non-financial factors (Ninh et al., 2018; Truong, 2022), while others focus mainly on non-financial factors (Tran et al., 2022). This study will overcome the limitations of previous research by including in the model both groups of independent factors: financial factors and non-financial factors.

The purpose of this study is to measure the level and determine the trend of the impact of factors on financial distress at companies officially listed on the Vietnamese stock market. From there, the study proposes some managerial implications drawn from the research results. With that goal, the study aims to answer the following main questions: (1) Do financial factors and non-financial factors impact the financial distress of businesses in emerging economies like Vietnam? and (2) If so, what is the magnitude and trend of their impact?

The hypotheses are as follows:

H1:   There is a negative relationship between board size and financial distress.

H2:   There is an inverse relationship between financial distress and CEO duality.

H3:   Institutional ownership has a significant negative relationship with financial distress.

H4:   There is an inverse relationship between independent directors and financial distress.

H5:   Foreign CEOs have a significant negative relationship with financial distress.

H6:   Financial leverage has a significant positive relationship with financial distress.

H7:   There is an inverse relationship between sales growth and financial distress.

H8:   Firm size has a significant positive relationship with financial distress.

H9:   Firm age has a significant negative relationship with financial distress.

2. METHODOLOGY

Using a sample of 606 non-financial companies listed on the Vietnam Exchange, this paper investigates the influence of internal determinants on financial distress in Vietnam. The primary data are collected from annual reports and company websites. From the literature review described above, it can be seen that the relevant variables in this study can be formulated through the mental framework, as shown in Figure 1; the sampling technique with purposive sampling, a time series sampling method for 5 years from 2018–2022.

This study employed logistic regression analysis to get empirical findings on the impact of non-financial factors group (including the Board size, CEO duality, Institutional Ownership Level, Independent member, and Foreign CEOs) and financial factors group (including Total Liability to Total Assets, and Sales growth) to the financial distress of firms in Vietnam. According to the data analysis method employed, the econometric model utilized in this study is as follows:
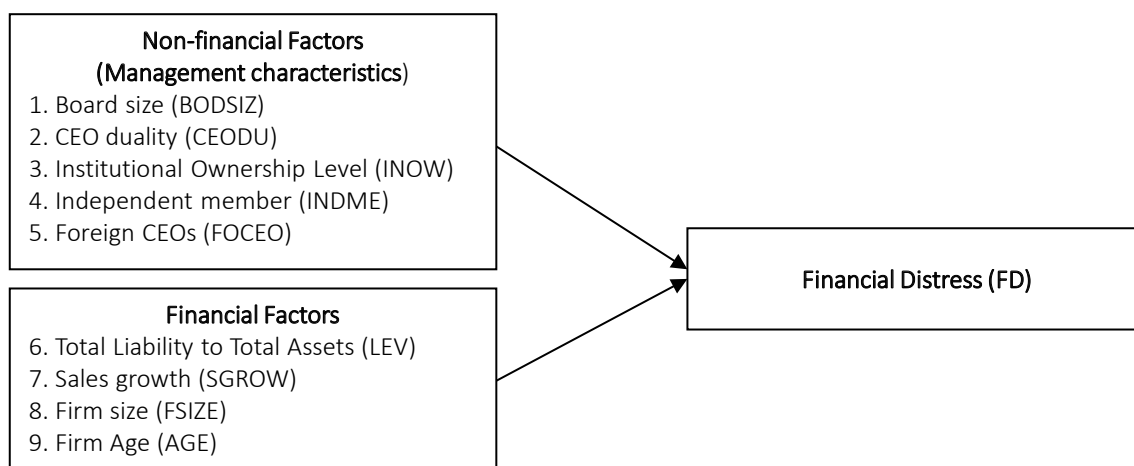
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┌─────────────────────────────────────────────┐
│         Non-financial Factors                │
│      (Management characteristics)            │
│  1. Board size (BODSIZ)                      │
│  2. CEO duality (CEODU)                      │
│  3. Institutional Ownership Level (INOW)     │
│  4. Independent member (INDME)               │
│  5. Foreign CEOs (FOCEO)                     │
└─────────────────────────────────────────────┘
                                                    ┌────────────────────────────┐
┌─────────────────────────────────────────────┐    │                            │
│          Financial Factors                   │    │  Financial Distress (FD)   │
│  6. Total Liability to Total Assets (LEV)    │    │                            │
│  7. Sales growth (SGROW)                     │    └────────────────────────────┘
│  8. Firm size (FSIZE)                        │
│  9. Firm Age (AGE)                           │
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Figure 1. Conceptual framework

$$FD = a_0 + a_1\ BODSIZ + a_2 CEODU$$
$$+ a_3 INOW + a_4 INDME + a_5 FOCEO$$
$$+ a_6 LEV + a_7 SGROW + a_8 FSIZE$$
$$+ a_9 AGE + \varepsilon_t. \tag{1}$$

This study employs the Altman Z-score as an indicator of financial distress. The original Z-score model, developed by Altman in 1968, is recognized as an effective predictor of financial distress, and the score can be calculated as follows:

$$Z = 0.012 X1 + 0.014 X2 + 0.033 X3$$
$$+ 0.006 X4 + 0.999 X5. \tag{2}$$

This study examines the internal factors that determine a company's financial distress. These factors are divided into financial and non-financial factors (Figure 1).

Table 1. Description of variables used in Altman *Z*-score

Determinants	Description	Rational
X1	Working Capital/Total asset	Evaluating the firm's net liquid assets in relation to its overall capitalization.
X2	Retained Earnings/Total asset	Measures profitability that indicates the firm's age and earning potential.
X3	Earnings before interest and taxes/Total asset	Calculating the real productivity of the firm's assets without accounting for leverage or taxes. It acknowledges that operational earnings are essential to the firm's long-term survival.
X4	Market value equity/Book value of total debt	This measure indicates the extent to which the firm's assets can decrease before its liabilities surpass its assets, leading to insolvency.
X5	Sales/Total assets	Showcase the assets' capacity to generate revenue. The standard measure for total asset turnover, which differs significantly between industries.
Z	Overall Index	To apply discriminant analysis, Altman suggested three zones Safe zone: Z > 2.99. Grey zone: 1.81 < Z < 2.99. Distress zone: Z < 1.81.

Note: * *X*1, *X*2, *X*3, *X*4, and *X*5 are in percentage terms.

Table 2. Operations research variables

Variables	Symbol	Measures	Source
Dependent Variable			
Financial Distress	FD	The Z-score is calculated and classified according to the results. 0–1.8 is the distress zone 1.8–3 is the grey zone 3–4 is the safe zone After that, I encoded: Distress zone by 2 Grey zone by 1 Safe zone by 0	(Altman, 1968)

Table 2 (cont.). Operations research variables

Variables	Symbol	Measures	Source
Independent Variables			
Group 1: Non-financial factors			
The Boards size	BODSIZ	Total number of directors on the board	(Ashraf et al., 2021; Daily & Dalton, 1994; Parker et al., 2002)
CEO duality	CEODU	A dummy variable equal to 1 when the same person serves as a CEO as well as the chairman and 0 otherwise	(Ashraf et al., 2021; Daily & Dalton, 1994; Parker et al., 2002)
Institutional Ownership Level	INOW	Institutional Ownership Level - Dummy variable (1 – Yes; 0 – No)	(Ashraf et al., 2021; Daily & Dalton, 1994; Parker et al., 2002)
Independent member	INDME	% of independent members	(Ashraf et al., 2021)
Foreign CEOs	FOCEO	A dummy variable equal to 1 when the firm has foreign CEOs and 0 otherwise	(Parker et al., 2002)
Group 2: Financial factors			
Total Liability to Total Assets	LEV	$\dfrac{Total\ Liability}{Total\ Assets}$	(Colak, 2021; Wesa & Otinga, 2018)
Sales growth	SGROW	$\dfrac{Sales_t - Sales_{t-1}}{Sales_{t-1}}$	(Colak, 2021; Giarto & Fachrurrozie, 2020; Sutra & Mais, 2019)
Firm Size	FSIZE	Natural logarithm of total assets	(Ikpesu et al., 2020; Thim et al., 2011; Zeitun & Tian, 2007)
Firm Age	AGE	The age of the firm in years	(Brüderl et al., 1992; Kücher et al., 2020)

3. RESULTS

Table 3 presents the characteristics of the dataset utilized in this study, including the mean, standard deviations, minimum values, and maximum values of both independent and dependent variables for the entire sample:

Table 3. Descriptive statistics

| Variable	Obs	Mean	Std. Dev.	Min	Max
FD	3,030	0.92970	0.88903	0	2
BODSIZ	3,030	6.19439	1.79656	3	14
CEODU	3,030	0.83828	0.36825	0	1
INOW	3,030	0.75908	0.42771	0	1
INDME	3,030	15.70726	16.30460	0	80
FOCEO	3,030	0.13366	0.34035	0	1
LEV	3,030	0.47833	0.22736	0.006510	1.517964
SGROW	3,030	17.54739	197.51760	−337.5	7,920
FSIZE	3,030	2.97695	0.70785	0.85	5.76
AGE	3,030	27.24092	15.37346	4	148

Table 3 shows the financial distress values, showing that most of the observation data from 2018 to 2022 did not experience financial distress. The highest board size value is 14 members and the lowest is three members. The average percentage of independent members on the board size is 15%,

and the highest percentage recorded is 80%. The firm size shows a mean value of 2.97. The average age of firms in our sample is 27 years, the youngest firm is 4 years old, and the oldest is 148 years old. Financial factors show that the ratio of total liability to total assets has a mean value of 0.478; The mean sales growth rate is 17.547.

The correlation matrix in Table 4 shows that financial distress (FD) is positively correlated with independent members (INDME), total liability to total assets (LEV), and firm size (FSIZE). Total Liability strongly influences Financial Distress (FD) to Total Assets (LEV) and Firm Size (FSIZE). Financial Distress (FD) has negatively correlated with CEO duality (CEODU), Institutional Ownership Level (INOW), Foreign CEOs (FOCEO), and Firm Age (AGE).

Board size (BODSIZ) and CEO duality (CEODU) have significant relationships with various governance and firm characteristics. Independent members (INDME) and Foreign CEOs (FOCEO) show strong positive relationships with Firm size. Total Liability to Total Assets (LEV) is a critical variable highly correlated with Financial distress and Firm
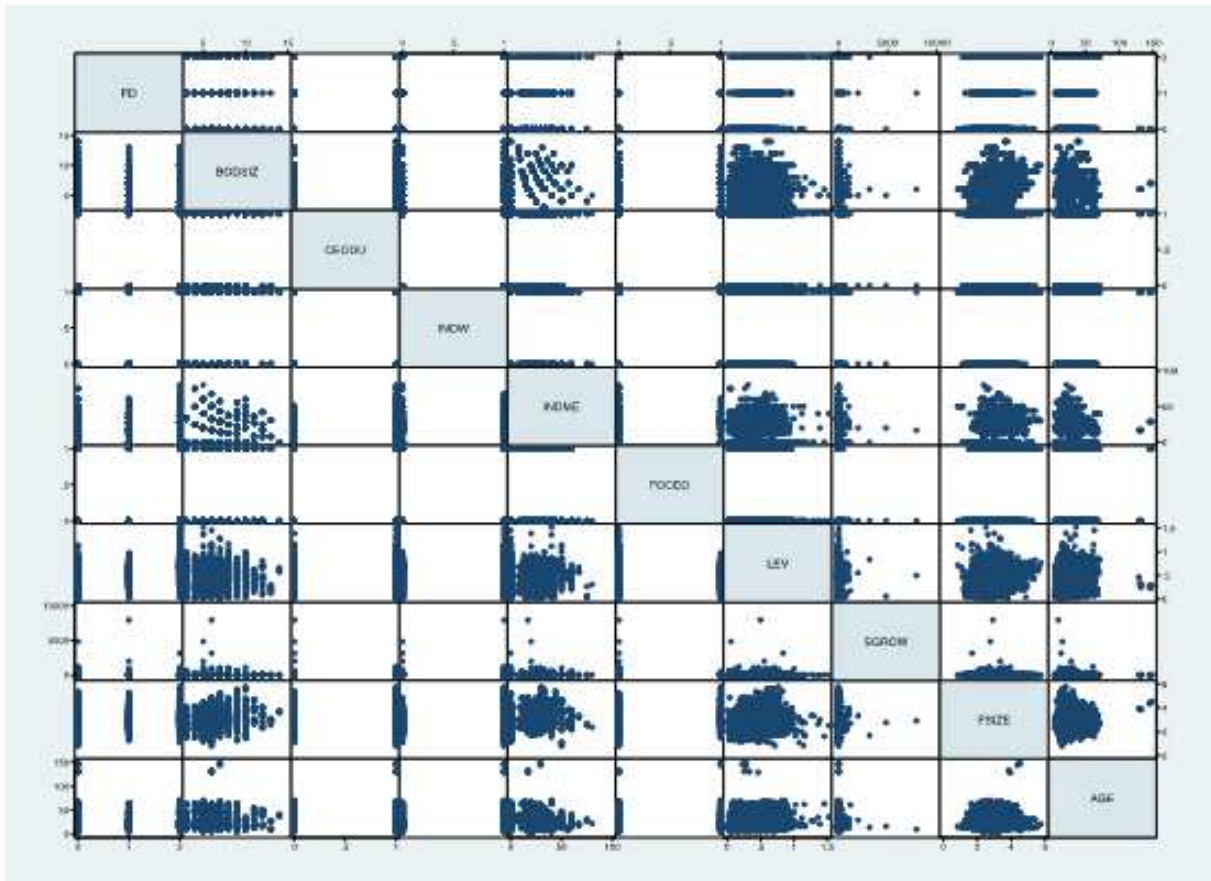
Figure 2. Relationship between model variables

size. Firm Size (FSIZE) and Firm Age (AGE) are foundational factors influencing various governance aspects and firm performance metrics.

Figure 2 shows the relationship between factors affecting the financial distress of listed companies in Vietnam.

Table 5 presents the regression analysis results between the research model's dependent and independent variables and the handling of the model's defects. The study uses OLS, FEM, and REM models for regression analysis for the dependent variable FD. To select the appropriate analysis model, the study conducted the Hausman test. Hausman's test results show that REM is more ideal than FEM because p-value > 5% (p-value >0.05) in the FD model.

Continuing to check the defects of the REM model of the selected FD variable, the Breusch and

Table 4. Correlation matrix

	FD	BODSIZ	CEODU	INOW	INDME	FOCEO	LEV	SGROW	FSIZE	AGE
FD	1.0000									
BODSIZ	−0.0072	1.0000								
CEODU	−0.0428**	0.0301*	1.0000							
INOW	−0.1062***	0.0953***	0.0565***	1.0000						
INDME	0.0748***	0.1447***	0.0237	−0.0718***	1.0000					
FOCEO	−0.0344*	0.2680***	−0.0514***	0.0058	0.1576***	1.0000				
LEV	0.5555***	0.0069	0.0298*	0.0180	0.0071	−0.0198	1.0000			
SGROW	−0.0069	0.0002	−0.0500***	−0.0227	0.0043	−0.0191	0.0128	1.0000		
FSIZE	0.2221***	0.2714***	0.0292*	0.0885***	0.3462***	0.2389***	0.2502***	0.0058	1.0000	
AGE	−0.0567***	0.0019	0.0509***	0.1195***	−0.1345***	0.0194	0.0442**	−0.0353*	0.0220	1.0000

Table 5. Regression results between variables and financial distress

	OLS	FEM	REM	GLS
	FD	FD	FD	FD
BODSIZ	−0.00914	0.956	−0.00916	−0.0103***
	[−1.17]	[1.62]	[−0.62]	[−2.70]
CEODU	−0.136***	0	−0.138**	−0.163***
	[−3.79]	[.]	[−2.02]	[−12.19]
INOW	−0.231***	0	−0.229***	−0.226***
	[−7.38]	[.]	[−3.83]	[−13.03]
INDME	0.00159*	0.00818	0.00185	0.00205***
	[1.81]	[1.50]	[1.17]	[5.44]
FOCEO	−0.133***	0	−0.136*	−0.126***
	[−3.24]	[.]	[−1.75]	[−7.19]
LEV	2.088***	2.019***	2.070***	2.263***
	[34.73]	[19.08]	[26.27]	[86.79]
SGROW	−0.000103	−0.000243***	−0.000229***	−0.0000984***
	[−1.55]	[−5.60]	[−5.38]	[−3.44]
FSIZE	0.136***	0.197**	0.137***	0.112***
	[6.33]	[2.32]	[3.73]	[9.57]
AGE	−0.00361***	−0.0138**	−0.00421***	−0.00366***
	[−4.14]	[−2.51]	[−2.67]	[−13.27]
_cons	−0.0362	−6.292*	−0.0138	−0.00331
	[−0.47]	[−1.72]	[−0.10]	[−0.10]
N	3030	3030	3030	3030
R−sq	0.343	0.162		

Note: t statistics in brackets. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Pagan Lagrangian multiplier test results show that Sig (Prob>chi2) = 0.0000 <5%. That confirms that the selected model of FD has the phenomenon of heteroskedasticity. Continuing to use the Wooldridge test for autocorrelation in panel data, the results indicate Sig (Prob>chi2) = 0.2520 > 5%. This shows that the selected model of the FD variable does not have autocorrelation.

To overcome the variance phenomenon from the REM model, the study applies GLS (Generalized Least Squares) regression. The results reported in Table 5 show that the GLS regression results are similar to the OLS, FEM, and REM regressions with negligible bias. That result demonstrates no outliers in the data, and no observable factors affect the predicted findings, supporting the validity of the regression assumptions.

Table 5 shows that factors such as board size, CEO duality, institutional ownership, foreign CEO, sales growth, and firm age have a significant negative relationship with financial distress at the 1% significance level. This result shows that hypotheses *H1, H2, H3, H5, H7* and *H9* are accepted. On the contrary, Table 5 also shows a positive rela-

tionship between the number of independent directors and financial distress. This result does not agree with hypothesis *H4*, and hypothesis *H4* is rejected. This may be because the more independent directors, the lower the level of unity of action due to each person having a different perspective.

The results in Table 5 also show a positive, significant relationship (at the 1% significance level) between financial leverage and firm size with financial distress. Hypotheses *H6* and *H8* are accepted. This result shows that although using financial leverage is a temporary solution to help companies supplement capital for their operations, it increases financial distress. This result also indicates that older companies face more difficulties due to stagnant, inactive, and highly conservative systems.

4. DISCUSSION

Financial distress is inversely correlated with the size of the board. This is in line with *H1*, according to which, larger boards are associated with less financial distress. The study's findings concur with previous research conducted by Brédart (2014),

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and Kiel and Nicholson (2003). The more members they have, the more disciplinary power they have over the CEO, leading to many members supervising so financial transparency. It also suggests that a company has a wider range of experience, more external connections, and a larger board of directors. These relationships could shield the company from hardship.

CEO duality has a detrimental effect on the probability of financial distress, supporting hypothesis *H2*. This result is consistent with Daily and Dalton (1994) but inconsistent with the study by Ashraf et al. (2021). With the robust arguments of Agency theory and Resource Dependence theory, in the context of an emerging economy like Vietnam, it can be asserted that the unification of the CEO and chairman roles minimizes the likelihood of financial distress.

The study also presents evidence of an indirect link between Institutional Ownership Level and Financial Distress, which aligns with hypothesis *H3* and is consistent with the findings by Ashraf et al. (2021b) and Liahmad et al. (2021). Organizations will have better supervision and governance than individual investors. Besides, organizations often invest for the long term, have extensive financial relationships, and can help firms access capital more efficiently. Therefore, it can reduce financial stress in cases where quick capital mobilization is needed, facilitating sustainable development strategies.

The results in Table 5 reveal a positive association between independent members and the likelihood of financial distress, which contradicts hypothesis *H4* and differs from the findings of Ashraf et al. (2021) and Daily and Dalton (1994). While Ashraf et al. (2021) and Daily and Dalton (1994) highlight the critical role of independent board members in overseeing and regulating management decisions, which are of particular significance to a company's survival, this paper shows the opposite perspective in an emerging economy in East Asia.

Hypothesis *H5* is supported, consistent with the findings of Parker et al. (2002). The study indicates a negative relationship between the Foreign CEOs and Financial distress variables. This suggests that the involvement of foreign investors in Vietnamese firms helps to mitigate financial distress. When investing in emerging economic markets, foreign CEOs will bring their investment experience from developed markets, modern management thinking, transparency, accountability, and accessibility to international resources and opportunities.

Total Liability to Total Assets also positively relates to financial distress and supports *H6*. The findings of the paper suggest that the frequent use of debt to finance a firm's operations may increase its exposure to the risk of financial distress, aligning with the results of studies conducted by Colak (2021), Opler and Titman (1994), and Titman and Wessels (1988). Leverage companies often face higher financing costs during economic hardship, increasing financial distress. This finding further strengthens the idea that, while financial leverage can offer advantages such as tax reduction and higher shareholder returns during favorable times, it also heightens the risk of financial distress, especially when firms face economic difficulties.

Sales growth exhibits a negative connection with financial distress and supports *H7*, consistent with the studies by Colak (2021), Giarto and Fachrurrozie (2020), and Sutra and Mais (2019). Higher revenue suggests that the company is in a stable condition and is not experiencing financial distress.

The study's findings indicate that firm size is another factor influencing financial distress, supporting *H8*. The study is consistent with Thim et al. (2011). This implies that large firms will face higher financial distress than small ones. Although large firms can offer numerous advantages, such as high competitiveness and strong financial capabilities, they also come with many risks and challenges that can lead to more significant financial distress than smaller businesses. Large firms often have complex management structures, which increases the risk of internal conflicts. Enormous fixed costs for factories, machinery, and employees can cause financial distress if these firms' revenues decline. Large firms often use high financial leverage to finance expansion and investment projects. This increases the risk of financial stress as the company faces large debts and pressure to pay high interest rates.

The outcomes of this study on hypothesis *H9* reveal that older firms are not considerably more likely to fail since they do not experience disadvantages in terms of market entrance barriers and other characteristics compared to established firms. The study supports the results of Brüderl et al. (1992) and Kücher et al. (2020). Reputation and trust are significant in an emerging economic environment like Vietnam. Companies with a long history often build reputation and trust from customers, suppliers, investors, and banks. This helps them quickly access capital and financial support when needed.

CONCLUSIONS

This study investigates the elements influencing financial distress. The dataset covers 606 Vietnamese non-financial listed enterprises that released reports between 2018 and 2022. The factors researched and tested in this study are all internal factors divided into two groups with distinct features. Non-financial factors belong to management characteristics; financial factors are typical indicators of a firm's financial statements. After fully implementing the technical procedures in regression testing, nine hypotheses were tested. Six factors (Board size, CEO duality, Institutional Ownership Level, Foreign CEOs, Sales growth, and Firm Age) have a negative relationship with financial distress, while three factors (Independent member, Total Liability to Total Assets, and Firm size) have a positive relationship with financial distress. Management and financial characteristics determine whether a firm will fall into financial distress. The study results suggest that Vietnamese firms need to analyze their financial situation and predict the ability to experience financial distress at a stage before its occurrence. This will enable more time for planning and performing preventative actions and increase the probability of companies reversing this situation. On the other hand, this study is anticipated to add to the literature and be utilized by stakeholders to learn about issues that might create financial distress. External factors have not been considered to influence the research model, which is a limitation of this study. Future research should consider the effect of many other factors such as inflation, epidemics, political factors, etc.

AUTHOR CONTRIBUTIONS

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Formal analysis: Uyen Diep To.
Funding acquisition: Uyen Diep To.
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