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Impact of equity structure on risk of financial distress in Vietnam

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C H R O N I C L E

Article history:
Received December 1, 2023
Received in revised format
December 24 2023
Accepted March 20 2024
Available online
March 21 2024

Keywords:
Financial distress risk
Equity structure
Ownership structure
Vietnam
Hanoi Stock Exchange

A B S T R A C T

This study aims to evaluate the impact of transparency of budget structure on risk of getting into financial distress in Vietnam. The article uses data regarding equity proportion from the financial reports of business entities on Hanoi Stock Exchange (HNX), divided into four main categories, namely large ownership, institutional ownership, managerial ownership, and state ownership ratio, to find the relation between the allocation of equity and the chance a company having financial failure. From the mentioned information, the research attempts to explain the relations, as well as suggestions for companies to prepare and avoid financial distress from an equity structure perspective. Results from the study's sample show insignificant correlations between the share of owners and financial distress situation of a company, which plays a part to help the overall estimation of risk in businesses as a whole.

1. Introduction

The most recent global economic and financial crisis functioned as a significant stress test, exposing a heightened vulnerability to financial distress risk (FDR) for firms and their stakeholders such as creditors, corporate managers, shareholders, institutional investors, individuals, and governmental regulatory bodies. Husson-Traore (2009) indicates that the 2008 global financial crisis highlighted two significant issues: firstly, the decisive role of the ownership structure mechanism when firms face financial difficulties; secondly, the inadequacy of credit rating agencies, governments, and credit institutions in preventing and coping with FDR.

The 1960s witnessed the emergence of numerous studies on FDR prediction models such as Beaver (1966), Altman (1968), Altman et al. (1977), Ohlson (1980), and Zmijewski (1984). Research during that period focused on the predictive ability of data collected based on firms' financial reports. Lee & Yeh (2004), Deng & Wang (2006), and Fich & Slezak (2008) argue that solely relying on accounting data is insufficient for FDR prediction and propose supplementing with a corporate governance factor group in which the ownership structure is a component. Existing empirical research has focused on elucidating the association between ownership structure and FDR. Prior studies by Chaganti et al. (1985), Chang (2009), Fich & Slezak (2008), Lajili & Zeghal (2010), and Manzaneque et al. (2015) highlight the differential impact of corporate governance attributes on firms. Their findings suggest that ownership concentration and board structure exert varying influences depending on whether the firm is experiencing financial distress or is financially healthy. However, research on the influence of ownership rights on FDR is still limited and the results remain inconclusive (Daily & Dalton (1994a); Deng & Wang (2006); Mangena & Chamisa (2008); Donker et al. (2009); Lajili & Zeghal (2010)). A substantial body of existing

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doi: 10.5267/j.ac.2024.3.001

research offers a comprehensive examination of the interplay between ownership structure and FDR. This established body of knowledge provides a strong foundation for further inquiry within this domain.

The Vietnamese economy has provided a context for further strengthening empirical evidence in research on the impact of ownership structure on FDR based on the principal-agent theory. This study is going to answer research questions: How does equity structure impact financial distress risk?

2. Literature review and hypothesis development

2.1. Equity structure of the enterprise

The equity structure of a business is being increasingly focused on and considered as a factor affecting the corporate governance process and performance measurement according to Short (1994) and Shleifer and Vishny (1997). Investors are always interested in maximizing profits, therefore, the structure of a business is always of great importance, affecting the ability to meet the profit needs of shareholders. However, many studies suggest that equity structure has no correlation with business performance and company value. According to Modigliani and Miller (1958), it is almost impossible to determine the value of a business and its ability to operate in the future based solely on the ownership structure of shareholders. On the contrary, many studies including Lubatkin and Chatterjee (1994) argue that there is a relationship between equity structure and corporate value. Many studies including Morck et al. (1988), McConnell and Servaes (1990) argue that there is a non-linear correlation between the ownership ratio of the management board and the value of the enterprise. Specifically, when the management authority of the board of directors is low, it seems that the value of the business tends to increase.

Many efforts have been made to use Agency Theory and Property rights theory to build a definition of the equity structure. According to Demsetz (1983), the structure of equity is the endogenous result of the process of dividing shareholder influence. Indeed, the goal of each shareholder is to maximize profits, so the equity structure cannot be separated from this goal. The equity structure determines the profit each shareholder receives based on his or her respective ownership ratio of shares in the enterprise according to Shleifer and Vishny (1997).

Jensen and Meckling (1976) introduced a concept of an enterprise's equity structure to refer to capital allocated within the company - directly managed by the enterprise, and outside the company - not directly managed by enterprise. In a business, this is an important mechanism to attract large capital to business organizations and distribute profits to the public. Therefore, equity structure is defined as the distribution of shareholders' profits based on the proportion of equity capital they contribute (Wu & Shen, 2013).

Basically, equity is divided into internal shareholders and external shareholders. Internal staff include Executive Board and corporate staff. External shareholders include individual investors, state investors and institutional investors who do not directly operate the enterprise, in which individual investors and institutional investors are also divided into domestic investment and foreign investment. Figure 1 depicts the types of equity structures classified based on the concentration of equity ownership combined with the identification of shareholders.

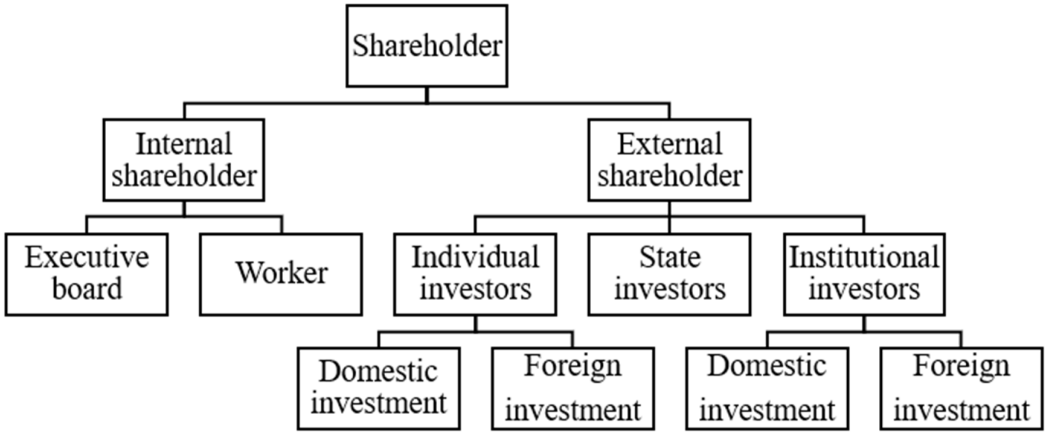

Fig. 1. Equity structure forms

Source: Self-aggregation

2.2. Risk of financial distress

The term financial distress is relatively vague, still, plays an important role in making decisions about a company's finances. According to Altman and Hotchkiss (2010), financial distress can be attributed to 4 terms commonly used in business research: failure, insolvency, bankruptcy, and default. Based on the theoretical framework of cash flow modeling and asset liquidation, the above four terms are often used in expressing the financial distress of an enterprise. A business can be considered a "reservoir" formed by the inflow and outflow of the business, whereby he argues that the business is in the same difficulties as the reservoir being drained (Beaver, 1996).

Foster (1986) argues that financial distress is the lack of ability for businesses to pay debts; without large-scale restructuring of business operations, this problem can hardly be completely solved. Doumpos and Zopounidis (1999) also point out that financial distress is not simply the inability to guarantee the payment of a business's debts to maturity, but also refers to the fact that the total liabilities of the enterprise exceed the total assets of the enterprise. Doumpos and Zopounidis (1999) showed that financial distress is not simply the insolvency of debts due, but also includes negative net asset value. In other words, the total liabilities of the enterprise exceed the sum of its assets. Ross et al. (1999) point out that financial difficulties arise when the enterprise faces the following situations: first, business failure, i.e. the enterprise cannot pay outstanding debts after liquidation of assets; second, bankruptcy, when specific bankruptcy proceedings are initiated by creditors or businesses filing for bankruptcy in court; thirdly, technical bankruptcy, when the enterprise cannot fulfill debt repayment obligations for both principal and interest debts; Fourth, bankruptcy on the books, means that the net asset value of the business is a negative number.

Most research on financial distress has been conducted in developed countries and has mainly focused on predicting the likelihood of bankruptcy, which is considered the worst manifestation of corporate financial distress (Mckee, 2000; Shin & Lee, 2002; Pendharkar, 2005; Chaudhuri & De, 2011). Lin (2009) proposed a definition for financial distress, describing the situation when an enterprise becomes insolvent to repay its debt obligations due in its research conducted in Taiwan.

Especially in countries with deep government intervention such as China and Vietnam, the decision of which companies are in financial distress will be made by stock market management institutions. For example, a company with negative after-tax profit for two consecutive years or whose net asset value per share is lower than par value may be listed as a company subject to special control (Sun & Hui, 2006; Ding et al., 2008; Sun et al., 2011). In addition, Sun et al. (2011) also introduced a relative concept of economic development, which is the deterioration of the development process of the business itself.

In summary, there are many perspectives and schools in defining financial distress, based on each goal that researchers aim for, financial distress applied in each specific case will be understood in a different sense. However, from the perspective of theoretical analysis, financial security is a temporary difficulty in cash flow in mild cases, business failures leading to losses and bankruptcy in severe cases. In fact, identifying a business in financial distress is still a controversial issue. Based on the current research situation, this topic found that the identification of a business's financial distress is mainly based on financial information taken from the enterprise's financial reporting system and established indicators of financial distress risk, Details will be presented in the following sections.

Initially, the risk of financial distress - FDR is measured and evaluated primarily based on financial indicators from the financial statements. In particular, Beaver (1996) detailed 30 financial indicators, dividing this group of indicators into 6 groups based on univariate analysis. According to Beaver, these 6 groups of indicators play a very important role, being an extremely effective tool to measure financial distress. In addition, by analyzing multifactor differentiators (MDAs) to identify smaller groups of indicators and developing the Z_score index improved by Altman (1968), this index is arguably the first and most popular indicator used to measure the risk of financial distress.

However, Beaver and Altman both rely on financial metrics from their financial statements to measure FDR. Although this method offers significant improvements, according to Beaver et al. (2011), the historical element of financial data cannot directly provide a measurement tool for expectations and variations in net assets due to business operations. Moreover, decisions about non-payment or bankruptcy declarations often depend on timing decisions.

Researchers have developed FDR measurement and forecasting tools based on collecting market information, thereby limiting the disadvantages of measuring only on financial statements. Option pricing theory (Black & Scholes, 1973) with Merton's model (1974) was the first study of the European-style valuation of corporate equity, on the basis of corporate assets. This theory is credited with initiating the development of tools for measuring and forecasting the risk of financial distress.

Although measures using market data such as distance-to-default (Merton, 1974), BSM_Prob (Hillegeist et al., 2004) and CHS (Campbell et al., 2008) demonstrate a high level of detail in measuring FDR, they are rarely used because of their high complexity. In contrast, the formulation of FDR measurement tools on financial information remains important and continues to be widely used as the Z_score index (Altman, 1968), the O_score index (Ohlson, 1980), the Zm_score index (Zmijewski, 1984), as well as simpler means of measurement such as negative working capital, cash flow from operating activities is negative and interest payment ratio, as studied by Mario Hernandez Tinoco (2013).

In short, measuring by combining financial statements and market information is said to have many advantages compared to simply relying on accounting information to predict the risk of financial distress of the business. However, the issue of information asymmetry is also a big problem when considering the application of this method to developing and underdeveloped countries because of limited information systems and stock market management. Therefore, the adoption of these tools often requires transparency and convenience in full access to market information and accounting data, which is often common in developed nations. Indeed, market information can accurately and promptly reflect the financial position of the current business.

In contrast, for Vietnam, where market information cannot really represent the current financial status of the current enterprise, the method of using financial statements can bring higher accuracy.

So the team decided to use specific measurement variables such as the Z_score index (Altman, 1968).

Table 1
Measurement variables as the Z_score index

	Research	Index	Formula	Explanation
1	Altman (1968)	Z_score	*Z_score = 0,012A + 0,014B + 0,033C + 0,006D + 0,999E* In which: A = Working capital/Total asset; B = Retained earnings/Total asset; C = Returned on assets; D = Market value/ Term loan; E = Sales/Total asset.	If the Z_score index is > 2.67, the business is not in financial distress; if the Z_score index is < 1.81, it is classified as being in financial distress and at high risk of bankruptcy. The Z_score index score is in the range of 1.81 and 2.67, implying that the business did not have financial problems at the time of evaluation.

2.3. The impact of equity structure on financial distress risk

Monitoring the managerial activities by shareholders can prevent behaviors detrimental to interests, thereby compelling managers to make decisions beneficial to them. While the benefits of monitoring are distributed to all shareholders, monitoring by some large shareholders will be more advantageous when significant profits are at stake; conversely, the cost is prohibitive for smaller shareholders (Shleifer & Vishny, 1986). Monitoring managerial actions by large shareholders includes strategic choices, delegation issues, or board member elections (Admati et al., 1994). Similarly, the monitoring hypothesis, Elloumi and Gueyie' (2001), suggests that holding shares by large external shareholders reduces the FDR. Parker et al. (2002) identify a positive association between larger shareholder size and internal ownership rights with a firm's survival. Claessens et al. (2002) argue that investors holding significant shares have a vested interest in maximizing firm value. This incentive motivates them to actively gather information, thereby reducing information asymmetry and mitigating agency problems. Parker et al. (2002) indicate that large shareholders support corporate recovery. The proportion of large shareholders' ownership has a negative correlation with bankruptcy probability.Consequently, the hypothesis formulated:

H_1: *High large shareholder equity ratio increases financial distress risk.*

According to Helena and Saifi (2018) and Younas et al. (2021) companies with a higher percentage of institutional ownership experience lower probabilities of financial distress. Li et al. (2021) argue that institutional investors, due to their expertise and resource allocation capabilities, possess a heightened ability to identify companies with strong fundamentals and efficient management practices; thus, firms with a significant institutional investor presence are perceived as more trustworthy and less susceptible to financial difficulties. Claessens and Djankov (1999) propose that a bank ownership stake can enhance a company's value due to the bank's monitoring capabilities and its role as a trusted lender. Similarly, Shleifer and Vishny (1986) argue that a high proportion of institutional ownership strengthens the voice of shareholders, encouraging active monitoring and promoting investment opportunities for the firm. These combined effects suggest that a higher percentage of institutional ownership can lead to improved control and monitoring of managerial behavior. By effectively mitigating agency problems, where managers' interests may diverge from those of shareholders, institutional ownership can potentially lower the risk of financial distress. Drawing upon Jensen and Meckling's (1976) agency cost monitoring theory, the monitoring actions of institutional investors may help companies alleviate agency issues. Hence, based on agency theory, the second hypothesis under study is:

H_2: *High institutional investor equity ratio helps to reduce financial distress risk.*

Some researchers have demonstrated that companies with less state ownership tend to be more efficient. Hart et al. (1997) and Shleifer (1998) advocate for private ownership due to a perceived lack of incentive for cost reduction and quality improvement within government agencies. Boycko et al. (1994, 1996a,b) argue that the inefficiencies plaguing State-Owned Enterprises (SOEs) are rooted in the pursuit of political agendas, inherent political control, and the resulting disputes over

ownership rights with external shareholders. These factors exacerbate agency costs, highlighting privatization as a potential solution for improving efficiency. Boardman and Vining (1989) superior operational efficiency in private enterprises compared to both state-owned and mixed ownership structures, even after accounting for market influences, Vining and Boardman (1992) showed that mixed ownership structures, though less efficient than private firms, outperform state-owned enterprises in terms of profitability. Extensive research by Berger et al. (2007), D'Souza & Megginson (1999), Boubakri & Cosset (1998) and Galal et al. (1994) points towards a positive correlation between privatization and improvements in both operational and financial efficiency of companies. Privatization increases the cost for this influence and subsequently leads to the efficient restructuring of those companies. La Porta & López-de-Silanes (1999) suggest that privatization may bring about profit improvement, although it may cause social losses. Transferring ownership from the state to private entities incentivizes efficient restructuring.

However, Anderson, Lee, and Murrell (2000) argue that newly privatized firms retaining some state ownership may actually exhibit greater efficiency compared to those fully privatized due to the pressure placed on governments to improve efficiency. The research group proposes the hypothesis as follows:

H_3: *High state equity ratio increases financial distress risk.*

Fama and Jensen (1983) raise concerns about agency problems, arguing that high managerial ownership allows management to dominate the board and potentially expropriate shareholder wealth without fear of repercussions. Supporting this view, Stulz (1988) demonstrates that increased ownership and voting rights for managers make hostile takeovers less likely, further entrenching management. However, the issue is not without its complexities. Proponents of higher managerial ownership argue that it can enhance accountability, leading to more efficient decision-making and improved operational performance. Additionally, a larger ownership stake by managers may incentivize them to make choices that prioritize risk mitigation and the reduction of FDR for the firm. Under these conditions, the ***proportion*** of managerial ownership is considered to be related to agency theory, where a higher proportion of managerial ownership may make board members perceive the risks and responsibilities of shareholders, thereby aligning the interests of both parties and potentially reducing conflicts and agency costs due to enhanced managerial oversight effectiveness (Widhiadnyana & Ratnadi (2019), Gunawan & Wijaya (2020)). Consequently, the hypothesis formulated:

H_4: *High management equity ratio helps to reduce financial distress risk.*

3. Research Methods

3.1. Research samples and data analysis

The impact of equity structure forms on the probability of financial distress is assessed by the author using a conditional logit model on a study sample of 200 companies listed between 2020 and 2022 on the HNX and HOSE stock exchanges. The dependent variable in this research method, or FDR, is a binary variable that, for non-exhausted data, takes the value 0 and, for exhausted observations, takes the value 1. According to Hosmer Jr. and colleagues (2013), there is a compatibility and resemblance in research samples, along with academic effectiveness and techniques of employing the model, based on the outcomes and practicality of the investigations. The most advantageous approach is conditional logit. Furthermore, according to Pindado et al. (2008) and Manzaneque et al. (2016), it is not always required to employ a complex combination of control variables in order for the model to perform at its best. various. Profitability, financial expenses, the size of total assets, and retained profits on total assets are the control variables that are employed. In addition to the estimated results, the authors also examined the marginal effect for each variable to explain the instantaneous change of an independent variable with a discrete dependent variable under the conditions. from a conditional logit model under the assumption that there are no further changes.

3.2. Measurement of research variables

Edmans and Holderness (2017) choose shareholders based on equity ownership proportions for two reasons: first, voting rights are primarily used by shareholders to exercise their right to vote and make choices in the executive board. distinct when deciding what to do. Ascertain the size of the company; larger share ownership ratios will provide shareholders more votes and, consequently, more influence. Second, the choice of firm is only influenced favorably by shareholders in proportion to their share capital ratio. What proportion of shares must be held in order to qualify as a substantial shareholder? Major shareholders are frequently companies that possess at least 5% of the corporation's capital and are regarded as essential in monitoring the business's operations, according to Morck, Shleifer, and Vishny (1988). Beside, researches by Bethel, Liebeskind, and Opler (1998), Barclay and Holderness (1991), and McConnell and Servaes (1990) indicate that this procedure can reduce agency costs and increase value for businesses.

The percentage of the company's shares held by state shareholders is utilized throughout the article to calculate the State's equity ratio. The research team gathered information from management and financial records of the companies in the research sample.

The total ratio of equity held by institutional investors is used to determine the institutional ownership (Donker et al., 2009 and Mangena et al., 2020). The executive board's equity ratio is determined by taking the total equity ratio that each member of the board owns in the company (Fich & Slezak, 2008; and Mangena et al., 2020).

The Z-score index is chosen as the measurement tool for the FDR variable. is a binary variable wherein certain non-burnout observations with Z_score values > 1.81 take on the value 0, and burnout observations with Z_score values < 1.81 take on the value 1.

Control variable:

The profitability variable is computed using Return on Assets (ROA), which is an index derived from profit before taxes and interest on total assets. A helpful instrument is the profit margin. useful for assessing the profitability and managerial effectiveness of a company. This is demonstrated by the quantity of money made from sales and investments (Kasmir, 2019). Profitability ratios, including return on sales, return on total assets, and others, according to Wilujeng & Yulianto (2020), show the outcomes of decisions and tactics. The profit ratio of a business indicates its capacity to turn a profit from its product marketing initiatives (Sugiharto et al., 2021). Profitability is therefore anticipated to influence lowering FDR in the article.

The financial cost variable is calculated by dividing the entire asset book value by the financial costs. The financial cost variable should be used to capture financial hardship, according to Asquith et al. (1994) and Andrade & Kaplan (1998), who contend that the debt instrument variables in the model are not very good in explaining financial distress. more effectively convey the effects of financial leverage. Financial cost variables, according to Pindado et al. (2008), enhance the prediction of FDR. More proof of the usefulness of the financial cost variable in the FDR forecasting model is offered by Tinoco & Wilson (2013). The financial cost variable is predicted in the paper to influence raising FDR.

The retained earnings variable is determined by dividing retained earnings by total assets. Retained earnings are the net profits that have accrued but have not yet been dispersed to shareholders. The significance of historical profitability in forecasting future free cash flow and a company's ability to finance itself was highlighted by Routledge & Gadenne (2000). The percentage of retained profits has an impact on how proactive the company is in handling future payment requirements. If a company has numerous payments coming in at the same time and its existing cash source is unavailable, this might potentially put the company in considerable financial danger. Recent research by Mangena et al. (2020) demonstrates a substantial link between retained earnings and FDR.

Total asset size variation is determined by the enterprise size-to-FDR correlation and the logarithm of total assets. Research by Donker et al. (2009), Mario Hernandez Tinoco (2013), and Mangena et al. (2020) indicates that although the variable has statistical significance, the results are not consistently consistent.

Table 2
Explanation and description of variables in the study of the impact of equity structure on FDR

Variables	Measure	Symbol	Sign expectations
Dependent variables			
Financial distress risk	A binary variable has a value of 1 for financially distressed data (Z_score < 1.80) and 0 for non-financially distressed observations (Z_score > 1.81).	FDR	
Independent variables			
Blockholder ownership	At least 5% of the shares with voting power of the company are held by the total equity ratio of shareholders.	BO	+
Institutional ownership	Institutional investors' total equity ratio	IO	-
State ownership	The State's total equity ratio	SO	+
Managerial ownership	Members of the executive board's overall ownership ratio	MO	-
Control variable			
Profitability	Total assets at the start of the term plus profit before taxes and interest equals = $EBIT_t / TA_{t-1}$	PROF	-
Financial expenses	Beginning of period financial expenses on total assets = FE_t / TA_{t-1}	FE	+
Retained earning	Retained profits at the beginning of the period over total assets at the beginning of the period = RE_{t-1} / TA_{t-1}	RE	-

Source: Compiled by author

3.3. Analytical techniques

Using a fixed effect conditional logit model, the authors cited earlier research on financial distress. A specific model known as the conditional logit regression model is mostly employed in controlled studies in which the study sample is split into two groups: group one consists of observations that are subjected to the condition. financially distressed, and group two consists of observations with comparable criteria on the overall asset amount but classified as not financially distressed.

From there, under the identical circumstances as before, the rate of enterprises experiencing FDR is assessed and contrasted. The model's parameters are estimated using the technique of maximum likelihood estimation, which guarantees that the data will become most appropriate based on the assumptions of the model's statistical form. The dependent variable, or FDR, must be a binary variable. McFadden (1973) introduced the conditional logit model in economic analysis. The form of the model is as follows:

$$P = \left[Y = \frac{1}{X}\right] = \frac{exp[\propto_i + \beta x]}{1 + exp[\propto_i + \beta x]}$$

In which: Y is a binary variable, taking value 1 if the business is exhausted and taking value 0 in the remaining cases; $\propto_i$ is a constant and x are vectors of explanatory variables. The model uses two groups of explanatory variables: a group of financial index variables and a group of equity structural variables.

This regression approach was chosen for two reasons: first, the dependent variable is binary, which means that conventional regression methods, like OLS, are inappropriate for parameter estimation; and second, the objective is to maintain the pertinent study sample characteristics (Hosmer Jr et al., 2013). This method was also used to construct the regression parameter estimates, and in addition, each variable's marginal effects were examined. Unlike linear regression models with a constant slope, the marginal effect of X on Y is the change in Y for a unit change in X. This slope is known as the derivative of Y with respect to X, and it is symbolized by the notation dY/dX. The derivative, then, is the tiny adjustment to X that yields the marginal impact of X on Y. Therefore, it is required to examine the marginal effect in order to understand how the independent variable influences the discrete dependent variable; in this instance, the conditional logit model is the best option.

Based on studies by Pindado et al. (2008), Manzaneque et al. (2016), and Mangena et al. (2020), the paper employs the popular capital condition logit regression model to produce accurate estimation findings.

$$FDR_{it} = \beta_0 + \beta_1 PROF_{it} + \beta_2 FE_{it} + \beta_3 RE_{it} + \beta_4 BO_{it} + \beta_5 IO_{it} + \beta_6 SO_{it} + \beta_7 MO_{it} + \beta_{8-19} YEAR_t + \varepsilon_{it}$$

In which: FDR is the financial distress risk variable - takes value 1 if the enterprise falls into financial distress and takes value 0 in the opposite case; PROF is profitability; FE is financial cost; RE is retained earnings; BO is the equity ratio of major shareholders; IO is the equity ratio of institutional investors; SO is the State's equity ratio; YEARt is the year impact; it is the random error part.

4. Research results

4.1. Descriptive Statistics

Table 1 presents the descriptive statistical results of the variables in the research sample as a whole. The average equity ratio of large shareholders is 56.23%, indicating a highly concentrated equity structure. The average equity ratio of institutional investors is 25.04% and the average equity capital held by the state is 11.5%, both of which are at a relatively moderate level in the research sample. The average equity ratio of the management team is 7.5%, close to the level considered to be a large shareholder of 5%, indicating that there are certain connections between the interests of the management team and their role as a large shareholder in this sample. Financially non-distressed enterprises have a relatively high profitability ratio of 13.6% and a retained earnings ratio of 7.7%, compared to 7.3% and 5.9% for financially distressed enterprises respectively. However, the average financial cost of financially distressed enterprises is lower than that of financially non-distressed enterprises, with figures of 1.8% and 2.2%.

Regarding variables measuring equity structure, the statistical results show that the average equity ratio of large shareholders in financially non-distressed enterprises is 56.4%, which is higher than the 52.7% of financially distressed enterprises. Similarly, the average equity ratio of institutional investors in financially non-distressed enterprises also follows a similar trend, with values of 25.36% and 19.73% for financially distressed ones respectively. Conversely, the average equity ratios held by the state and the management team in financially healthy enterprises are 11.2% and 7.8%, lower than the ratios in financially distressed ones, with an equity ratio of 16.1% for the state and 3.4% for the management board. The variables SIZE, LEV, ROE, and QUICK are all statistically significant with p-value < 0.05.

Multicollinearity Test: Table 4 presents the results of the multicollinearity test between the independent variables through the correlation coefficient matrix and the variance inflation factor (VIF) coefficient. Hair et al. (2010) and Gareth et al. (2013) suggest that multicollinearity is a cause for concern when VIF > 5 and TOL < 0.2. The test results show that all VIF coefficients of the variables are < 5 and all TOL values of the variables are > 0.2. This helps to conclude that multicollinearity is not significant in this model.

Large shareholder's equity ratio variable - BO, which measures the level of high equity concentration, shows a negative impact on FDR and is statistically insignificant with p-value < 0.05. This research result contradicts the results of (Elloumi

& Gueyié, 2001), (Parker & et al., 2002) and (Manzaneque & et al., 2016); therefore, conclude that there is not enough proof to accept hypothesis ***H1: High large shareholder equity ratio increases financial distress risk.***

The variable of institutional investor equity ratio - IO shows a negative correlation with FDR and is statistically insignificant with p-value < 0.05. This result is consistent with the studies of (Lee & Yeh, 2004) and (Udin & et al., 2017), thus unable to accept hypothesis ***H2: High institutional investor equity ratio helps to reduce financial distress risk.***

The variable of state equity ratio - SO shows a positive correlation with FDR and is statistically insignificant with p-value < 0.05. This research result is consistent with the conclusions of (Shahwan, 2015). This fails to prove hypothesis ***H3: High state equity ratio increases financial distress risk.***

Management equity ratio variable - MO shows a negative correlation with FDR and is statistically insignificant with p-value < 0.05. The research result is consistent with the results of (Deng & Wang, 2006), (Manzaneque & et al., 2016) and (Mangena & et al., 2020), thus there is a lack of proof to accept hypothesis ***H4: High management equity ratio helps to reduce financial distress risk.***

The majority of control variables used in the model show low statistical significance; however, the signs of the regression coefficients are consistent with the initial expectations.

Heteroskedasticity test: The thesis uses the Breusch-Pagan Lagrangian test to check for heteroskedasticity in the OLS and REM models. The test results in Table 7 show that the OLS models with the dependent variable Z_score do not have heteroskedasticity with p-value < 0.05. However, the test for random models shows that heteroskedasticity appears with p-value < 0.05.

Breusch and Pagan Lagrangian multiplier test for random effects

FDR[ID,t] = Xb + u[ID] + e[ID,t]

Estimated results:

	Var	SD = sqrt(Var)
FDR	**0.053146**	**0.230534**
e	**0.009954**	**0.099769**
u	**0.037756**	**0.194308**

Test: Var(u) = 0

chibar2(01) = 291.88

Prob > chibar2 = 0.0000

Autocorrelation test: The thesis uses the Wooldridge test to test for autocorrelation. The test results in Table 8 show that the regression models with the dependent variable Z_score have autocorrelation with a p-value < 0.05. This leads to the conclusion that the OLS, alongside random effect models, does not explain the ability to affect the dependent variable, and other estimation models are more likely to cover the impact of equity structure on financial distress risk. FEM and REM estimation: The F-test results in Table 10 show that the REM models with standard errors and the dependent variable Z_score are more appropriate than the OLS models with standard errors at a p-value < 0.05. The Hausman test results in Table 11 also show that the REM models (using the dependent variables Z_score) with standard errors are more appropriate than the FEM model with standard errors at p-value < 0.05, and the FEM model is more appropriate for the dependent variable. However, the p-value of the independent variables regarding equity structure is still over 0.05, thus concluding that these variables are statistically insignificant in REM and FEM models with p-value < 0.05; therefore unable to prove any of the suggested hypotheses. Table 12 presents the regression results that examine the impact of equity ownership structure on the risk of financial distress. FGLS estimation is used with adjustments to attempt to address the shortcomings of the regression model.

The coefficient of BO is positive in FGLS estimation but statistically insignificant. Therefore, there is no evidence to support

hypothesis ***H1: High large shareholder equity ratio increases financial distress risk.***.

The coefficient of IO variable is positive in FGLS estimation but statistically insignificant. Therefore, the result fails to support hypothesis ***H2: High institutional investor equity ratio helps to reduce financial distress risk.***

The coefficient of SO variable has negative correlation to FDR in FGLS estimation but is statistically insignificant. Therefore, can not conclude support for hypothesis ***H3: High state equity ratio increases financial distress risk.***

The coefficient of MO variable has negative correlation to FDR in FGLS estimation but is statistically insignificant. Therefore, the result fails to support hypothesis ***H4: High management equity ratio helps to reduce financial distress risk.***

5. Implications

The findings of the study did not definitively demonstrate the significance of equity structure in embracing the financial distress risk of non-financial enterprises listed on the HNX in Vietnam. However, to foster deeper comprehension and more practical application, ongoing research and advancement are warranted in the following areas:

Firstly, there is a need to broaden the scope of investigation to encompass novel factors that may impact the risk of financial distress, such as CSR awareness, earnings management, and explore their interaction with equity structure among the financial distress risk of businesses listed on the Vietnamese stock exchange.

Secondly, conducting thorough and comparative research on the influence of different variables on financial distress risk, while accounting for contextual factors and local characteristics to ensure the validity, reliability, and applicability of research findings, is imperative.

Thirdly, research should expand to incorporate diverse research methodologies, including expert interviews, case studies, and the utilization of theoretical models to assess the relationship between financial distress risk, equity structure,and capital structure in a more comprehensive manner.

These directions will enable future research not only to enhance understanding of the influence of equity structure on financial distress risk but also to contribute to the formulation of more effective policies and management strategies for enterprises listed on the Vietnamese stock market.

6. Conclusion

This article has evaluated the financial distress of enterprises based on equity structure. However, the experimental results indicate that there is not sufficient evidence to demonstrate that these ownership ratios significantly affect the financial distress of non-financial enterprises on the HNX Stock Exchange in Vietnam. Specifically, there is no evidence accurately reflecting the impact of ownership on the financial distress of enterprises. This means that factors such as large ownership, institutional ownership, managerial ownership, and state ownership cannot be identified as determining factors in shaping the financial distress of enterprises on the HNX Stock Exchange.

These findings highlight an important aspect of the flexibility and independence of enterprise managers in Vietnam. Specifically, managers have less constraint from shareholders, especially large shareholders, institutions, or the state. This suggests that management decisions may be made based on factors other than those imposed by large shareholder groups, fostering flexibility and innovation in enterprise management.

In conclusion, understanding the relationship between ownership and financial distress of enterprises is a crucial part of risk analysis and management in business operations. However, further research is needed to better understand other factors that may influence financial distress, while ensuring flexibility and independence in enterprise management.

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Appendices

Table 1
Descriptive statistics of all companies in the sample

Variable	Obs	Mean	Std.	Min	Max
PROF	**516**	**0.077068**	**0.170394**	**-0.18**	**2.182**
FE	**516**	**0.018684**	**0.024038**	**-0.11816**	**0.197**
RE	**516**	**0.060923**	**0.102085**	**-0.691**	**0.419767**
SIZE	**516**	**11.76083**	**0.606013**	**10.263**	**13.42**
BO	**516**	**0.562255**	**0.235635**	**0**	**0.9968**
IO	**516**	**0.250488**	**0.28051**	**0**	**0.9927**
SO	**516**	**0.115098**	**0.230659**	**0**	**0.9968**
MO	**516**	**0.075453**	**0.12145**	**0**	**0.85617**
LEV	**516**	**0.48435**	**0.228913**	**0**	**0.910835**
CASH	**516**	**0.081336**	**0.098608**	**0.000381**	**0.65901**
ROA	**516**	**0.050717**	**0.068624**	**-0.2109**	**0.4712**
ROE	**516**	**0.095934**	**0.121784**	**-1.0052**	**0.6654**
ROIC	**516**	**0.254458**	**1.729426**	**-1.81**	**34.86**
ROS	**516**	**0.096606**	**0.328736**	**-1.0874**	**5.8421**
RD	**516**	**0.067011**	**0.086674**	**0**	**0.619**
QUICK	**516**	**1.17441**	**5.913461**	**0.004**	**131.4676**
LOSE	**516**	**0.04845**	**0.214923**	**0**	**1**

Table 2
Descriptive statistics of financially distressed companies in the sample

Variable	Obs	Mean	Std.	Min	Max
PROF	**487**	**0.073366**	**0.167713**	**-0.18**	**2.182**
FE	**487**	**0.018479**	**0.024252**	**-0.11816**	**0.197**
RE	**487**	**0.059918**	**0.102908**	**-0.691**	**0.419767**
SIZE	**487**	**11.76909**	**0.616959**	**10.263**	**13.42**
BO	**487**	**0.564328**	**0.235363**	**0**	**0.9968**
IO	**487**	**0.253655**	**0.28257**	**0**	**0.9927**
SO	**487**	**0.11236**	**0.229611**	**0**	**0.9968**
MO	**487**	**0.077903**	**0.123615**	**0**	**0.85617**
LEV	**487**	**0.477557**	**0.224221**	**0**	**0.910835**
CASH	**487**	**0.079222**	**0.092113**	**0.000381**	**0.606**
ROA	**487**	**0.048043**	**0.06329**	**-0.2109**	**0.4712**
ROE	**487**	**0.089486**	**0.116075**	**-1.0052**	**0.644**
ROIC	**487**	**0.264045**	**1.779104**	**-1.81**	**34.86**
ROS	**487**	**0.098782**	**0.33736**	**-1.0874**	**5.8421**
RD	**487**	**0.067556**	**0.087933**	**0**	**0.619**
QUICK	**487**	**0.939678**	**1.421269**	**0.004**	**13.48292**
LOSE	**487**	**0.051335**	**0.220906**	**0**	**1**

Table 3
Descriptive statistics of healthy companies in the sample

Variable	Obs	Mean	Std.	Min	Max
PROF	**29**	**0.139226**	**0.203875**	**-0.12626**	**0.831983**
FE	**29**	**0.022126**	**0.020165**	**0**	**0.08942**
RE	**29**	**0.077807**	**0.086894**	**0.005181**	**0.384781**
SIZE	**29**	**11.62221**	**0.356247**	**10.65513**	**12.15996**

BO	**29**	**0.527441**	**0.241673**	**0.0809**	**0.8867**
IO	**29**	**0.197314**	**0.241366**	**0**	**0.65**
SO	**29**	**0.161069**	**0.247301**	**0**	**0.65**
MO	**29**	**0.034298**	**0.064883**	**0**	**0.270534**
LEV	**29**	**0.598442**	**0.27729**	**0.000622**	**0.903013**
CASH	**29**	**0.116827**	**0.173755**	**0.00121**	**0.65901**
ROA	**29**	**0.095625**	**0.121975**	**0.000256**	**0.455112**
ROE	**29**	**0.204221**	**0.161443**	**0.0003**	**0.6654**
ROIC	**29**	**0.093448**	**0.209732**	**0**	**1.07**
ROS	**29**	**0.060076**	**0.103683**	**0.0017**	**0.5004**
RD	**29**	**0.057864**	**0.062233**	**0**	**0.234199**
QUICK	**29**	**5.116297**	**24.31187**	**0.060436**	**131.4676**
LOSE	**29**	**0**	**0**	**0**	**0**

Table 4
Autocorrelation test result

Variable	VIF	1/VIF
ROA	**3.94**	**0.254005**
ROE	**3.35**	**0.298258**
LEV	**1.99**	**0.502264**
BO	**1.68**	**0.59489**
ROS	**1.66**	**0.602473**
SO	**1.57**	**0.635268**
IO	**1.57**	**0.63712**
SIZE	**1.41**	**0.709596**
ROIC	**1.38**	**0.7242**
PROF	**1.33**	**0.750625**
RE	**1.31**	**0.76062**
LOSE	**1.3**	**0.766383**
CASH	**1.3**	**0.767988**
FE	**1.25**	**0.80006**
RD	**1.23**	**0.810063**
MO	**1.12**	**0.888974**
QUICK	**1.07**	**0.933247**
Mean VIF		**1.68**

Table 5
Correlation matrix of the sample

	PROF	FE	RE	SIZE	BO	IO	SO
PROF	1.0000						
FE	-0.0684 0.1207	1.0000					
RE	0.1868 0.0000	-0.0446 0.3124	1.0000				
SIZE	0.0397 0.3677	0.2600 0.0000	0.0014 0.9738	1.0000			
BO	-0.0458 0.2991	-0.0937 0.0333	0.0200 0.6505	-0.1372 0.0018	1.0000		
IO	0.0148 0.7378	0.0327 0.4581	0.0955 0.0301	0.0557 0.2069	0.3315 0.0000	1.0000	
SO	0.0083 0.8510	-0.0976 0.0266	0.0323 0.4640	0.0730 0.0975	0.3523 0.0000	-0.2843 0.0000	1.0000
MO	-0.0491 0.2656	0.0124 0.7786	0.0613 0.1644	-0.1473 0.0008	0.1682 0.0001	-0.1270 0.0039	0.1591 0.0003
LEV	-0.0848 0.0542	0.3541 0.0000	-0.3079 0.0000	0.4195 0.0000	-0.0094 0.8318	0.0590 0.1812	0.0124 0.7794
CASH	0.1285 0.0035	-0.2146 0.0000	0.2598 0.0000	-0.1916 0.0000	0.1055 0.0165	0.0491 0.2656	0.0867 0.0491
ROA	0.4638 0.0000	-0.0813 0.0650	0.3287 0.0000	-0.0879 0.0460	0.1107 0.0119	0.0427 0.3332	0.0493 0.2636
ROE	0.3993 0.0000	0.0094 0.8312	0.2478 0.0000	0.0435 0.3246	0.1225 0.0053	0.0619 0.1601	0.0636 0.1493
ROIC	0.0643 0.1448	-0.0239 0.5877	-0.0200 0.6505	0.0399 0.3658	-0.0034 0.9392	-0.0264 0.5498	-0.0502 0.2553
ROS	0.2108 0.0000	-0.0014 0.9744	-0.0171 0.6991	0.0869 0.0484	-0.0375 0.3953	0.0163 0.7116	-0.0676 0.1249
RD	0.1343 0.0022	-0.1450 0.0010	0.1667 0.0001	-0.1681 0.0001	0.0952 0.0305	0.0868 0.0489	0.0839 0.0569
QUICK	-0.0317 0.4726	-0.0617 0.1616	-0.0160 0.7172	-0.0534 0.2262	-0.0844 0.0554	-0.0469 0.2881	-0.0390 0.3770
LOSE	-0.1622 0.0002	0.0421 0.3400	-0.1265 0.0040	-0.0346 0.4324	-0.0731 0.0974	-0.0471 0.2859	-0.0827 0.0606

	MO	LEV	CASH	ROA	ROE	ROIC	ROS
MO	1.0000						
LEV	-0.1306 0.0030	1.0000					
CASH	0.0777 0.0780	-0.2197 0.0000	1.0000				
ROA	0.0382 0.3867	-0.3088 0.0000	0.3452 0.0000	1.0000			
ROE	0.0039 0.9303	-0.0153 0.7288	0.2331 0.0000	0.7826 0.0000	1.0000		
ROIC	0.0148 0.7366	0.0000 0.9996	-0.0632 0.1520	0.0816 0.0640	0.0867 0.0490	1.0000	
ROS	-0.0596 0.1762	-0.0850 0.0536	-0.0658 0.1354	0.3103 0.0000	0.3347 0.0000	0.5055 0.0000	1.0000
RD	0.0512 0.2459	-0.3246 0.0000	0.2257 0.0000	0.2736 0.0000	0.0991 0.0244	-0.0411 0.3516	-0.0046 0.9166
QUICK	-0.0353 0.4235	-0.1801 0.0000	-0.0464 0.2931	-0.0401 0.3630	-0.0568 0.1980	0.0050 0.9091	0.0167 0.7055
LOSE	-0.0608 0.1682	0.0126 0.7752	-0.0710 0.1072	-0.4012 0.0000	-0.4515 0.0000	-0.0526 0.2328	-0.1551 0.0004

	RD	QUICK	LOSE
RD	1.0000		
QUICK	-0.0422 0.3384	1.0000	
LOSE	-0.0878 0.0462	-0.0193 0.6620	1.0000

Table 6
Result of OLS model

Z_Score	Coefficient	Std.	t	P>|t|	[95%conf.interval]	
PROF	**0.105428**	**0.283919**	**0.37**	**0.711**	**-0.4524**	**0.663254**
FE	**3.078286**	**1.949373**	**1.58**	**0.115**	**-0.75172**	**6.908295**
RE	**-0.13816**	**0.470776**	**-0.29**	**0.769**	**-1.06311**	**0.786792**
SIZE	**-0.25833**	**0.082106**	**-3.15**	**0.002**	**-0.41964**	**-0.09701**
BO	**-0.03506**	**0.230622**	**-0.15**	**0.879**	**-0.48817**	**0.418056**
IO	**-0.27165**	**0.187198**	**-1.45**	**0.147**	**-0.63945**	**0.096144**
SO	**0.266347**	**0.227988**	**1.17**	**0.243**	**-0.18159**	**0.714284**
MO	**-0.35928**	**0.36603**	**-0.98**	**0.327**	**-1.07843**	**0.359874**
LEV	**0.689189**	**0.258359**	**2.67**	**0.008**	**0.181581**	**1.196798**
CASH	**-0.27308**	**0.485032**	**-0.56**	**0.574**	**-1.22604**	**0.679882**
ROA	**2.320528**	**1.211883**	**1.91**	**0.056**	**-0.06051**	**4.701562**
ROE	**1.767992**	**0.630191**	**2.81**	**0.005**	**0.529833**	**3.006152**
ROIC	**0.004464**	**0.028479**	**0.16**	**0.876**	**-0.05149**	**0.060419**
ROS	**-0.41735**	**0.164265**	**-2.54**	**0.011**	**-0.74009**	**-0.09462**
RD	**0.280968**	**0.537296**	**0.52**	**0.601**	**-0.77468**	**1.336615**
QUICK	**0.02057**	**0.007337**	**2.8**	**0.005**	**0.006155**	**0.034985**
LOSE	**0.546026**	**0.222769**	**2.45**	**0.015**	**0.108344**	**0.983709**
cons	**2.92719**	**0.955151**	**3.06**	**0.002**	**1.050567**	**4.803813**

Table 7
Heteroskedasticity test result

Source	chi2	df	p
Heteroskedasticity	**233.37**	**169**	**0.0008**
Skewness	**86.99**	**17**	**0**
Kurtosis	**33.82**	**1**	**0**
Total	**354.18**	**187**	**0**

Table 8

Autocorrelation test result

```
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,     171) =    1210.592
           Prob > F =      0.0000
```

Table 9
Result of FEM model

FDR	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
PROF	**0.013202**	**0.042173**	**0.31**	**0.754**	**-0.06976**	**0.096168**
FE	**0.115943**	**0.314039**	**0.37**	**0.712**	**-0.50185**	**0.733735**
RE	**-0.12205**	**0.140942**	**-0.87**	**0.387**	**-0.39932**	**0.155213**
SIZE	**0.085291**	**0.071902**	**1.19**	**0.236**	**-0.05616**	**0.22674**
BO	**-0.10314**	**0.06206**	**-1.66**	**0.097**	**-0.22523**	**0.018946**
IO	**0.023759**	**0.039251**	**0.61**	**0.545**	**-0.05346**	**0.100974**
SO	**0.01463**	**0.05911**	**0.25**	**0.805**	**-0.10165**	**0.130914**
MO	**-0.02713**	**0.079301**	**-0.34**	**0.733**	**-0.18313**	**0.128878**
LEV	**-0.11813**	**0.085839**	**-1.38**	**0.17**	**-0.287**	**0.050735**
CASH	**-0.01447**	**0.105555**	**-0.14**	**0.891**	**-0.22212**	**0.19318**
ROA	**-0.07613**	**0.183873**	**-0.41**	**0.679**	**-0.43785**	**0.285594**
ROE	**-0.11396**	**0.09282**	**-1.23**	**0.22**	**-0.29656**	**0.068638**
ROIC	**0.001698**	**0.003871**	**0.44**	**0.661**	**-0.00592**	**0.009314**
ROS	**0.010871**	**0.02485**	**0.44**	**0.662**	**-0.03802**	**0.059758**
RD	**-0.43535**	**0.30855**	**-1.41**	**0.159**	**-1.04235**	**0.171639**
QUICK	**-0.00778**	**0.000953**	**-8.17**	**0**	**-0.00966**	**-0.00591**
LOSE	**-0.01817**	**0.031653**	**-0.57**	**0.566**	**-0.08044**	**0.044101**
cons	**0.108258**	**0.831932**	**0.13**	**0.897**	**-1.52836**	**1.744873**
sigma_u	**0.216201**					
sigma_e	**0.099769**					
rho	**0.824438**	(fraction of variance due to u_i)				

F test that all u_i=0: F(171, 327) = 11.63 Prob > F = 0.0000

Table 10
Result of REM model

FDR	Coefficient	Std.err.	z	P>|z|	[95% conf. interval]	
PROF	**0.016331**	**0.040011**	**0.41**	**0.683**	**-0.06209**	**0.094751**
FE	**0.102975**	**0.292585**	**0.35**	**0.725**	**-0.47048**	**0.676432**
RE	**-0.12268**	**0.107715**	**-1.14**	**0.255**	**-0.3338**	**0.088435**
SIZE	**0.051843**	**0.026646**	**1.95**	**0.052**	**-0.00038**	**0.104069**
BO	**-0.0238**	**0.049202**	**-0.48**	**0.629**	**-0.12024**	**0.072632**
IO	**0.022477**	**0.034463**	**0.65**	**0.514**	**-0.04507**	**0.090023**
SO	**-0.00411**	**0.048687**	**-0.08**	**0.933**	**-0.09953**	**0.091316**
MO	**0.039431**	**0.069511**	**0.57**	**0.571**	**-0.09681**	**0.175669**
LEV	**-0.19902**	**0.061082**	**-3.26**	**0.001**	**-0.31874**	**-0.0793**
CASH	**-0.05724**	**0.093514**	**-0.61**	**0.54**	**-0.24053**	**0.126042**
ROA	**-0.17356**	**0.172822**	**-1**	**0.315**	**-0.51229**	**0.16516**
ROE	**-0.14742**	**0.089029**	**-1.66**	**0.098**	**-0.32191**	**0.027073**
ROIC	**0.001455**	**0.003698**	**0.39**	**0.694**	**-0.00579**	**0.008702**
ROS	**0.02125**	**0.023834**	**0.89**	**0.373**	**-0.02546**	**0.067963**
RD	**-0.08121**	**0.163343**	**-0.5**	**0.619**	**-0.40136**	**0.238937**
QUICK	**-0.00781**	**0.000936**	**-8.34**	**0**	**-0.00964**	**-0.00597**
LOSE	**-0.02615**	**0.030425**	**-0.86**	**0.39**	**-0.08578**	**0.033484**
_cons	**0.481066**	**0.308971**	**1.56**	**0.119**	**-0.12451**	**1.086638**
sigma_u	**0.194308**					
sigma_e	**0.099769**					
rho	**0.791366**					

Table 11
Result of Hausman test

	(b) fem	(B) rem	(b-B) Difference	sqrt(diag(V_b-V_B)) Std.err.
PROF	**0.013202**	**0.016331**	**-0.00313**	**0.01333**
FE	**0.115943**	**0.102975**	**0.012967**	**0.114082**
RE	**-0.12205**	**-0.12268**	**0.000629**	**0.090896**
SIZE	**0.085291**	**0.051843**	**0.033448**	**0.066782**
BO	**-0.10314**	**-0.0238**	**-0.07934**	**0.037824**
IO	**0.023759**	**0.022477**	**0.001282**	**0.018786**
SO	**0.01463**	**-0.00411**	**0.018739**	**0.033519**
MO	**-0.02713**	**0.039431**	**-0.06656**	**0.03817**
LEV	**-0.11813**	**-0.19902**	**0.080886**	**0.060309**
CASH	**-0.01447**	**-0.05724**	**0.042771**	**0.048958**
ROA	**-0.07613**	**-0.17356**	**0.097435**	**0.062785**
ROE	**-0.11396**	**-0.14742**	**0.03346**	**0.026256**
ROIC	**0.001698**	**0.001455**	**0.000243**	**0.001147**
ROS	**0.010871**	**0.02125**	**-0.01038**	**0.007036**
RD	**-0.43535**	**-0.08121**	**-0.35415**	**0.261768**
QUICK	**-0.00778**	**-0.00781**	**2.28E-05**	**0.000179**
LOSE	**-0.01817**	**-0.02615**	**0.007982**	**0.008729**

b = Consistent under H0 and Ha; obtained from xtreg.

B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic

chi2(17) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 23.07

Prob > chi2 = 0.1471

Table 12
FGLS model result

FDR	Coefficient	Std.err.	z	P>|z|	[95% conf. interval]	
PROF	**0.001271**	**0.00781**	**0.16**	**0.871**	**-0.01404**	**0.016577**
FE	**0.018772**	**0.088521**	**0.21**	**0.832**	**-0.15473**	**0.19227**
RE	**-0.02079**	**0.025405**	**-0.82**	**0.413**	**-0.07058**	**0.029004**
SIZE	**0.00381**	**0.00354**	**1.08**	**0.282**	**-0.00313**	**0.010748**
BO	**9.85E-05**	**0.008971**	**0.01**	**0.991**	**-0.01748**	**0.017682**
IO	**0.000638**	**0.006659**	**0.1**	**0.924**	**-0.01241**	**0.01369**
SO	**-0.00449**	**0.009735**	**-0.46**	**0.644**	**-0.02357**	**0.014587**
MO	**-0.00489**	**0.013465**	**-0.36**	**0.717**	**-0.03128**	**0.021504**
LEV	**-0.03762**	**0.013902**	**-2.71**	**0.007**	**-0.06486**	**-0.01037**

CASH	**-0.00879**	**0.023758**	**-0.37**	**0.711**	**-0.05535**	**0.037777**
ROA	**-0.05804**	**0.049928**	**-1.16**	**0.245**	**-0.1559**	**0.039816**
ROE	**0.006883**	**0.030527**	**0.23**	**0.822**	**-0.05295**	**0.066715**
ROIC	**0.000355**	**0.000901**	**0.39**	**0.694**	**-0.00141**	**0.002122**
ROS	**0.001634**	**0.006459**	**0.25**	**0.8**	**-0.01103**	**0.014294**
RD	**-0.01419**	**0.024549**	**-0.58**	**0.563**	**-0.06231**	**0.033926**
QUICK	**-0.00777**	**0.000133**	**-58.39**	**0**	**-0.00803**	**-0.00751**
LOSE	**-0.00728**	**0.006832**	**-1.07**	**0.287**	**-0.02067**	**0.006113**
_cons	**0.982741**	**0.039563**	**24.84**	**0**	**0.9052**	**1.060283**