

FINANCIAL RATIO'S IMPACT ON FINANCIAL DISTRESS: PRE- AND DURING THE COVID-19 PANDEMIC

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Abstract

The purpose of this research is to examine the effects of several financial ratios on financial distress prior to and during the COVID-19 pandemic. The research sample consists of 51 basic industrial and chemical businesses that are listed on the Indonesia Stock Exchange between 2018 and 2021. The Springate model is employed to assess the level of financial distress, and logistic regression is used as the analytical method. Liquidity, activity, leverage, profitability ratios and control variables had a significant impact on financial distress both before and during the COVID-19 pandemic. This suggests that these financial ratios, along with other controlled factors, collectively influenced financial distress. The study aims to offer significant perspectives to the audience and function as a guide for prospective investigators and enterprises, namely those operating in the chemical and basic industrial sectors listed on the Indonesia Stock Exchange. It highlights the importance of financial ratios in improving a company's performance and financial condition, which can help minimize financial distress.

Keywords: Financial Ratios, Financial Distress, COVID-19 Pandemic, Industry and Chemical Companies

1. INTRODUCTION

The COVID-19 pandemic has had a large and significant impact on all aspects of life, especially on health and economic aspects. (Prabowo & Iswanaji, 2022; Ardamani, 2021; Silalahi & Ginting, 2020). Based on a survey conducted on 10-26 July 2020 by the Badan Pusat Statistik (BPS) regarding the impact felt by business actors in Indonesia due to Covid-19, the results show that only a number of companies in Indonesia were able to carry out their operational activities normally during the PSBB. 58.95% and in Indonesia 82.85% of companies experienced a decline in income from their operational activities (BPS, 2020). Because Covid-19 causes a decline in company revenues, of course this has a significant impact on the level of stability of the country's economy (Prabowo & Iswanaji, 2022).

Apart from Covid-19, intense competition between companies can also be a trigger for companies to experience losses and cause the company's financial condition to experience difficulties. Companies must be able to compete, both with domestic and foreign competitors. This requires companies to continue to develop and keep up with changes in society (Setyowati & Sari, 2019; Ayu *et al.*, 2017). Due to Covid-19 and increasingly fierce competition, the risk of companies experiencing financial difficulties will increase. If a company continues to experience financial difficulties and losses, the company will be faced with financial distress (Nurhayati *et al.*, 2021). Because financial distress has quite an effect on operational activities, companies need to carry out early detection of symptoms of financial distress as a way to anticipate and prevent the occurrence of this condition (Prabowo & Iswanaji, 2022; Carolina *et al.*, 2018). To anticipate financial distress conditions, this can be done by analyzing the annual report or financial report of the relevant company which is published to the public (Santoso *et al.*, 2017). The company's annual report and financial statements can be analyzed using financial ratios such as liquidity, activity, solvency and profitability. Financial ratios are calculations obtained by comparing the numbers for one item with other items contained in the financial report and which have a relevant and significant relationship (Oktarina, 2018).

Based on the background explanation above and also seeing inconsistencies in several previous studies whose topics were similar to this research, the researcher was encouraged to conduct research. Researchers see the possibility of inconsistencies due to differences in research data from both sectors and research years chosen. Due to the different choices of sectors and years, it is possible to display various data results according to company and market conditions at that time. So the researcher wants to carry out research again using the Springate

model to measure financial distress which is different from the measurement model generally used in previous research as well as adding control variables to the research variables and focusing on the Indonesian period in the previous two years. Covid-19 pandemic (2018 -2019) and two years during the Covid-19 pandemic (2020-2021). The research problem in this open research is to see, do liquidity ratios have an effect on financial distress?, do activity ratios have an effect on financial distress?, do solvency ratios have an effect on financial distress?, and do profitability ratios have an effect on financial distress?

Aside from that, the research aims to provide empirical evidence about the impact of liquidity ratios, activity ratios, solvency ratios, and profitability ratios on financial distress, as well as empirical evidence about the influence of these ratios on financial distress, in line with previous research problems.

2. LITERATURE REVIEW

2.1. Grand theory

2.1.1 Signalling Theory

According to Ross (1977) in Santoso (2017), revealed that the company as the owner of the information or the sender, must provide a signal. The signal in question is in the form of important and useful information that reflects the true condition of the company held by investors, in this case the party receiving the information on the signal and the signal can be a positive signal or a negative signal. Giving signals to investors is carried out by the manager as a representative of the company, this is done so that the information obtained is correct information. So as to minimize confusing information or information asymmetry (Santoso, 2017). As is known, every company, especially public companies, is obliged to publish financial reports both periodically and in accordance with their respective company regulations. The published financial report is information to investors that the company has implemented policies or rules in accounting in accordance with existing regulations and prevents overstated presentation of assets and profits (Hidayat et al., 2020). This information is very useful and important for external parties to the company because this information can influence investment decisions for external parties, in this case investors, both existing investors and potential investors of the company (Ayu et al., 2017). Because basically this information provides an overview of the current, past state of the company and predicts the future state of the company (Hidayat et al., 2020).

2.1.2 Financial Ratios

Financial ratios are obtained by comparing the figures for one post with other posts in the financial statements that have a significant and relevant relationship (Oktarina, 2018). By making a comparison, we can see and analyze the two results so we can find out what the financial condition of a company is, this condition can be good or bad. When carrying out calculations using data from financial reports, the data used is automatically past data or shows the company's past conditions. By calculating these financial ratios, you can analyze the risks and opportunities that the company may experience in the future based on past financial conditions (Hidayat et al., 2020). In addition, external parties to the company such as creditors and investors can use the results of financial ratio calculations, which are generally included in the company's annual report to make considerations or decisions relating to the company's future condition and reflect how healthy the company's financial condition was during that period (Wardani & Trisnawati, 2021; Assaji & Machmuddah, 2019). There are several types of financial ratios:

- **Liquidity Ratio:** To see and measure how a company is able to pay off or fulfill its obligations in this case the short-term debts are under 12 months

(Hidayat et al., 2020). Included in this ratio: quick ratio (QR), current ratio (CR), etc.

- **Activity Ratio:** To be able to find out whether the company is utilizing its resources efficiently or not to generate profits or profit (Masita & Purwohandoko, 2022). Several ratios are included in the activity ratio, namely: inventory turnover (ITO), receivable turnover (RTO), etc.
- **Solvency Ratio:** It is also known as the leverage ratio and can be used to determine the proportion of an organization's assets that are funded by its debt or long-term liabilities (Prabowo, 2022). The debt to equity ratio (DER), debt to asset ratio (DAR), and other measures are included in the solvency ratio.
- **Profitability Ratio:** To measure and predict the company's ability to gain profits within a certain time or period (Hidayat et al., 2020). Included in profitability ratios are earnings per share (EPS), return on assets (ROA), etc.

2.1.3 Financial Distress

When a company is unable to pay the debts or obligations it has to banks or creditors, this situation is said to be financial distress. If the company cannot take action or improve its performance, the company will face bankruptcy (Hidayat et al., 2019). When a company experiences financial or financial difficulties, this affects the value of the company itself so that external parties, namely investors, think that the company is unstable from a financial or financial perspective (Chrissentia & Syarief, 2018). The effects of financial distress can affect overall governance and activities within the company and do not rule out the possibility of disputes between one party and another. Basically, financial distress is a condition that can be identified and indicates the end of a company's operation or bankruptcy (Christine et al., 2019). Calculations for financial distress conditions are carried out quantitatively and there are several model options. The first model to predict financial distress for a company was the Altman Z-Score Model (1968), in this model it uses 5 ratios in its calculation formula. Then the Altman Z-Score model was developed by Gordon L.V in 1978 into the Springate model which uses 4 ratios in its calculation formula and becomes a benchmark for whether a company is indicated in financial distress or not.

2.2. Hypothesis Development

2.2.1. The Effect of Liquidity Ratios on Financial Distress

The liquidity ratio can see the company's capability to utilize the company's current assets to pay its short-term obligations. When the results of a company's liquidity ratio are large, this reflects that the company has used and managed its assets effectively and efficiently. When a company can pay its short-term obligations and the results of calculating the liquidity ratio are large, it indicates that the company's financial condition is at a good stage and minimizes the occurrence of financial distress or company bankruptcy. Based on several previous studies, by Subagyo et al. (2022); Wulandari & Jaeni (2021); Hidayat et al. (2020); Setyowati & Sari (2019) and Sudaryo et al. (2019) obtained results that liquidity ratios have a significant influence on financial distress. In this study, the liquidity ratio is proxied by the current ratio (CR) so that the hypothesis for the liquidity ratio:

H1 = Liquidity ratios have an effect on financial distress

2.2.2. The Effect of Activity Ratios on Financial Distress

The activity ratio can assess whether a company utilizes its resources efficiently and effectively to gain profits by making sales. When the company's activity ratio is large, this will help the company to avoid experiencing financial distress because it indicates that the company has made sales efficiently and collected receivables effectively, automatically the condition and performance of the company will be classified as good and the company will avoid financial distress. Based on the results of previous research by Maulida et al. (2018) found that the activity ratio has a significant influence on financial distress. In this study the activity ratio is calculated using receivable turnover (RTO) so that the hypothesis for the activity ratio:

H2 = Activity ratios influence financial distress

2.2.3. The Effect of Solvency Ratios on Financial Distress

In general, companies will borrow large amounts for long periods of time, this is the case usually done to finance company activities or assets. So it can be said that borrowing or credit activities are a common thing for companies, however, not all companies carry out careful calculations and thinking when making these loans. Not a few companies take out loans to finance the company and in the end these loans become a burden for the company because it is difficult to pay the principal debt and interest. However, there are also companies that can use their loans effectively and efficiently so as to provide profits for the company. Based on several previous studies, by Masita & Purwohandoko (2022); Andayani & Puspitasari (2021); Wulandari & Jaeni (2021); Hidayat et al. (2020); Amanda & Tasman (2019); Sudaryo et al. (2019) and Chrissentia & Syarief (2018) found that the solvency ratio has a significant influence on financial distress. Debt to asset ratio (DAR) is used to measure the solvency ratio so that the hypothesis for the solvency ratio:

H3 = Solvency ratios influence financial distress

2.2.4. Effect of Profitability Ratios on Financial Distress

Profitability ratios can measure a company's ability to gain profits within a certain time and can be used as additional funds for operational activities and other costs such as paying off company obligations. The results of a large profitability ratio will reflect that the company's performance in gaining profits is good. The greater the result, the smaller the possibility of experiencing financial distress. Based on several previous studies, by Masita & Purwohandoko (2022); Muzharoatiningsih & Hartono (2022); Hidayat et al. (2020); Assaji & Machmuddah (2019); Sudaryo et al. (2019); Carolina et al. (2018) and Ayu et al. (2017) found that profitability ratios have a significant influence on financial distress. In this research the profitability ratio is proxied by return on assets (ROA) so that the hypothesis for the profitability ratio:

H4 = Profitability ratios influence financial distress

3. RESEARCH METHODS

3.1 Unit Analisa dan Sampel

The population of this research, which has a 2018–2021 study period, consists of companies in the basic and chemical industries sector listed on the Indonesia Stock Exchange. The sample in a study is obtained from a predetermined population. There are several ways to obtain a research sample. This research uses a purposive sampling method, namely determining several desired characteristics of the sample. Therefore, researchers determined several characteristics, such as basic industrial and chemical sector companies listed on the IDX in 2018 or before and companies publishing complete annual reports in 2018-202. In this research, to obtain the data that will be needed for the analysis, the researcher utilized secondary data, namely the 2018-2021 annual report obtained through the official website of the relevant company or on the IDX website. Apart from company data, researchers also use

documentation data in the form of books, journals and articles related to topics to support the research process, so this research is quantitative in nature.

3.2 Model

In the final stage of research, hypothesis testing will be carried out. To test this hypothesis, an empirical research model is needed. In this research, the empirical model used is a logistic regression model because the dependent variable data, namely financial distress, is measured using dummy variables or data with a dichotomous scale of "0" or "1". The logistic regression model formula is as follows:

Model 1 (Before Covid-19, 2018-2019)

$$\ln \text{FD}/1-\text{FD}_{i,t} = \alpha + \beta 1\text{LIQ}_{i,t} + \beta 2\text{ACT}_{i,t} + \beta 3\text{SOL}_{i,t} + \beta 4\text{PROF}_{i,t} + \beta 5\text{SIZE}_{i,t} + \beta 6\text{AGE}_{i,t} + \beta 7\text{SG}_{i,t} + \beta 8\text{AG}_{i,t} + e_{i,t}$$

Model 2 (During Covid-19, 2020-2021)

$$\ln \text{FDxCVD}/1-\text{FDxCVD}_{i,t} = \alpha + \beta 1\text{LIQxCVD}_{i,t} + \beta 2\text{ACTxCVD}_{i,t} + \beta 3\text{SOLxCVD}_{i,t} + \beta 4\text{PROFxCVD}_{i,t} + \beta 5\text{SIZExCVD}_{i,t} + \beta 6\text{AGExCVD}_{i,t} + \beta 7\text{SGxCVD}_{i,t} + \beta 8\text{AGxCVD}_{i,t} + e_{i,t}$$

3.2.1 Financial Distress (FD & FDxCVD)

There are several ways to measure and predict a company's financial distress, however, in this study the researcher decided to use the Springate model:

$$S = 1,03A + 3,07B + 0,66C + 0,4D$$

3.2.2 Liquidity Ratio (LIQ & LIQxCVD)

The results of CR describe whether the short-term liabilities that the company has can be paid or repaid with short-term assets company or not. Calculated using the formula:

$$\text{Current Ratio (CR)} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

3.2.3 Activity Ratio (ACT & ACTxVD)

The higher the receivable turnover results, the better and more efficient the company is at collecting its receivables. To calculate it, you can use the following formula:

$$\text{Receivable Turnover (RTO)} = \frac{\text{Sales}}{\text{Avg. Account}}$$

3.2.4 Solvency Ratio (SOL & SOLxCVD)

When a company has low DAR results, it indicates that the company is using own equity to finance its assets. To calculate DAR, you can use the following formula:

$$\text{Debt to Asset Ratio (DAR)} = \frac{\text{Total Liabilities}}{\text{Total}}$$

3.2.5 Profitability Ratio (PROF & PROFxCVD)

The higher the ROA a company has, it indicates that the company has effectively used the assets they own. The ROA formula is as follows:

$$\text{Return on Asset (ROA)} = \frac{\text{Net Income After Tax}}{\text{Total}}$$

4. RESULTS AND DISCUSSION

4.1 Descriptive statistics

Descriptive statistics will describe the data from the research variables. The descriptive statistical analysis was carried out in two parts, namely before Covid-19 and during Covid-19.

Variable	Obs	Min	Max	Mean	Std. Dev.	Median
FD	102	0	1	0.44118	0.49898	0
LIQ	102	0.02136	21.70501	2.41543	2.67656	1.54909
ACT	102	1.36769	26.63595	8.34148	5.67179	5.9315
SOL	102	0.09038	1.30785	0.47900	0.24370	0.49444
PROF	102	-0.40142	0.26211	0.03008	0.07667	0.02941
SIZE	102	12.53622	27.91551	18.36299	3.63175	18.50084
AGE	102	0	42	17.79412	10.99535	22
SG	102	-0.53727	8.37123	0.15350	0.84506	0.07397
AG	102	-0.27736	1.12631	0.08590	0.18611	0.04596

The results of descriptive statistics on data before Covid-19, namely 2018-2019, show that: *Financial distress* (FD) The results show that the minimum value of FD is 0 and the maximum value is 1, this is due to the results of the FD calculation proxied using dummy variables. The mean of FD is 0.44118 with a standard deviation of 0.49898 and a median of 0. Liquidity ratio (LIQ), which is an independent variable, is measured using the current ratio (CR), the minimum value is from PT Eterindo Wahanatama Tbk in 2018, amounting to 0.02136 and the maximum value comes from PT Duta Pertiwi Nusantara Tbk in 2019, namely 21.70501. Then the mean is 2.41543, the standard deviation is 2.67656 and the median is 1.54909. Activity ratio (ACT) is proxied by receivable turnover (RTO) and is the second independent variable in the research. The RTO value from PT Waskita Beton Precast Tbk in 2019 was 1.36769, the minimum value and the RTO from PT Emdeki Utama Tbk in 2018, 26.63595, was the maximum value in this research. The mean is 8.34148 with a standard deviation of 5.67179 and a median of 5.9315. Solvency ratio (SOL) is the third independent variable in the research which is measured using the debt to asset ratio (DAR). The minimum value is in 2018 which is the DAR from PT Emdeki Utama Tbk of 0.09038 and the maximum value is in 2019 which is the DAR from PT Eterindo Wahanatama Tbk of 1.30785. With a mean value of 0.47900 with a standard deviation of 0.24370 and a median of 0.49444. Profitability ratio (PROF) is proxied using return on assets (ROA) and is the fourth independent variable in the research, has a minimum ROA value of -0.40142 in 2019 from PT Keramika Indonesia Association Tbk and a maximum ROA value of 0.26211 in 2018 from PT Central Proteina Prima Tbk. Then the mean is 0.03008, the standard deviation is 0.07667 and the median is 0.02941. ROA with negative results can be an indication that the company is not using its assets efficiently. Company size (SIZE) is the first control variable which is calculated using ln or the natural logarithm of the total assets of the company concerned. SIZE with a minimum value of 12.53622 came from PT Yanaprima Hastapersada Tbk in 2019 and a maximum value of 27.91551 came from PT Tunas Alfin Tbk in 2019. SIZE has a mean of 18.36299 with a standard deviation of 3.63175 and a median of 18.50084. Company age (AGE) is the second control variable with a minimum value of 0 which is the AGE of PT Cahayaputra Asa Keramik Tbk & PT Madusari Murni Indah Tbk in 2018 and a maximum value of 42 which is the AGE of PT Solusi Bangun Indonesia Tbk in 2019. Then the mean of AGE is 17.79412 with a standard deviation of 10.99535 and a median

of 22. There is a company age of 0 because the year of the company's IPO coincides with the year the research was conducted. Sales growth (SG) is the control variable in this research. It has a minimum value of -0.53727 in 2018 and a maximum value 8.37123 in 2019, both from PT Eterindo Wahanatama Tbk. The mean of SG is 0.15350 with a standard deviation of 0.84506 and a median of 0.07397. Sales growth with negative results indicates that the company experienced a decrease in sales compared to the previous year. Asset growth (AG) is the fourth control variable, the AG value from PT Keramik Indonesia Association Tbk in 2019 was -0.27736 being the minimum value and the AG value from PT Alakasa Industrindo Tbk in 2018 was 1.12631 being the maximum value with a mean of 0.08590 and The standard deviation is 0.18611 and the median is 0.04596. Asset growth with negative results indicates that the company experienced a decrease in the number of assets compared to the previous year.

The table below presents descriptive statistical results from data during Covid-19 in 2020-2021, the results show:

Variable	Obs	Min	Max	Mean	Std. Dev.	Median
FDxCVD	102	0	1	0.49020	0.50237	0
LIQxCVD	102	0.09837	24.80363	2.41432	3.04323	1.63482
ACTxCVD	102	0.01423	51.03588	8.21612	6.89833	6.04648
SOLxCVD	102	0.08129	2.82104	0.50843	0.36725	0.46534
PROFxCVD	102	-9.87629	1.37568	-0.06581	1.00125	0.03113
SIZExCVD	102	12.46134	28.08205	18.27007	3.51170	18.16258
AGExCVD	102	2	44	19.79412	10.99535	24
SGxCVD	102	-0.99792	6.95503	0.10240	0.75204	0.03043
AGxCVD	102	-0.5593	0.63109	0.04105	0.14820	0.04432

Financial distress (FDxCVD), which is the dependent variable in this research, is calculated using the Springate model. The results show that the minimum value of FDxCVD is 0 and the maximum value is 1, this is because the results of the FDxCVD calculation are proxied using dummy variables. The mean of FDxCVD is 0.49020 with a standard deviation of 0.50237 and a median of 0. Liquidity ratio (LIQxCVD), which is an independent variable, is measured using the current ratio (CR), the minimum value is from PT Eterindo Wahanatama Tbk in 2020, amounting to 0.09837 and the maximum value comes from PT Kirana Megatara Tbk in 2021, namely 24.80363. Then the mean is 2.41432, the standard deviation is 3.04323 and the median is 1.63482. Activity ratio (ACTxCVD) is proxied by receivable turnover (RTO) and is the second independent variable in the study. The RTO value from PT Eterindo Wahanatama Tbk in 2020 was 0.01423, the minimum value and the RTO from PT Tirta Mahakam Resources Tbk in 2021, 51.03588, was the maximum value in this research. The mean is 8.21612 with a standard deviation of 6.89833 and a median of 6.04648. Solvency ratio (SOLxCVD) is the third independent variable in the research which is measured using the debt to asset ratio (DAR). The minimum value is in 2021 which is the DAR from PT Emdeki Utama Tbk of 0.08129 and the maximum value is in 2021 which is the DAR of PT Tirta Mahakam Resources Tbk of 2.82104. With a mean value of 0.50843 with a standard deviation of 0.36725 and a median of 0.46534. The profitability ratio (PROFxCVD) is proxied using return on assets (ROA) and is the fourth independent variable

in the research, having a minimum ROA value of -9.87629 in 2020 from PT Surya Toto Indonesia Tbk and a maximum ROA value of 1.37568 in 2021 from PT Indo Komoditi Korpora Tbk. Then the mean is -0.06581, the standard deviation is 1.00125 and the median is 0.03113. ROA with negative results can be an indication that the company is not using its assets efficiently so that it does not make a profit or profit that year. ROA with negative results can be an indication that the company is not using its assets efficiently. Company size (SIZExCVD) is the first control variable calculated using \ln or the natural logarithm of the total assets of the company concerned. SIZExCVD with a minimum value of 12.46134 comes from PT Yanaprima Hastapersada Tbk in 2021 and a maximum value of 28.08205 comes from PT Tunas Alfin Tbk in 2021. SIZExCVD has a mean of 18.27007 with a standard deviation of 3.51170 and a median of 18.16258. Company age (AGExCVD) is the second control variable with a minimum value of 2 which is AGExCVD from PT Cahayaputra Asa Keramik Tbk & PT Madusari Murni Indah Tbk in 2020 and a maximum value of 44 which is AGExCVD from PT Solusi Bangun Indonesia Tbk in 2021. Then the mean of AGExCVD is 19.79412 with a standard deviation of 10.99535 and a median of 24. Sales growth (SGxCVD) is the control variable in this research. Has a minimum value of -0.99792 in 2020 and a maximum value of 6.95503 in 2021, both from PT Eterindo Wahanatama Tbk. The mean of SGxCVD is 0.10240 with a standard deviation of 0.75204 and a median of 0.03043. Sales growth with negative results indicates that the company experienced a decrease in sales compared to the previous year. Asset growth (AGxCVD) is the fourth control variable, the AGxCVD value from PT Tirta Mahakam Resources Tbk in 2020 is -0.5593 being the minimum value and the AGxCVD value from PT Mark Dynamics Indonesia Tbk in 2020 is 0.63109 being the maximum value, with a mean of 0.04105 and standard deviation of 0.14820 and median of 0.04432. Asset growth with negative results indicates that the company experienced a decrease in the number of assets compared to the previous year.

4.2 Correlation Analysis

Correlation analysis along with the level of significance on research variables before Covid-19 (2018-2019), it can be seen in the relationship between FD and LIQ calculated using CR, the results showed that LIQ had a significant negative effect on FD and was in line with the first hypothesis (H1). The relationship between FD and ACT, this shows that ACT has a significant negative influence on FD so that it is in line with the second hypothesis (H2). The relationship between FD and SOL calculated using DAR, the results showed that SOL had a significant positive effect on FD and was in line with hypothesis (H3). The relationship between FD and PROF, this shows that PROF has a significant negative influence on FD so that it is in line with the fourth hypothesis (H4).

Then for the results of correlation analysis on research variables during Covid-19, namely data for 2020-2021, it can be seen in the relationship between FDxCVD and LIQxCVD calculated using CR, the results showed that LIQxCVD had a significant negative effect on FDxCVD and was in line with the first hypothesis (H1). The relationship between FDxCVD and ACTxCVD which is proxied in RTO, this shows that ACTxCVD has a significant negative influence on FDxCVD so that it is in line with the second hypothesis (H2). The relationship between FDxCVD and SOLxCVD, which is proxied in DAR, the results showed that SOLxCVD had a significant positive effect on FDxCVD and was in line with the third hypothesis (H3). The relationship between FDxCVD and PROFxCVD, which is proxied by ROA, this shows that PROFxCVD has a significant negative influence on FDxCVD so that it is in line with the fourth hypothesis (H4).

4.3 Test the Logistic Regression Mode

4.3.1 Overall Model Fit Test

The overall test of model 1 (before Covid-19, 2018-2019) it can be seen that iteration 0:

initial log likelihood is -69.993493 to -35.294294 at iteration 6 : final log likelihood. This increase indicates that the research regression model before Covid-19 was fit or in accordance with the research data. Furthermore, for the overall test of model 2 (during Covid-19, 2020-2021) it can be seen that iteration 0: initial log likelihood is -70.681403 to -30.119175 in iteration 8: final log likelihood. This increase indicates that the research regression model on Covid-19 is fit or in accordance with the research data. Both regression models in the research passed the overall test of the research model.

4.3.2 Goodness Of Fit Test

Model 1 feasibility test (before Covid-19, 2018-2019) showed a prob > chi2 result of 0.1298, which means > 0.05 then model 2 feasibility test (during Covid-19, 2020-2021) showed a prob > chi2 result of 0.8416, which means > 0.05. It can be concluded that the two logistic regression models in the research are feasible and good because the significance value is > 0.05 so it is suitable for predicting research data.

4.3.3 Nagelkerke's R-square

Pseudo R2 from model 1 (before Covid-19, 2018-2019) is 0.4957 / 49.57%, which means that the ability to explain LIQ, ACT, SOL and PROF as independent variables and SIZE, AGE, SG and AG as control variables for FD is the dependent variable is 49.57% and the remaining 50.43% is explained by independent variables and control variables outside of the variables in the research. Then the pseudo R2 from model 2 (during Covid-19, 2020-2021) was 0.5739 / 57.39%, which means that the ability to explain LIQ, ACT, SOL and PROF as independent variables and SIZE, AGE, SG and AG as control variables for FD namely the dependent variable is 57.39% and the remaining 42.61% is explained by independent variables and control variables outside of the variables in the research.

4.4 Statistical hypothesis test

4.4.1 Simultaneous Test

Simultaneous test results on two regression models in the research, namely before Covid-19 in 2018-2019 which was model 1 and also during Covid-19 in 2020-2021 which was model 2. The results of both showed a prob > chi2 number of 0.0000 which means < 0.05, it can be concluded by simultaneously testing the independent variables consisting of LIQ, ACT, SOL and PROF as well as The control variables consisting of SIZE, AGE, SG and AG have a significant effect on FD which is the dependent variable in this research.

4.4.2 Partial Test Results (t-test)

The partial test results for before Covid-19 so that we can form a logistic regression model for model 1, namely before Covid-19 in 2018-2019, is LIQ which is an independent variable shows the results $P > |z|$ amounting to 0.056, namely > 0.05 with a coefficient of -1.102 which is negative (the opposite). Before Covid-19, the results showed that LIQ had no influence on FD so that contrary to the first hypothesis (H1) in the research, namely "Liquidity ratios have an effect on financial distress", H1 was rejected. The independent variable ACT shows the results $P > |z|$ amounting to 0.062, where 0.062 > 0.05 with a coefficient of -0.131 which is negative (the opposite). The results show that ACT has no effect on FD and is contrary to the second hypothesis (H2) of the research, namely "Activity ratios have an effect on financial distress" so that H2 was rejected before Covid-19. SOL which is an independent variable shows the results $P > |z|$ amounting to 0.532, namely > 0.05 with a coefficient of 1.764 which is positive (in the same direction). Before Covid-19, the results showed that SOL had no influence on FD and was the opposite with the third hypothesis (H3) in the research, namely "Solvency ratios influence financial distress" then H3 is rejected. The independent variable, namely PROF, shows the results $P > |z|$ equal to 0.001, where 0.001 < 0.05 with a coefficient of -32.495 which is negative (opposite). The results show that PROF has a significant negative effect on FD and is in line with the fourth hypothesis (H4) of the research, namely "Profitability ratios have an effect on financial distress" so that H4 was accepted before Covid-19.

Meanwhile, the logistic regression model for model 2, namely during Covid-19 in 2020-2021, shows LIQxCVD which is an independent variable shows the results that LIQxCVD had a significant negative effect on FDxCVD so that it was in line with the first hypothesis (H1) in this research, namely "Liquidity ratios have an effect on financial distress", so H1 was accepted. The independent variable ACTxCVD shows the results $P > |z|$ amounting to 0.014, where $0.014 < 0.05$ with a coefficient of -0.215 which is negative (opposite). The results show that ACTxCVD has a significant negative effect on FDxCVD and is in line with the second hypothesis (H2) of the research, namely "Activity ratios have an effect on financial distress" so that H2 is accepted during Covid-19. SOLxCVD which is an independent variable shows the results $P > |z|$ amounting to 0.782, where $0.782 > 0.05$ with a coefficient of 0.661 which is positive (unidirectional). During Covid-19, the results showed that SOLxCVD had no effect on FDxCVD so it contradicted the third hypothesis (H3) in this research, namely "The solvency ratio has an effect on financial distress" then H3 is rejected. The independent variable PROFxCVD shows the results $P > |z|$ equal to 0.000, where $0.000 < 0.05$ with a coefficient of -49.939 which is negative (opposite). The results show that PROFxCVD has a significant negative effect on FDxCVD and is in line with the fourth hypothesis (H4) of the research, namely "Profitability ratios have an effect on financial distress" so that H4 is accepted during Covid-19.

4.5 Discussion

LIQxCVD was able to forecast FDxCVD in 2020–2021, specifically during COVID-19, allowing the first hypothesis (H1) that liquidity ratios affect financial distress to be accepted. These findings are consistent with other studies, including those conducted by Setyowati & Sari (2019) and Wulandari & Jaeni (2021), which found a substantial negative impact of the liquidity ratio on FD. The second hypothesis (H2) "Activity ratios influence financial distress" is accepted in 2020–2021 (Covid-19), as demonstrated by The Effect of Activity Ratios on Financial Distress, which also demonstrates that ACTxCVD can predict FDxCVD. These findings are consistent with earlier study by Maulida et al. (2018), which found a substantial and adverse relationship between FD and the activity ratio. The third hypothesis (H3), "The solvency ratio has an effect on financial distress," is rejected before and during COVID-19 because The influence of Solvency Ratios on Financial Distress demonstrates that the ratio is less able to forecast a company's financial trouble. The Fourth Hypothesis (H4) is "Profitability ratios influence financial distress." This is because profitability ratios may be used to anticipate a company's financial distress circumstances both before and during Covid-19.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Before Covid-19, that is, in the years 2018–2019, there was no relationship between the dependent variable, financial distress, and the independent variable, liquidity ratio. These findings, however, altered during COVID-19 in 2020–2021, with the liquidity ratio having a notable detrimental impact on financial hardship. The dependent variable is financial distress prior to Covid-19 in 2018–2019; the activity ratio, as an independent variable, has no bearing on this dependent variable. These results, however, showed that the activity ratio had a significant detrimental effect on financial hardship in 2020–2021, namely during COVID-19. The results of both the 2018–2019 and the 2020–2021 periods, which corresponded to before and during COVID-19, indicated that there was no relationship between the dependent variable (financial hardship) and the independent variable (solvency ratio). Both in 2018–2019, or before COVID-19, and in 2020–2021, or during COVID-19, the profitability ratio, as an independent variable, significantly negatively affects financial hardship, the dependent variable. It is intended that this

study will give readers new insights, act as a resource for researchers in the future, and raise awareness among businesses of the value of financial ratios in improving their financial performance and health and lowering the risk of financial crisis. In particular, for companies that are listed on the IDX as basic and chemical industrial in the years 2020 and 2021 (corresponding to the pandemic era) and 2018 and 2019, which correlate to the period prior to the Covid-19 outbreak.

5.2 Research Limitation

Conducting in this research, researchers were faced with several limitations, such as: 1. Although there are other methods for evaluating financial hardship, this study exclusively use the Springate model to quantify the dependent variable. 2. In this research, the selection and use of variables is still limited with four independent variables and four control variables. 3. Only businesses listed on IDX, especially in the basic and chemical industries, were the subject of this study.

5.3 Recommendation

Based on the limitations that exist in the research, suggestions for future researchers if they want to conduct research topics similar to this research, namely financial ratios and financial distress, are 1. Using other models or methods such as Interest Coverage Ratio (ICR), Altman model, Grover model or Zmijewski model as well as to measure or detect the company's financial distress condition. 2. Add other variables such as number of board of directors, institutional ownership, managerial ownership, etc. 3. Expand the company sectors used as research samples so that you get more diverse and accurate output.

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