

Financial Distress During the COVID-19 Pandemic: Altman and Springate Model Prediction



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Abstract

Background

The retail trade industry has experienced a sharp decline in economic growth during the COVID-19 pandemic. Regulation of social distancing, restrictions on retail shop operating hours, and disruption of online shopping behavior contribute to worsen the financial performance of retail trade companies.

Purpose

The purpose of this research is to analyze the prediction of financial distress of retail trade companies. This research chose to use the Altman and Springate Model since both of them are the most accurate and conservative models to predict.

Research methodology

The financial distress analysis technique used is Altman and Springate Model. The calculation of the Altman and Springate Score is based on an equation formula for data in the period before and during the COVID-19 pandemic. The Altman's Score are grouped in the Safe Zone, Grey Area, and Financial Distress; while the Springate's Score are grouped in the Safe Zone and Financial Distress categories.

Findings

Altman Model Analysis stated that most of the companies experienced a decreased scores, the company's financial performance during COVID-19 pandemic was predicted financial distress and belong to the Grey Zone category than before COVID-19 pandemic. Springate Model Analysis states that all companies have decreased scores, and the company's financial performance during COVID-19 pandemic is predicted financial distress than before COVID-19 pandemic. Springate Model revealed a more conservative indicator, but both models stated there were still exist several companies in the Safe Zone category to continue their business.

Research limitations

The limitations of this study are only using Altman and Springate Model. The object of this research is the retail trade industry only, then future research may be able to expand the analyzed industry in the new normal conditions.

Originality/value

The originality of this research is focused on the retail trade companies as the most affected industry by COVID-19 pandemic. In addition, this research analyzes financial distress based on Altman Z-Score and Springate Model as the most powerful model to predict.

Keywords: Financial Distress, Altman Model, Springate Model.

Introduction

The COVID-19 is the Coronavirus that first emerged from the city of Wuhan in China at the end of December 2019. The existence of this pandemic not only affect to health threats but also economic growth in most countries in the world. The Indonesian government responded to the COVID-19 pandemic by implementing social distancing and

Large Social Restrictions policies. Through some regulations, the government has limited the operational hours and capacity of all sector activities. The Central Statistics Agency released data that the Indonesian economy in 2020 experienced a growth contraction of 2.07 percent. Business sectors that are experiencing the deepest growth

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contraction include Transportation and Warehousing by 15.04 percent; Accommodation, Food and Beverage by 10.22 percent; Corporate Services by 5.44 percent, and Wholesale and Retail Trade; Car and Motorcycle Repair by 3.73 percent. The Central Statistics Agency released data that Indonesia's Gross Domestic Product (GDP) 2020 in the second quarter contracted -5.32 percent, in the third quarter contracted -3.49 percent, in the fourth quarter grew -2 percent (Bank Indonesia, 2021). Indonesia's economic growth in 2020 is under pressure, in line with the impact of the world economic slowdown due to COVID-19 pandemic and social restriction policies to mitigate the spread of COVID-19. Next, the Indonesian economy entered into a recession that will certainly have an impact towards the community. The direct impact on the community is the decline in purchasing power, then the decrease in demand for goods and services. Decreased demand for goods and services will trigger a decrease in company revenue. One of the most affected industrial sectors is the retail trade industry, which relies on sales as an activity operation. Competition in the retail trade industry is getting tougher during the COVID-19 pandemic. Many retail trade shops are reducing the number of their stores, even closing their businesses. General Chairperson of the Indonesian Retailers Association, Roy Mandey, stated that the retail trade industry growth during the COVID-19 pandemic was only 3 percent, a drastic drop compared to the pre-pandemic growth rate of 8 percent. The development of the e-commerce business has changed people's shopping behavior from conventional shopping in shopping centers become online shopping. The disruption is also suspected to be the cause of the decline in the retail trade industry (Kusumawardhani, 2022).

Bank Indonesia published the retail sales growth index for the period 2019 to 2021 on a quarterly basis in Table 1 below. The data in Table 1 reveals the highest retail sales performance before the COVID-19 pandemic was 8.8 percent in Quarter 1 of 2019. Retail sales performance has started to decline since the COVID-19 pandemic in Quarter 1 of 2020, then in Quarter 2 contracted deeper by 18.2 percent, growth -10.1 percent in Quarter 3, and the growth slowed down again in Quarter 4 by -16.8 percent. In 2021 retail sales growth still contracted -16.3 percent in Quarter 1 by -16.3 percent, starting to rise positive growth in Quarter 2, but returned to negative growth in Quarter 3 (Bank Indonesia, 2021). The decline in growth of retail sales was due to the restrained purchasing power of the people, especially during the social distancing and Large Social Restrictions regulations, followed by the restriction of the operating hours of shopping centers. The company's inability to deal with the disruption and decline in retail sales growth will have an impact on the sustainability of its business. These conditions can cause company's financial distress. Financial distress is the stage of declining financial condition experienced by a company, which occurs before bankruptcy (Platt & Platt, 2002). Bankruptcy is a very serious and costly problem. Company management should strive to make the improvements as early as possible to avoid bankruptcy (Yusbardini & Rashid, 2019). The prediction of financial distress in a company can accelerate the actions taken by management to prevent all problems from occurring. In facing the risk of bankruptcy, companies need analysis to predict the financial distress, so they can take an appropriate strategy. Financial distress prediction is conduct by analyzing the historical financial statement relying on several models.

Description	2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Motor vehicles parts, accessories	14.7	23.8	21.8	16.9	-2.7	-38.5	-27.4	-21.5	-18.8	23.5	-9.1	-4.4
Food, beverages, tobacco	10.2	2.9	1.4	4.1	3.4	-8.3	1.3	-7.5	-8.6	18.7	5.9	19.2
Automotive fuels	8.8	-3.4	-7.9	-10.6	-10.2	-37.2	-22.8	-14.5	-10.5	46.1	11.1	33.7
Information-communication eq.	-9.7	-8.6	-3.9	-4.6	-4.9	-17.8	-19.6	-35.4	-39.1	-30.5	-32.6	-16.9
Other household equipment	7.5	7.6	7.8	4.8	0.1	-21.9	-24.0	-24.9	-25.5	-8.0	-22.5	-20.3
Cultural-recreational goods	20.8	-1.4	-8.2	-14.1	-13.5	-49.0	-38.8	-40.3	-48.6	-1.3	-16.3	-12.7
Other goods	44.9	32.6	-3.4	-14.6	-37.6	-70.1	-56.3	-53.3	-35.2	38.8	-16.4	-7.1
Clothing	34.3	27.5	-0.2	-5.8	-42.8	-72.9	-63.7	-58.1	-32.8	49.1	-14.2	-3.0
Total Index	8.8	4.2	1.4	1.5	-1.9	-18.2	-10.1	-16.8	-16.3	11.0	-2.4	10.4

Table 1. Quarterly Growth of Retail Sales Index for 2019-2021

There are several models of measuring tools to predict financial distress such as Altman Model, Springate, Fulmer, Taffler, Grover, Ohlson, and Zmijewski. The study of the financial distress model to predict the financial distress has been widely used, and several findings have been published. Sondakh et al (2014) and Amri & Ariyani (2021) compare the prediction financial distress model for manufacturing companies listed on the Indonesia Stock Exchange. Financial distress analysis used Grover, Springate, and Zmijewski Model concludes that the Springate Model is the most conservative method to predict the financial performance. Nilasari & Haryanto (2018) studied conclude that the Altman and Zmijewski Models can be used to predict financial distress in the retail trade industry. They concluded that the Zmijewski model was the most accurate model which can predict financial distress of companies listed on the Indonesia Stock Exchange. The prediction results that three companies are expected to experience financial distress. Barry (2019) studied financial distress prediction of the retail trade companies listed on the Indonesia Stock Exchange using Altman and Springate Model. Both of the models could predict the prediction of financial distress significantly. Furthermore, Prianti & Riharjo (2019) shows that the three models have different results. The Altman Model obtained one company experiencing financial distress, the Springate Model obtained eleven companies categorized as feasible, the Zmijewski method obtained six companies categorized as feasible and five companies categorized in financial distress. The most accurate model in predicting financial distress is Altman and Springate Models, since the Altman Model has an accuracy rate of 81.81 percent and the Springate Model accurate rate is 100 percent. Yusbardini & Rashid (2019) and Wulandari & Maslichah (2021) studied the prediction of financial distress in manufacturing companies listed in Indonesia Stock Exchange by Altman Model. Their conclusion stated that the model could predict financial distress condition of each company significantly. Hutahuruk et al (2021) and Kusumawardhani & Nugroho (2022) analyze financial distress prediction by Altman Model towards companies listed in Indonesia Stock Exchange and Sharia Stock Index. The findings

stated that companies listed in Sharia Stock Index are much more feasible in their financial performance, and the Altman Model could predict that all of food and beverage companies were not experiencing financial distress. During the COVID-19 pandemic, retail trade industry companies experienced a decline in their financial performance. Calculations on their financial reports reveal that the ratio of working capital to total assets has decreased by 12 percent, the ratio of earnings before interest and taxes to total assets has decreased by 43 percent, the ratio of market value of equity to book value of debt has also decreased by 45 percent, and the ratio of sales to total assets has decreased dramatically to 56 percent. This condition reflects the financial performance of the retail trade industry which has fallen significantly since the COVID-19 pandemic. Based on the background of the crucial problems in the retail trade industry and the findings of previous research, the purpose of this study is to analyze the prediction of financial distress using the Altman and Springate Model for retail trade companies listed in Indonesia Stock Exchange. Among several financial distress models, this research chose to use the Altman and Springate Model since both of them are the most accurate and conservative model to predict. The retail trade company is one of the industries which is experiencing the sharp decline in economic growth during the COVID-19 pandemic. This study is urgent since the findings will be an early warning system that can detect financial distress of the retail trade industry.

Literature Review

Financial Distress

Financial Distress is the stage of declining financial condition experienced by a company, which occurs before the occurrence of bankruptcy or liquidation (Platt & Platt, 2002). Meanwhile, according to Brigham & Daves (2014) financial distress in a company occurs when the company cannot deal the payment schedule or when cash flow projections indicate that the company will soon be unable to fulfill its obligations. Then financial distress is a financial condition that the company experiences financial difficulties so that the company is unable to pay its obligations and the company cannot run its operations properly.

Financial distress is divided into five types, namely 1) Economic Failure, a condition when the company's income is no longer sufficient to cover the total costs, including the cost of capital; 2) Business Failure, a business whose operational activities have been discontinued on the grounds of bankruptcy; 3) Technical Insolvency, a condition when a company cannot fulfill its current obligations when they fall due; 4) Insolvency in Bankruptcy, a situation when the entity has a book value of debt that exceeds the market value of assets at that time; 5) Legal Bankruptcy, a condition when the company is legally binding after the company confirms an official claim based on applicable law (Barry, 2019).

The Altman Model

The Altman Model was first proposed by Edward I. Altman in 1968. Altman uses a statistical model known as discriminant analysis or stepwise Multivariate Discriminant Analysis (MDA). After selecting 22 financial ratios, he found five ratios that can be combined to see companies that are bankrupt and not bankrupt. The five ratios formulated in the equation of the Altman Model (Rudianto, 2013):

$$Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1.0 X_5$$

Notes:

X1 : Working Capital/Total Assets

X2 : Retained Earnings/Total Assets

X3 : EBIT/Total Assets

X4 : Market Value of Equity/Book Value of Debt

X5 : Sales/Total Assets

The company classification is based on the Z-Score Value, as follows:

1. If the Z-Score value > 2.99 , it is a safe zone.
2. If the Z-Score value $1.81 < Z < 2.99$, it is a grey zone.
3. If the Z-Score value < 1.81 , it is indication of financial distress.

Springate Model

The Springate model was proposed by Gordon L. V. Springate in 1978 as the improving of the Altman Model. Springate found four out of nineteen financial ratios that contributed the most to the prediction of corporate bankruptcy. The four financial ratios formulated in the equation of the Springate Model (Rudianto, 2013):

$$S = 1.03 X_1 + 3.07 X_2 + 0.66 X_3 + 0.4 X_4$$

Notes:

X1 : Working Capital/Total Assets

X2 : Net Profit Before Interest and Taxes/Total Assets

X3 : Net Profit Before Taxes/Current Liabilities

X4 : Sales/Total Assets

The company classification is based on the S-Score Value, as follows:

1. If the S-Score value > 0.862 , it is not had the potential to go bankrupt,
2. If the S-Score value < 0.862 , it is the potential to go bankrupt.

Research Methods

Research Design

This study is a quantitative approach research using the financial distress analysis technique of Altman dan Springate Model. The data used is secondary data which is the financial reports of retail trade companies listed in the Indonesia Stock Exchange during 2019-2020, including Balance Sheet and Profit and Loss Report. The source of the data was obtained from the official website of the Indonesia Stock Exchange: www.idx.co.id.

Population and Sample

The population in this study are retail trade companies listed on the Indonesia Stock Exchange in period 2019-2020 including 28 companies. The sampling technique used is purposive sampling which is determining the sample with certain considerations or criteria. The criteria specified in selecting the sample in this study are retail trading companies had listed and published annual report in the Indonesia Stock Exchange in 2019-2020. That way selected fifteen companies meet the criteria as the research samples. The samples including 1) PT Sumber Alfaria Trijaya, Tbk., 2) PT Duta Intidaya, Tbk., 3) PT Erajaya Swasembada, Tbk., 4) PT Global Teleshop, Tbk., 5) PT Hero Supermarket, Tbk., 6) PT Matahari Departement Store, Tbk., 7) PT MAP Aktif Adiperkasa, Tbk., 8) PT Mitra Adiperkasa, Tbk., 9) PT Midi Utama Indonesia, Tbk., 10) PT Mitra Pinasthika Mustika, Tbk., 11) PT Ramayana Lestari Sentosa, Tbk., 12) PT Supra Boga Lestari, Tbk., 13) PT Trikomsel Oke, Tbk., 14) PT Tunas Ridean, Tbk., dan 15) PT Mega Perintis, Tbk.

The Formula

The following are equation formula in the Altman Model:

Variable	Formula	Descriptions
X_1 : Net Working Capital/Total Assets	$\frac{\text{Current Asset} - \text{Current Liability}}{\text{Total Asset}}$	This ratio indicated the company's liquidity. If the company has liquidity problems, working capital will decrease then the ratio will be smaller. The ratio would be negative if the working capital is negative.
X_2 : Retained Earning/Total Assets	$\frac{\text{Retained Earning}}{\text{Total Asset}}$	This ratio indicated the company's ability to generate retained earnings from the company's total assets.
X_3 : Earnings Before Interest and Tax/Total Assets	$\frac{\text{EBIT}}{\text{Total Asset}}$	This ratio indicated the company's profitability to earn profits before taxes and interest from the company's total assets.
X_4 : Market Value of Equity/Book Value of Debt	$\frac{\text{Market Value of Equity}}{\text{Book Value of Debt}}$	This ratio measures the company's solvency to meet obligations with its own capital market value. The market value of equity is obtained by multiplying the number of shares outstanding by the closing price. The book value of debt is the total amount of current liabilities and long-term liabilities.
X_5 : Sales/Total Assets	$\frac{\text{Sales}}{\text{Total Asset}}$	This ratio indicated the company's ability to generate sales from the company's total assets. This ratio reflects the efficiency of management in the process of using company assets to generate sales and earn profits.

Here is the equation formula in the Springate model:

Table 2. Formula in Altman Model

Variable	Formula	Descriptions
X_1 : Net Working Capital/Total Assets	$\frac{\text{Current Asset} - \text{Current Liability}}{\text{Total Asset}}$	This ratio indicated the company's liquidity. If the company has liquidity problems, working capital will decrease then the ratio will be smaller. The ratio would be negative if the working capital is negative.
X_2 : Net Profit Before Interest and Taxes/Total Assets	$\frac{\text{Net Profit Before Interest and Taxes}}{\text{Total Asset}}$	This ratio indicated the company's profitability to earn profits before taxes and interest from the company's total assets.
X_3 : Net Profit Before Taxes/Current Liabilities	$\frac{\text{Net Profit Before Taxes}}{\text{Current Liability}}$	This ratio indicated the company's solvency whether a company's cash flow is adequate to pay its current liability.
X_4 : Sales/Total Assets	$\frac{\text{Sales}}{\text{Total Asset}}$	This ratio indicated the company's ability to generate sales from the company's total assets. This ratio reflects the efficiency of management in the process of using company assets to generate sales and earn profits.

Table 3. Formula in Springate Model

Findings and Discussion

Altman Model

The classification of the company's financial performance is based on the calculation of Z-Score Value of the Altman model, then classified into safe zone, grey zone or financial distress zone. Safe zone means the company is in a great financial performance, while grey zone means the company is in grey condition, and the financial distress zone means the company has the potential to go bankrupt. The following is the findings of the calculation and classification company's financial performance based on the Altman Model:

Based on Table 4, the results of the Z-Score of retail trade companies in 2019 it can be seen that there are two companies experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.)

with a Z-Score of -176.61 and TRIO (PT Trikomsel Oke, Tbk.) with Z- The score is -77.46; the low value of Z-Score is caused by two ratios that have negative values. The two companies have the same X_1 ratio value and X_2 ratio value with negative results. GLOB (PT Global Teleshop, Tbk.) has a ratio of net working capital to total assets (X_1) of -35.56 and a ratio of retained earnings to total assets (X_2) of -118.52 while TRIO (PT Trikomsel Oke, Tbk.) has a ratio of net working capital to total assets (X_1) is -5.17 and the ratio of retained earnings to total assets (X_2) is -57.80. The company has the current liabilities greater than its current assets so that the company has problems to meet its obligations. Furthermore, the total assets of the company cannot generate positive retained earnings because the amount of losses exceeds.

No	Kode Perusahaan	1.2X ₁	1.4X ₂	3.3X ₃	0.6X ₄	1.0X ₅	Z-Score	Klasifikasi
1	AMRT	0.06	0.17	0.07	2.13	3.04	4.48	<i>Safe Zone</i>
2	DAYA	-0.12	-0.17	0.51	0.01	1.49	2.81	<i>Grey Area</i>
3	ERAA	0.23	0.26	0.07	0.60	3.37	4.66	<i>Safe Zone</i>
4	GLOB	-35.56	-118.52	0.95	0.05	28.82	-176.61	<i>Financial distress</i>
5	HERO	0.02	0.07	0.56	1.55	2.01	4.95	<i>Safe Zone</i>
6	LPPF	0.03	1.08	0.37	3.58	2.12	7.05	<i>Safe Zone</i>
7	MAPA	0.54	0.45	0.81	14.34	1.81	14.40	<i>Safe Zone</i>
8	MAPI	0.17	0.25	0.74	2.66	1.55	6.16	<i>Safe Zone</i>
9	MIDI	-0.12	0.16	0.09	0.87	2.32	3.24	<i>Safe Zone</i>
10	MPMX	0.18	0.35	0.06	1.29	1.73	3.43	<i>Safe Zone</i>
11	RALS	0.51	0.70	0.09	5.10	0.99	5.97	<i>Safe Zone</i>
12	RANC	0.23	0.27	0.68	0.04	2.51	5.46	<i>Safe Zone</i>
13	TRIO	-5.17	-57.80	0.25	2.88	7.08	-77.46	<i>Financial distress</i>
14	TURI	0.12	0.59	0.18	2.14	2.06	4.94	<i>Safe Zone</i>
15	ZONE	0.38	0.25	0.59	1.84	1.11	5.01	<i>Safe Zone</i>

Source: author's calculation, 2021.

Table 4. Calculation of Financial Performance 2019 with Altman Model

the value of retained earnings so it cannot cover the losses incurred. One company is in a grey zone, namely DAYA (PT Duta Intidaya, Tbk.) with a Z-Score of 2.81. The company has a negative ratio of net working capital to total assets (X₁) of - 0.12 and the value of the ratio of retained earnings to total assets (X₂) is -0.17, but still has a positive value in the ratio of sales to total assets (X₅) which is 1.49. The value indicated the company's ability to manage efficiency in the process of using the company's assets generate sales and earn a profit. In Table 4 it can be seen that 13 companies are in a safe zone condition. According to the results of the Z-Score analysis in 2019, the company MAPA (PT MAP Active Adiperkasa, Tbk.) has the highest Z-Score value of 0.54 with a net working capital ratio value to total assets (X₁) of -0.12, then the value the ratio of retained earnings to total assets (X₂) is 0.45, the value of the ratio of earnings before interest and taxes to total assets (X₃) is 0.81, the ratio of market value of equity to book value of debt (X₄) is 14.34 and the value of the ratio of sales to total assets (X₅) of 1.81. PT MAP Active Adiperkasa, Tbk. was able to obtain positive sales from the use of the company's total

assets and earn profit before interest and taxes, thus being able to meet the company's current liabilities. This performance must be maintained and improved so that the company could avoids financial distress. On the other hand, company GLOB (PT Global Teleshop, Tbk.) which has the lowest Z-Score value of -176.61 means that the company is in financial distress, so the company should immediately evaluate the company's financial performance and find out the problem solving and take action to overcome the financial distress. Based on Table 5 the results of the Z-Score of retail trade companies in 2020 it can be seen that there are three companies experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.) with a Z-Score of -177.84, LPPF (PT Matahari Department Store, Tbk.) with Z- Score of 1.27 and TRIO (PT Trikonsel Oke, Tbk.) with a Z-Score of -104.51. GLOB (PT Global Teleshop, Tbk.) and TRIO (PT Trikonsel Oke, Tbk.) both have X₁ and X₂ ratio values with negative results. GLOB (PT Global Teleshop, Tbk.) has a net working capital ratio value to total assets (X₁) of -35.56 and the ratio of retained earnings to total assets (X₂) is -118.52 while TRIO (PT Trikonsel Oke, Tbk.) has a ratio of net working capital to

No	Company Code	1.2X ₁	1.4X ₂	3.3X ₃	0.6X ₄	1.0X ₅	Z-Score	Classification
1	AMRT	-0,16	0.17	0.06	1.81	2.91	4.37	<i>Safe Zone</i>
2	DAYA	-0.20	-0.25	0.46	0.01	1.25	2.20	<i>Grey Area</i>
3	ERAA	0.21	0.28	0.09	0.63	3.04	4.40	<i>Safe Zone</i>
4	GLOB	-35.56	-97.19	0.15	0.01	2.88	-177.84	<i>Financial distress</i>
5	HERO	-0.15	-0.28	0.49	1.16	1.83	3.58	<i>Safe Zone</i>
6	LPPF	-0.19	0.59	-0.13	0.62	0.76	1.27	<i>Financial distress</i>
7	MAPA	0.29	0.34	0.35	2.89	0.88	4.63	<i>Safe Zone</i>
8	MAPI	0.04	0.16	0.35	1.17	0.84	2.98	<i>Grey Area</i>
9	MIDI	-0.20	0.16	0.07	1.22	2.13	3.11	<i>Safe Zone</i>
10	MPMX	0.10	0.33	0.03	0.76	1.21	2.39	<i>Grey Area</i>
11	RALS	0.43	0.66	-0.04	3.51	0.47	3.86	<i>Safe Zone</i>
12	RANC	0.08	0.19	0.59	0.02	2.28	4.64	<i>Safe Zone</i>
13	TRIO	-8.10	-73.26	0.51	2.71	4.44	-104.51	<i>Financial distress</i>
14	TURI	0.15	0.63	0.14	3.82	1.44	5.28	<i>Safe Zone</i>
15	ZONE	0.17	0.17	0.31	1.11	0.57	2.74	<i>Grey Area</i>

Source: author's calculation, 2021.

Tabel 5. Calculation of Financial Performance 2020 with Altman Model

total assets (X₁) of -5.17 and the ratio of retained earnings to total assets (X₂) is -57.80. Meanwhile, LPPF (PT Matahari Department Store, Tbk.) has a negative ratio of net working capital to total assets (X₁) of -0.19 and profit before interest and tax to total assets (X₃) of -0.13. The company has current liabilities larger than the current assets so they has problems in meet its obligations; ratio of profit before interest and tax to total assets is negative because the company has operating costs that are greater than the gross profit generated, as a results the profits obtained cannot cover the company's operational costs. In 2020 there are four companies in a grey zone condition, namely DAYA (PT Duta Intidaya, Tbk.) with a Z-Score of 2.81, MAPI (PT Mitra Adiperkasa, Tbk.) with a Z-Score of 2.98, MPMX (PT Mitra Pinasthika Mustika, Tbk.) with a Z-Score of 2.39, and ZONE (PT Mega Perintis, Tbk) with a Z-Score of 2.74. The four companies have low ratio values, the ratio of net working capital to total assets (X₁) and the ratio of retained earnings to total assets (X₂). The companies experiencing problems in covering

its obligations, as well as the company's lack of ability to generate retained earnings from total assets. Company management must improve the company's performance in order to avoid financial distress. In Table 5 can be seen that eight companies are in a safe zone condition. In 2020 the TURI (PT Tunas Ridean, Tbk.) has the highest Z-Score value among other companies by 5.28, with a net working capital ratio value to total assets (X₁) of 0.15, then the ratio of retained earnings to total assets (X₂) of 0.63, the ratio of earnings before interest and taxes to total assets (X₃) is 0.14, the ratio of market value of equity to book value of debt (X₄) is 3.82 and the value of the ratio of sales to total assets (X₅) is 1.44. TURI (PT Tunas Ridean, Tbk.) was able to obtain positive sales from the use of the company's total assets so that it was able to meet current liabilities. Companies must be able to maintain their performance in order to avoid financial distress. GLOB (PT Global Teleshop, Tbk.) has the lowest Z-Score value from other companies which is -177.84, the company must immediately evaluate the company's performance and find out where the problem lies and take action to overcome financial distress conditions.

No	Company Code	1.03X ₁	3.0X ₂	0.66X ₃	0.4X ₄	S-Score	Classification
1	AMRT	0.067	0.074	0.110	3.040	1.587	<i>Safe Zone</i>
2	DAYA	-0.123	0.517	0.030	1.498	2.079	<i>Safe Zone</i>
3	ERAA	0.238	0.079	0.102	3.379	1.910	<i>Safe Zone</i>
4	GLOB	-35.561	0.952	-0.123	28.822	-22.258	<i>Financial distress</i>
5	HERO	0.025	0.569	-0.019	2.011	2.566	<i>Safe Zone</i>
6	LPPF	0.031	0.370	0.678	2.126	2.469	<i>Safe Zone</i>
7	MAPA	0.548	0.813	1.118	1.818	4.527	<i>Safe Zone</i>
8	MAPI	0.178	0.740	0.286	1.552	3.265	<i>Safe Zone</i>
9	MIDI	-0.128	0.092	0.095	2.329	1.147	<i>Safe Zone</i>
10	MPMX	0.184	0.061	0.418	1.731	1.348	<i>Safe Zone</i>
11	RALS	0.510	0.099	0.645	0.990	1.652	<i>Safe Zone</i>
12	RANC	0.233	0.681	0.183	2.517	3.461	<i>Safe Zone</i>
13	TRIO	-5.177	0.258	-0.126	7.085	-1.789	<i>Financial distress</i>
14	TURI	0.122	0.185	0.447	2.065	1.816	<i>Safe Zone</i>
15	ZONE	0.385	0.595	0.451	1.117	2.970	<i>Safe Zone</i>

Source: author's calculation, 2021.

Table 6. Calculation of Financial Performance 2019 with Springate Model

Springate Model

The classification of the company's financial performance is based on the calculation of S-Score Value of the Springate model, then classified into a safe zone or financial distress zone. Safe zone means the company is in a great financial performance; while financial distress zone means the company has the potential to bankrupt. The following is the findings of calculation and classification company's financial performance based on the Springate Model: Based on Table 6, the S-Score value of retail trade companies in 2019 can be seen that there are two companies experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.) with an S-Score value of -22.258 and TRIO (PT Trikomsel Oke, Tbk.) with the results of the S-Score value of -1.789. The low value of S-Score is caused by two ratios that have negative values. The two companies both have the X1 and X3 ratio value with negative results. GLOB (PT Global Teleshop, Tbk.) has a ratio of net working

capital to total assets (X1) of -35.561 and the ratio of profit before interest and taxes to current liabilities (X3) of -0.123, while TRIO (PT Trikomsel Oke, Tbk.) has a capital ratio value net work to total assets (X1) is -5,177 and the ratio of profit before tax to current liabilities (X3) is -0.126. The company has current liabilities that are greater than its current assets, and the company is not able to generate positive pre-tax profits so that the company has problems in covering its obligations. GLOB (PT Global Teleshop, Tbk.) actually has the highest ratio of sales to total assets (X4) from other companies which is 28.82, this indicated the company's ability to generate sales and earn profits in the process of using the company's assets, but it has not been able to cover the problem of factors so that the company has the potential to experience financial distress. In Table 6 it can be seen that the other 13 companies are in a safe zone condition. In 2020 MAPA (PT

No	Company Code	$1.03X_1$	$3.0X_2$	$0.66X_3$	$0.4X_4$	S-Score	Classification
1	AMRT	-0.068	0.065	0.090	2.919	1.357	<i>Safe Zone</i>
2	DAYA	-0.205	0.467	-0.099	1.259	1.658	<i>Safe Zone</i>
3	ERAA	0.214	0.098	0.178	3.042	1.857	<i>Safe Zone</i>
4	GLOB	-37.561	0.156	-0.123	2.889	-37.231	<i>Financial distress</i>
5	HERO	-0.152	0.496	-0.450	1.838	1.803	<i>Safe Zone</i>
6	LPPF	-0.197	-0.137	-0.327	0.765	-0.535	<i>Financial distress</i>
7	MAPA	0.293	0.355	-0.005	0.888	1.744	<i>Safe Zone</i>
8	MAPI	0.046	0.350	-0.098	0.841	1.394	<i>Safe Zone</i>
9	MIDI	-0.200	0.077	0.078	2.137	0.936	<i>Safe Zone</i>
10	MPMX	0.105	0.037	-0.157	1.214	0.605	<i>Financial distress</i>
11	RALS	0.430	-0.048	-0.196	0.478	0.357	<i>Financial distress</i>
12	RANC	0.085	0.596	0.183	2.282	2.952	<i>Safe Zone</i>
13	TRIO	-8.104	0.519	-0.285	4.442	-5.165	<i>Financial distress</i>
14	TURI	0.154	0.142	0.093	1.443	1.235	<i>Safe Zone</i>
15	ZONE	0.179	0.313	-0.256	0.579	1.210	<i>Safe Zone</i>

Source: author's calculation, 2021.

Table 7. Calculation of Financial Performance 2020 with Springate Model

MAP Active Adiperkasa, Tbk.) became a company that has the highest S-Score value of 4,527, with a net working capital ratio value to total assets (X_1) of 0.548, then the ratio of profit before interest and taxes to total assets (X_2) is 0.813, the ratio of profit before tax to current liabilities (X_3) is 1,118, and the ratio of sales to total assets (X_4) is 1.818. MAPA (PT MAP Active Adiperkasa, Tbk.) was able to obtain positive sales from the use of the company's total assets and obtain profit before tax, so as to be able to meet the company's current liabilities. This condition must be able to maintain its performance in order to avoid financial distress conditions. While the GLOB (PT Global Teleshop, Tbk.) company that has the lowest S-Score value is -22.258, the company must immediately evaluate the company's performance and find out where the problem lies and take action to overcome financial distress conditions. Based on Table 7 the results of the Springate S-Score of retail trade companies in 2020, it is known that there are five companies experiencing financial dis-

trass, namely GLOB (PT Global Teleshop, Tbk.) with an S-Score of -37,231 and TRIO (PT Tri-komsel Oke, Tbk.) with an S-Score of -37,231. The S-Score is -5.165, the low S-Score value of the two companies is influenced because they have a ratio of X_1 and X_3 with negative results, GLOB (PT Global Teleshop, Tbk.) has a ratio of net working capital to total assets (X_1) of -35,561 and the ratio of earnings before interest and taxes to total assets (X_3) is -0.123 while TRIO (PT Trikomsel Oke, Tbk.) has a ratio of net working capital to total assets (X_1) of -8.104 and the value of the ratio of earnings before interest and taxes to current liabilities (X_3) is -0.285. Other companies experiencing financial distress are MPMX (PT Mitra Pinasthika Mustika, Tbk.) with an S-Score of 0.605 and RALS (PT Ramayana Lestari Sentosa, Tbk.) with an S-Score of 0.357. Both companies have low X_2 and X_3 ratios. MPMX (PT Mitra Pinasthika Mustika, Tbk.) has a ratio of earnings before interest and taxes to to-

tal assets (X2) of 0.037 and ratio of profit before tax to current liabilities (X3) of -0.157, while RALS (PT Ramayana Lestari Sentosa, Tbk.) has the ratio of profit before interest and tax to total assets (X2) is -0.048 and the ratio of profit before tax to current liabilities (X3) is -0.196. The last company that experienced financial distress was LPPF (PT Matahari Department Store, Tbk.) with an S-Score of -0.535. This company has a negative value on the ratio of net working capital to total assets (X1) of -0.197 and the ratio of earnings before interest and tax to total assets (X2) is -0.137 and has a ratio of profit before tax to current liabilities (X3) of -0.327. The company has current liabilities that are greater than current assets, and is unable to obtain a positive profit before interest and tax from the use of the company's total assets so that the company has problems in covering its obligations. In Table 7 it can be seen that ten other companies are in a safe zone condition. RANC (PT Supra Boga Lestari, Tbk.) is the company that has the highest S-Score in 2020 which is 2,952, with a net working capital to total asset (X1) ratio of 0.085, the ratio of profit before interest and taxes to total assets (X2) is 0.596, the ratio of profit before tax to current liabilities (X3)

is 0.183, and the ratio of sales to total assets (X4) is 2.282. RANC (PT Supra Boga Lestari, Tbk.) was able to obtain positive sales and earn profit before interest and taxes from the use of the company's total assets, so as to be able to meet the company's current liabilities. This condition must be able to maintain its performance in order to avoid financial distress conditions. While GLOB (PT Global Teleshop, Tbk.) has the lowest S-Score value of -37,231, followed by TRIO (PT Trikonsel Oke, Tbk.) with an S-Score of -5,165. These companies must immediately evaluate the company's performance and find out where the problem lies and take action to overcome financial distress conditions.

Discussion

The research findings and classification using the Altman and Springate Model on 15 samples of retail trade companies listed on the Indonesia Stock Exchange (IDX) has done. However, research data taken from 2019-2020, to find out the results of research data before and during the COVID-19 pandemic. The two models show that each of these models has a different level of bankruptcy.

The following is a company classification on period before and during the COVID-19 pandemic based on the Altman Model:

No	Company Code	2019		2020	
		Z-Score	Classification	Z-Score	Classification
1	AMRT	4.48	<i>Safe Zone</i>	4.37	<i>Safe Zone</i>
2	DAYA	2.81	<i>Grey Area</i>	2.20	<i>Grey Area</i>
3	ERAA	4.66	<i>Safe Zone</i>	4.40	<i>Safe Zone</i>
4	GLOB	-176.61	<i>Financial distress</i>	-177.84	<i>Financial distress</i>
5	HERO	4.95	<i>Safe Zone</i>	3.58	<i>Safe Zone</i>
6	LPPF	7.05	<i>Safe Zone</i>	1.27	<i>Financial distress</i>
7	MAPA	14.40	<i>Safe Zone</i>	4.63	<i>Safe Zone</i>
8	MAPI	6.16	<i>Safe Zone</i>	2.98	<i>Grey Area</i>
9	MIDI	3.24	<i>Safe Zone</i>	3.11	<i>Safe Zone</i>
10	MPMX	3.43	<i>Safe Zone</i>	2.39	<i>Grey Area</i>
11	RALS	5.97	<i>Safe Zone</i>	3.86	<i>Safe Zone</i>
12	RANC	5.46	<i>Safe Zone</i>	4.64	<i>Safe Zone</i>
13	TRIO	-77.46	<i>Financial distress</i>	-104.51	<i>Financial distress</i>
14	TURI	4.94	<i>Safe Zone</i>	5.28	<i>Safe Zone</i>
15	ZONE	5.01	<i>Safe Zone</i>	2.74	<i>Grey Area</i>

Table 8. Company Classification based on Altman Model

Based on the results of the analysis of the Z-Score value in the period before and during COVID-19 pandemic, it is known that 14 of the 15 companies experienced a decrease in the Z-Score value in 2020 compared to 2019. The company that experienced a significant decrease in the Z-Score value was the LPPF (PT Matahari Department Store, Tbk.). In 2019 the company was still in the safe zone classification, but in 2020 the company experienced a decrease in the Z-Score value until it was classified as financial distress zone. This is different from the GLOB (PT Global Teleshop, Tbk.) and TRIO (PT Trikomsel Oke, Tbk.) which have been included in the financial distress classification from 2019 which means that the company has experienced financial dis-

tress before the COVID-19 pandemic and continues to decline in the Z-Score value during the COVID-19 pandemic in 2020. This condition the same as companies that entered the grey area condition in 2020 from the previous conditions in 2019 which were still in a safe zone, namely MAPI (PT Mitra Adiperkasa, Tbk.), MPMX (PT Mitra Pinasthika Mustika, Tbk.), and ZONE (PT Mega Perintis, Tbk.). Besides as for a company that has been in the grey zone from 2019 to 2020, namely DAYA (PT Duta Intidaya, Tbk.). There are eight other companies that experienced a decline during the COVID-19 pandemic in 2020 but were still in a safe zone classification condition. The following is a company classification on period before and during the COVID-19 pandemic based on the Springate Model:

No	Company Code	2019		2020	
		S-Score	Classification	S-Score	Classification
1	AMRT	1.587	<i>Safe Zone</i>	1.357	<i>Safe Zone</i>
2	DAYA	2.079	<i>Safe Zone</i>	1.658	<i>Safe Zone</i>
3	ERAA	1.910	<i>Safe Zone</i>	1.857	<i>Safe Zone</i>
4	GLOB	-22.258	<i>Financial distress</i>	-37.231	<i>Financial distress</i>
5	HERO	2.566	<i>Safe Zone</i>	1.803	<i>Safe Zone</i>
6	LPPF	2.469	<i>Safe Zone</i>	-0.535	<i>Financial distress</i>
7	MAPA	4.527	<i>Safe Zone</i>	1.744	<i>Safe Zone</i>
8	MAPI	3.265	<i>Safe Zone</i>	1.394	<i>Safe Zone</i>
9	MIDI	1.147	<i>Safe Zone</i>	0.936	<i>Safe Zone</i>
10	MPMX	1.348	<i>Safe Zone</i>	0.605	<i>Financial distress</i>
11	RALS	1.652	<i>Safe Zone</i>	0.357	<i>Financial distress</i>
12	RANC	3.461	<i>Safe Zone</i>	2.952	<i>Safe Zone</i>
13	TRIO	-1.789	<i>Financial distress</i>	-5.165	<i>Financial distress</i>
14	TURI	1.816	<i>Safe Zone</i>	1.235	<i>Safe Zone</i>
15	ZONE	2.970	<i>Safe Zone</i>	1.210	<i>Safe Zone</i>

Table 9. Company Classification based on Springate Model

Based on the results of the analysis of the S-Score value in the the period before and during COVID-19 pandemic, it is known that all 15 companies experienced a decrease in the S-Score value in 2020 compared to 2019. Three companies, namely LPPF (PT Matahari Department Store, Tbk.), MPMX (PT Mitra Pinasthika Mustika, Tbk.), and RALS (PT Ramayana Lestari Sentosa, Tbk) experienced a significant decline in S-Score values in 2020 so they were in financial distress, while in 2019 they were still in the safe zone classification. This is different from GLOB (PT Global Teleshop, Tbk.) and TRIO (PT Trikonsel Oke, Tbk.) that entered a state of financial distress in 2019 which means that both of the company has experienced financial distress before the COVID-19 pandemic and continues to decline in S-Score value during the COVID-19 pandemic in 2020. Besides 10 other companies that experienced a decrease in Z-Score value during the COVID-19 pandemic but were still in a safe zone classification condition. The financial distress experienced by the company that occurred during the COVID-19 pandemic was an undesirable situation for all parties. If the company is in financial distress, it will have a negative impact on the confidence of investors and creditors. Companies must immediately evaluate the company's performance and find out where the problem lies and take action to overcome financial distress conditions. Two actions that companies can take in a state of financial distress including (Pustynick, 2012):

1. Debt restructuring; management can restructure debt, trying to ask for an extension of time from creditors to pay off debts until the company has sufficient cash to pay off the debt.
2. Management restructuring; the company may replace management with more competent people so that stakeholder trust will recover. This is to avoid the company's potential in financial distress. Companies that are in a gray area condition, which is a condition that is still safe but still vulnerable to financial distress, should monitor the company's financial performance to avoid financial distress. Companies that are in a safe zone condition must be able to maintain and develop innovations so that they can survive during the COVID-19 pandemic and avoid financial distress. Judging from the results of the analysis with two potential bankruptcy prediction models, LPPF

(PT Matahari Department Store, Tbk.) is one of the companies experiencing financial distress in 2020 in the calculation results of the two prediction models used. This is in line with data that PT Matahari Department Store decided to close 25 outlets in 2020. Closing outlets is in line with the company's deteriorating performance in the midst of the COVID-19 pandemic, PT Matahari Department Store, Tbk. gross sales throughout 2020 amounted to Rp. 8.59 trillion, down 52.3 percent from the 2019 position of Rp 18.03 trillion. The COVID-19 pandemic affects many aspects of business especially retail trade industry, companies are faced with various limitations so that mobility is limited, one of which is the implementation of public activities. The limited space for movement due to regulations to maintain physical distancing during the COVID-19 pandemic has made almost all business activities carried out online. Many people are reluctant to interact in the open, they prefer alternative ways to meet their needs without having to go out. Retail companies can shift their strategies to develop e-commerce due to declining sales at offline outlets.

Conclusions

Based on the research findings and discussion of financial distress analysis on retail trade companies listed on the Indonesia Stock Exchange in 2019-2020 using the Altman and Springate Model, the following conclusions are drawn from this study:

1. Based on the Altman Model analysis, in 2019 there are two companies experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.) and TRIO (PT Trikonsel Oke, Tbk.), one company is in a grey area condition, namely DAYA (PT Duta Intidaya, Tbk,) and 12 other companies are in a safe zone condition. In 2020 there were three companies experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.), LPPF (PT Matahari Department Store, Tbk.) and TRIO (PT Trikonsel Oke, Tbk.), there are four companies in a grey area condition, namely DAYA (PT Duta Intidaya, Tbk.), MAPI (PT Mitra Adiperkasa, Tbk.), MPMX (PT Mitra Pinasthika Mustika, Tbk,) and ZONE (PT Mega Perintis, Tbk.), and eight other companies are in a safe zone condition.
2. Based on the Springate Model analysis, in 2019 there are two companies experiencing financial distress, namely GLOB (PT Global Te

leshop, Tbk.) and TRIO (PT Trikonsel Oke, Tbk.), and 13 other companies are in a safe zone condition. In 2020 there were five companies experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.), LPPF (PT Matahari Department Store, Tbk.), MPMX (PT Mitra Pinasthika Mustika, Tbk.), RALS (PT Ramayana Lestari Sentosa, Tbk.), and TRIO (PT Trikonsel Oke, Tbk.), and 10 other companies are in a safe zone condition. Based on the research findings, we suggest the company management that are classified in grey zone and predicted to experience financial distress to review and re-evaluate the financial performance in order to avoid financial distress. Further research may use other financial distress prediction models and expand object of the research towards another industry listed in the Indonesia Stock Exchange.

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