

Company Bankruptcy Prediction Analysis Go Public in Indonesia during the Covid-19 Pandemic

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Abstract

This study aims to compare bankruptcy predictions between sectors of publicly traded companies in Indonesia during the Covid-19 pandemic. This research was conducted in publicly listed companies in Indonesia in 2020. The number of samples in this study were 97 companies with details of the manufacturing sector 50 samples and the non-manufacturing sector 47 samples using the purposive sampling method. Data collection uses the documentation method. The data analysis technique used is the modified Altman Z-Score method, descriptive statistics and t-test. The results showed that of the 50 companies in the manufacturing sector, 36 of them were in the safe zone category, 10 companies were in the gray zone category and 4 companies were in the distress zone category. Meanwhile, of the 47 non-manufacturing sector companies, 30 companies are in the safe zone category, 6 companies are in the gray zone category and 11 companies are in the distress zone category. These results indicate that non-manufacturing sector companies are more affected by the Covid-19 pandemic, this is due to the majority of companies experiencing a decrease in liquidity in terms of cash flow.

Keywords

Altman Z-Score; Modification;
Bankruptcy Prediction.



I. Introduction

The Covid-19 pandemic has emerged since the beginning of 2020 in the country. However, the impact has hit Indonesia's economic sector, where the stock market index falls, the rupiah slumps, and the Indonesian economy could enter the worst-case scenario. The longer this outbreak will affect economic activity, demand will be disrupted and lead to a recession. This year's JCI pressure is still expected to come from the impact of the Covid-19 pandemic which is increasingly widespread in the country. In the case of the Covid-19 pandemic where the economy is declining and unstable, as seen from the increase in the price of goods, plus decreased income due to the lockdown policy, staying away from crowds and isolating oneself to break the chain of virus spread, this combination has a huge impact on purchasing power. During the Covid-19 pandemic, competition in the business world is getting tougher.

The Covid-19 pandemic caused everyone to behave beyond normal limits as usual. One of the behaviors that can change is deciding the decision to choose a college. The problem that occurs in private universities during covid 19 is the decrease in the number of prospective students who come to campus to get information or register directly to choose the department they want. (Sihombing, E and Nasib, 2020)

The world health agency (WHO) has also announced that the corona virus, also called COVID-19, is a global threat worldwide. The outbreak of this virus has an impact especially on the economy of a nation and globally. These unforeseen circumstances

automatically revised a scenario that was arranged in predicting an increase in the global economy. (Ningrum, P. et al. 2020)

Given that the Covid-19 pandemic has greatly impacted many companies, it is necessary to analyze financial statements so that later the company can make strategies to be able to maintain the viability of the company. The large companies listed on the Indonesia Stock Exchange (IDX) from various business sectors are no exception, which were selected through a rigorous selection process involving a credible and professional index appraisal committee.

In the manufacturing sector, Nippon Indosari Corpindo Tbk (ROTI) posted a net profit attributable to owners of the parent company of Rp.215.05 billion for the period ended December 31, 2020. The net profit was down 28.56% from the previous year. of Rp. 301 billion. In line with the decrease in net income, ROTI's basic earnings per share was also corrected to Rp.35.98 per share from the previous Rp.49.29 per share.

Cigarette producer, Gudang Garam Tbk. (GGRM) recorded an increase in revenue throughout 2020. However, its net profit was eroded by increased expenses. Based on the financial report as of December 31, 2020, this GGRM recorded revenue growth to Rp. 114.47 trillion, an increase of Rp. 3.95 trillion or up 3.57% from revenue in 2019 which amounted to Rp. 110.52 trillion. Unfortunately, the cost of goods sold also increased to Rp.97.08 trillion, an increase of Rp.9.34 trillion from the 2019 position of Rp.87.74 trillion.

The pharmaceutical issuer, Indofarma Tbk (INAF) recorded a net loss of Rp. 21.42 billion in the first quarter of 2020, down nearly 2% compared to the position in the first quarter of 2019. Based on Indofarma's financial report, the decrease in net loss also caused the loss per share to decrease from Rp.7.03 to Rp.6.91. Indofarma's total revenue rose 8.73% to Rp.148.16 billion. The local sales segment dominated the revenue, which was Rp. 142.86 billion. The rest came from export sales of Rp. 5.30 billion.

The issuer of household goods producers, Unilever Indonesia Tbk (UNVR) posted a net profit throughout 2020 which fell 3.11% to Rp.7.16 trillion, from Rp.7.39 trillion the previous year. Based on the published financial reports, the decline in net profit was in line with the slight increase in revenue in the year of the Covid-19 pandemic. UNVR's total net sales in 2020 reached Rp. 42.97 trillion, up 0.12% from 2019 which was Rp. 42.92 trillion.

Then from the non-manufacturing sector, the telecommunications and information issuer Indosat Tbk (ISAT) in a report published by Indosat management on the Indonesia Stock Exchange (IDX) page on Friday (19/2/2021) recorded a loss of Rp. enhancement. This is in contrast to the previous year's condition when the company recorded a net profit of Rp. 1.57 trillion, which was mainly due to the profit from tower sales. Smartfren Telecom Tbk (FREN) also recorded a net loss of Rp. 1,523 trillion at the end of 2020, or improved compared to the end of 2019, which recorded a net loss of Rp. 2.187 trillion. Thus, the basic loss per share improved to Rp.4.92, while at the end of 2019 it was recorded at Rp.7.07.

The performance of the transportation issuer PT. Blue Bird Tbk (BIRD) is under pressure from the Covid-19 pandemic. Throughout 2020, the company's revenue fell by 49.38%. This made the net profit achieved in 2019, turned into a loss last year. Based on the financial statements, PT. Blue Bird Tbk (BIRD) was only able to collect revenue of IDR 2.05 trillion last year.

AirAsia Indonesia Tbk. (CMPP) posted a decline in revenue and financial conditions turned into losses throughout 2020. In an explanation reported to the Indonesia Stock Exchange, it was stated that the Covid-19 pandemic storm was the cause of the company's financial condition. The financial report as of December 31, 2020 recorded an operating

income of Rp. 1.61 trillion. This figure has fallen to 75.99% when compared to 2019 revenue of Rp. 6.7 trillion. The company's operating expenses also remained high at Rp.4.41 trillion. Even though the value of the operating expenses is lower than in 2019, which was Rp. 6.7 trillion. AirAsia finally recorded an operating loss of Rp. 2.8 trillion throughout 2020 or inversely proportional to 2019 which recorded a profit of Rp. 113.94 million.

II. Review of Literature

2.1 Financial Statements

The theory that underlies and strengthens this research is signal theory. Signal theory tells us that companies that perform well will purposely send signals to the market. Announcements made by the company will certainly affect the reaction of investors which will result in the ups and downs of the company's stock price. Signal theory will help companies as agents, owners, and outside parties or third parties to reduce information asymmetry by producing quality and integrated financial performance information (Nariman, 2016). Financial statements are reports that show the company's financial condition at this time or in a certain period (Kasmir, 2018: 7).

2.2 Financial Statement Analysis

Financial ratio analysis allows financial managers to predict the reactions of potential investors and creditors and can be taken to obtain additional funds (Wardiyah, 2017: 135).

2.3 Bankruptcy

According to Law Number 37 of 2004 article 1 paragraph (1), what is meant by bankruptcy or bankruptcy is the general remainder of the assets of the bankrupt debtor whose management and settlement is carried out by the Curator under the supervision of the Supervisory Judge as regulated in this law. A company can be said to be bankrupt if the company is experiencing mild difficulties (such as liquidity problems) and to more serious difficulties, namely solvency or debt is greater than assets (Rafles, 2015).

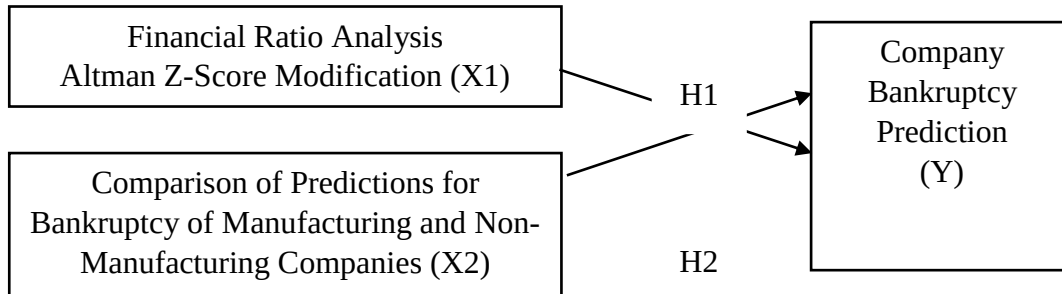
2.4 Bankruptcy Prediction Analysis Method

The company's financial soundness level can be measured by using financial ratio analysis using the Modified Altman Z-Score method. This method is used by the author to analyze the company's financial statements to detect the possibility of bankruptcy in manufacturing and non-manufacturing companies registered on the Indonesia Stock Exchange (IDX) during the Covid-19 pandemic. This method is relatively easy to use and also has a fairly high level of accuracy in predicting the bankruptcy of a company.

Altman (1968) developed a bankruptcy prediction model using the Multiple Discriminant Analysis (MDA) method on five types of financial ratios, namely Working Capital to Total Assets, Retained Earning to Total Assets, Earning Before Interest and Taxes to Total Assets, Market Value of Equity to Book Value of Total Debts, and Sales to Total Assets. On the basis of these financial ratios, the Altman Z-Score Model was successfully used to classify companies into groups that have a high probability of going bankrupt or groups of companies that have a low probability of going bankrupt. The Altman Z-Score model allows for forecasting bankruptcy up to two years before bankruptcy occurs.

2.5 Concept Framework and Hypotheses

The variables studied in this study were 4 analysis of financial ratios Altman Z-Score Modified (X) as the independent variable while the dependent variable was the prediction of corporate bankruptcy (Y) which consisted of 3 categories (safe zone, gray zone, distress zone). The conceptual framework for this research is presented in Figure 1 below.



Source: Processed data (2022)

Figure 1. Research Concept

Based on the conceptual framework, the hypotheses proposed for this study are as follows:

2.6 Analysis of Altman Z-Score Modified Financial Ratios

As time goes by and adapts to various types of companies, Altman then revised his model so that it can be applied to all companies, such as manufacturing, non-manufacturing, and bond issuing companies in developing countries (emerging markets). In this modified Z-Score, Altman eliminates the X5 variable (sales/total assets) because this ratio varies widely in industries with different asset sizes.

In general, the measurement of profitability, liquidity, and solvency ratios is the most significant ratio of several financial ratios to predict company bankruptcy. Z-Score is a score determined from a standard calculation multiplied by financial ratios which aims to indicate the level of probability of the company's bankruptcy. The Altman model allows for forecasting bankruptcy up to two years before bankruptcy occurs. Altman Z-Score is expressed in the form of a linear equation consisting of 4 X coefficients representing certain financial ratios.

Research conducted by Aryani and Florida (2015) entitled "Use of Modified Altman Z-Score Method to Predict Bankruptcy of Banks Listed on the Indonesia Stock Exchange" that all banks studied from 2011 to 2013 produced a Z-Score value greater of 2.6 or in other words, the 11 banks have no indication of bankruptcy symptoms, on the contrary, all the banks studied are predicted not to experience bankruptcy within 1 year. Based on the explanation above, the hypothesis can be formulated as follows:

H1: There is a difference in the prediction rate of bankruptcy between the sectors of publicly traded companies in Indonesia during the Covid-19 pandemic.

2.7. Bankruptcy Prediction Comparison Between Manufacturing and Non-Manufacturing Companies

In general, almost all industrial sectors have been affected by the spread of Covid-19, including manufacturing and non-manufacturing companies, so special attention needs to be given. Among those that experienced hard hits were the automotive industry, steel industry, aircraft industry and MRO, railway and shipbuilding, cement industry, ceramics, glass, regulatory industry, electrical and cable equipment, electronics and

telecommunication equipment industry, textile industry, furniture and handicraft industries as well as service companies such as banking, property & real estate.

It can be said that non-manufacturing sector companies are more affected by the Covid-19 pandemic, this is due to the majority of companies experiencing a decrease in liquidity in terms of cash flow. This weakens the company's ability to meet its obligations. This is in line with research conducted by Armadani et al., (2021) which found a decline in sales and a decrease in the company's ability to grow due to financial and liquidity difficulties. Based on the explanation above, the hypothesis can be formulated as follows:

H2: There is a difference in the level of bankruptcy prediction between manufacturing and non-manufacturing companies during the Covid-19 pandemic.

III. Research Method

This research was conducted on publicly listed companies in Indonesia in 2020. The object of this research is the analysis of financial statements related to the bankruptcy of publicly listed companies in Indonesia. The population of this research is publicly listed companies in Indonesia in 2020. The sample of this study is publicly listed companies in Indonesia that meet the sample selection criteria in this study. The method of determining the sample used in this study is a non-probability sampling method with purposive sampling technique.

The data analysis technique used the Altman Z-Score model. In this Modified Altman Z-Score model, four different financial ratios are used to predict company bankruptcy, namely the ratios (Working capital/Total Assets, Retained Earnings/Total Assets, Earning before Interest and Tax/Total Assets and Book Value Equity/Value Total Amount of debt). And its Z value is based on Altman's reported cut off point. Altman's Z-Score model has been successfully used to classify companies into groups that have a high probability of going bankrupt or groups of companies that are likely to experience low bankruptcy.

IV. Results and Discussion

Based on table 1 below, it can be explained the value of the hypothesis test (t-test) as follows:

Table 1. t test results

		Levene's Test for Equality of Variances		t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.						Lower	Upper
A	Equal variances assumed	2.039	.157	2.206	95	.030	1.86210	.84404	.18646	3.53774
	Equal variances not assumed			2.181	80,136	.032	1.86210	.85393	.16277	3.56143

Secondary Data, 2022

- a. Based on the results of the t-test for manufacturing companies, it is known that the significance value of t is $0.030 < 0.05$, while the significant value for non-manufacturing companies is $0.032 < 0.05$. So it can be stated that there are significant differences between manufacturing companies and non-manufacturing companies. In addition, by looking at the Mean Difference value is 1.86210. This value shows the difference between the value of manufacturing companies and non-manufacturing companies. The difference is between 0.18646 to 3.53774 for manufacturing companies while non-manufacturing companies are 0.16277 to 3.56143 (95% Confidence Interval of the Difference).
- b. Table 1 shows the differences between manufacturing and non-manufacturing companies, it is known that service companies are more affected by the Covid-19 pandemic, this is due to the majority of companies experiencing a decrease in liquidity in terms of cash flow. This weakens the company's ability to meet its obligations.

Table 2. Results of Modified Z-Score for Manufacturing Companies

	SAMPLE		X1	X2	X3	X4	Z	Description
1	ASGR	Astra Graphia Tbk.	0.49	0.58	0.03	2.15	7.64	Safe Zone
2	BHIT	MNC Investama Tbk.	0.01	0.02	0.06	1.12	1.73	Gray Zone
3	BMTR	Global Mediacom Tbk.	0.14	0.30	0.10	1.81	4.47	Safe Zone
4	CAKK	Cahayaputra Asa Ceramic Tbk.	0.12	-0.05	0.01	1.74	2.52	Gray Zone
5	JECC	Jembo Cable Company Tbk.	0.16	0.22	0.04	0.94	3.03	Safe Zone
6	HEAL	Medikaloka Hermina Tbk.	0.12	0.14	0.17	1.14	3.59	Safe Zone
7	KLBF	Kalbe Farma Tbk.	0.44	0.74	0.16	4.26	10.86	Safe Zone
8	MICA	Mitra Keluarga Karya Sehat Tbk.	0.40	0.53	0.19	6.45	12.35	Safe Zone
9	PRDA	Prodia Widyahusada Tbk.	0.52	0.23	0.15	4.03	9.41	Safe Zone
10	PYFA	Pyridam Farma Tbk	0.37	0.39	0.14	1.27	5.99	Safe Zone
11	SCPI	Organon Pharma Indonesia Tbk	0.23	0.47	0.19	1.09	5.51	Safe Zone
12	SIDO	Sido Muncul Herbal and Pharmaceutical Industry Tbk.	0.39	0.19	0.31	5.13	10.66	Safe Zone
13	SILO	Siloam International Hospitals Tbk.	0.09	0.03	0.05	2.50	3.61	Safe Zone
14	TSPC	Tempo Scan Pacific Tbk.	0.43	0.59	0.12	2.34	8.05	Safe Zone
15	AMRT	Sumber Alfaria Trijaya Tbk.	-0.07	0.17	0.07	0.42	1.00	Distress Zone
16	CAMP	Campina Ice Cream Industry Tbk	0.64	0.15	0.05	7.68	13.12	Safe Zone
17	CLEO	Sariguna Primatirta Tbk.	0.08	0.30	0.15	2.15	4.76	Safe Zone
18	MGRO	Mahkota Group Tbk.	-0.09	0.04	0.01	0.77	0.35	Distress Zone
19	MRAT	Mustika Ratu Tbk.	0.42	0.34	0.02	1.58	5.70	Safe Zone
20	RANC	Supra Boga Lestari Tbk.	0.09	0.20	0.06	0.70	2.37	Gray Zone
21	SSMS	Sawit Sumbermas Sarana Tbk.	0.15	0.19	0.00	0.62	2.29	Gray Zone
22	TGKA	Tigaraksa Satria Tbk.	0.49	0.46	0.19	0.91	6.95	Safe Zone
23	UNVR	Unilever Indonesia Tbk.	-0.33	0.23	0.46	0.32	2.02	Gray Zone
24	WAPO	Wahana Pronatural Tbk.	0.32	0.00	-0.01	1.00	3.07	Safe Zone
25	AKKU	Anugerah Amazed Karya Utama Tbk	-0.12	-0.14	-0.01	4.39	3.31	Safe Zone
26	ERAA	Erajaya Swasembada Tbk.	0.21	0.29	0.10	1.03	4.08	Safe Zone
27	ECHO	Gema Grahasarana Tbk.	0.06	0.22	0.06	0.62	2.14	Gray Zone
28	KPIG	MNC Land Tbk.	0.07	0.18	0.02	3.79	5.12	Safe Zone
29	MAPI	Mitra Adiperkasa Tbk.	0.05	0.16	-0.01	0.58	1.38	Gray Zone
30	PMJS	Putra Mandiri Jembar Tbk.	0.33	0.13	0.04	2.60	5.58	Safe Zone

31	PZZA	Sarimelati Kencana Tbk.	-0.04	0.12	-0.03	1.06	1.10	Gray Zone
32	SOTS	Satria Mega Kencana Tbk.	-0.07	-0.11	-0.04	2.05	1.09	Distress Zone
33	TRIS	Trisula International Tbk.	0.30	0.07	0.04	1.52	4.06	Safe Zone
34	ALKA	Alakasa Industriindo Tbk	0.23	0.07	0.02	0.34	2.21	Gray Zone
35	BTON	Betonjaya Manunggal Tbk.	0.65	0.73	0.02	4.08	11.07	Safe Zone
36	WOOD	Darmi Brothers Tbk.	0.58	0.06	0.01	2.45	6.71	Safe Zone
37	SRSN	Indo Acidatama Tbk	0.34	0.15	0.09	1.84	5.28	Safe Zone
38	ZINC	Kapuas Prima Coal Tbk.	0.04	0.18	0.07	1.39	2.81	Safe Zone
39	INAF	Indofarma Tbk.	0.17	-0.09	0.03	0.34	1.44	Gray Zone
40	ADES	Akasha Wira International Tbk.	0.38	-0.12	0.18	3.82	7.26	Safe Zone
41	WIIM	Wismilak Inti Makmur Tbk.	0.58	0.45	0.14	2.77	9.10	Safe Zone
42	GGRM	Gudang Garam Tbk.	0.42	0.73	0.13	2.98	9.11	Safe Zone
43	DMND	Diamond Food Indonesia Tbk.	0.49	0.44	0.05	4.54	9.71	Safe Zone
44	ICBP	Indofood CBP Sukses Makmur Tbk	0.11	0.22	0.10	0.94	3.12	Safe Zone
45	KAEF	Kimia Farma Tbk.	-0.04	0.00	0.04	0.68	0.71	Distress Zone
46	MLBI	Multi Bintang Indonesia Tbk.	-0.05	0.48	0.16	0.97	3.33	Safe Zone
47	INDF	Indofood Sukses Makmur Tbk.	0.06	0.19	0.09	0.94	2.62	Safe Zone
48	BREAD	Nippon Indosari Corpindo Tbk.	0.26	0.36	0.05	2.64	5.99	Safe Zone
49	SKLT	Sekar Laut Tbk.	0.17	0.22	0.10	1.11	3.66	Safe Zone
50	ULTJ	Ultra Jaya Milk Industry & Trading Company Tbk	0.37	0.66	0.17	1.20	6.98	Safe Zone

Secondary Data, 2021

Manufacturing companies that get a value of $Z > 2.6$ are companies Astra Graphia Tbk. (7,7), Global Mediacom Tbk. (4,4), Jembo Cable Company Tbk. (3), Medikaloka Hermina Tbk. (3.6), Kalbe Farma Tbk. (10.9), Mitra Keluarga Karyasehat Tbk. (12,3), Prodia Widyahusada Tbk. (9.4), Pyridam Farma Tbk. (6), Organon Pharma Indonesia Tbk. (5.5), Sido Muncul Herbal and Pharmaceutical Industry Tbk. (10.7), Siloam International Hospitals Tbk. (3.7), Tempo Scan Pacific Tbk. (8), Campina Ice Cream Industry Tbk. (13,1), Sariguna Primatirta Tbk. (4.8), Mustika Ratu Tbk. (5.7), Tigaraksa Satria Tbk. (7), Wahana Pronatural Tbk. (3), Anugerah Kagum Karya Utama Tbk. (3.3), Erajaya Swasembada Tbk. (4), MNC Land Tbk. (5), Putra Mandiri Jembar Tbk. (5.6), Trisula International Tbk. (4), Betonjaya Manunggal Tbk. (11), Darmi Brothers Tbk. (6.8), Indo Acidatama Tbk. (5,2), Kapuas Prima Coal Tbk. (2.8), Akasha Wira International Tbk. (7,2), Wismilak Inti Makmur Tbk. (9,1), Gudang Garam Tbk. (9,1), Diamond Food Indonesia Tbk. (9.7), Indofood CBP Sukses Makmur Tbk. (3.1), Multi Bintang Indonesia Tbk. (3.3), Indofood Sukses Makmur Tbk. (2,6), Nippon Indosari Corpindo Tbk. (6), Sekar Laut Tbk. (3.7) and Ultra Jaya Milk Industry & Trading Company Tbk. (7). Of the 36 manufacturing companies, they are in the safe zone category (companies that are not bankrupt).

Then from 10 companies, namely MNC Investama Tbk. (1.1), Cahayaputra Asa Keramik Tbk. (2.5), Supra Boga Lestari Tbk. (2,3), Sawit Sumbermas Sarana Tbk. (2,3), Unilever Indonesia Tbk. (2), Gema Grahasarana Tbk. (2.1), Mitra Adiperkasa Tbk. (1.3), Sarimelati Kencana Tbk. (1,1), Alakasa Industrindo Tbk. (2.2) and Indofarma Tbk. (1.4) obtained a Z-Score value of $1.1 < Z < 2.6$ which is included in the gray zone category (cannot be determined whether the company is healthy or bankrupt).

Company Sumber Alfaria Trijaya Tbk. (1), Mahkota Group Tbk. (0.3), Satria Mega Kencana Tbk. (1,1) and Kimia Farma Tbk. (0.7). Where the four companies get a Z-Score value of less than (1, 1) which indicates the company is threatened with bankruptcy. So it

is hoped that the management needs to improve its performance system and increase sales and implement good strategies for the survival of the company in the future.

These results are in line with research conducted by Warda et al., (2016) who found a decrease in sales and losses, so the company always lacks capital every year, where the company must think hard so that the company remains operational. In addition, as a result of declining sales and company losses, the available working capital is getting lower, as a result the working capital used by the company is increasingly ineffective. As illustrated in the signal theory, that signal or cue is an action taken by the company's management that gives clues to investors about how management views the company's prospects. This theory reveals that if managers expect a firm's future growth at a high rate.

Table 3. Results of Modified Z-Score of Non-Manufacturing Companies

SAMPLE			X1	X2	X3	X4	Z	Description
1	ACTIO N	Maming Six Sembilan Mineral Tbk.	0.17	0.06	0.05	0.56	2.27	Gray Zone
2	BIRD	Bluebird Tbk.	0.08	0.32	0.03	2.59	4.53	Safe Zone
3	CMPP	AirAsia Indonesia Tbk.	-0.79	-1.52	-0.46	-0.32	-13.56	Distress Zone
4	HELI	Jaya Trishindo Tbk.	0.04	0.14	0.02	0.65	1.56	Gray Zone
5	Kjen	Krida Network Nusantara Tbk.	0.07	0.01	-0.02	6.97	7.72	Safe Zone
6	MIRA	Mitra International Resources Tbk.	0.03	-4.13	-0.02	2.12	-11.24	Distress Zone
7	SAPX	Satria Antaran Prima Tbk.	0.52	0.01	0.21	1.90	6.81	Safe Zone
8	WEHA	WEHA Transport Indonesia Tbk.	-0.09	-0.11	-0.17	1.15	-0.89	Distress Zone
9	ATIC	Anabatic Technologies Tbk.	-0.01	-0.09	-0.12	0.10	-1.07	Distress Zone
10	DIVA	Voucher Distribution Nusantara Tbk.	0.63	0.16	0.07	3.23	8.48	Safe Zone
11	EMTK	Eagle Mahkota Teknologi Tbk.	0.25	-0.06	0.12	2.26	4.61	Safe Zone
12	GLVA	Galva Technologies Tbk.	0.37	0.14	0.18	0.73	4.81	Safe Zone
13	HDIT	Hensel Davest Indonesia Tbk.	0.70	0.12	0.01	6.79	12.18	Safe Zone
14	STALL	Kioson Commercial Indonesia Tbk.	0.82	-0.37	-0.12	0.36	3.75	Safe Zone
15	LMAS	Limas Indonesia Makmur Tbk.	0.46	-0.17	0.03	0.56	3.19	Safe Zone
16	LUCK	Sentral Mitra Informatika Tbk.	0.35	0.00	-0.02	4.50	6.84	Safe Zone
17	MTDL	Metrodata Electronics Tbk.	0.51	0.31	0.12	1.39	6.62	Safe Zone
18	TFAS	Telefast Indonesia Tbk.	0.67	0.24	0.07	2.40	8.17	Safe Zone
19	BEST	Bekasi Fajar Industrial Estate Tbk.	0.39	0.47	0.00	2.26	6.52	Safe Zone
20	BSDE	Bumi Serpong Damai Tbk.	0.27	0.34	0.04	1.31	4.51	Safe Zone
21	DILD	Intiland Development Tbk.	0.01	0.07	0.03	0.63	1.19	Gray Zone
22	FMII	Fortune Mate Indonesia Tbk.	0.21	0.40	0.02	2.55	5.50	Safe Zone
23	JRPT	Jaya Real Property Tbk.	0.08	0.57	0.09	2.18	5.32	Safe Zone
24	LPLI	Star Pacific Tbk.	0.46	-1.91	0.00	3.77	0.75	Distress Zone
25	MMLP	Mega Manunggal Property Tbk.	0.20	0.24	0.00	5.98	8.40	Safe Zone
26	PAMG	Bima Sakti Pertiwi Tbk.	0.00	0.40	0.01	2.95	4.55	Safe Zone
27	PWON	Pakuwon Jati Tbk.	0.16	0.49	0.05	1.99	5.11	Safe Zone
28	ONE	Kota Satu Properti Tbk.	0.47	-0.13	-0.05	0.49	2.84	Safe Zone
29	SSIA	Surya Semesta Internusa Tbk.	0.15	0.37	0.01	1.25	3.58	Safe Zone
30	TLKM	Telkom Indonesia (Persero) Tbk.	-0.09	0.32	0.18	0.96	2.63	Safe Zone
31	TOWR	Sarana Menara Nusantara Tbk.	-0.12	3.03	0.13	0.42	10,40	Safe Zone
32	WSKT	Waskita Karya (Persero) Tbk.	-0.15	-0.02	-0.04	0.19	-1.14	Distress Zone
33	ADHI	Adhi Karya (Persero) Tbk.	0.08	-0.04	0.03	0.17	0.78	Distress Zone
34	BALI	Bali Towerindo Sentra Tbk.	-0.05	0.10	0.07	0.88	1.39	Gray Zone
35	BUKK	Bukaka Teknik Utama Tbk.	0.07	0.39	0.13	1.33	4.01	Safe Zone
36	FREN	Smartfren Telecom Tbk.	-0.15	-0.66	-0.02	0.47	-2.77	Distress Zone
37	IBST	Inti Bangun Sejahtera Tbk.	0.02	0.18	0.04	1.47	2.54	Gray Zone

38	IPCM	Jasa Armada Indonesia Tbk.	0.38	0.14	0.08	3.45	7.09	Safe Zone
39	SMRU	SMR Utama Tbk.	-0.13	-0.82	-0.21	0.53	-4.43	Distress Zone
40	TCPI	Transcoal Pacific Tbk.	-0.06	0.19	0.06	1.08	1.76	Gray Zone
41	WOW	Ginting Jaya Energi Tbk.	0.32	0.07	0.02	3.47	6.13	Safe Zone
42	BISI	BISI International Tbk.	0.64	0.68	0.13	0.54	7.83	Safe Zone
43	ASRI	Alam Sutera Realty Tbk.	-0.48	3.12	-0.07	0.79	7.36	Safe Zone
44	BCIP	Bumi Citra Permai Tbk.	0.10	0.32	0.02	0.97	2.78	Safe Zone
45	BIMA	Primarindo Asia Infrastructure Tbk.	-0.01	-1.05	-0.17	0.15	-4.47	Distress Zone
46	EMDE	Megapolitan Developments Tbk.	0.39	0.03	-0.01	0.29	2.91	Safe Zone
47	ISAT	Indosat Tbk.	-0.21	0.15	0.04	0.26	-0.35	Distress Zone

Secondary Data, 2021

Non-manufacturing companies that get a $Z'' > 2.6$ are Blue Bird Tbk. (4,5), Krida Network Nusantara Tbk. (7,7), Satria Antaran Prima Tbk. (6,9), Distribution of Vouchers Nusantara Tbk. (8,4), Eagle Mahkota Teknologi Tbk. (4,6), Galva Technologies Tbk. (4,8), Hensel Davest Indonesia Tbk. (12,1), Kioson Komersial Indonesia Tbk. (3,7), Limas Indonesia Makmur Tbk. (3,2), Sentral Mitra Informatika Tbk. (6,8), Metrodata Electronics Tbk. (6,6), Telefast Indonesia Tbk. (8,1), Bekasi Fajar Industrial Estate Tbk. (6,5), Bumi Serpong Damai Tbk. (4,5), Fortune Mate Indonesia Tbk. (5,5), Jaya Real Property Tbk. (5,3), Mega Manunggal Property Tbk. (8,4), Bima Sakti Pertiwi Tbk. (4,5), Pakuwon Jati Tbk. (5,1), Kota Satu Properti Tbk. (2,8), Surya Semesta Internusa Tbk. (3,6), Telkom Indonesia (Persero) Tbk. (2,6), Sarana Menara Nusantara Tbk. (10,4), Bukaka Teknik Utama Tbk. (4), Jasa Armada Indonesia Tbk. (7,1), Ginting Jaya Energi Tbk. (6,1), BISI International Tbk. (7,8), Alam Sutera Realty Tbk. (7,3), Bumi Citra Permai Tbk. (2,8) and Megapolitan Developments Tbk. (2,9). Of the 30 companies included in the safe zone category, namely companies that are not bankrupt.

Then from 6 companies namely Maming Six Sembilan Mineral Tbk. (2,2), Jaya Trishindo Tbk. (1,6), Intiland Development Tbk. (1,2), Bali Towerindo Sentra Tbk. (1,4), Inti Bangun Sejahtera Tbk. (2,5) and Transcoal Pacific Tbk. (1,8) obtained a Z-Score value of $1.1 < Z'' < 2.6$ which is included in the gray zone category (cannot be determined whether the company is healthy or bankrupt).

Company AirAsia Indonesia Tbk. (-13.6), Mitra International Resources Tbk. (-11.2), WEHA Transport Indonesia Tbk. (-0.9), Anabatic Technologies Tbk. (-1.1), Star Pacific Tbk. (0.7), Waskita Karya (Persero) Tbk. (-1.1), Adhi Karya (Persero) Tbk. (0.8), Smartfren Telecom Tbk. (-2.8), SMR Utama Tbk. (-4.4), Primarindo Asia Infrastructure Tbk. (-4.5) and Indosat Tbk. (-0.3). Of the 11 companies, the Z-Score value is less than (1,1) which indicates the company is in danger of going bankrupt. So it is hoped that the company must immediately make adjustments to the situation during this pandemic, this can be done by making efficient use of company finances, restructuring, downsizing, and differentiation of company services so that the company's income will recover.

This result is in line with research conducted by Armadani et al., (2021) who found a decrease in sales and a decrease in the company's ability to grow due to financial and liquidity difficulties. As illustrated in the signal theory, that signal or cue is an action taken by the company's management that gives clues to investors about how management views the company's prospects. This theory reveals that companies that are efficient in obtaining capital will provide relevant and better information to investors compared to companies that are less efficient in obtaining capital (Al-Sartawi, 2016).

V. Conclusion

Based on the results of the study, it can be concluded that:

- a) The results showed that 36 (thirty six) manufacturing companies were in the safe zone category (companies that were not bankrupt).
- b) The results showed that there were 10 (ten) manufacturing companies in the gray zone category (cannot be determined whether the company was healthy or went bankrupt).
- c) Sumber Alfaria Trijaya Tbk., Mahkota Group Tbk., Satria Mega Kencana Tbk. and Kimia Farma Tbk. is a company that is indicated to be threatened with bankruptcy, while out of 30 non-manufacturing companies that get a Z value > 2.6 , they are included in the safe zone category, namely companies that are not bankrupt. In addition, 6 (six) non-manufacturing companies that obtained a Z-Score of $1.1 < Z'' < 2.6$ were included in the gray zone category (cannot be determined whether the company was healthy or went bankrupt). A total of 11 (eleven) non-manufacturing companies scored a Z-Score of less than (1, 1) which indicates the company is in danger of going bankrupt.
- d) In general, non-manufacturing sector companies are more affected by the Covid-19 pandemic, this is due to the majority of companies experiencing a decrease in liquidity in terms of cash flow. This weakens the company's ability to meet its obligations.

Suggestion

Some suggestions that can be submitted are as follows:

- a) The company management must pay attention to the size of the financial ratios, this is because the size of the value of the ratio will give an idea of the sustainability of the company's business in the future.
- b) There are several things that can be considered by the company's management as evaluation material to improve its performance, the company's management must increase the value of working capital, because large working capital shows the productivity of company assets that are able to generate large operating profits as well. The increase in working capital is done by increasing the company's current assets, because in addition to increasing working capital, current assets can also increase the company's liquidity level. Companies can also balance current assets and current liabilities because they are an important factor in generating working capital in order to create and increase profits which will have an impact on increasing share prices, thereby increasing the market equity value.
- c) For investors, it is better to look at other factors besides predicting the company's bankruptcy, such as political issues, economic conditions, and market information in predicting the ups and downs of stock prices.
- d) For further researchers, it is hoped that in order to improve the research that will be carried out, it is better to do the following. First, it is hoped that in the future further research can be used based on other factors with various variables. Second, using more bankruptcy prediction models to test and so that it can be used as a comparison in predicting bankruptcy.

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