Published online on the journal's web page: http://jurnal.usahid.ac.id/index.php/jamr

eISSN: 2797-2917

Journal of Applied Management Research

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

Andri Herdiansah[1)], Ekayana Sangkasari Paranita[2*)]

[1)]Faculty of Economics and Business, Universitas Sahid, Jakarta
[2*)]Master of Management, Universitas Sahid, Jakarta

ARTICLE INFO

Received: 27 August 2023
Revised: 13 October 2023
Accepted: 01 December 2023

Keywords:

Financial Distress, Altman Model, Springate Model

** Corresponding author.*

E-mail addresses:
ekayana_sparanita@usahid.ac.id
(E.S. Paranita)

ABSTRACT

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 Models since both are the most accurate and conservative models to predict. 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 is grouped in the Safe Zone, Grey Area, and Financial Distress; while the Springate's Score is grouped in the Safe Zone and Financial Distress categories. Altman Model Analysis stated that most of the companies experienced decreased scores, the company's financial performance during Covid-19 pandemic was predicted financial distress and belonged 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 are still several companies in the Safe Zone category to continue their business. 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 the Altman Z-Score and Springate Model as the most powerful model to predict.

Published by LPPM Usahid

1. INTRODUCTION

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 experiencing the deepest growth 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) in 2020 in the second quarter contracted by -5.32 percent, in the third quarter contracted by -3.49 percent, and in the fourth quarter grew -2 percent (Bank Indonesia, 2021).

DOI: http://dx.doi.org/10.36441/jamr

Next, the Indonesian economy entered into a recession that will certainly have an impact on 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 decrease company revenue (Paranita & Siska, 2022; Fiscarina & Paranita, 2023).

One of the most affected industrial sectors is the retail trade industry which is relying 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 2019 to 2021 quarterly 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 of -10.1 percent in Quarter 3, and the growth slows down again in Quarter 4 by -16.8 percent. In 2021 retail sales growth still contracted by -16.3 percent in Quarter 1, starting to rise with positive growth in Quarter 2, but returned to negative growth in Quarter 3 (Bank Indonesia, 2021).

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

Description	2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Motor vehicle parts	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	-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**

Source: www.bi.go.id

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 a 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 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 occur. 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 conducted by analyze the historical financial statement relying on several models.

There are several models of measuring tools to predict financial distress such as the Altman Model, Springate, Fulmer, Taffler, Grover, Ohlson, and Zmijewski. The study of the financial distress model to predict 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 using Grover, Springate, and Zmijewski Model concludes that the Springate Model is the most conservative method to predict financial performance.

Nilasari & Haryanto (2018) 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 that can predict the 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 the financial distress prediction of the retail trade companies listed on the Indonesia Stock Exchange using the 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 for predicting financial distress is the Altman and Springate Models since the Altman Model has an accuracy rate of 81.81 percent and the Springate Model's accurate rate is 100 percent.

Yusbardini & Rashid (2019) and Wulandari & Maslichah (2021) studied the prediction of financial distress in manufacturing companies listed on the Indonesia Stock Exchange by the Altman Model. Their conclusion stated that the model could predict the financial distress condition of each company significantly. Hutahuruk et al. (2021) and Kusumawardhani & Nugroho (2022) analyze financial distress prediction by the Altman Model towards companies listed in the Indonesia Stock Exchange and Sharia Stock Index. The findings stated that companies listed in the Sharia Stock Index are much more feasible in their financial performance, and the Altman Model could predict that all food and beverage companies were not experiencing 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 with 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 in which 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 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).

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 the Indonesia Stock Exchange. Among several financial distress models, this research chose to use the Altman and Springate Models since both of them are the most accurate and conservative models to predict. The retail trade company is one of the industries that is experiencing a 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 the financial distress of the retail trade industry.

DOI: http://dx.doi.org/10.36441/jamr

2. RESEARCH METHOD

Research Design. This study is a quantitative approach research using the financial distress analysis technique of the 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 the 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 that had listed and published annual reports 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.

Analysis Technique. 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):

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

Table 2. The Formula in the Altman Model

Variable	Formula	Descriptions
X_1: Net Working Capital/Total Assets	$\frac{Current\ Asset - Current\ Liability}{Total\ Asset}$	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	$\frac{Retained\ Earning}{Total\ Asset}$	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	$\frac{EBIT}{Total\ Asset}$	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	$\frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Debt}$	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	$\frac{Sales}{Total\ Asset}$	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.

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 an indication of financial distress.

The Springate Model was the improvement 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):

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

Table 3. The Formula in the Springate Model

Variable	Formula	Descriptions
X_1: *Net Working Capital/Total Assets*	$\frac{Current\ Asset - Current\ Liability}{Total\ Asset}$	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*	$\frac{Net\ Profit\ Before\ Interest\ and\ Taxes}{Total\ Asset}$	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 Liabilites*	$\frac{Net\ Profit\ Before\ Taxes}{Current\ Liability}$	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*	$\frac{Sales}{Total\ Asset}$	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.

The company classification is based on the S-Score Value, as follows:
1. If the S-Score value > 0.862, it does not had the potential to go bankrupt,
2. If the S-Score value < 0.862, it is the potential to go bankrupt.

3. RESULTS AND DISCUSSIONS

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

Table 4. Financial Performance 2019 with the Altman Model

No	Firm Code	$1.2X_1$	$1.4X_2$	$3.3X_3$	$0.6X_4$	$1.0X_5$	Z-Score	Classification
1	AMRT	0.06	0.17	0.07	2.13	3.04	4.48	*Safe Zone*
2	DAYA	-0.12	-0.17	0.51	0.01	1.49	2.81	*Grey Area*
3	ERAA	0.23	0.26	0.07	0.60	3.37	4.66	*Safe Zone*
4	GLOB	-35.56	-118.52	0.95	0.05	28.82	-176.61	*Financial distress*
5	HERO	0.02	0.07	0.56	1.55	2.01	4.95	*Safe Zone*
6	LPPF	0.03	1.08	0.37	3.58	2.12	7.05	*Safe Zone*
7	MAPA	0.54	0.45	0.81	14.34	1.81	14.40	*Safe Zone*
8	MAPI	0.17	0.25	0.74	2.66	1.55	6.16	*Safe Zone*
9	MIDI	-0.12	0.16	0.09	0.87	2.32	3.24	*Safe Zone*
10	MPMX	0.18	0.35	0.06	1.29	1.73	3.43	*Safe Zone*
11	RALS	0.51	0.70	0.09	5.10	0.99	5.97	*Safe Zone*
12	RANC	0.23	0.27	0.68	0.04	2.51	5.46	*Safe Zone*
13	TRIO	-5.17	-57.80	0.25	2.88	7.08	-77.46	*Financial distress*
14	TURI	0.12	0.59	0.18	2.14	2.06	4.94	*Safe Zone*
15	ZONE	0.38	0.25	0.59	1.84	1.11	5.01	*Safe Zone*

Source: author's calculation, 2021.

Based on Table 4, the results of the Z-Score of retail trade companies in 2019 it can be seen that two companies are 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 current liabilities greater than its current assets so the company has problems meeting its obligations. Furthermore, the total assets of the company cannot generate positive retained earnings because the amount of losses exceeds 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 (X_1) of - 0.12 and the value of the ratio of retained earnings to total assets (X_2) is -0.17, but still has a positive value in the ratio of sales to total assets (X_5) which is 1.49. The value indicated the company's ability to manage efficiency in the process of using the company's assets to 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 (X_1) of -0.12, then the value the ratio of retained earnings to total assets (X_2) is 0.45, the value of the ratio of earnings before interest and taxes to total assets (X_3) is 0.81, the ratio of market value of equity to book value of debt (X_4) is 14.34 and the value of the ratio of sales to total assets (X_5) 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 can avoid 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.

Tabel 5. Financial Performance 2020 with the Altman Model

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

Source: author's calculation, 2021.

Based on Table 5 the results of the Z-Score of retail trade companies in 2020 it can be seen that three companies are 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 Trikomsel Oke, Tbk.) with a Z-Score of -104.51. GLOB (PT Global Teleshop, Tbk.) and TRIO (PT Trikomsel Oke, Tbk.) both have X_1 and X_2 ratio values with negative results. GLOB (PT Global Teleshop, Tbk.) has a net working capital ratio value to total assets (X_1) of -35.56 and the ratio of retained earnings to total assets (X_2) is -118.52 while TRIO

DOI: http://dx.doi.org/10.36441/jamr

(PT Trikomsel Oke, Tbk.) has a ratio of net working capital to total assets (X_1) of -5.17 and the ratio of retained earnings to total assets (X_2) is -57.80. Meanwhile, LPPF (PT Matahari Department Store, Tbk.) has a negative ratio of net working capital to total assets (X_1) of -0.19 and profit before interest and tax to total assets (X_3) of -0.13. The company has current liabilities larger than the current assets so it has problems in meeting its obligations; the 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 result, 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 (X_1) and the ratio of retained earnings to total assets (X_2). The company is 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 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.) had the highest Z-Score value among other companies by 5.28, with a net working capital ratio value to total assets (X_1) of 0.15, then the ratio of retained earnings to total assets (X_2) of 0.63, the ratio of earnings before interest and taxes to total assets (X_3) is 0.14, the ratio of the market value of equity to book value of debt (X_4) is 3.82 and the value of the ratio of sales to total assets (X_5) 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 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 find out where the problem lies, and take action to overcome financial distress conditions.

The Springate Model. The classification of the company's financial performance is based on the calculation of the S-Score Value of the Springate model, then classified into the safe zone or financial distress zone. A safe zone means the company is in great financial performance; while a financial distress zone means the company has the potential to bankrupt. The following are the findings of the calculation and classification company’s financial performance based on the Springate Model:

Table 6. Financial Performance 2019 with the Springate Model

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

Source: author’s calculation, 2021.

Based on Table 6, the S-Score value of retail trade companies in 2019 shows that two companies are 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

DOI: http://dx.doi.org/10.36441/jamr

is caused by two ratios that have negative values. The two companies both have the X_1 and X_3 ratio values 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 profit before interest and taxes to current liabilities (X_3) of -0.123, while TRIO (PT Trikomsel Oke, Tbk.) has a capital ratio value network to total assets (X_1) is -5,177 and the ratio of profit before tax to current liabilities (X_3) 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 the company has problems in covering its obligations. GLOB (PT Global Teleshop, Tbk.) has the highest ratio of sales to total assets (X_4) from other companies which is 28.82, this indicates 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 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, to be able to meet the company's current liabilities. This condition must be able to maintain its performance 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 find out where the problem lies, and take action to overcome financial distress conditions.

Table 7. Financial Performance 2020 with the Springate Model

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	*Safe Zone*
2	DAYA	-0.205	0.467	-0.099	1.259	1.658	*Safe Zone*
3	ERAA	0.214	0.098	0.178	3.042	1.857	*Safe Zone*
4	GLOB	-37.561	0.156	-0.123	2.889	-37.231	*Financial distress*
5	HERO	-0.152	0.496	-0.450	1.838	1.803	*Safe Zone*
6	LPPF	-0.197	-0.137	-0.327	0.765	-0.535	*Financial distress*
7	MAPA	0.293	0.355	-0.005	0.888	1.744	*Safe Zone*
8	MAPI	0.046	0.350	-0.098	0.841	1.394	*Safe Zone*
9	MIDI	-0.200	0.077	0.078	2.137	0.936	*Safe Zone*
10	MPMX	0.105	0.037	-0.157	1.214	0.605	*Financial distress*
11	RALS	0.430	-0.048	-0.196	0.478	0.357	*Financial distress*
12	RANC	0.085	0.596	0.183	2.282	2.952	*Safe Zone*
13	TRIO	-8.104	0.519	-0.285	4.442	-5.165	*Financial distress*
14	TURI	0.154	0.142	0.093	1.443	1.235	*Safe Zone*
15	ZONE	0.179	0.313	-0.256	0.579	1.210	*Safe Zone*

Source: author's calculation, 2021.

Based on Table 7 the results of the Springate S-Score of retail trade companies in 2020, it is known that five companies are experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.) with an S-Score of -37,231 and TRIO (PT Trikomsel 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 total assets (X_2) of 0.037 and ratio of profit before tax to current liabilities (X_3) of -0.157, while

DOI: http://dx.doi.org/10.36441/jamr

RALS (PT Ramayana Lestari Sentosa, Tbk.) has the ratio of profit before interest and tax to total assets (X_2) is -0.048 and the ratio of profit before tax to current liabilities (X_3) 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 (X_1) of -0.197 and the ratio of earnings before interest and tax to total assets (X_2) is -0.137 and has a ratio of profit before tax to current liabilities (X_3) 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 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 net working capital to total asset (X_1) ratio of 0.085, a ratio of profit before interest and taxes to total assets (X_2) is 0.596, the ratio of profit before tax to current liabilities (X_3) is 0.183, and the ratio of sales to total assets (X_4) 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, to be able to meet the company's current liabilities. This condition must be able to maintain its performance to avoid financial distress conditions. While GLOB (PT Global Teleshop, Tbk.) has the lowest S-Score value of -37,231, followed by TRIO (PT Trikomsel Oke, Tbk.) with an S-Score of -5,165. These companies must immediately evaluate the company's performance 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) have been done. However, research data taken from 2019-2020, to find out the results of research data before dan 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 the period before and during the Covid-19 pandemic based on the Altman Model:

Table 8. Company Classification based on the Altman Model

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

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 distress before the Covid-19 pandemic and continues to decline in the Z-Score value during the Covid-19 pandemic in 2020. This condition is 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 for a company that has been in the grey zone from 2019 to 2020, namely DAYA (PT Duta Intidaya, Tbk.). Eight other companies 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 the period before and during the Covid-19 pandemic based on the Springate Model:

Table 9. Company Classification based on the Springate Model

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

Based on the results of the analysis of the S-Score value in the period before and during the 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 Trikomsel Oke, Tbk.) which entered a state of financial distress in 2019 which means that both of the companies 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 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 hurt the confidence of investors and creditors. Companies must immediately evaluate the company's performance 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 (Pustylnick, 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 for 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 amid 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 the retail trade industry, companies are faced with various limitations so 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.

4. CONCLUSION

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 two companies experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.) and TRIO (PT Trikomsel 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 three companies were experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.), LPPF (PT Matahari Department Store, Tbk.), and TRIO (PT Trikomsel 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 two companies were experiencing financial distress, namely GLOB (PT Global Teleshop, Tbk.) and TRIO (PT Trikomsel Oke, Tbk.), and 13 other companies are in a safe zone condition. In 2020 five companies were 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 Trikomsel Oke, Tbk.), and 10 other companies are in a safe zone condition.

Based on the research findings, we suggest that company management that is classified in a grey zone and predicted to experience financial distress to review and re-evaluate the financial performance 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.

REFERENCES

Amri, M. C.., & Ariyani, Y. A. (2021). Empirical Evidence of Financial Distress in Indonesia. *Assets: Jurnal Akuntansi dan Pendidikan*, 10(2), 165-179.

Bank Indonesia (2021). *Laporan Perekonomian Indonesia 2020*.

Barry, H. (2019). Prediksi Model *Financial Distress* (Kebangkrutan) pada Perusahaan Ritel Bursa Efek dengan Model Altman dan Springate Indonesia Periode 2012-2016. *Account: Jurnal Akuntansi Keuangan dan Perbankan*, 6(1), 941-947.

Brigham, E. F., & P. R. Daves. (2014). *Intermediate Financial Management.* Cengage Learning.

Deretan Ritel Tumbang di Masa Pandemi, Matahari hingga Centro [Internet]. [Accessed on 10 Mei 2021]. Tersedia pada: https://www.cnnindonesia.com/ekonomi/20210324162312-92-621597/deretan-ritel-tumbang-di-masa-pandemi-matahri-hingga-centro.

Financial Distress: Pengertian dan Cara Mencegahnya [Internet]. [Accessed on 14 April 2021]. Available on: https://accurate.id/ekonomi-keuangan/pengertian-financial-distress/

Fiscarina, K., D., & Paranita, E. S. (2023). Financial Performance of Health Service Providers Sub-Industry Companies Before and During the Covid-19 Pandemic. *Journal of Applied Management Research*, 3(1), 51-61.

Hery. (2017). *Kajian Riset Akuntansi*. Jakarta: PT Gramedia.

Hutahuruk, M. R., Mansyur, M., Rinaldi, M., & Situru, Y.R. (2021). Financial Distress pada Perusahaan yang Terdaftar di Bursa Efek Indonesia. *JPS: Jurnal Perbankan Syariah*, 2(2), 237-246.

Indonesia Resesi, Ekonomi Indonesia Tumbuh Minus 3,49% Kuartal III 2020 [Internet]. [Accessed on 6 April 2020]. Available on: https://databoks.katadata.co.id/datapublish/2020/11/05/indonesia-resesi-ekonomi-indonesia-tumbuh-minus-349-kuartal-iii-2020.

Kusumawardhani, R. A, & Nugroho, E. S. (2022). Profitabilitas dan Nilai Perusahaan pada Perusahaan Perdagangan Ritel di BEI Tahun 2015-2019. *Journal of Economics, Management, Accounting, and Technology*, 5(2), 120-130.

Mamduh, M. H. (2004). *Manajemen Keuangan.* Edisi 1*.* Yogyakarta: BPFE.

Nilasari, D, & Haryanto, M. (2018). Memprediksi Perusahaan yang Berpotensi Mengalami Masalah Keuangan dengan Model Altman, Springate, dan Zmijewski. *Diponegoro Journal of Management*, 7(2), 1-11.

Paranita, E. S., & Siska MY, A. (2022). Does the Covid-19 Pandemic Affect the Financial Performance of Corporations? Empirical Evidence from Indonesia. *International Journal of Research in Business and Social Science*, 11(6), 307-313.

Platt, H. & Platt, M.B. (2002). Predicting Financial Distress. *Journal of Financial Service Professionals,* 56, 12-15.

Priyanti M. W. A, & Riharjo, I. B. (2019). Analisis Metode Altman Z-Score, Springate, dan Zmijewski untuk Memprediksi Financial Distress. *Jurnal Ilmu dan Riset Akuntansi*, 8(6), 1-15.

Pustylnick, I. (2012). Restructuring The Financial Characteristics of Projects in Financial Distress. *Global Journal of Business Research*. 6(2), 125-134.

Rudianto. (2013). *Akuntansi Manajemen: Informasi Untuk Pengambilan Keputusan Strategis*. Jakarta: Penerbit Erlangga.

Sinaga, A. S., Cindy, Go, C., & Chandra A. A. (2022). The Impact of Net Profit Margin, Return on Assets, Cash Ratio, and Debt to Equity Ratio on Stock Prices of Telecommunication, Food and Beverages, and Retail Trade Subsector Companies in Indonesia During Covid-19 Pandemic in Bursa Efek Indonesia. *Management Studies and Entrepreneurship Journal*, 3(2), 413-429.

Sondakh, C. A, Murni, S, & Mandagie, Y. (2014). Analisis Potensi Kebangkrutan dengan Menggunakan Metode Altman Z-Score, Springate, dan Zmijewski pada Industri Perdagangan Ritel yang Terdaftar di BEI Periode 2009-2013. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis dan Akuntansi*, 2(4), 364-373.

Survei Penjualan Eceran - Desember 2020 [Internet]. [Downloaded at 9 April 2021]. Available on: https://www.bi.go.id/id/publikasi/laporan/Pages/SPE-Desember-2020.aspx.

Wulandari, E. Y, & Maslichah. (2021). Penggunaan Model Springate, Ohlson, Altman Z-Score, dan Gover Score untuk Memprediksi Financial Distress pada Masa Pandemi Covid-19. *Jurnal Ilmiah Riset Akuntansi*, 10(5), 90-103.

Yusbardini, & Rashid, R. (2019). Prediksi Financial Distress dengan Pendekatan Altman pada Perusahaan Manufaktur di Indonesia. *Jurnal Muara Ilmu Ekonomi dan Bisnis*, 3(1), 122-129.