

**PREDICTION OF FINANCIAL DISTRESS AS THE IMPACT OF THE COVID-19
PANDEMIC ON TRADE, SERVICES AND INVESTMENT COMPANIES IN
INDONESIA USING ALTMAN Z-SCORE DISCRIMINANT ANALYSIS
(Study on the Indonesia Stock Exchange)**

Trisna Sary Lewaru¹, Linda Grace Loupatty²

Department of Accounting, Faculty of Economics and Business , Pattimura University-Ambon
Correspondence: lindagrace.loupatty@gmail.com

ABSTRACT

This study aims to examine and analyze whether net working capital to total assets, retained earnings to total assets, EBIT to total assets, and book value of equity to book value of total debt partially and simultaneously have a significant effect on prediction of financial distress in corporate sector. trade, services and investments listed on the Indonesia Stock Exchange during the Covid-19 pandemic. The population in this study are all companies in the Trade, Services and Investment Sector listed on the Indonesia Stock Exchange in 2020. The sample used is 154 companies obtained using the saturated sampling technique (Census Technique). The independent variable (X) in this study is net working capital to total assets, retained earnings to total assets, EBIT to total assets, and book value of equity to book value of total debt, while the dependent variable (Y) is financial distress. This research data uses secondary data, namely the annual report of companies in the trade, services and investment sectors listed on the Indonesia Stock Exchange in 2020. The data analysis method used is Multivariate Discriminant Analysis (MDA) Altman Z-Score Model and Logistics Regression Test. The results showed that partially net working capital to total assets, retained earnings to total assets, EBIT to total assets, and book value of equity to book value of total debt had a negative and significant effect on financial distress. And simultaneously, net working capital to total assets, retained earnings to total assets, EBIT to total assets, and book value of equity to book value of total debt have a significant effect on financial distress.

Keywords: net working capital, total assets, retained earnings, earnings before interest tax, book value of equity, book value of total debt, financial distress. alt man z-score.

INTRODUCTION

The Corona Virus Disease 2019 (Covid-19) pandemic which is still engulfing the world and the country is a big concern for the business world. The threat of bankruptcy continues to haunt the business world. The Covid-19 pandemic has hit the homeland business world hard in almost all business sectors. This condition threatens to even result in some companies ending up bankrupt because they are unable to meet their debt obligations. Although there are debt restructuring policies to tax incentives, the relaxation is temporary without stopping the spread of

the corona virus. Stopping the spread of the virus as soon as possible must be a way out so that the business world can recover.

Government policies such as social assistance, credit restructuring and tax incentives are considered capable of supporting the business world to survive the crisis. However, the relaxation policy is only temporary. The government was asked to focus on stopping the wider spread of the virus. Without stopping the spread, the risk of a crisis continues to threaten the economy.

This crisis resulted in many companies experiencing financial difficulties, thus delaying their obligations. The sectors most affected are the trade, services and investment sectors. Compared to the previous crisis in 2008, the current crisis is broader, not only limited to monetary and financial matters but also related to health and social issues, resulting in business activities stalling.

The impact of the trade sector, namely the slowing prospect of world economic growth, thereby reducing the prospect of growth in exports of goods from Indonesia. In the tourism sector, the performance of this sector will decline due to the obstruction of the mobility process between countries in line with efforts to mitigate the risk of the expansion of Covid-19, namely through social distancing and physical distancing. Meanwhile, Covid-19 caused turmoil in the foreign exchange market and financial markets, such as the stock market and bond market. From a revenue perspective, the Covid-19 pandemic is expected to erode private and government demand.

The Corona virus is increasingly spreading its impact slowly but surely, especially on the Indonesian economy. Among them there is a change in global trade patterns because this pandemic has hit all countries in the world. Disrupted supply-demand, export-import ban on food and health commodities, changes in global supply chain centers from China, the US and Germany. The negative effects of Covid-19 also have an impact on trade cooperation with several other countries not going well. If this problem is not handled properly, it will lead to a global economic recession.

The impact of the Covid-19 pandemic on the tourism sector experienced a significant contraction. The limited mobility of the community due to the Covid-19 pandemic as well as the closure of recreational and entertainment places have had a considerable economic impact on the tourism sector. The Large-Scale Social Restrictions (PSBB) are said to make people more active at home and the occupancy rate of hotel rooms and restaurants has decreased drastically as a result of this. So that the impact on the supporting sectors of tourism and the creative economy such as transportation is quite large. (Wishnutama in Bisnis.com, Thursday 6/8/2020).

The impact of the contraction of national economic growth on the country's tourism sector is quite deep felt by a number of provinces that rely on the tourism sector, such as Bali, Riau Islands, and West Java. The Central Statistics Agency (BPS) noted that Bali's growth rate in the second quarter of 2020 fell 10.98 percent year on year (YoY), Riau Islands decreased 6.66 percent YoY, and West Java declined 5.98 percent YoY (Rahmad Fauzan, Bisnis.com 07 August 2020)

One of the business sectors that has been severely affected by the Covid-19 pandemic is the hotel business. Because during the corona virus outbreak, people are advised to stay at home and avoid traveling or leaving the house for anything that is not urgent. In addition to travel

restrictions, strict requirements for using public transportation, and the increasing number of infections, many people also think twice about traveling long distances. Like it or not, hoteliers have to rack their brains on how to keep their business breathing in the midst of a pandemic. This was conveyed by the Chairperson of the Indonesian Hotel and Restaurant Association (PHRI) DIY, Deddy Pranowo Eryono. (In Luthfia Ayu Azanella, Kompas.com - 09/26/2020)

The prolonged Covid-19 pandemic has finally made the hotel and restaurant industry collapse. The hotel and restaurant industry is currently in a very bad situation. Thousands of hotels and restaurants had to go out of business. The Indonesian Hotel and Restaurant Association (PHRI) reports that 1,033 restaurant and hotel businesses in Indonesia are currently permanently closed due to the Covid-19 pandemic. "From October 2020 until now, it can be estimated that around 125 to 150 restaurants are closed per month," said Chairman of the PHRI Governing Body, Sutrisno Iwantono, as reported by Antara, Friday (5/2/2021). (In Bisnis.com 05 February 2021).

As an illustration, the lack of tourism in Bali due to the spread of this virus has an impact on the sluggish hotel business in the area. PHRI noted that the average hotel occupancy in Bali is only 20%. This means that 80% of the rooms are empty, especially in areas visited by individual travelers such as Kuta, Sanur, Legian, Ubud, Jimbaran. this is a real picture of the impact of the corona virus being felt by various regions with tourist destinations that are most in demand by tourists, both foreign and domestic.

This condition makes the hotel aggressively perform efficiency. One of the greatest efficiencies is in personnel costs. Costs for employees were cut by up to 50%. Because the company must maintain cash flow. However, the cuts in employee costs are not directly carried out through the mechanism of dismissal or layoffs. In running the hotel business, business actors usually apply 3 staffing schemes. There are 3 types of employees, namely daily, contract and permanent. What is happening now is that daily workers are not used. only contract and permanent employees are retained.

Not only hotels, the same thing also happened to the restaurant business. However, the cost efficiency of workers for the restaurant business is not as complicated as the burden on the hotel business. Restaurants employ more contract employees, so they are relatively less complicated, less complicated than hotels. Restaurant businesses are more adaptable in adjusting the number of employees. On the other hand, the burden of hotel and restaurant entrepreneurs that also needs to be streamlined is the payment of loan interest. However, this still needs a policy from the Financial Services Authority (OJK). (In Muhammad Choirul Anwar, CNBC Indonesia, 13 March 2020)

The era of corporate bankruptcy is waiting in sight due to the pandemic. The extraordinary circumstances that gave birth to the current multidimensional crisis affect the company's financial capacity. Many companies are worried about financial performance in 2020 due to slowing economic growth in Indonesia and the world, and the implementation of the Covid_19 handling protocol which has made business activities sluggish. The COVID-19 pandemic could have a significant impact on financial performance in 2020, and is predicted to result in financial distress.

Financial distress or financial difficulty is a company's financial condition is in trouble, crisis or unhealthy that occurred before the company went bankrupt. Financial distress occurs

when the company fails or is no longer able to meet the debtor's obligations due to lack and insufficient funds to run or continue its business again. According to Brigham and Daves (2003), financial distress (financial distress) begins when a company cannot meet its payment schedule or when cash flow projections indicate that the company will soon be unable to meet its obligations. (Muchlisin Riadi, 2018).

Platt and Platt (in Muchlisin Riadi, 2018) define financial distress as the stage of declining financial condition experienced by a company, which occurs before bankruptcy or liquidation. So that the prediction of financial distress can be a warning for the company to be going bankrupt.

According to Damodaran (1997), the factors causing financial distress from within the company are more micro. The factors from within the company are:

1. Cash flow difficulties. Occurs when the company's revenue from operating activities is not sufficient to cover operating expenses arising from the company's operating activities. In addition, cash flow difficulties can also be caused by management errors when managing the company's cash flow in making payments for company activities which can worsen the company's financial condition.
2. The amount of debt. The policy of taking the company's debt to cover costs arising from the company's operations will create an obligation for the company to repay debt in the future. When the bills are due, while the company does not have enough funds to pay off the bills, the creditors might do is to confiscate the company's assets to cover the lack of payment of the bills.
3. Losses in the company's operational activities for several years. In this case, it is the company's operational loss which can cause negative cash flow in the company. This can happen because the operating expenses are greater than the income received by the company.
4. Although a company can overcome the three problems above, not necessarily the company can avoid financial distress, that's because there are still external factors of the company that can cause financial distress. According to Damodaran (1997), the company's external factors are more macro in nature, where the scope is wider. External factors can be in the form of government policies that can increase the business burden borne by the company, for example an increased tax rate can increase the company's burden. In addition, there is still a policy of increasing loan interest rates, which could lead to an increase in the interest expense borne by the company.

Other external factors that can lead to financial distress are world economic shocks that have resulted in a global economic crisis, such as what is currently being experienced in the face of the COVID-19 pandemic. The Covid-19 pandemic, also known as the coronavirus pandemic, is caused by the acute respiratory syndrome coronavirus disease 2 (SARS-CoV-2) which has spread throughout the world. The virus was first identified in December 2019 in Wuhan, China. The World Health Organization (WHO) first declared an International World Health Emergency regarding COVID-19 on January 30, 2020, and was later declared a pandemic on March 11, 2020. To date, Indonesia has a total of 1.63 million cases. Where the number of patients recovered 1.48 million people and died amounted to 44,172 thousand people. And worldwide

there are 145 million cases, with a total of 83.1 million recoveries and 3.07 million deaths. (Wikipedia and JHU CSSE COVID-19, as of 23 April 2021).

Indonesia confirmed the first case of Covid-19 virus infection in early March 2020. Since then, the government has taken various countermeasures to reduce the impact of the Covid-19 pandemic in various sectors. Almost all sectors are affected, not only health. The economic sector has also been seriously affected by the coronavirus pandemic. Restrictions on community activities affect business activities which then have an impact on the economy. The Central Statistics Agency (BPS) report this August stated that Indonesia's economic growth in the second quarter of 2020 was minus 5.32 percent. Previously, in the first quarter of 2020, BPS reported that Indonesia's economic growth only grew by 2.97 percent, down far from growth of 5.02 percent in the same period in 2019. This weakening economic performance has greatly impacted the financial performance of companies in the trade, services and investment sectors in Indonesia.

This study will analyze the possibility of financial distress as the impact of the Covid-19 Pandemic on companies in the Trade, Services and Investment Sector listed on the IDX. The analysis will use Multivariate Discriminant Analysis (MDA) Altman Z-Score Model and Logistic Regression. Altman Z-Score model is used to predict the occurrence of financial distress that can lead to bankruptcy. The results of the analysis of the value of Z (Z-Score) can provide an overview of the company's financial position is in a healthy condition, vulnerable or in a state of bankruptcy. So that this analysis is an early warning system that is needed to determine the company's financial condition in the future, and can assist stakeholders in making decisions. And the Logistics Regression analysis is to examine the effect of each Altman Z-Score ratio on the prediction of financial distress.

The financial ratios that will be tested are Working Capital Ratio to Total Assets, Retained Earnings Ratio to Total Assets, EBIT Ratio to Total Assets (EBIT/total assets), Value Ratio Book value of Share Capital to Book Value of Total Debt (Market value of equity/book value of total debt). The studies conducted regarding the prediction of the occurrence of financial distress using the Multivariate Discriminant Analysis (MDA) Altman Z-Score Model have been carried out very much, such as research; Yuslely Martha (2012), Mochammad Iqbal et al (2012), Roziqon Kariman (2016), Ambarwati (2017), Fitri Ayu Ningsih (2017), Ajeng Puspita et al (2017), Imaduddin Shidiq et al (2017), Edi & May Tania (2018), Laksita Nirmalasari (2018), Achmad Maarif (2018), Catarina Yoseph (2018), Pardi Suhendra (2019), and Uswatun Khasanah (2019)

However, these studies were conducted in stable economic conditions, so that the external impact in the form of the global economic crisis did not affect the analysis. However, this research was conducted under extraordinary conditions, as described above. That the 2019 Coronavirus Disease Pandemic had an extraordinary impact on world and Indonesian economic growth, so that the company's financial performance experienced pressure on Assets, Debt, Working Capital, Retained Earnings, Book Value of Shared Capital, Sales and EBIT.

From the series of phenomena described above, the formulation of the problem in this study is: Does the net working capital to total assets, retained earnings to total assets, EBIT to total assets, and book value of equity to book value of total debt partially or simultaneously affect significant to the prediction of financial distress in trading, service and investment sector

companies listed on the Indonesia Stock Exchange. And the purpose of this study is to test and analyze whether net working capital to total assets, retained earnings to total assets, EBIT to total assets, and book value of equity to book value of total debt partially or simultaneously have a significant effect on the prediction of financial distress. in trading, service and investment sector companies listed on the Indonesia Stock Exchange.

THEORETICAL FRAMEWORK

Signaling Theory (Signal Theory)

Signal theory or Signaling Theory is based on the assumption that the information received by each party is not the same. This theory is related to information asymmetry which shows the existence of information asymmetry between company management and the parties with an interest in information. For this reason, managers need to provide information for interested parties through the publication of financial statements.

This signal theory was first developed by Ross in 1977. In building the signal theory based on the existence of asymmetric information between information from management (well-informed) and information from shareholders (poor informed). This theory is based on the idea that management will provide information to investors or shareholders when getting good information related to the company such as increasing company value. However, investors do not trust this information because the managers are an interest party.

So that companies that have high values will signal the company's financial policies so that they are not the same as companies that have low values. Signal is a process that takes the form of deadweight costing which aims to convince investors about the value of the company. A good signal is one that cannot be imitated by other companies that have low value because of the cost factor. According to signal theorists (signalling theory) are as follows:

1. T. C. Melewar (2008: 100) states that signal theory shows that companies will give signals through actions and communication. The company adopts these signals to reveal hidden attributes to interested parties.
2. Eugena F. Brigham and Joel F. Houston (2009: 444) state that the signal theory is a theory that says that investors perceive dividend changes as a signal of management's earnings forecast.
3. S. Scott Besley and Eugene F. Brigham (2008: 517), Signal is an action taken by the company's management that provides clues to investors about how management views the company's prospects.
4. According to Jama'an (2008) signal theory suggests how a company should give signals to users of financial statements. This signal is in the form of information about what management has done to realize the owner's wishes.

From the above understanding it can be concluded that the Signaling Theory discusses how the signals (information) of management's success and failure should be conveyed to stakeholders. These signals (information) can be provided through the company's financial statements. Managers provide information through financial statements that they apply conservatism accounting policies that produce quality earnings. The accounting policy is a

principle that prevents companies from exaggerating profits and helps users of financial statements by presenting profits and assets that are not overstated.

Information received by investors can be in the form of a good signal (good news) or a bad signal (bad news). A good signal, if the profit reported by the company increases and vice versa if the profit reported by the company decreases, it is a bad signal for investors. So that information is an important element for investors or business people, because the information provides information, notes or descriptions of the company both for past, current and future conditions for the continuity of the company's business. Complete, relevant, accurate and timely information is needed by investors in the capital market as an analytical tool for investment decision makers.

Financial Distress

Firms experiencing financial difficulties generally experience declines in growth, profitability, and fixed assets, as well as increases in inventory levels relative to healthy firms (Kahya and Theodossiou, 1999).

According to Santosa (2007), financial distress is the difficulty of funds to cover the company's obligations or liquidity difficulties that begin with mild difficulties to more serious difficulties, namely if the debt is greater than the assets. Dan Plat in Almilialia (2002) says that financial distress or often referred to as financial difficulties, occurs before a company actually goes bankrupt. Financial distress is a condition that shows the stage of decline in the company's financial condition that occurred before bankruptcy or liquidation.

So it can be concluded that financial distress is a condition of financial difficulty experienced by a company before going bankrupt or liquidating. If the company is in a state of financial distress, then management must be careful because it could enter the bankruptcy stage and must apply a priority scale in financial management. The management of companies experiencing financial distress must take action to overcome these financial problems to prevent bankruptcy.

According to Brigham & Gapenski (1993) in Saptono (2001), there are 4 types of financial distress that can cause a company to go bankrupt. These four things are:

- 1) Economic Failure (Economic Failure). Economic failure can be interpreted as a condition where the company cannot cover the total cost so that the company cannot pay employee salaries. This is because the level of profit generated is smaller than the total cost incurred. Many companies ultimately ask investors to add their capital back or look for new investors.
- 2) Business Failure. Business failure can be interpreted as the condition of the company losing creditors so that it must stop the production process. With conditions like this, companies must be able to save money so they can minimize the risks that occur.
- 3) Financial Failure (Financial Failure). Financial failure can be interpreted as a condition where a company cannot fulfill its short-term obligations, such as not being able to pay debts on time (insolvency) due to losses or reduced liquidity. Financial failure conditions are generally divided into two types, namely: technical insolvency and bankruptcy insolvency.
- 4) Legal Bankruptcy (Legally Bankrupt). Is a condition where a company is declared bankrupt or bankrupt and has been legally ratified. In Indonesia itself there is a law that

regulates the terms and decisions for bankruptcy of a company which is regulated in Article 2 of Law no. 4 of 1998.

Multiple Analysis Discriminant (MDA) Altman Z-Score Model

Multiple Discriminant Analysis (MDA) or multiple discriminant analysis is one of the most commonly used prediction models for corporate bankruptcy. MDA was developed by Altman in 1968. Discriminant analysis is a statistical technique used to categorize companies in the bankrupt and non-bankrupt categories (Altman, 1968: 591). Discriminant analysis is very useful for predicting the bankruptcy of the company. If the company that is predicted to go bankrupt does not make improvements, then the bankruptcy of the company will actually occur.

Several studies related to bankruptcy cases and phenomena have been carried out. Edward I. Altman (1968) was one of the early researchers who conducted the study. Altman's research resulted in a formula called the Z-Score. Z-Score analysis is a method for predicting the bankruptcy of a company's life by combining several common financial ratios and giving different weights to one another (Rudianto, 2013). Altman selected 22 financial ratios, and in the end found 5 ratios that can be combined to see companies that are bankrupt and not bankrupt, the 5 types of ratios are: Working Capital to Total Assets (Working Capital to Total Assets), Retained Earnings to Total Assets (Retained Earning to Total Assets), EBIT to Total Assets (Earning Before Interest and Taxes to Total Assets), Book value of equity to Total Debt (Market Value of Equity to Book Value of Total Debt) and Sales to Total Assets (Sales to Total Assets) .

The use of the Altman model as a measure of bankruptcy performance is not permanent but evolves from time to time. Altman continues to expand the testing and discovery of the model until its application is not only to public manufacturing companies but includes non-public manufacturing companies, non-manufacturing companies, and bond companies. corporation (Ramadhani and Lukviarman, 2009).

Modified Altman Model (III)

Over time and adjustments to various types of companies. Altman re-examined the potential for bankruptcy of companies other than manufacturing companies, whether they went public or did not go public. The last Z-Score formula is a formula that is considered very flexible because it can be used for various types of company business fields and is suitable for use in developing countries such as Indonesia (Rudianto, 2013). This model is known as the Modified Altman model. In relation to the Z"-Score formula of the Altman III model, Altman eliminates the X5 variable (sales/total assets) because this ratio varies widely in industries with different asset sizes (Ramadhani and Lukviarman, 2009).

The following is the Z"-Score formula for the Altman III model for various types of companies, as follows (Ramadhani and Lukviarman, 2009):

$$Z'' = 6,56X1 + 3,26X2 + 6,72X3 + 1,05X4$$

Where:

- 1) Working Capital to Total Assets. This ratio is used to measure the company's ability to generate net working capital from its total assets. This ratio is calculated by dividing net

working capital by total assets. Net working capital is obtained by means of current assets minus current liabilities.

- 2) Retained Earnings to Total Assets. This ratio shows the company's ability to generate retained earnings from the company's total assets. Retained earnings are profits that are not distributed to shareholders. The greater this ratio, the greater the role of retained earnings in forming company funds. The smaller this ratio indicates the company's financial condition is not healthy. All data is obtained from the company's balance sheet.
- 3) Earnings Before Interest and Tax on Total Assets. This ratio shows the company's ability to manage total assets to get profits before interest and taxes. Earnings before interest and taxes are obtained from the income statement, and total assets are obtained from the company's balance sheet.
- 4) Book Value of Equity to Book Value of Total Debt. This ratio shows the company's ability to meet its obligations from the book value of equity. The book value of equity is obtained from the total amount of equity. The book value of debt is obtained by adding up current liabilities with long-term liabilities.

The criteria for a healthy and bankrupt company are based on the Z-Score value of the Modified Altman model, namely (Ramadhani and Lukviarman, 2009):

- 1) If the index value $Z < 1.1$ then the company is predicted to go bankrupt.
- 2) If the index value is $1.1 < Z < 2.6$ then it is a gray area (the company is predicted to experience financial problems and has the potential to go bankrupt).
- 3) If the index value of $Z > 2.6$, it includes companies that are not bankrupt.

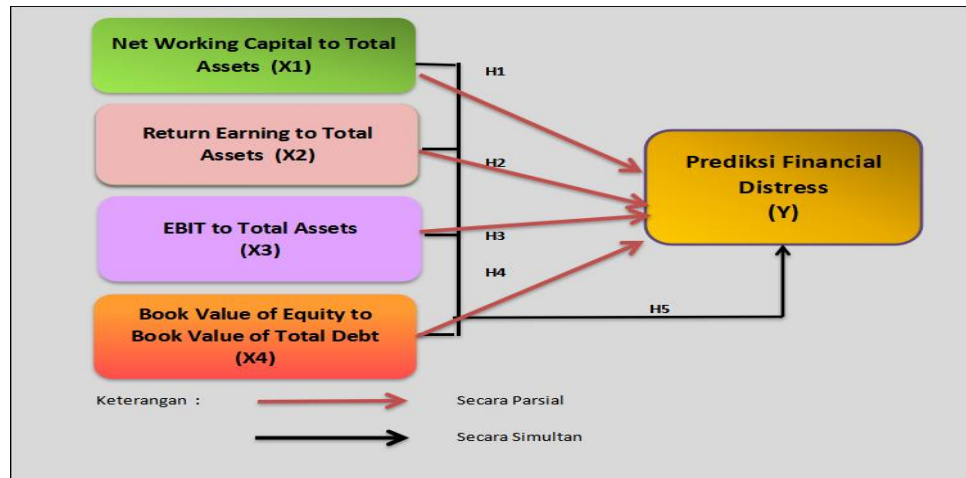
Hypothesis Development

Based on the formulation of the problem and the objectives of this study, the hypotheses of this study are:

- H1: The variable net working capital to total assets has a significant effect on the prediction of financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange.
- H2: The variable retained earnings to total assets has a significant effect on the prediction of financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange.
- H3 : The variable EBIT to total assets has a significant effect on the prediction of financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange.
- H4 : The variable book value of equity to book value of total debt has a significant effect on the prediction of financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange.
- H5: Altman's model ratio simultaneously has a significant effect on the prediction of financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange.

Research Model

Schematic 2.1 Research Model



METHOD

Scope of Research

This research is a quantitative descriptive study with the object of research is net working capital to total assets (NCW/TA), retained earnings to total assets (RE/TA), earnings before interest and tax to total assets (EBIT/TA), book value of equity to book value of total debt (BvofE/BvofTD). The subjects in this study were 154 companies in the trade, services and investment sectors listed on the Indonesia Stock Exchange (IDX) in 2020.

Definition and Operationalization of Variables

The definition and operationalization of the variables in this study can be seen in the table below.

Table 3.1 Definition and Operationalization of Variables

No	Variabel Independen (X)	Definition	Indicator	Scala
1	Net Working Capital to Total Assets (NCW/TA) (X1)	Measuring ability company in meeting short-term obligations	a. Working capital b. Total assets	Rasio
2	Retained Earning to Total Assets (RE/TA), (X2)	Measuring ability company for generate retained earnings from total assets of the company	a. Retained earning b. Total assets	Rasio

3	<i>Earnings Before Interest and Tax to total assets (EBIT/TA) (X3)</i>	Measuring ability asset management company efficiently and make enough profit to fulfill obligations his finances	a. Earnings before interest and taxes b. Total assets	Rasio
4	<i>Book Value of Equity to Book Value of Total Debt (BvofE/BvofTD) (X4)</i>	Measuring ability company in fulfilling long term obligations from own capital	a. Capital Book Value Share b. Book Value of Debt	Rasio
No	Variabel Dependen (Y)	Definition	Indicator	Scala
1	<i>Prediksi Financial Distress (Y)</i>	To predict the condition financial distress or non financial distress a company.	The criteria for a healthy and bankrupt company are based on the Z-Score value of the modified Altman model (model III), namely (Ramadhani and Lukviarman, 2009): If the index value $Z < 1.1$ then the company is predicted to go bankrupt. If the index value is $1.1 < Z < 2.6$, it is a gray area (the company is predicted to experience financial problems and has the potential to go bankrupt). If the index value of $Z > 2.6$, it includes companies that are not bankrupt.	Nominal

Source: processed data, 2021

Population, Research Samples And Sampling Techniques

A. Research Population

According to Uma Sekaran (2011; 121) that population (population) refers to the whole group of people, events, or things of interest that researchers want to investigate. So that the

population in this study are all companies in the trade, services and investment sectors listed on the IDX in 2020.

B. Sampling and Sampling Techniques

According to Sekaran (2011; 123) the sample is part of the population. The sample in this study amounted to 154 companies. Which consists of 40 companies from the wholesale trade sub-sector, 25 companies from the retail trade sub-sector, 35 companies from the restaurant, hotel and tourism sub-sector, 17 companies from the advertising, printing and media sub-sector, 8 companies from the health sub-sector, 9 companies from the service, computer and equipment sub-sector, 12 companies from the investment sub-sector, and 8 companies from other sub-sectors.

The technique in sampling is a saturated sampling technique, according to Sugiyono (2018:85) saturated sampling is a sampling technique when all members of the population are used as samples. So that the sample used in this study were 154 companies.

C. Data collection technique.

This study uses secondary data. The secondary data used in this study are; Annual Report 154 companies in the trade, services and investment sectors listed on the Indonesia Stock Exchange in 2020. This data was obtained by collecting documentation data from the website of each company that became the research sample on the website.

D. Methods of Analysis and Hypothesis Testing

Modified Altman S-score Model Analysis (Model III)

The steps of analysis carried out in this study are as follows:

1. Determine the research sample, namely, companies in the trading, service and investment sector companies listed on the Indonesia Stock Exchange.
2. Calculating Variables in the Altman Z-Score method
 - a. Calculating Working Capital to Total Assets (X1)
 - b. Calculating Retained Earnings against Total Assets (X2)
 - c. Calculating EBIT to Total Assets (X3)
 - d. Calculating Market Value of Equity against Book Value of Total Debt (X4)
3. Calculate the formula used in the Altman Z-score formula method for the Altman III model for various types of companies, as follows (Ramadhani and Lukviarman, 2009):

$$Z'' = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$$

Where:

X1 = Working capital/total assets

X2 = Retained earnings/total assets

X3 = EBIT/total assets

X4 = Market value of equity/book value of total debt

And generate the following model:

4. Classify the results of the analysis using the Z-Score criteria, namely: (Ramadhani and Lukviarman, 2009):
 - a. If the index value $Z'' < 1.1$ then the company is predicted to go bankrupt.
 - b. If the index value is $1.1 < Z'' < 2.6$, it is a gray area (the company is predicted to experience financial problems and has the potential to go bankrupt).

c. If the index value of Z "> 2.6, it includes companies that are not bankrupt.

E. Logistics Regression Analysis

The hypothesis in this study was tested using the Logistic Regression analysis method (Logistics Regression). Logit regression is used because the dependent variable in this study is a dichotomous variable, which is a variable whose measurement consists of two categories. The dependent variable used in this study is financial distress. The independent variables used in this study are net working capital to total assets (NCW/TA), retained earnings to total assets (RE/TA), earnings before interest and tax to total assets (EBIT/TA), book value of equity to book value of total debt (BvofE/BvofTD), the hypothesis that will be tested and proven in this study relates to the presence or absence of the influence of independent variables on related variables. Hypothesis testing to be carried out is testing the null hypothesis (Ho) which states that the correlation coefficient is not significant or significant, while the alternative hypothesis (Ha) states that the correlation coefficient is significant or significant.

The logistic regression model in this study is as follows.

$$\text{Ln} \left[\frac{p}{1-p} \right] = \alpha + \beta_1 \text{current ratio} + \beta_2 \text{debt to equity} + \beta_3 \text{return on asset} + \varepsilon$$

Test Hosmer and Lemeshow's Goodness of Fit

Hosmer and Lemeshow's Goodness of Fit test tests the null hypothesis that the empirical data fits or fits the model (there is no difference between the model and the data so that the model can be said to be fit).

Overall Fit Model

To assess the overall model (overall model fit) by using the Log Likelihood value, namely by comparing between -2 Log Likelihood when the model only includes constants with a value of -2 Log Likelihood (block number = 0) with when the model includes constants and independent variables (block number = 1).

Coefficient of Determination (Nagelkerke R Square)

Nagelkerke R Square is a test conducted to determine how much the independent variable is able to explain and influence the dependent variable. Nagelkerke R Square is a modification of the Cox and Snell coefficients to ensure that its value varies from 0 (zero) to 1 (one).

Regression Coefficient Test

Regression coefficient testing is carried out to test how far all the independent variables included in the model have an influence on the prediction results of financial distress. The logistic regression coefficient can be determined using the p-value (probability value). The significance level (α) used is 5% (0.05). Criteria for acceptance and rejection of alternative hypotheses are based on the significance of the p-value. If $p\text{-value} > \alpha$, then the alternative hypothesis is rejected. On the other hand, if $p\text{-value} < \alpha$, then the alternative is accepted.

Simultaneous Hypothesis Significance Test

Simultaneous hypothesis testing can be seen from the value of Sig. in the Omnibus Test table which is a decrease from the value of -2 Log Likelihood. The formulation of the hypothesis is as follows: $H_0 : i (i = 4) = 0$ "That is, simultaneously the independent variables have no

significant effect on the dependent variable" H_a : there is at least 1 i ($i = 4$) 0 "That is, simultaneously the independent variables significant effect on the dependent variable "

DISCUSSION

Research result

Modified Altman S-score Model Analysis (Model III)

To analyze the Modified Altman Z-score Model (Model III), it is necessary to first determine a sample of 154 companies in the trade, services and investment sectors listed on the Indonesia Stock Exchange. Then calculate each variable in the Altman Z-Score method, namely, Working capital/total assets (X1), Retained earnings/total assets (X2), EBIT/total assets (X3), Market value of equity/book value of total debt (X4). And after that, calculate the prediction of financial distress using Multivariate Discriminant Analysis (MDA) Modified Altman Z-Score Model (model III). These calculations can be seen in table 4.1 below:

After calculating the Z-Score value, the results of the calculation are classified using the Z-Score criteria, namely: (Ramadhani and Lukviarman, 2009):

- If the index value $Z < 1.1$ then the company is predicted to go bankrupt.
- If the index value is $1.1 < Z < 2.6$, it is a gray area (the company is predicted to experience financial problems and has the potential to go bankrupt).
- If the index value of $Z > 2.6$, it includes companies that are not bankrupt.

Based on the Z-Score Criteria Classification, the value of the dependent variable (Y) can be determined. Companies that experience financial distress are given a value of 1, while those in non-financial distress are assigned a value of 0. The gray area is included in the non-financial distress category, because the company still has opportunities. to improve its financial performance.

Table 4.1 Classification of Financial Distress

No.	Criteria of Altman Z-Score Modification (Model III)	Clasification Financial Distress	Corporate
1	Value index $Z < 1,1$	Financial Distress	70
2	Value Index $1,1 < Z < 2,6$	Grey Area	18
3	Value Index $Z > 2,6$	Non-Financial Distress	66
Total of Corporates			154

Source: processed data, 2021

Logistics Regression Model Analysis

Partial Hypothesis Significance Test & Interpretation

The following will test the significance of the logistic regression equation partially using the Wald test (Wald statistic). By using SPSS, the following test results are obtained:

Table 4.2 Partial Hypothesis Test Results

Variables in the Equation						
		B	S.E.	Wald	df	Sig.
Step 1 ^a	NCW_TA_X1	-11,344	2,823	16,145	1	,000
	RE_TA_X2	-6,154	1,614	14,544	1	,000
	EBIT_TA_X3	-13,553	4,838	7,848	1	,005
	BvofE_BvofTD_X4	-1,709	,418	16,696	1	,000
	Constant	2,263	,553	16,762	1	,000

a. Variable(s) entered on step 1: NCW_TA_X1, RE_TA_X2, EBIT_TA_X3, BvofE_BvofTD_X4.

The Wald test (Wald statistic) is used to partially test the hypothesis as in the linear regression model. If the probability (sig) is greater than 0.05, the independent variable has no significant effect on the dependent variable. Meanwhile, if the probability (sig) is less than 0.05, it can be said that the independent variable has a significant influence on the dependent variable.

Based on the table of the estimated value of the logistic regression coefficients presented in the table above (variables in the equation), it is known that the value of the logistic regression coefficient for Net Working Capital to Total Assets (NCW/TA) is 11.344, which is negative, meaning the higher the Net Working Capital value. to Total Assets (NCW/TA) of the company, will result in a decrease in the company's opportunity to experience financial distress. As for the value of Sig. The obtained value is 0.000 and less than 0.05 which indicates that partially Net Working Capital to Total Assets (NCW/TA) has a significant effect on the occurrence of financial distress in trading, service and investment sector companies on the Indonesia Stock Exchange.

The Retained Earning to Total Assets (RE/TA) variable has a logistic regression coefficient of 6.154 and is negative, meaning that the higher the Retained Earning to Total Assets (RE/TA) value, the lower the company's chances of experiencing financial distress. As for the value of Sig. The obtained value is 0.000 and less than 0.05 which indicates that partially Retained Earning to Total Assets (RE/TA) has a significant effect on financial distress in trading, service and investment sector companies on the Indonesia Stock Exchange.

The variable Earnings Before Interest and Tax to total assets (EBIT/TA) has a logistic regression coefficient of 13,553 and is negative, meaning that the higher the value of Earnings Before Interest and Tax to total assets (EBIT/TA), will result in a decrease in the company's opportunity to experience financial distress. As for the value of Sig. The obtained value is 0.005 and less than 0.05 which indicates that partially Earnings Before Interest and Tax to total assets (EBIT/TA) has a significant effect on financial distress in trading, service and investment sector companies on the Indonesia Stock Exchange.

The Book Value of Equity to Book Value of Total Debt (BvofE/BvofTD) variable has a logistic regression coefficient of 1.709 and is negative, meaning that the higher the Book Value of Equity to Book Value of Total Debt (BvofE/BvofTD), will result in a decrease opportunities for companies to experience financial distress. As for the value of Sig. The obtained value is 0.000 and less than 0.05 which indicates that partially Book Value of Equity to Book Value of

Total Debt (BvofE/BvofTD) has a significant effect on financial distress in trading, service and investment sector companies on the Stock Exchange. Indonesia.

Simultaneous Hypothesis Significance Test

Furthermore, simultaneous hypothesis testing can be seen from the value of Sig. in the Omnibus Test table which is a decrease from the value of -2 Log Likelihood. The formulation of the hypothesis is as follows:

HO : $i (i = 4) = 0$ "That is, simultaneously the independent variables have no significant effect on the dependent variable"

Ha : there is at least 1 $i (i = 4) \neq 0$ "That is, simultaneously the independent variables have a significant effect on the dependent variable"

If the value of Sig. obtained is smaller than 0.05, then the null hypothesis (HO) is rejected and the alternative hypothesis (Ha) is accepted. By using the SPSS 22.0 program, the following test results were obtained:

Table 4.3 Simultaneous Hypothesis Testing

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	157,149	4	,000
	Block	157,149	4	,000
	Model	157,149	4	,000

Source: Secondary data processed

In the output table above, it can be seen that the value of Sig. obtained for the overall model is $0.000 < 0.05$, so that according to the criteria for testing the hypothesis is to reject Ho and accept Ha, meaning that the independent variables consist of Net Working Capital to Total Assets (NCW/TA), Retained Earning to Total Assets (RE/TA), Earnings Before Interest and Tax to total assets (EBIT/TA), and Book Value of Equity to Book Value of Total Debt (BvofE/BvofTD) have a significant effect on the dependent variable (financial distress).

Discussion

The results of the study show that during the Covid-19 Pandemic, many companies in the Trading, Services and Investment sectors on the Indonesia Stock Exchange experienced economic failure and financial failure.

Economic failure can be interpreted as a condition where the company cannot cover the total cost so that the company cannot pay employee salaries. This is because the level of profit generated is smaller than the total cost incurred. Many companies ultimately ask investors to add their capital back or look for new investors. Financial failure can be interpreted as a condition where a company cannot fulfill its short-term obligations, such as not being able to pay debts on time (insolvency) due to losses or reduced liquidity.

Financial distress occurs in approximately 45% or as many as 70 companies in the Trade, Services and Investment sector on the Indonesia Stock Exchange. As many as 12% or 18

companies are in the gray area category, which means the company is predicted to experience financial problems and has the potential to go bankrupt. And about 42% or 66 companies that do not experience financial problems or non-financial distress.

The sectors most affected by Covid-19 are companies in the Restaurant, Hotel and Tourism sub-sector. Around 57% of the 35 companies in this sub-sector experienced financial distress, 11% were in the gray area and only 32% of companies did not experience financial distress (non-financial distress). This condition is due to various government policies in handling COVID-19, especially social distancing and physical distancing.

The results of the Multivariate Discriminant Analysis (MDA) Altman Z-Score Model in this study indicate that when one ratio is negative, the company has the opportunity to experience financial distress. The results show that 37% or 56 companies in the trading, services and investment sectors on the Indonesia Stock Exchange during the Covid-19 pandemic experienced negative Net Working Capital to Total Assets. Negative net working capital, resulting in the company will face problems in covering its short-term obligations due to the unavailability of sufficient current assets to cover these obligations. On the other hand, companies with positive net working capital rarely face difficulties in paying off their obligations.

Retained Earnings to Total Assets of around 44% or 66 companies in the Trade, Services and Investment sector on the Indonesia Stock Exchange also experienced negative growth during the Covid-19 pandemic. This shows the company does not have the ability to generate retained earnings from the company's total assets is negative. Earning Before Interest and Tax to Total Assets from around 62% or 94 companies in the Trade, Services and Investment sector on the Indonesia Stock Exchange also experienced negative growth during the Covid-19 pandemic. This shows that the company does not have the ability to generate profits from the company's assets, before paying interest and taxes. Companies in the Trade, Services and Investment sectors on the Indonesia Stock Exchange during the Covid-19 pandemic on average have a positive Market Value of Equity to Book Value of Debt ratio. Only about 11% or 18 companies experienced negative growth. This shows that the average company has the ability to meet obligations from the market value of its own capital (common stock). Companies that have a negative Market Value of Equity to Book Value of Debt are indicated to be experiencing severe financial distress and the company's business continuity is in question, so their shares must be suspended and delisted from the Indonesia Stock Exchange in 2020.

There are about 18 companies that must experience suspension and delisting in 2020, namely; Evergreen Invesco Tbk, Leo Investments Tbk, Renuka Coalindo Tbk, Sugih Energy Tbk, Sigmagold Inti Perkasa Tbk, Rimo International Lestari Tbk, Skybee Tbk, Tiphone Mobile Indonesia Tbk, Bukit Uluwatu Villa Tbk, Jaya Bersama Indo Tbk, Grahamas Citrawisata Tbk, Mandarin Hotel Regency Tbk, Marga Abhinaya Abadi Tbk, Mas Murni Indonesia Tbk, Ayana Land International Tbk, Nusantara Properti Internasional, Sinergi Megah Internusa Tbk, Polaris Investama Tbk, Siwani Makmur Tbk.

Financial distress prediction using Multivariate Discriminant Analysis (MDA) Altman Z-Score Model is an early warning system for companies in the Trade, Services and Investment sector on the Indonesia Stock Exchange affected by the Covid-19 pandemic, to be able to secure their financial performance from threats. bankruptcy. The earlier a company gets a bankruptcy

warning, the better it will be for management because it can make improvements and provide an optimistic picture and hope for stakeholders regarding the future value of the company.

CONCLUSION

Based on the results of data analysis and discussions that have been carried out in the previous chapter, the authors draw several conclusions as follows:

- 1) Net Working Capital to Total Assets (NCW/TA) has a negative and significant effect on financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange.
- 2) Retained Earning to Total Assets (RE/TA) has a negative and significant effect on financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange.
- 3) Earnings Before Interest and Tax to total assets (EBIT/TA) have a negative and significant effect on financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange.
- 4) Book Value of Equity to Book Value of Total Debt (BvofE/BvofTD) has a negative and significant effect on financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange.
- 5) Simultaneously Net Working Capital to Total Assets (NCW/TA), Retained Earning to Total Assets (RE/TA), Earnings Before Interest and Tax to total assets (EBIT/TA), and Book Value of Equity to Book Value of Total Debt (BvofE/BvofTD) has a significant effect on financial distress in trading, service and investment sector companies listed on the Indonesia Stock Exchange, with a contribution of 64%.

REFERENCES

- Achmad Syamsul Maarif (2018), *“Model Prediksi Kesulitan Keuangan (Studi pada Perusahaan Plastik Kemasan dan Tekstil Garmen yang Terdaftar di Bursa Efek Indonesia)”*
- Ajeng Puspita, Ni Made Ida Pratiwi, Ute Chairuz Nasution (2017), *“Analisis Financial Distress Dengan Metode Altman Z-Score Untuk Memprediksi Kebangkrutan (Studi Pada Perusahaan Industri Plastik dan Kemasan yang terdaftar di Bursa Efek Indonesia)”*
- Cessnaya Shafa, (2021), *“Dampak Pandemi Virus Covid-19 Terhadap Perdagangan di Indonesia”* kumparan.com Januari 2021 12:23
- Eka Budiyaniti, (2020), *“Dampak Virus Corona Terhadap Sektor Perdagangan dan Pariwisata Indonesia”*, Jurnal Info Singkat, Puslitbang DPR RI, Vol. XII, No.4/II/Puslit/Februari/2020
- Eko Wahyudi, (2020), *“PHRI: Sektor Pariwisata Rugi Rp 85,7 Triliun Akibat Pandemi”* Tempo.com, Selasa, 14 Juli 2020
- Fadel Prayoga, (2020), *“Sederet Dampak Covid-19 ke Sektor Perdagangan Indonesia”*, Okezone.com, Rabu 24 Juni 2020 20:29 WIB
- Feni Freycinetia Fitriani, (2020), *“Bos BI Ingatkan Risiko Covid-19 Menjalar ke 3 Sektor Ini”*, Bisnis.com 28 April 2020 14:28 WIB

- Fitri Ayu Ningsih (2017), "*Analisis Penggunaan model Altman dalam memprediksi kebangkrutan perusahaan (Studi pada Perusahaan Plastik dan kemasan yang terdaftar di BEI periode tahun 2012-2014)*"
- I Dewa Gde Sugihamretha (2020), "*Respon Kebijakan: Mitigasi Dampak Wabah Covid-19 Pada Sektor Pariwisata,*" Kementerian Perencanaan Pembangunan Nasional/Bappenas Republik Indonesia, The Indonesian Journal of Development Planning Volume IV No. 2 – Juni 2020
- Imaduddin Shidiq, Budi Wibowo (2017), "*Prediksi Financial Distress Bank Umum Di Indonesia: Analisis Diskriminan dan Regresi Logistik*".
- Kasmir. 2012. *Analisis Laporan Keuangan*, PT. Raja Grafindo Persada, Jakarta.
- Katarina Intan Afni Patunrui, , Sri Yati (2017), "*Analisis Penilaian Financial Distress Menggunakan Model Altman (ZScore) Pada Perusahaan Farmasi Yang Terdaftar di Bursa Efek Indonesia Periode 2013-2015)*"
- Laksita Nimalasari (2018), "*Analisis Financial Distress pada Perusahaan Sektor Property, Real Estate dan Konstruksi Bangunan yang Terdaftar di Bursa Efek Indonesia*"
- Luthfia Ayu Azanella (2020), "*Saat Pandemi Covid-19 Berdampak pada Bisnis Perhotelan Saat Ini*" Kompas.com - 26/09/2020
- Masri Singarimbun & Sofyan Effendi. (1995). *Metode Penelitian Survey*, Ed Revisi, Jakarta: LP3ES.
- Mokhammad Iqbal, Wisno Mawardi (2012), "*Analisis prediksi financial distress dengan menggunakan Model Altman Z-Score modifikasi 1995 (Studi Kasus Pada Perusahaan Manufaktur Yang Go Public di Indonesia Tahun 2008 sampai dengan Tahun 2010)*"
- Mudrajad Kuncoro. (2014). *Metode Riset untuk Bisnis dan Ekonomi*, edisi 4. Jakarta: Erlangga.
- Muhammad Choirul Anwar , (2020), "*Efek Dahsyat Covid-19, Hotel dan Restoran Rumahkan Pegawai, CNBC Indonesia, 13 March 2020*"
- Nita Sari (2018), "*Prediksi Financial Distress Pada Perusahaan Manufaktur Indonesia (Studi Empiris Perusahaan Manufaktur yang Terdaftar di Bursa Efek Indonesia Tahun 2015 – 2017)*"
- Perdi Suhendra (2019), "*Analisis Kebangkrutan dengan Menggunakan Metode Altman Z-Score pada Perusahaan Manufaktur Sektor Barang Konsumsi yang Terdaftar di Bursa Efek Indonesia (BEI)*"
- Rahmad Fauzan, (2020), "*Pandemi Berdampak Cukup Besar Bagi Sektor Pariwisata,*" Bisnis.com 07 Agustus 2020
- Ramadhani, Ayu Suci & Niki Lukviarman. (2009). "*Perbandingan Analisis Prediksi Kebangkrutan Menggunakan Model Altman Pertama, Altman Revisi, dan Altman Modifikasi dengan Ukuran dan Umur Perusahaan Sebagai Variabel Penjelas (Studi Pada Perusahaan Manufaktur yang Terdaftar di BEI)*". Jurnal Siasat Bisnis Vol. 13 No. 1, April 2009. Diunduh tanggal 21 oktober 2012
- Reza Sulaiman. M, (2020), "*Dampak Pandemi Covid-19 di Sektor Pariwisata: Hotel Sepi dan Restoran Tutup*", Suara.com, Rabu, 29 Juli 2020
- Riki Ridwan Margana , (2020), "*Dampak Virus Corona terhadap Perdagangan Ekspor-Impor*", supplychainindonesia.com

- Riza Harahap, (2020), “*Bisnis hotel bangkit dari keterpurukan dampak pandemi COVID-19*” Antara.com, Senin, 30 November 2020
- Riyanto. 2011. *Dasar-Dasar Pembelanjaan Perusahaan*. Cetakan Ketujuh, BPFE, Yogyakarta
- Sekaran, Uma. (2011). *Research Methods for business* (4th ed). Buku 1 dan 2, Jakarta: Salemba Empat.
- Sugiyono. (2014). *Metode Penelitian Bisnis (Pendekatan Kuantitatif, Kualitatif dan R&D)* 18. Bandung: Alfabeta.
- Umi Narimawati. (2008). *Metodologi Penelitian Kualitatif dan Kuantitatif, Teori dan Aplikasi*. Bandung: Agung Media.
- Weston dan Copeland. 2013. *Manajemen Keuangan*, Jilid Satu, Edisi Kesembilan, Terjemahan oleh Jaka Wasana dan Kibrandoko, 2014, Bina Rupa Aksara, Jakarta.
- Yuslely Martha (2012), “*Analisis Prediksi Financial distress pada perusahaan Ritel dan Wholesale yang terdaftar di BEI menggunakan rasio model Altman (Periode 2008-2011)*”