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# **ABSTRACT**

Analyzing the variables of financial distress is crucial for reducing the risk of bankruptcy by either boosting operational and investment cash flow or decreasing financing cash flow. Also, foreign ownership strengthens operating cash flow. The likelihood of financial distress is however enhanced by greater managerial ownership. The thesis advises businesses to employ foreign ownership, and cash flow management and manage their usage of financial leverage as methods to lower the risk of financial distress.

Keywords: cash flow, foreign ownership, ownership, financial leverage, financial distress

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# **TABLE OF ABBREVIATION**

|  |  |
| --- | --- |
| **Abbreviation** | **Meaning** |
| FE | Fixed effects |
| FEM | Fixed effects model |
| EBITDA | Earnings Before Interest, Taxes, Depreciation and Amortization |
| GLS | Generalized Least Squares |
| HOSE | Ho Chi Minh Stock Exchange |
| LM | Breusch and Pagan LM test |
| MNC | Multinational Corporation |
| NGOs | Non-governmental organization |
| POOLED OLS | Pooled Ordinary Least Squares |
| RE | Random Effects |
| REM | Random Effects Model |
| ROA | Return on Assets |
| VIF | Variance Inflation Factor |

# **CHAPTER 1 INTRODUCTION**

## **1.1. Reason for choosing the topic**

Financial distress happens when a company is at a stage before heading to bankruptcy or liquidation (Kamaludin and Pribadi, 2011). A company is predicted to have financial distress when its EBITDA is lower than finance costs for two consecutive years and its market value also declines significantly for two consecutive years (Tinoco and Wilson, 2013; Rezende Montezano, Oliveira and Lameira, 2017). When financial distress occurs, the financial health of the enterprise declines, making the enterprise unable to pay its due financial obligations. Financial distress is an effective early warning sign for a firm before bankruptcy (Platt and Platt, 2002). Financial distress urges businesses to quickly come up with strategies to change their financial situations and improve business performance. With Vietnam's economic situation in the post-Covid-19 recovery period, the Russia-Ukraine war created many new difficulties for businesses. The shortage of raw material supply from these two important partners, coupled with rising inflation, has created more pressure on costs and quickly pushed many Vietnamese enterprises to the brink of financial distress. The above situation makes the task of identifying financial distress and providing solutions to improve the financial situation of enterprises, which was already important, now become even more urgent.

Many previous studies have presented the factors affecting business performance in enterprises as well as minimizing the risk of financial distress. In particular, revenue and profit are pointed out by researchers as two important factors to improve financial health. However, revenue and profit are seen as two artificial concepts, while cash flow is objective and real (Etemadi and Tariverdi, 2006). Many previous studies have also shown a link between cash flow and financial distress such as Sayari and Mugan (2013), Fawzi et al (2015), showing evidence that cash flow can significantly improve the possibility of falling into financial distress. Cash flow is unlikely to be significantly manipulated by management decisions, so cash flow analysis increases reliability when comparing performance aspects from companies' financial information. Therefore, managing a business's cash flow is as important as controlling one's blood pressure (Schellenger and Cross, 1994).

Management's ownership ratio plays an important role in regulating cash flow, as well as affecting the financial distress of a business. The agency problem theory states that businesses need to create incentives to encourage management to act in the interests of shareholders by linking ownership and operating rights. This activity will motivate the management to be more careful when deciding important issues of the business. Because they themselves, as an owner, will also suffer the same consequences as other shareholders if they make wrong decisions. Therefore, the operating efficiency of the enterprise will be improved and the probability of the enterprise falling into financial distress will also be reduced. In addition, the fact that the management is also the owner of the business will improve the cash management performance for the business activities of the business. Management will regularly evaluate the efficiency of cash flow. Therefore, the business will not have an excess of idle cash but still have enough cash to meet operational needs. Good cash flow management will minimize the risk of financial difficulties for the business. Md-Rus et al. (2013) concluded that management ownership negatively affects financial distress, as an increase in management ownership in a firm reduces the likelihood of financial distress. possibility of financial distress.

Besides, foreign ownership is also a factor that can affect the ability of enterprises to fall into financial distress. Foreign-owned enterprises have the opportunity to access new markets, possess improved management process systems, financial resources and advanced technology to reduce costs. Therefore, the operating efficiency of enterprises is significantly improved compared to enterprises without foreign ownership. Many empirical studies have provided evidence confirming the positive impact on improving corporate performance comes from foreign ownership. It is possible to mention the studies of Harris & Ravenscraft, 1991; Doms & Jensen, 1998; Aitken & Harrison, 1999; Haskel et al., 2007, Arnold & Javorcik, 2009. In addition, foreign ownership reduces the associated problems between shareholder control and minority shareholders. The supervision of foreign investors reduces the profiteering behavior of controlling shareholders, thereby creating a better corporate governance mechanism.

Financial leverage is also a factor that can affect the likelihood of financial distress in a business. Financial leverage can be viewed as a double-edged sword. This is both a tool used to amplify profits and a factor that can bring the risk of loss to businesses. Companies with a high debt ratio depend more on financial leverage than other sources of capital to carry out business operations. Financial leverage also helps to reduce agency problems, increase management's level of effort in running the business, and improve corporate performance. Thereby reducing the risk of bankruptcy of the business. However, higher levels of leverage can also lead to financial distress due to higher debt servicing costs, fewer future investments, lower firm value, and increased conflict in decision-making. between bondholders and shareholders. A highly leveraged company needs to have enough profit and income to cover the additional debt. Therefore, the overall effect of financial leverage on financial distress depends on a balance between the risk-reducing effects of reducing agency problems and the risk-increasing effects of debt financing. increased agency costs of debt. Provide strategies to balance the pros and cons of financial leverage that can be taken into account as a solution to the risks of financial distress when using a firm's financial leverage.

Previous studies have mainly focused on analyzing the effects of cash flow on financial distress and corporate ownership on financial distress. However, the authors found that foreign ownership and management can increase the efficiency of cash flow management of enterprises and affect financial distress. Besides, the use of financial leverage also affects the probability of financial distress of the enterprise. Most of the articles analyze separately the effect of cash flow, financial leverage on financial distress or corporate ownership ratio on financial distress. And the authors find that foreign ownership and management can increase the efficiency of cash flow management of enterprises, the use of high financial leverage will also affect the volatility of cash flows, thereby affecting financial distress. Therefore, the thesis is expected to provide empirical results that combine to demonstrate the impact of cash flows from operating activities, cash flows from investing activities, cash flows from financial activities, foreign ownership and management's ownership ratio, financial leverage to financial distress of non-financial enterprises in Vietnam.

## **1.2. Research objectives and research questions**

The research objectives of the study include:

* Consider the impact of cash flow (from operating activities, from investment activities, from financial activities) on the financial distress of non-financial enterprises in Vietnam.
* Examine the impact of ownership (foreign ownership and management's ownership) on the financial distress of non-financial firms in Vietnam.
* Examining the impact of financial leverage on financial distress of non-financial firms in Vietnam.

Towards the stated research objectives, the study will focus on clarifying the following research questions:

* Cash flow from operating activities, cash flow from investing activities, cash flow from financial activities have an impact on financial distress for non-financial enterprises in Vietnam? If yes, what are the impacts?
* Do foreign ownership and management ownership have an impact on financial distress for non-financial firms in Vietnam? If yes, what are the impacts?
* Does financial leverage have an impact on financial distress for non-financial firms in Vietnam? If yes, what are the impacts?

## **1.3. Object and scope of the research**

### **1.3.1. Research object**

The thesis makes a review of cash flows from operating activities, cash flows from investing activities, cash flows from financial activities, foreign ownership and management's ownership, financial leverage, risk of financial distress of non-financial enterprises in the Vietnam market.

### **1.3.2. Scope of the research**

The research uses sample data from 202 non-financial enterprises listed on the Ho Chi Minh City Stock Exchange (HOSE). The study time frame is from 2017 to 2021.

## **1.4. Methodology**

The study carried out a regression study of panel data according to pooled OLS models (Pooled OLS), fixed effects model (FEM) and random effects model (REM). In addition, the study performs tests to select the appropriate model and test for multicollinearity, test for autocorrelation and test for variance. If the research model has a variable correlation and heteroscedasticity, the study regresses the model by the General Least Squares method (GLS) to overcome the limitations of the research model.

**1.5. Research significance**

Through examining the impact of cash flow, foreign ownership and management board ownership, financial leverage on financial distress, the study hopes to support non-financial enterprises in Vietnam assess the financial status of the business. At the same time, the study provides additional tools of cash flow and foreign ownership ratio, board ownership ratio, and financial leverage to improve the financial difficulties faced by enterprises.

**1.6. Research structure**

To accomplish the research objectives, the study will include 5 chapters, in the following order:

* Chapter 1: Introduction. This chapter provides an overview of the study.
* Chapter 2: Theoretical background and related studies. This chapter introduces the theoretical basis of the research related to the research questions.
* Chapter 3: Methodology. This chapter presents the research model and testing methods related to 2 research questions.
* Chapter 4: Research results. This chapter describes the data samples used in the research models and the test results.
* Chapter 5: Conclusion and recommendations. This chapter presents the general conclusions about the research objectives well as makes recommendations drawn from the experimental results.

# **CHAPTER 2 THEORETICAL BACKGROUND AND RELATED STUDIES**

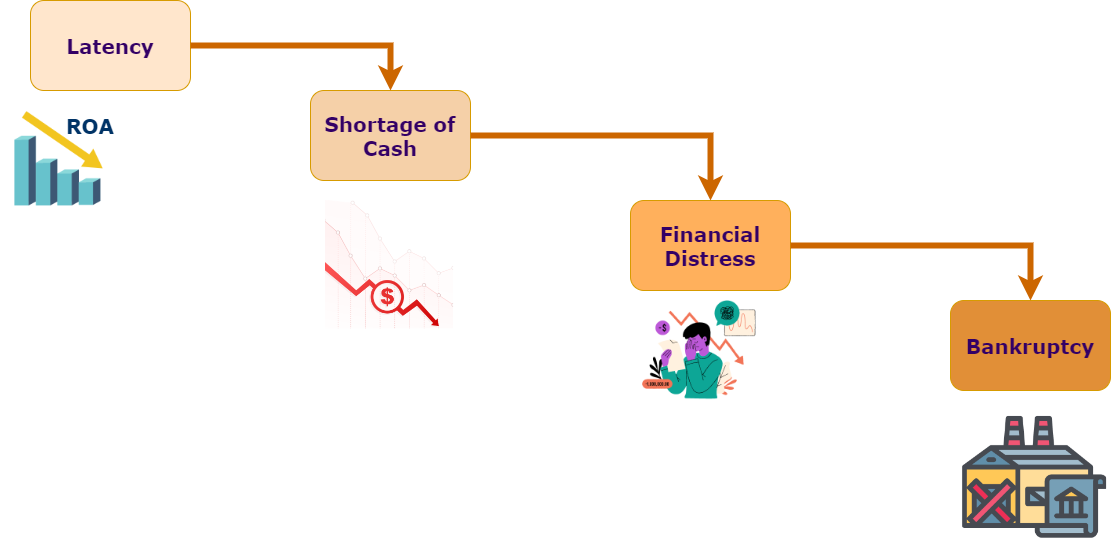
## **2.1. Theoretical background**

**2.1.1. Financial distress**

Financial distress is a condition in which a company or individual cannot generate sufficient revenues or income, making it unable to meet or pay its financial obligations with stakeholders (creditors, customers, suppliers,...). In a business environment with high competitiveness, there is a tendency for corporations to to undergo financial distress as they are likely to mobilize capital by loans. Financial distress is considered a great warning of bankruptcy to the corporations. When sensing this sign, the board must immediately come up with policies improving financial health to the corporation (Platt & Platt 2002). A corporation at the stage of financial distress is up to bankruptcy. Consequently, some shareholders will request to withdraw their stock, others will lose interest in investment into its potential projects (Khaliq and partners, 2014). Therefore, predicting upcoming financial obstacles or financial distress is crucial to the managers and directors of the corporation.

The trade-off theory of capital structure states that corporations operating liability driven mobilization in their capital structure tend to gain benefits on tax shields from the interest. However, increasing loans urge the corporation to face high risk of bankruptcy if the income from business activities cannot afford due financial obligations, which leads to the financial distress to the corporation.

Bankruptcy is caused by a multitude of factors. In some cases its reason can be recognized after analysis of financial statements. But there have been some cases that while the company was to decline, some of the items in its financial statements indicated good short- term performance. Before bankruptcy, the company usually has to go through three previous stages: latency, shortage of cash, and financial distress. Although no exact line can be drawn for stages of the bankruptcy, according to their life cycle most of the companies undergo these four main stages of bankruptcy. Few companies may go bankrupt without going through these steps. Financial distress can be perceived as financial exigency. However, researchers believe that financial distress is the stage between bankruptcy and financial exigency (G. Kordestani, 2011).



*Figure 1: Stages of bankruptcy*

To researchers, financial distress is a stimulating article due to its huge impact on the survival of the corporation. This is generally due to high fixed costs, a large degree of illiquid assets, or revenues sensitive to economic downturns. (Investopedia). Andrade and Kaplan (1998) determine two common circumstances of financial distress. The first one is when the corporation cannot fulfill their due financial obligations to the creditors. Another one occurs when a corporation reconstructs its liabilities to inhibit the recent risk of bankruptcy, this should be seen as a warning sign that the corporation’s illiquidity is about to accelerate in the future. It can also be acknowledged that financial distress takes place at the time the corporation no longer has sufficient liquidity to meet its debts with the third parties.

Moreover, in a research conducted by Opler and Titman in 1994, the authors pointed out how costly financial distress was due to its reduction in the accessibility to loan capital and increasing cost to other stakeholders (customers, suppliers, employees,...). Additionally, financial distress can cause great loss if it decreases the corporation’s competing capability, and gives opponents chances to dominate the market. The situation may get worse when the income of the corporation drops significantly, plus the fixed cost rockets, especially in the recession. Internally, there will be an invisible concern in the workplace, making the employees lose their concentration on work, which leads to unproductivity - worsening everything. These corporations tend to get a larger loan to reassure operational activities, which put the corporation under more pressure to fulfill financial commitment both at the present and in the future.

**2.1.2. The relationship between cash flow and financial distress**

Cash flow is the amount of money earned or spent in a specific period of time, containing three parts: cash flow from operation activities, cash flow from investing activities, and cash flow from financial activities. Cash flow is a crucial and reliable information in determining the productivity of the corporation’s operating, as cash flow is hardly affected subjectively by the Board of Directors. In addition, cash is the type of asset having the highest liquidity of the corporation, thus, cash flow is the best tool to reflect the liquidity of the corporation.

Gentry (1990) has defined financial distress as ‘A state in which incoming cash flow of the company is lower than outgoing cash flow. Such a situation reflects a net cash outflow which corroborates financial distress.’ It can be stated the corporation is financially distressed when it is unable to fulfill its due financial obligations, so-called illiquidity. According to Gentry, the more the cash inflow is, the less the corporation’s risk of financial distress is. If the cash flow from operating activities increases, financial health will improve, which cuts down on loans and interest. Otherwise, the corporations have to raise their liabilities to sponsor their investing plans, which puts them under high financial pressure.

To have a positive financial health, the corporations must efficiently earn from their operating activities. Researcher Ward in 2011 has emphasized it is cash flow from operating activities in Cash Flow Statement that is the key in predicting how financially distressed a corporation is. The negative cash flow from operating activities shows that a corporation cannot meet the news to cash for operations. Furthermore, the cash flow ratio can evaluate how successful a corporation is, as its survival and growth can be determined through its ability to earn from operating activities. Once operating activities earn insufficient cash, the corporation gradually gives up the ability to fulfill its financial obligations, consequently undergoing financial distress and being threatened with bankruptcy. The cash flow ratio was concluded by Mills and Yamamura in 1998 to be a reliable index for investors and creditors, together with some traditional financial indexes like current ratio and quick ratio, to qualify the liquidity of a corporation to honor the commitment on time.

Beside cash flow from operating activities, the two remaining parts of cash flow - investing activities and financial activities - have huge impact on financial distress too. Author Dickinson in 2011 analyzed that: During the stage of establishment and growth, the corporations constantly conduct investing activities to expand the market, enhance their competitive advantage. However, most investing projects are long-term and require high external sponsoring capital, which means the cash flow from investing activities is negative and cash flow from financial activities is positive. This practice is a financial pressure on the corporations, leading them to recession; core operating activities face up with exigency. In this case, usually the management begins to sell assets to not only contemplate the decrease in cash flow from operating activities, but also pay current liabilities. Consequently, cash flow from investing activities becomes positive and cash flow from financial activities becomes negative, which helps the corporations gradually get rid of financial distress.

A conclusion from a practical research conducted by Kordestani and his partners in 2011 says that there are four cash flow models recognizing how financially distressed a corporation is: (1) the surplus in cash flow from operating activities, the deficit in the cash flow from both investing and financial activities, (2) three parts of cash flow, (3) the surplus in the cash flow from both investing and financial activities and the deficit in cash flow from operating activities, (4) both cash flow from operating and financial activities are deficient while cash flow from investing activities is surplus. Another report from Shamsudin and Kamaluddin in 2015 has extended the above conclusion: cash flow from both operating and investing activities are positive while the cash flow from sponsoring activities is negative can make the corporation financially distressed.

**2.1.3. The relations between corporate ownership and financial distress**

**2.1.3.1. The relation between management ownership and financial distress**

Executive board ownership can be expressed through the percentage of the company's share capital held by the members of the management board. In fact, the board of directors is authorized by shareholders to run business activities to benefit the business. However, this delegation separates the executive and ownership rights of executive board members. This leads to the fact that executives tend to conduct activities for personal purposes instead of maximizing corporate value, resulting in conflicts of interest between the management board and other shareholders of the company. Jensen (1993) argues that when board members and direct directors certainly assume executive responsibility but do not benefit from ownership in the business, conflicts of interest will arise between shareholders, board members and managers.

Enhancing management ownership can be considered an effective solution to the agency problem. Damayanti (2017) believes that the participation of the management in the ownership structure of the enterprise is a strong motivation to align their goals with other shareholders of the enterprise, as well as to effectively improve the quality of the enterprise. corporate governance and reduce the probability of business failure. Gilson & Vetsuypens (1993) show that low-quality managers consistently incur significant personal losses when their businesses fall into financial distress. If management is also one of the shareholders of the business, their decisions will be carefully considered and implemented to reduce the risk of facing financial distress.

On the other hand, executive board ownership also has a large influence on cash flow for financial distress. The role of both the operator and shareholder will help managers monitor and improve the cash management performance of the business. Regular evaluation of the efficiency of cash inflows and outflows from business activities by the management will ensure that the business always has enough cash to meet production, business and investment needs. Good management of cash flows, especially cash flows from operations, can reduce the probability of financial distress in the business (Giarto and Fachururozie, 2020).

**2.1.3.2. The relation between foreign ownership and financial distress**

Foreign ownership is represented by the number of shares held by foreign shareholders of the enterprise. The fact that part of the enterprise is owned by foreign shareholders is considered a necessary factor to promote the strong development of the business. Foreign-owned enterprises often have more effective management apparatus, so the business will operate more efficiently and earn more profits. Md-Rus (2013) said that companies with foreign ownership normally are strong companies with strong monitoring of managers. Foreign companies may have easy access to superior technical, managerial talents, and financial resources, and are able to obtain various investment benefits from the government.

Similar to the above study, Aydin et al. (2007) also concluded that foreign ownership has a positive impact on the performance of enterprises, thereby reducing the risk of financial distress. The rate of foreign ownership is directly proportional to the performance of the enterprise, so the possibility of the enterprise falling into financial distress is lower. The reason comes from the fact that foreign shareholders actively promote the transfer of advanced technologies to enterprises in order to reduce operating costs. Another reason mentioned above is that foreign investors will apply a more effective control system, creating motivation for the management to work seriously to improve operational efficiency. business activities; thereby improving the financial difficulties businesses are facing.

Besides, foreign ownership demands transparency for every activity carried out by the company (Idarti & Hasanah, 2018). This gives them the ability to raise capital at a lower cost of capital. Thereby reducing the financial pressure on the future of the business. Foreign shareholders are better profit-oriented and motivate managers to carefully manage business operations. Yoo & Koh (2014) provide evidence that foreign ownership reduces the tax avoidance ability of Korean firms compared to family-owned firms. In addition, information asymmetry and agency problems will be reduced in the presence of foreign ownership. Foreign investors will eliminate manipulative acts in the enterprise, improve corporate governance efficiency and ensure the quality of financial statements to protect shareholders' interests and increase benefits from their investments.

On the contrary, Khorraz & Dewayanto (2020) found that the structure of foreign ownership and the government has a positive effect on financial distress. Omran (2008) also finds no support that the existence of foreign ownership affects the performance of firms in Egypt, Jordan, Tunisia and Oman. Since foreign investors would be likely to invest in good-performance companies and would bail out their position in case of financial difficulties.

**2.1.4. The relationship between financial leverage and financial distress**

Corporate financial leverage is a double-edged sword because it increases profits while exposing you to the risk of losing money. Financial leverage is measured by the ratio of total liabilities to total assets (Hongli, Ajorsu & Bakpa, 2019). According to Enekwe, Ikechukwu, and Nnagbogu (2014), financial leverage is a measure of how much equity and debt a firm uses to fund its assets. Companies with high debt rely more on leverage to support their operations and processes than other funds. A highly leveraged company needs sufficient profits and earnings to offset the additional debt. The financial leverage formed by moderate debt management increases the EBIT. Thus, shareholders can gain additional income, and the firm value increases. However, in order to expand operation scale, improve market share and market position, and obtain high profitability, controlling shareholders and management of modern companies often choose high financial leverage. High financial leverage can easily lead to financial risk, reduce the ability of follow-up financing, increase the possibility of bankruptcy, and damage the firm value and the interests of minority shareholders (Mandelker and Rhee, 1984; Shahzad et al., 2015).

According to the Debt Creation Control Hypothesis (Jensen, 1986), leverage can serve as a means of retention to mitigate agency problems while reducing the risk of bankruptcy. Here leverage can act as a surrogate discipline to remedy weak product market competition or weak corporate governance, or both. By increasing leverage, managers increase effort, improve organizational efficiency, and reduce the risk of bankruptcy. The implication of capital structure theory is that the more serious the agency's problems, the higher the optimal level of leverage.

A study by Enekwe, Agu, and Eziedo (2014) highlights a range of advantages and disadvantages that firms can experience with leverage. When financial leverage is taken into account, each shareholder's earnings per share increases significantly as operating income increases. The higher the level of debt, the higher the growth in operating income and his earnings per share. As noted by Enekwe et al (2014), the disadvantages of high leverage are: High leverage carries the risk of bankruptcy. Falope and Ajilore (2009) suggest that financial leverage raises the minimum operating profit requirement to cover interest costs. Either way, bankruptcy funds are safe if the required activity level is not achieved. A closer look at the pros and cons of leverage suggests that there must be a balance between the rewards and risks associated with leverage. If the leverage is too high, it will lead to bankruptcy, and if it is too low, it will lose its advantage, and the profitability of the company itself may be called into question (Ezeamama, 2010).

Nonetheless, higher levels of leverage can lead to financial distress due to higher debt service costs, fewer future investments that depreciate the company's value, and increased decision-making conflicts between bondholders and shareholders. It may also increase risk (Jensen and Meckling, 1976; Meyers, 1977). The overall effect of leverage on financial distress therefore depends on the balance between the risk-reducing effect of reducing agency problems and the risk-increasing effect of increasing debt agency costs. Grossman and Hart (1982) have derived similar results, and the overall effect of leverage depends on the balance between investment project profitability (that is, increased management effort) and borrowing costs.

## **2.2. Related literature**

### **2.2.1 Empirical studies on the effect of cash flow on financial distress**

Fawzi and his partners in 2015 researched on the vital role of cash flow on financial distress. The authors applied a regression model Logistic with a dataset of 52 financially distressed corporations and 52 healthy corporations from 2009 to 2012. This research proved that cash flow ratio is a reliable tool to predict the financial distress in Malaysia. If the cash flow from investing activities is larger than liabilities or the cash flow from operating activities is sufficient to liabilities, corporations are unlikely to undergo financial distress. Besides, if the cash flow from operating activities is negative, the corporations had better look for external sponsoring capital to meet the fixed liabilities. The corporations will be financially distressed or at the verge of bankruptcy if they cannot solve that problem.

Sayari and Mugan in 2013 conducted another research on the relationship between cash flow and financial distress. Two authors collected data from 124 manufacturing and service corporations listed on Istanbul Stock Exchange (ISE) during the time between 2005 and 2009. Four separate regression models were developed from the basic linear regression model. It can be summarized from the result that cash flow from operating activities, corporation’s scale have an inverse correlation with financial distress. On the contrary, cash flow from financial activities is positively correlated with financial distress. Nevertheless, this report showed no proof of the relationship between cash flow from investing activities and financial distress.

Shamsudin and Kamaluddin’s research in 2015 focus on how cash flow influences financial distress. The dataset consists of 124 listed corporations in Malaysia from 2006 to 2013. The authors have successfully proved that corporations are likely to be financially distressed when they distribute the positive cash flow from operating activities to the sponsorship of investment and fixed liabilities. Additionally, financial distress can occur when the corporations fail to fulfill their current financial obligations due to the insufficient cash flow from main operating activities. Once the corporations are at the state of deficit of three parts of cash flow, their probability of bankruptcy is noticeably high.

In 2020, Karas and Reznakova published their paper about the effect of cash flow indexes on financial distress. Three mentioned parts of cash flow and free cash flow, combined with total asset, net income, current liabilities and other indexes were applied in this research. The sample was taken from 4350 small and medium-scale manufacturing corporations in the Czech Republic operating from 2013 to 2018. The result proves that cash flow from operating activities, especially combined with current liabilities, helps decrease the risk of financial distress.

### **2.2.2 Empirical studies on the impact of corporate ownership on financial distress**

#### **2.2.2.1. Empirical studies on executive board ownership to financial distress**

Han Donker et al. (2009) analyze the relationship between firm ownership and financial distress in the Netherlands. The study uses a sample of firms listed on the Amsterdam Stock Exchange between 1992 and 2002. The results show that companies with a high percentage of Executive board ownership are less likely to experience financial distress. It is precisely when managers who hold the majority of ownership tend to avoid financial control.

Valentina & Jin (2020) test the relationship between financial ratios and ownership structure in non-financial enterprises listed on the Indonesian stock exchange from 2016 to 2018 by linear regression analysis method. multiplicity. The authors provide evidence that executive board ownership has an effect against the occurrence of financial distress.

Santoso (2022) studied the impact of firm ownership on financial distress. The author collects a sample of manufacturing firms listed on the Indonesian stock exchange in the period from 2018 to 2020. The study shows the results that executive board ownership has a negative impact on financial distress. . Executives when taking ownership will strive to improve the performance and value of the company to increase the benefits received for shareholders (including themselves), and be more careful in giving decisions to reduce the likelihood of financial distress.

However, due to differences in culture and political situation, there are still inconsistent and even contradictory results. Hatane, Chandra and Tarigan (2019) analyze the impact of ownership structure on the ability to prevent financial distress in consumer goods firms in Indonesia and Malaysia. The sample study included 24 Indonesian enterprises and 98 Malaysian enterprises during the period from 2011 to 2015. The result shows that executive board ownership has an impact on financial distress prevention, while Malaysia's result shows there is a significant impact.

Mandaci & Gumus (2010) studied the impact of centralization of ownership and management ownership on the profitability and value of non-financial enterprises listed on the Istanbul stock exchange. The study concludes that executive board ownership has a significant negative impact on firm value. The cause comes from having too high a board of directors, which will make managers worry about their interests, thereby reducing the value and performance of the business.

#### **2.2.2.2. Empirical studies on foreign ownership to financial distress:**

Douma (2006) studies the relationship between foreign ownership and domestic ownership on firm performance. The study uses data from 1005 Indian companies listed on the Bombay Stock Exchange during the period 1999-2000. The result shows that the existence of foreign owners brings a positive impact on performance. It is demonstrating that the higher the percentage of ownership owned by foreigners, the better would be the performance of the company, so the likelihood that the company would become lower.

Annither et al (2020) test the impact of business ownership on financial distress indexes of 421 non-financial enterprises in Indonesia in the period 2012 - 2017. Regression results found that foreign panel data ownership and government have a negative effect on financial distress. This was caused by the capability of the foreign investors to do better- monitoring activities and maintaining the ultimate shareholder's company in their home country.

Md-Rus (2013) examines the relationship between ownership structure and financial distress. The sample includes all firms listed on the Main Market of Bursa Malaysia in the 2004 – 2009 period. The result shows that foreign ownership on the hand reduces the likelihood of distress. However, foreign companies might face difficulties to monitor managers as they are located in other countries and those companies are run by professional managers who do not own any stake in the firms.

Greenaway et al (2014) find the relationship between Foreign Ownership and firms in China as shown by an inverted U-shaped graph. In addition, there are still studies that have not really found the final conclusion for the positive relationship between the percentage of foreign shareholder ownership and the possibility of financial distress of enterprises. Analysis of the impact of Equity Structure on firm value in Korea also suggests that ROA has no sign of the impact of Foreign Ownership on these firms (Lee, 2008).

### **2.2.3 Empirical studies on the relationship between financial leverage and financial distress**

Several studies have linked financial leverage and likelihood of financial hardship (e.g., Fitzpatrick & Ogden, 2011; Kim & Partington, 2014) with financial leverage and adherence to financial hardship (Koske & Yegon, 2017).

Early studies examining the role of financial leverage on a company's financial health yielded mixed results. Abu-Rub (2012), in a study aimed at investigating the impact of debt financing on the financial difficulties of companies listed on the Palestinian Stock Exchange, over a five-year period he used a sample of 28 companies. The results show that debt financing has a significant positive impact on return on equity. The findings of this study were consistent with those of his Perinpanathan (2014) who concluded that debt financing has a negative but negligible impact on company profitability. However, these results were inconsistent with those of Chancharat et al. (2007) he found that financially troubled firms had higher leverage than active firms. Caskey et al (2012) found that leverage generally positively predicts the likelihood of distress.

In Kenya, Muigai (2016) found that financial leverage has a significant negative impact on the financial distress of listed non-financial companies. This finding is consistent with the results of Mwangi et al. (2014) found a statistically significant negative relationship between financial leverage and profitability. This result is consistent with Zeitun and Tian (2014) and Maina and Ishmail (2014) results that showed a significant negative relationship between debt and profitability. However, the results differ from those of Codongo et al. (2014) found that financial leverage does not affect Tobin's Q. This result differs from that of Zeitun and Tian (2014). A similar study by Zeitun and Tian (2014) showed a significant negative relationship between financial leverage and Tobin's relationship. Baimwera and Muriuki (2014) found that liquidity and leverage do not significantly affect the determination of firm financial distress. However, this result contradicted a similar empirical study by Ghosh et al. (2000) he postulated a positive relationship between financial leverage and a firm's likelihood of financial distress.

Di Patti et al., (2015) found that a 10% increase in leverage increases the probability of default by almost 1%, all other things being equal. Tsuruta (2015) found that leverage has a negative impact on average firm performance, showing that highly leveraged firms are more likely to experience financial difficulties. An assessment of a company's financial leverage is therefore important to determine the potential for financial distress.

# **CHAPTER 3 METHODOLOGY**

## **3.1. Recommending models**

Up till now, there have been many researches using different financial indexes to measure corporation’s financial distress, such as Altman’s Z-score (1968), Ohlson’s O-score (1980), and Zmijewski’s X-score (1984),... This research will introduce three common methods measuring financial distress:

### **3.1.1. Z-score model**

Altman (1968) used MDA (Multiple displacement amplification) technique and a sample of 33 manufacturing corporations declaring bankrupt and 33 others not declaring bankrupt in between 1946 and 1965 to develop Z-score model:

Z-score = 1,2+ 1,4 + 3,3 + 0,6 + 1,0

Note:

= Working Capital / Total Asset;

= Retaining Earnings / Total Asset;

= Earnings Before Taxes and Interest / Total Asset;

= Market Capitalization / Book Value;

= Net Income / Total Asset;

If the Z-score is smaller than 1,81, it means that the corporation is at high risk of bankruptcy. If the Z-score is between 1,81 and 2,99, it means the corporation will not face financial struggles in the near future. If the Z-score is more than 2,99, it means the corporation is likely to have a positive financial health.

### **3.1.2. O-score model**

Ohlson (1980) used a sample of 105 American industrial corporations declaring bankruptcy and 2058 American industrial corporations not declaring bankruptcy from 1970 to 1976. His research applied Logit model instead of MDA model:

O-score = -1,32 - 0,407 + 6,03 - 1,43 + 0,0757 - 2,37 - 1,83 + 0,285 - 1,72 - 0,521

Note:

= Logarithm of Total Asset;

= Net Liabilities / Total Asset;

= Working Capital / Total Asset;

= Retaining Earnings / Total Asset;

= 1 if Net Liabilities is larger than Total Asset; otherwise, 0;

= Earnings After Taxes / Total Asset;

= Cash Flow from Operating activities / Net Liabilities;

= 1 if Earnings After Taxes is negative; otherwise, 0;

= Earnings Gap between year t and year (t-1) / Total Earnings after Taxes in year t and year (t-1)

If the O-score is larger than 0,38, it means that the corporation is likely to be in financial distress, if O is smaller than 0,38, it means that the corporation seems to have a positive financial health.

### **3.1.3. X-score model**

In Zmijewski’s research in 1984, the author applied probit analysis on 40 corporations at the verge of bankruptcy and 800 operating ones at that period, then he developed a model using Return On total Asset (ROA), leverage ratio, and current payout ratio:

X-score = -4,3 - 4,5\*() + 5,7\*() - 0,004\*()

Note:

NI = Net Income

TA = Total Asset

TL = Total Liabilities

CA = Current Asset

CL = Current Liabilities

If the X-score is above 0, it means that the corporation is financially struggling, at the verge of bankruptcy. Corporations having negative X-score can be considered to have a positive financial health.

There have been many researches testing which model has the highest accuracy score. Fatmawati in 2012 used three predicting bankruptcy models (Altman’s Z-score, Zmijewski’s X-score, and Springate’s S-score) to predict which corporations would be delisted from the Indonesian Stock Exchange during 2003 and 2009. The author came to the conclusion that Zmijewski’s X-score model (1984) predicted the delisting most precisely. Another research was conducted by Avenhuis in 2013 testing how well the three models predicted Dutch corporations from 2005 to 2012. It was concluded that the accuracy score of Altman’s Z-score, Ohlson’s O-score, and Zmilewski’s X-score were respectively 80,6%, 93,8%, and 95,3%. Hence, our research has decided to develop Zmijewski’s X-score model.

## **3.2. Researching model**

Sayyari and Mugan (2013) have introduced a practical research analysing the effect of elements in a cash flow statement, including cash flow from operating, investing, and financial activities, on financial distress of a corporation. The two authors concentrated on this equation:

Y = + + + + + ε

Note:

Y = Financial distress index

= Corporation’s years of operating

= Cash flow from operating activities / Total Asset

= Cash flow from investing activities / Total Asset

= Cash flow from financial activities / Total Asset

Based on the two authors’ equation, our research adjusts the model to satisfy our objectives - the effect of cash flow, foreign and executive board’s ownership, and financial leverage on financial distress.

FDit = β0 + β1\*CFOit + β2\*CFIit+ β3\*CFFit + β4\*FOit + β5\*BOit + β6\*CFO\_FOit + β7\*CFI\_FOit+ β8\*CFF\_FOit + β9\*CFO\_BOit + β10\*CFI\_BOit + β11\*CFF\_BOit + β12\*FLit + Ɛit

Variables used in the model:

|  |  |  |
| --- | --- | --- |
| **Variable name** | **Sign** | **Calculation** |
| Cash Flow From Operating Activities | CFO | Cash Flow From Operating Activities/Total Assets |
| Cash Flow From Investing Activities | CFI | Cash Flow From Investing Activities/Total Assets |
| Cash Flow From Financing Activities | CFF | Cash Flow From Financing Activities/Total Assets |
| Foreign ownership ratio | FO | From the annual report |
| Executive board ownership ratio | BO | From the annual report, management report |
| Cash Flow From Operating Activities with foreign ownership impact | CFO\_FO | CFO\*FO |
| Cash Flow From Investing Activities with foreign ownership impact | CFI\_FO | CFI\*FO |
| Cash Flow From Financing Activities with foreign ownership impact | CFF\_FO | CFF\*FO |
| Cash Flow From Operating Activities with executive board ownership impact | CFO\_BO | CFO\*BO |
| Cash Flow From Investing Activities with executive board ownership impact | CFI\_BO | CFI\*BO |
| Cash Flow From Financing Activities with executive board ownership impact | CFF\_BO | CFF\*BO |
| Financial Leverage ratio | FL | Total Debt / Total Assets |

*Table 1. Variables used in the model*

In the above specification, i stands for the enterprises, t stands for time.

## **3.3 Researching dataset**

There are 365 non-financial corporations listed on Ho Chi Minh Stock Exchange (HOSE). However, the authors excluded companies that did not provide complete financial data or did not exploit the percentage of management ownership. Finally, this research uses a sample dataset of 202 non-financial corporations from 2017 to 2021. Financial organizations are excluded due to the difference in accounting standards and regulations, which could result in misunderstanding. Moreover, financial organizations have their specific structure and apply financial leverage more frequently than the non-financial ones, which makes the difference in giving decisions between financial and non-financial corporations. The data is collected from 2017 to reassure the sufficiency and continuity. Hence, the sample consists of 1010 observations.

The annual financial data of each corporation includes Current Asset, Current Liabilities, Total Liabilities, Net Profit, Total Asset, Cash flow from Operating activities, Cash flow from Investing activities, Cash Flow from Financial activities collected from financial reports audited at the end of every accounting period from 2017 to 2021. Data related to ownership, including foreign and executive board’s, is extracted from corporations’ annual reports and management reports. The financial leverage is estimated by collected total liabilities on total assets.

## **3.4. Estimating technique**

This research applies estimating methodology on the collected dataset including 1010 observations. This is a time series data and the units are perpetual.

Here are the following steps analysing the dataset:

Step 1: Descriptive statistics on independent and dependent variables.

Step 2: Multicollinearity test to determine whether the research model is appropriate or not. If multicollinear, adjust the model to prevent fault.

Step 3: Applying three regression methodologies: Pooled OLS, Fixed Effects Model (FEM), and Random Effects Model (REM). In order to choose the most suitable regression methodology, there will be some hypothesis tests:

* F hypothesis test between Pooled OLS and Fixed Effects Model (FEM)
* Breusch - Pagan Lagranigian multiplier hypothesis test between Pooled OLS and Random Effects Model (REM)
* Hausman hypothesis test on Fixed Effects Model (FEM) and Random Effects Model (REM)

Step 4: Hypothesis tests on the sustainability of the research model

Step 5: If there is a self-correlation or Heteroscedasticity, conduct regression by Generalized Least Squares (GLS) method.

Step 6: Based on the final result, evaluate the effects of cash flow, ownership, and financial leverage on financial distress of non-financial corporations in Vietnam.

## **3.5 Variables and theories**

### **3.5.1. Dependent variables**

Financial distress degree is determined by financial distress (FD) score, based on Zmikewski’s X-score model (1984). His research applied probit analysis on 40 corporation at the verge of bankruptcy and 800 operating corporations at that time, then developed a model using Return On total Asset (ROA), leverage ratio and current ratio:

FD = -4,3 - 4,5\*() + 5,7\*() - 0,004\*()

Note:

NI = Net Income

TA = Total Asset

TL = Total Liabilities

CA = Current Asset

CL = Current Liabilities

The model includes these variables;

* Return on total Asset (ROA): this ratio is used to measure the profit earned from the corporation’s asset. The bigger ROA is, the more efficient the corporation is in asset distribution. Otherwise, low ROA warns the inefficiency in distributing assets.
* Financial leverage (liabilities on total asset): this ratio is used to measure the corporation’s degree of applying leverage. The higher the ratio is, the more loans the corporation mobilizes to sponsor operating and investing activities; consequently, financial obligations in the future increases, which means that its financial risk will escalate.
* Current ratio: this ratio is used to measure the corporation’s degree of liquidity. High ratio shows current assets are more than current liabilities, which means the corporation is capable of paying due debts. On the other hand, if the ratio is low, especially lower than 1, which means that current assets are insufficient to current liabilities. In this case, there is a likelihood that the corporation has to use its fixed assets to fulfill current liabilities.

These variables in the model are accounting data, so this model is practically easily applicable for the corporations to analyse how financially distressed they are, evaluating and predicting the financial statement in the future.

In terms of Zmijewski’s X-score model, the positive FD means the corporation is financially struggling, at the verge of bankruptcy in the near future. Corporations having negative FD are considered having good financial health, hardly at the risk of bankruptcy. Hence, the higher FD is, the more likely the corporation is to go bankrupt.

Moreover, the X-score model states that capital structure is a vital factor considered in the model, represented by net profit and leverage ratio. Thus, corporations having debt-oriented capital structure face higher probability of bankruptcy than the equity-oriented ones, on condition that earnings before interest in taxes (EBIT) is equal to total assets. If the net profit is negative or debts account for high proportions in capital structure, or current assets cannot pay current liabilities, the corporations are likely to be financially distressed. Therefore, efficient solutions, such as cutting down on the proportion of debt in capital structure and focusing on fixed loans instead of current ones to increase their liquidity, and increase net profit, should be applied to improve their financial statement.

### **3.5.2. Independent variables**

#### **3.5.2.1 Cash flow variables**

##### **3.5.2.1.1. Cash flow from operating activities**

Cash flow from operating activities is the vital factor to the survival and growth of a corporation. When cash flow from operating activities is surplus, the corporation is able to pay their due debts. Moreover, the corporation can use this surplus in capital to sponsor investing projects without mobilizing much external capital, which means interest cost is cut down. Therefore, its financial health is improved and risk of financial distress is lower (Sayari and Mugan, 2013). Nevertheless, if the operating activities earnings are not enough for operating and investing activities, the corporation may search for external capital, especially capital having high cost, making it difficult to fulfill its financial obligations, and increasing risk of financial distress.

**H1: CFO has negative impact on FD**

##### **3.5.2.1.2. Cash flow from investing activities**

During the stage of establishment and growth, corporations tend to expand their scale, increase their competitive advantage by investing in new projects. This strategy requires corporations to mobilize a great deal of external capital in case the cash flow from operating activities is insufficient. Additionally, most investing projects are long-term and their revenue does not return instantly. Hence, the corporations have to carry more non-financial costs and operating costs from investment projects. This results in higher risk of financial distress. On the contrary, during the recession, operating activities are postponed, and corporations are likely to sell their fixed assets or divest from disqualified invested projects. The surplus from investment also helps the corporations to reassure operating activities and pay sponsorship debt. Consequently, financial pressure is cut down, and risk of financial distress will be lower.

**H2: CFI has a negative impact on FD**

##### **3.5.2.1.3. Cash flow from financial activities**

Cash flow from financial activities has a close relationship with cash flow from operating and investing activities. During the stage of establishment and growth, the corporations may actively extend investment in new projects, then they will seek external sponsoring capital by capital issue or loaning. Cash flow from financial activities being surplus means there are more financial obligations to the corporations. Thus, the risk of financial distress increases. During the recession, operating and investing activities become unprofitable, and the corporations will concentrate on paying debts to decrease financial pressure on it, which cuts down on financial distress.

**H3: CFF has a positive impact on FD**

#### **3.5.2.2. Corporation ownership variables**

The relationship between corporation ownership and operating efficiency can be affected by the separation ownership from authority and by the representative cost. When a corporation applies encouraging solutions on the executive board inappropriately or when the supervising system is inefficient, the executive board will make up their minds based on their personal benefit rather than shareholders’. This results in the benefit conflict between the executive board and shareholders. Therefore, when there is the existence of a negative relationship between the corporation’s operating efficiency and representative issue, the grander the representative issue is, the higher the risk of financial distress will be. This research uses two independent variables, foreign ownership (FO) and executive board ownership (BO), to observe the corporations and solve the representative issue.

##### **3.5.2.2.1. Foreign ownership**

Foreign ownership, in this research, uses foreign ownership percentage published annually on the corporations’ annual reports. Two authors Kim and Yi in 2004, after observing, concluded that foreign ownership could assist in reducing representative issues and improving corporations’ financial activities. Other researchers assume that foreign investors have partly improved the management procedure systems and accessibility to resources by orientating the corporation toward better profit and motivating for better management. Khanna and Palepu in 1999 figured out that foreign investors helped increase Indian corporations’ supervising efficiency. Foreign investment is a compulsory factor to the development of the stock market and reliability of investors on the capital market. Oxelheim and Randoy in 2003 supported the crucial role of foreign members of the executive board, stating that their participation is a significant sign of commitment to the explicitness and better management quality. Hence, the contribution of foreign investors in the corporation’s ownership structure is expected to improve the corporation’s management efficiency, resulting in better operating activities and lower risk of financial distress.

**H4: FO, CFO\_FO, CFI\_FO have a negative impact on FD. CFF\_FO has a positive correlation with FD**

##### **3.5.2.2.2. Executive board ownership**

Benefit conflict can be cooled down by combining executive authority and ownership of the executive board. As a result, the executive board will be more cautious whenever making decisions, because a wrong decision can cause great loss to the corporation; eventually, the shareholders, including all members of the executive board, are the last to bear the consequence. The greater the ownership of the board is, the more consciousness about responsibility and benefit attached with the corporation, which urges the members to be extremely meticulous. Therefore, the corporation can cut down significantly on the loss, and the probability of facing financial obstacles reduces. On the other hand, when the cash flow from operating activities is deficit, the corporation is likely to struggle financially. However, if the executive board has a specific ownership proportion, under the management of the board, the corporation is expected to overcome the shortcomings and improve the operation efficiency. In short, the executive board’s ownership plays the key role in the impact on the cash flow when the corporation is financially distressed. Managing as an executive member and a shareholder will enhance the cash flow for operating activities managing efficiency. Thus, the corporation will no longer stock the cash but still be financially sufficient for operating demands. Last but not least, managing efficiently the cash flow from operating activities can lower the likelihood of financial distress to a corporation.

**H5: BO, CFO\_BO, CFI\_BO have a negative correlation with FD. CFF\_BO has a positive correlation with FD**

##### **3.5.2.3. Financial leverage**

Financial leverage has a significant impact on the financial distress of a corporation. Based on the research of Shim and Siegel in 1998, leverage effects on financial distress have two sides, operating side and financial side, of the process of financial strain influence, which respectively causes operating and financial risk.

Additionally, high financial leverage can trigger financial distress on corporations through disability to fulfill their financial obligations, which increases insolvency and promotes bankruptcy. Two authors Andrade and Kaplan in 1998 concluded that the leverage is a main negative effect on the level of financial distress. According to them, leverage increases the degree of the corporation’s financial distress. Opler and Titman in 1994 suggested that the corporation could capitalize on advantages from increasing its leverage through tax benefits. However, the authors warned that when the leverage is above a certain point, the degree of financial distress would increase, and costs associated with leverage overshadow benefits.

Furthermore, the increase in leverage is the result of higher total debt to total asset ratio, which raises the insolvency. In addition to these effects, high total debt to total asset ratio also leads to high probability of financial distress.

**H6: FL has a positive correlation with FD**

# **CHAPTER 4 EMPIRICAL RESULT**

## **4.1. Descriptive statistics**

### **4.1.1. Descriptive statistics of variances in the X-score model of Zmijewski**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Obs** | **Mean** | **Std.dev.** | **Min** | **Max** |
| **FD < 0** | | | | | |
| *NI/TA* | 953 | 0,0695967 | 0,0765236 | -0,2974263 | 0,9759334 |
| *TL/TA* | 953 | 0,4516602 | 0,1988975 | 0,0026614 | 0,7942618 |
| *CA/CL* | 953 | 2,699052 | 4,323201 | 0,0013861 | 62,70058 |
| *FD* | 953 | -2,04952 | 1,304285 | -6,296616 | -0,0221031 |
| **FD > 0** | | | | | |
| *NI/TA* | 57 | 0,0196919 | 0,0774522 | -0,3019681 | 0,2432152 |
| *TL/TA* | 57 | 0,8286522 | 0,0797094 | 0,6954573 | 1,20581 |
| *CA/CL* | 57 | 0,9835697 | 0,2072715 | 0,539539 | 1,532099 |
| *FD* | 57 | 0,3307695 | 0,3376952 | 0,0144098 | 1,747839 |

*Table 2. Descriptive statistics of variances in the X-score model of Zmijewski*

(Source: calculated and synthesized by the author via STATA)

Table 2 presents the mean, standard deviation, minimum, and maximum values ​​of the variables in the X-score model of 1010 observations in 2 groups including 57 observations with FD > 0 ( financial distress) and 953 observations with FD < 0 (firms with good financial health).

Statistical results in Table 2 show that the average NI/TA is quite low in both groups. In the group with FD > 0, the mean was only 0,02, the min was -0,202 and the maximum was 0,243; while in the observation group with FD<0, the mean NI/TA was 0,069, the minimum value was –0,297 and the maximum value was 0,976. This shows that enterprises facing financial distress have very low income after tax on total assets, on average this ratio is only 0,02 and the largest value was only 0,243 while the largest NI/TA value in the FD < 0 group was 0,975. This confirms that firms experiencing financial distress are much less efficient in using assets than firms with good financial health.

There is a significant difference between the TL/TA variables of the two groups. In the FD > 0 group, the mean value of TL/TA was 0,828 and ranged from -0,695 to 1,205. In the group FD < 0, the mean value of TL/TA was 0,452 and ranged from 0,002 to 0,794. The results show that in financially distressed firms, the debt-to-total assets ratio is much higher than in good financial health enterprises, even the debt ratio is up to 120%. This shows that financially distressed businesses are debt-intensive.

The CA/CL variable of the group with FD < 0 was significantly higher than that of the group with FD > 0. In the group FD > 0, the mean value of CA/CL was 0,983, ranging from 0,539 to 1,532. Meanwhile, in the group FD < 0, the mean value of CA/CL was 2,699, ranging from 0.001 to 62,7. This result shows that financially distressed enterprises often have lower short-term assets than well-financed enterprises, the average value is less than 1, which means that financially distressed enterprises have difficulty in liquidity for their business.

### **4.1.2. Descriptive statistics of the variables in the model**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Obs** | **Mean** | **Std.dev.** | **Min** | **Max** |
| *FD* | 1010 | -1,915187 | 1,383255 | -6,296616 | 1,747839 |
| *FL* | 1010 | 0,4728551 | 0,2126926 | 0,0026614 | 1,20581 |
| *FO* | 1010 | 0,1253894 | 0,1660453 | 0 | 0,9478 |
| *BO* | 1010 | 0,093633 | 0,1557726 | 0 | 0,9576 |
| *CFO* | 1010 | 0,0599762 | 0,1541383 | -1,232202 | 1,428038 |
| *CFI* | 1010 | -0,0495008 | 0,1264142 | -1,147914 | 1,121619 |
| *CFF* | 1010 | -0,008509 | 0,1399965 | -0,8743206 | 0,6501567 |
| *CFO\_FO* | 1010 | 0,0026815 | 0,0493675 | -0,130686 | 1,362509 |
| *CFI\_FO* | 1010 | -0,0062609 | 0,0372816 | -0,1952488 | 0,9285776 |
| *CFF\_FO* | 1010 | -0,0026815 | 0,0706476 | -2,094419 | 0,1863771 |
| *CFO\_BO* | 1010 | 0,0032499 | 0,0272758 | -0,3445235 | 0,2787568 |
| *CFI\_BO* | 1010 | -0,0042295 | 0,0192038 | -0,2464418 | 0,1459702 |
| *CFF\_BO* | 1010 | 0,0014105 | 0,0286092 | -0,2003616 | 0,5688221 |

*Table 3. Descriptive statistics of the variables in the model*

(Source: calculated and synthesized by the author via STATA)

Table 3 presents descriptive statistics of the independent and dependent variables in the research model. Statistical results show that in the period 2017-2021, the financial distress coefficient has an average value of -1,915 and ranges from -6,296 to 1,748, which shows that non-financial enterprises in the sample is in good financial health, and is not facing the risk of bankruptcy in the near future, however, the market has large divergence among the studied enterprises.

Cash flow variables CFO, CFI, and CFF have an average value of 0,059; -0,049 and -0,008 respectively. The fluctuations of cash flow variables have large fluctuations between businesses, CFO ranges from -1,232 to 1,428, CFI ranges from -1,147 to 1,121, CFF ranges from -0,8743 to 0,650. The results show that business activities of enterprises generate surplus cash flow, however, enterprises also require additional external funding sources through debt or bond issuance to finance their investments. Overall, the pattern of component cash flows shows that Vietnamese non-financial enterprises in the period 2017-2021 are in a growth phase (Sayari and Mugan, 2013).

The variable FO has an average value of 0,125, the smallest value is 0, the maximum value is 0,9478, showing the percentage of foreign investors' ownership in the majority of Vietnamese non-financial enterprises in the period 2017-2021 is still low. Part of the reason is that the investment environment and competitiveness in the Vietnamese market have not been completed, the legal procedures are still cumbersome, and the regulations on the ownership ratio for foreign investors are still tight. Besides, the low quality of Vietnamese labor is also a limitation for attracting foreign investment.

The variable BO has an average value of 0,09, a minimum value of 0 and a maximum value of 0,957. This shows that the major shareholders of the enterprise are often not directly involved in the operation of the enterprise. The alignment of interests of shareholders and management to solve the agency problem in non-financial enterprises in the period 2017-2021 has not been appreciated.

## **4.2. Research tests**

### **4.2.1. Multicollinearity test**

|  |  |  |
| --- | --- | --- |
| **Variable** | **VIF** | **1/VIF** |
| *CFF FO* | 57,32 | 0,017445 |
| *CFO FO* | 26,55 | 0,037666 |
| *CFI FO* | 14,79 | 0,067602 |
| *CFO* | 7,81 | 0,128054 |
| *CFF* | 6,8 | 0,147152 |
| *CFO\_BO* | 5,18 | 0,193057 |
| *CFI* | 4,91 | 0,203517 |
| *CFF BO* | 4,14 | 0,241513 |
| *CFI\_BO* | 3,21 | 0,311247 |
| *FO* | 1,47 | 0,681239 |
| *BO* | 1,26 | 0,795961 |
| *FL* | 1,1 | 0,90757 |
| *Mean VIF* | 11,21 |  |

*Table 4. VIF*

(Source: calculated and synthesized by the author via STATA)

Multicollinearity in the model occurs when the independent variables are strongly correlated with each other. The phenomenon of multi-collaboration will cause deviations in the regression model, leading to insignificant results. To check whether the model has multicollinearity or not, the thesis uses the test of Variance Inflation Factor (VIF). According to the multicollinearity test results of equation (1) presented in Table 4, we see that there are variables CFF\_FO, CFO\_ BO, CFI\_FO with VIF coefficients of 57,32; 26.55 and 14,79 respectively, all three coefficients are greater than 10. Therefore, the research model according to equation (1) suffers from multicollinearity.

To eliminate multicollinearity from equation (1), the thesis will remove the variable CFF\_FO from the equation. Therefore, the research equation (2) is as follows:

***FDit = β0 + β1\*CFOit + β2\*CFIit+ β3\*CFFit + β4\*FOit + β5\*BOit + β6\*CFO\_FOit + β7\*CFI\_FOit+ β8\*CFO\_BOit + β9\*CFI\_BOit + β10\*CFF\_BOit + β12\*FLit + Ɛit  (2)***

To make sure that the model is no longer collinear, the thesis re-implements the VIF test for equation (2). The test results presented in Table 4 show that the VIF coefficients of the independent variables range from 1,10 to 5,84, all VIF coefficients are less than 10, showing that the model no longer has serious multicollinearity. Therefore, regression equation (2) is suitable.

|  |  |  |
| --- | --- | --- |
| **Variable** | **VIF** | **1/VIF** |
| *CFO* | 5,84 | 0,171376 |
| *CFO BO* | 4,98 | 0,200948 |
| *CFF* | 4,77 | 0,209627 |
| *CFF BO* | 4,03 | 0,247901 |
| *CFI* | 3,88 | 0,257804 |
| *CFI\_BO* | 3,14 | 0,318702 |
| *CFI\_FO* | 2,42 | 0,412426 |
| *CFO\_FO* | 2,32 | 0,431791 |
| *FO* | 1,47 | 0,681456 |
| *BO* | 1,26 | 0,796638 |
| *FL* | 1,1 | 0,908018 |
| *Mean VIF* | 3,2 |  |

*Table 5. VIF of model (2)*

(Source: calculated and synthesized by the author via STATA)

### **4.2.2. Model selection test**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **Pooled OLS and FEM** | **Pooled OLS and REM** | **FEM and REM** |
| F test | 313,52  (0,0000) |  |  |
| LM test |  | 292,15  (0,0000) |  |
| Hausman test |  |  | 113,05  (0,0000) |

*Table 6. Model selection test*

To choose a suitable regression method between Pooled OLS, FEM and REM. The thesis performs F, LM and Hausman tests. As the results presented in Table 6, the F-test has p - value = 0,000, showing that the FEM model is more suitable than Pooled OLS. LM test results p - value = 0,000, showing that REM model is more suitable than Pooled OLS model, Hausman test has p - value = 0,000, showing that FEM model is the most suitable model for the research.

### **4.2.3. Autocorrelation and heteroscedasticity test**

In order for the regression model to be effective, the thesis continues to test the heteroscedasticity and autocorrelation through Wald test and Wooldridge test. The test results are presented in Table 7. Wald test results P-value = 0,000, which shows that model (2) is not changed by the heteroscedasticity. However, Wooldridge test results in autocorrelation with P-value = 0,000.

|  |  |  |
| --- | --- | --- |
| **Test** | **Wooldridge test** | **Wald test** |
| Autocorrelation | 22,091  (0,000) |  |
| Heteroscedasticity |  | 1,2e+06  (0,0000) |

*Table 7. Autocorrelation and heteroscedasticity test result*

(Source: calculated and synthesized by the author via STATA)

## **4.3. Impact of cash flow, ownership and financial leverage on financial distress**

In order to overcome the autocorrelation disease of the research model. The thesis will perform a regression of model (2) by the method of General Least Squares (GLS).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **FD** | **Coefficient** | **Std. err.** | **z** | **P > |z|** | **[95% conf. interval]** | |
| *FO* | -0,1132482 | 0,0338688 | -3,34 | 0,001 | -0,1796297 | -0,0468666 |
| *BO* | 0,0878627 | 0,0367954 | 2,39 | 0,017 | 0,0157451 | 0,1599803 |
| *CFO* | -0,2660652 | 0,0674896 | -3,94 | 0 | -0,3983424 | -0,1337879 |
| *CFI* | -0,0356718 | 0,0582936 | -0,61 | 0,541 | -0,1499252 | 0,0785816 |
| *CFF* | 0,2327876 | 0,062128 | 3,75 | 0 | 0,1110189 | 0,3545563 |
| *CFO\_FO* | -0,5043919 | 0,1712177 | -2,95 | 0,003 | -0,8399725 | -0,1688113 |
| *CFI\_FO* | 0,9124198 | 0,2271389 | 4,02 | 0 | 0,4672358 | 1,357604 |
| *CFO\_BO* | -0,0733973 | 0,5599089 | -0,13 | 0,896 | -1,170799 | 1,024004 |
| *CFI\_BO* | 1,017987 | 0,5599001 | 1,82 | 0,069 | -0,0793971 | 2,115371 |
| *CFF\_BO* | -0,3116117 | 0,4832044 | -0,64 | 0,519 | -1,258675 | 0,6354515 |
| *FL* | 6,236189 | 0,0222627 | 280,12 | 0,000 | 6,192555 | 6,279823 |
| *\_cons* | 4,819224 | 0,0139188 | -346,24 | 0,000 | -4,846504 | -4,791944 |

*Table 8. GLS regression of model (2)*

### **4.3.1. Cash flow affects financial distress**

CFO has the opposite effect with FD at 5% significance level, specifically, when CFO increases 1%, FD will decrease 0,266%. This result is consistent with hypothesis H1. When the operating cash flow is in surplus, it shows that the business has enough capacity to meet the operating activities and can partially meet the investment needs because the operating cash flow demonstrates if a company can generate enough cash flow to support and grow its operations; if not, outside capital investment funding may be required. When the business has less debt, the interest expense is also less and the risk of financial distress is also reduced. On the contrary, if the cash flow from business activities is negative, the enterprise cannot afford to invest, the enterprise will have to mobilize more loans to finance projects, the risk of financial distress is also increased. This result is similar to the studies of Mohd Hassan Che Haat et al (2021), Fawzi et al (2015). A deficit in cash flow from operating activities will push businesses to financial distress more quickly and more severely. Moreover, operating cash flow plays a role in reducing the effects of dimension of financial leverage to financial distress.

CFI has the opposite effect with FD at 10% significance level, specifically, when CFI increases 1%, FD will decrease 0,035%. This result is consistent with hypothesis H2. In the period of formation and growth, enterprises continuously expand their investment activities, enterprises may mobilize external funding sources if the cash flow from business activities is not sufficient. However, investment projects are often long-term and the return is uncertain. Therefore, the risk of financial distress of the enterprise also increases. Conversely, when enterprises divest or transfer capital from investment projects, especially during a recession, a surplus of cash flow from investing activities can make up for a shortfall in cash flow from operating activities.

CFF is positively correlated with FD at the 5% level of significance. Specifically, if CFF increases by 1%, FD increases by 0,232%. This result is consistent with hypothesis H3. In the period of formation and growth, businesses need many external sources to finance expansion investment strategies, especially loans. At that time, the increase in cash flow from financial activities means that financial obligations also increase. Especially if the main business situation of the enterprise is not favorable, the loan may require a higher cost of capital, increasing financial pressure. On the contrary, when enterprises have enough surplus cash from operating and investment activities, enterprises will pay down debts to reduce financial pressure on enterprises. Since then, the risk of financial distress is also reduced.

### **4.3.2. Ownership affects financial distress**

FO and CFO\_FO are negatively correlated with FD at 5% significance level. It is consistent with hypothesis H4. The results show that increased foreign ownership will increase the impact of cash flows from operating activities on financial distress. Foreign-owned firms have better management skills and apply advanced technical technology and are able to access new markets than domestic firms (Aydin et al., 2007; Udin et al., 2007; Udin et al., 2007). At the same time, under the supervision of foreign investors, manipulations for personal gain are expected to be minimized (Yoo, 2005). Since then, the increase in foreign ownership helps to improve cash flow from operating activities significantly compared to enterprises with only domestic ownership. Moreover, for creditors, foreign-owned enterprises have more prestige than domestic enterprises. As a result, foreign-owned enterprises have easier access to lower-cost capital sources. As a result, interest expense and financial distress risk are also reduced.

BO is positively correlated with FD at the 5% significance level. When BO increases 1% then FD will increase 0,087%. However, CFO\_BO and CFI\_BO did not have statistical significance for the research model (p-value > 0,05). This result is contrary to hypothesis H5, increasing management ownership can increase the risk of financial distress of the firm. This can be explained by the concentration of power in a small number of executive boards, leading to a lack of transparency and possibly causing mistakes in corporate governance. The right of control can be abused for personal purposes, even if the executive board is no longer qualified to run the business, it is still difficult for the enterprise to choose a more suitable board of directors, especially in the family owned business model. This makes the financial health of the business worse (Kirana, 2018).

### **4.3.3. Financial leverage to financial distress**

FL is positively and significantly correlated with FD at 5% significance level. If a company increases the level of financial leverage, it will increase financial distress and vice versa. A company's financial resources are more constrained by higher levels of financial leverage since they require more cash flow to meet their loan obligations and interest payments. This result supports the research hypothesis H6 of the study and is consistent with the empirical evidence from the study of Ikpesu & Eboiyehi (2018), Giarto & Fachrurrozie (2020), Abdioğlu (2019), Lee & Manual (2019), Dance & Mad (2019), Muigai & Muriithi (2017). The approach of the trade-off theory in capital structure, explaining that the fixed financial liability constraint increases when the firm increases the level of financial leverage, leading to a decrease in the financial safety of the business. Given the nature of debts that are repaid after a certain period, increasing the level of debt use when considering financing sources will increase the level of financial distress if the company does not resolve the issue satisfactorily. balance in relation to the requirements of efficient use of debt as well as the ability to generate money.

# **CHAPTER 5 CONCLUSION**

## **5.1. The main conclusions of the research**

In the context that the situation in the country and in the world has changed rapidly, complicatedly, unpredictably, and businesses have lost their income like now, the risk of financial distress is more easily encountered in enterprises. It is even more important to consider the factors affecting financial distress. Therefore, the study conducts empirical research to examine the impact of cash flow, ownership and financial leverage on financial distress of non-financial enterprises listed on HOSE. The study uses GLS regression for a sample of 202 non-financial enterprises listed on the Ho Chi Minh City Stock Exchange in the period 2017-2021.

The empirical results of the research show that cash flow, ownership and financial leverage have different effects on financial distress, specifically as follows:

Firstly, an increase in cash flow from operating activities can create a surplus cash source for the enterprise to meet the on-going investment activities and meet due financial obligations, reducing financial distress risk. Cash flow from investment activities increases when enterprises divest from investment projects, which can help enterprises generate cash to repay external sources of capital that financed the project, preventing the use of capital for investment projects. An increase in cash flow from financial activities will increase financial costs for the business. Especially in times of financial distress, it becomes more difficult for businesses to access corporate capital, and the cost of capital is also higher. And then the financial difficulties of the business will become more serious with new financial commitments arising.

Second, foreign shareholders can bring to enterprises an effective management system, advanced technology, and motivate managers to act more effectively. This will help businesses improve their financial position more quickly and effectively than domestic-owned enterprises, through a strong impact on cash flow from operating activities. In addition, an increase in management's ownership ratio also increases the risk of financial distress; because control is concentrated in a few executives, it is possible to make mistakes that cause financial loss to the business for personal gain.

Finally, financial leverage has a positive effect on financial distress. The usage of financial leverage can enhance a company's exposure to financial risk because financial leverage and risk are strongly associated. While using debt financing might boost a business's financial returns, it also entails fixed interest payments that the business must make regardless of how well it does financially. Due to this, there is a higher chance that the business will be unable to pay its debts on time and may experience financial distress or default.

## **5.2. Policy recommendations**

To avoid financial distress, businesses need to quickly come up with appropriate strategies. Based on the research results, the research proposes some recommendations as follows:

Firstly, enterprises in the period of financial distress need to change their working capital policies through the management of inventory, receivables and payables in order to improve cash flow from operating activities. Regarding inventory, businesses need to plan in detail about their inventory needs, avoid storing too much unnecessary inventory or slow turnover. This can help businesses reduce operating costs such as warehouse and storage costs. and reduce the burden of payment with suppliers. Regarding receivables, businesses need to offer policies to attract customers to pay faster instead of credit, for example, businesses can give discounts to customers who pay immediately. Even if a business has a growing revenue stream, if most of its revenue is on credit, the business may still find it difficult to meet its financial obligations as they come due. Therefore, faster revenue turnover can help businesses increase cash flow from operating activities, helping businesses have enough cash to meet upcoming financial obligations. Regarding payables, businesses need to negotiate with partners to extend the time for payments. This can help businesses relax payment pressure, increase cash flow from business activities and improve financial health.

Secondly, enterprises in the period of financial distress need to cut inefficient investments, focus resources on investments that bring business advantages, this strategy will help quickly recover the situation. Because the business may have invested in revenue-generating projects that do not cover costs, and are financed from outside sources with high capital costs. This has increased the cost burden for businesses, and this is one of the causes of financial distress. However, enterprises need to evaluate in detail the effectiveness of investment projects and cut down unsuitable projects, not mass cuts. Because if you rush to cut many investment projects, businesses may lose their competitive advantage. Specifically, enterprises need to review the effectiveness of investment plans that have been and are being implemented. For investment projects that are in the core business of the enterprise and can take advantage of available resources, the enterprise should continue to deploy. As for investment projects that are inefficient or implemented for the purpose of diversification or new areas in which the enterprise is inexperienced and has to depend on external resources, the enterprise needs to quickly reduce or transfer to a partner in the period of financial distress. This strategy can help businesses reduce cash flow from investing and financing activities, improving the financial health of the business.

Third, businesses facing financial difficulties can call for investment from foreign investors. With the advantages of professional management level and advanced technology, foreign shareholders can come up with effective corporate restructuring strategies. At the same time, the participation of foreign shareholders is also an impetus for managers to act more seriously and carefully, which helps enterprises improve business performance, restore financial status. main fast.

Fourth, an enterprise in a state of financial distress may issue internal regulations restricting the management from holding a large number of shares, and the enterprise restricting the issuance of bonus shares to the executive board, because the increase in the rate of shares is limited. Management ownership may increase a firm's risk of financial distress.

Finally, because of the drawbacks associated with significant financial leverage, the company's investment activities will struggle if it relies exclusively on internally available resources. According to the suggested solution, managers of businesses in Vietnam must create both an investment plan and a prudent capital use plan. Moreover, managers must establish debt consumption caps to guarantee efficient operations. It is vital to build up cash flow prior to launching an investment project in order to reduce the negative effects of financial constraints on the company's investment activities. Businesses must therefore carefully manage their usage of financial leverage in order to balance their potential rewards with their financial risk. Including an examination of the company's financial accounts, cash flows, and credit rating, as well as the usage of debt financing. While enhancing their overall financial performance, optimizing their capital structure, lowering their cost of capital, and lowering their cost of capital, businesses can manage their financial risk.

## **5.3. Limitations of the research**

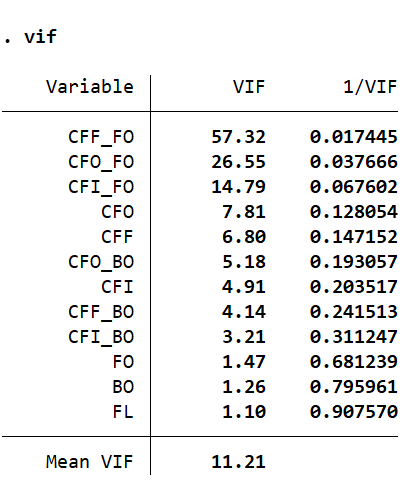
In the study, the sample size is limited to 202 companies listed on two Ho Chi Minh City Stock Exchanges. Therefore, with this sample size, it is not possible to cover all the research results and is not representative of Vietnam. This is one of the limitations of the study.

Besides, the research paper only stops at researching non-financial companies in Vietnam in general, but has not conducted research on financial companies or classified companies by different industries. Therefore, the research results are not specific to all industries. Therefore, in the next research orientation, the author will deploy to classify companies by industry and collect more data of unlisted companies to have a more detailed and comprehensive view.

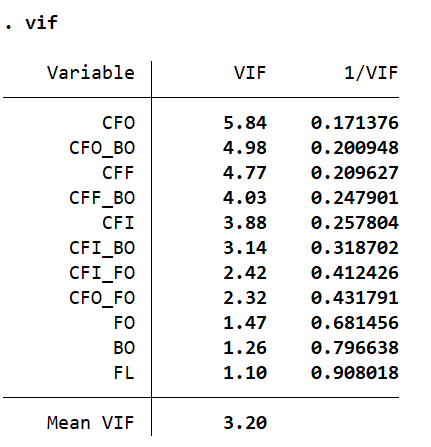
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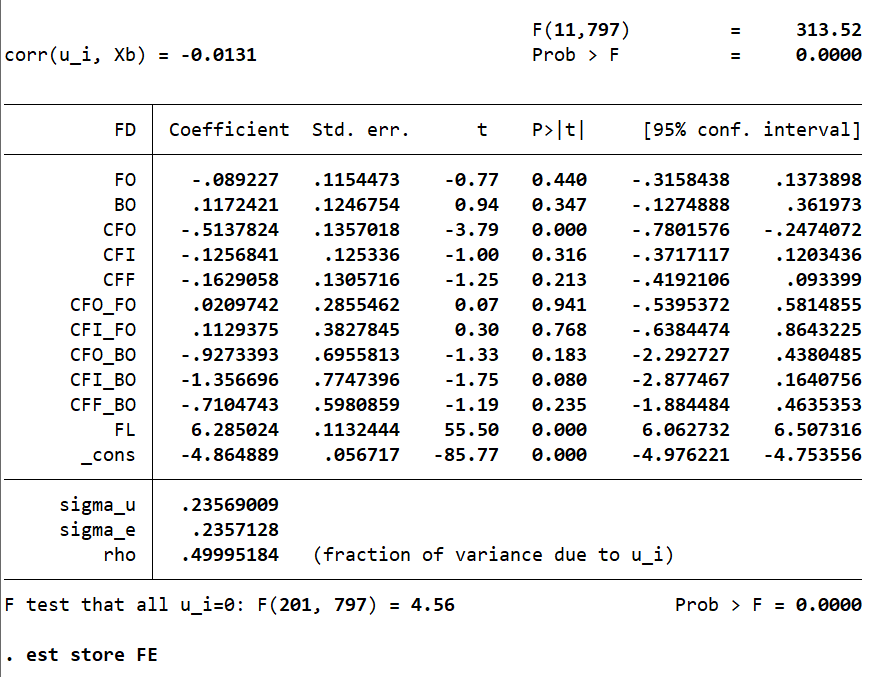
# **APPENDIX**



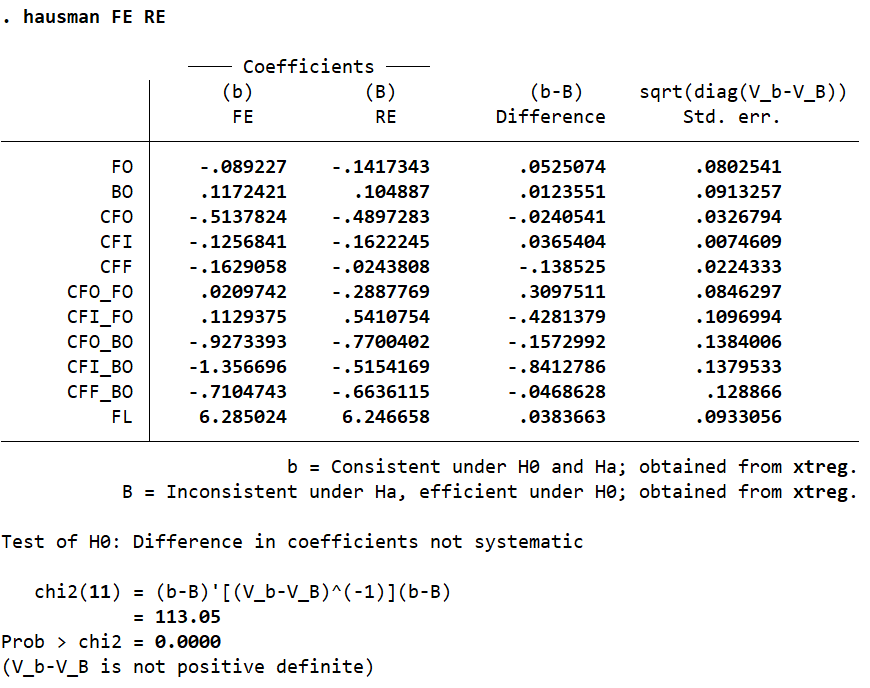
Appendix 1. Multicollinearity test results of model (1)



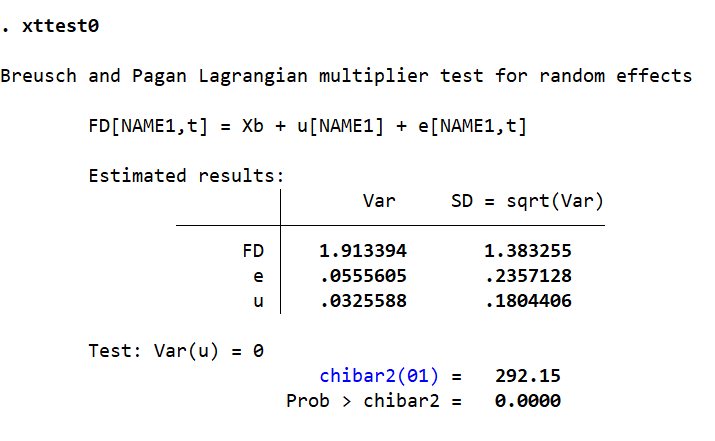
Appendix 2. Multicollinearity test results of model (2)



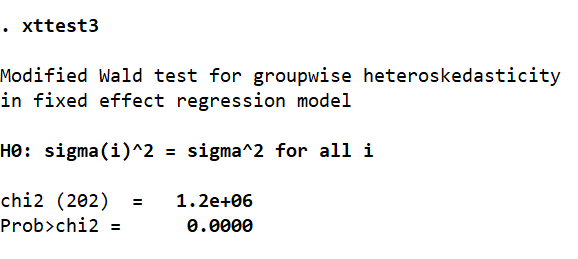
Appendix 3 . F test of model (2)



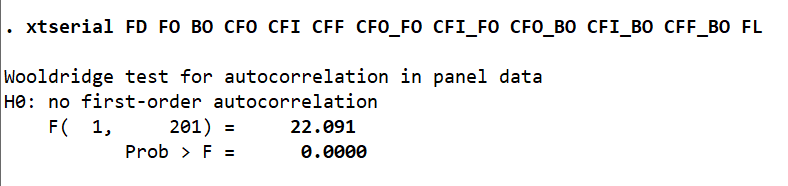
Appendix. Hausman test of model (2)



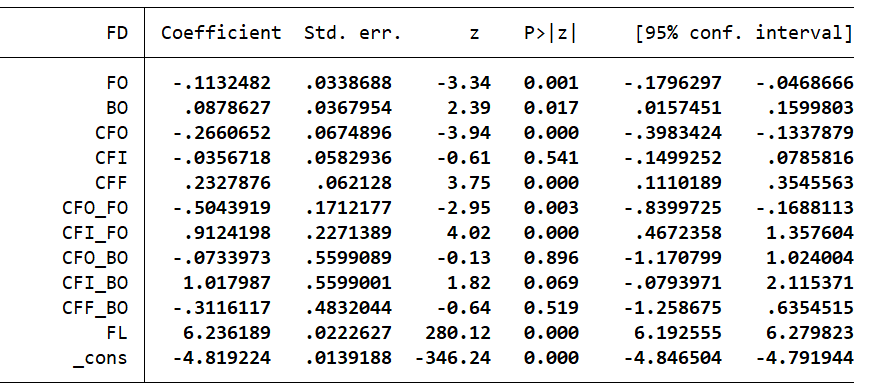
Appendix 4. Breusch and Pagan Lagrangian test of model (2)



Appendix. Modified Wald test



Appendix. Wooldridge test of model (2)



Appendix 5. GLS regression of model (2)