Altman Z Score Method for Predicting Bankruptcy in Kompas 100 Index Companies

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ABSTRACT

This study aims to predict bankruptcy in companies indexed in Kompas 100. The research does on 30 sample companies based on a purposive sampling technique for 2019 – 2021. The research does use explanatory and descriptive investigations. The results showed that 18 companies met the healthy category in 2019, 15 in 2020, and 18 in 2021. A gray area category, 2019, 10 companies; 2020, 9 companies. And 2021, 8 companies. For the bankruptcy category, in 2019, 2 companies. In 2020, 6 companies, and in 2021, 4 companies.

Keywords: Bankruptcy, Altman Z-score, Kompas 100

INTRODUCTION

Analysis of the company's state is, of course, very important for several parties, especially for investors who plan to invest their assets in the shares of a company. (Affandi & Meutia, 2021; Dahni, 2019) Investors and creditors usually check a company's financial condition by analyzing whether the company they are investing in includes the indexed stock group on the Indonesian Stock Market (IDX). (Anindyajati & Yanuarti, 2018; Rahmah & Kamilah, 2022)

As is well known to the general public, IDX continues to innovate in the Management and Development of stock indexes available to share users on the capital market, and this is so that investors can easily find out all the information about the stability of the company, IDX Indonesia records this in an IDX Stock Index Handbook, which mentions to as the IDX stock index guidebook.

The Index Guidebook contains the various indices provided by the IDX concisely and clearly. For example, one of the most frequently hunted stock price indexes by investors

is the Kompas 100 index, which measures the price of 100 issuer shares with a relatively high market value and healthy company liquidity. IDX built and managed this index in collaboration with the Kompas Gramedia company.

It is difficult for a company listed on the IDX to survive on the Kompas 100 index. There are several criteria for selecting issuers set by the IDX as a condition for entering the list. The IDX is responsible for the companies included in the list. (Wildiastri, 2022). Make all decisions by considering the interests of investors—and other stakeholders.

Alam Sutera Realty Tbk (ASRI), established on November 3, 1993, started its operational activities in 1999. Then on December 7, 2007, Alam Sutra Realty Tbk. (ASRI) made an Initial Public Offering of its shares by the LK statement of 3,142 million shares, at a value of Rp. One hundred per share and an offering price of Rp. 105 per share. On December 18, 2007, IDX listed the shares.

In the period August 2019 - January 2020, Alam Sutera Realty Tbk (ASRI) was still included in the Kompas 100 index on the IDX until finally, in the period January 2020 - July 2020, the issuer had to leave the Kompas 100 Index, this was due to the weakening of the issuer's shares. The company stated in its financial report that the Corona pandemic, which began to hit in early 2020, was one of the reasons for the company's poor performance results. Throughout 2020, ASRI's revenue fell by 59.34%, dropping from its original position of 3.47 trillion rubles in 2019 to only 1.41 trillion rubles. (https://www.cnbcindonesia.com) However, in 2021, ASRI managed to generate profits and reverse losses in 2020. ASRI recorded a net profit of IDR 145.69 billion, so from August 2021 – January 2022, this issuer is back on the Index list Kompas 100 (https://investasi.kontan.co.id/). This phenomenon shows that it is straightforward for an issuer to enter and leave this list.

From the problems described, there is an identification of problems in the preparation of this research, how the Altman method analyzes and assesses whether a company will go bankrupt. The problems are limited to issuers who have published their financial statements for 2019-2021. How are the conditions of the companies included in the Kompas 100 seen from the ratios of their financial reports in the 2019-2021 period in full using the Altman method of bankruptcy prediction? The problem formulation appears in this study: whether this method can predict bankruptcy for issuers listed on the Kompas 100 index of the Indonesian Stock Exchange when viewed based on their financial ratios.

The purpose of this research is to predict which companies have indications of bankruptcy that are included in the Kompas 100 index for the period 2019 – 2021 using the modified Altman Z-Score method as a reference for investors so they do not invest wrongly in shares based on the results of ratio analysis on company financial statements. The benefits of this research include including, for the researcher himself, this is the implementation of the knowledge that the researcher has obtained while conducting lectures so that he can interpret the theory obtained into actual problems, for academics, researchers hope they can become references, literature, and comparisons for future researchers. It is hoped that the company can provide an overview in considering the implementation of policies and management decisions to improve its performance in the future.

Financial statements

It is a form of the flow of company transaction activity that can show the company's condition during a certain period. The existence of this LK is used to describe a company's activities, especially in the financial sector, existing balance sheets, L/R, cash flow statements, and notes. (Anggraini & Mulya, 2017; Eluyela et al., 2019)

Financial Ratio Analysis

It is a performance calculation tool to measure financial position that uses as an indicator that can show conditions or operational performance within a certain period and can help provide an overview of the pattern of changes made to show the risks and opportunities of the company. (Hosaka, 2019; Syukur et al., 2021).

Bankruptcy

When a company experiences a problem that cannot be solved, it will likely enter a period of financial distress. Then if it does not immediately solve the problem, company bankruptcy can occur. (Agustia et al., 2020; Shi & Li, 2019)

To avoid this situation, the company needs strategies, policies, and assistance from related parties. The financial crisis is a significant performance problem and can only be resolved by changing policies or improving the company's performance or operating structure. (Lewaru & Loupatty, 2021). In addition, this information can be used as an early warning of impending bankruptcy so that management will take appropriate swift action to prevent bankruptcy. (Marbun, 2022; Son et al., 2019)

In Law No. 37, article 2, paragraph (1) states, "if a debtor has two or more creditors and does not pay off at least one debt that is due and can be collected, is declared bankrupt by a court decision, either at his request or at the request of one or more creditors."

Predicting Bankruptcy Using the Altman Z-Score Method

Altman provides a calculation formula to estimate when a company is declared bankrupt. By analyzing financial ratios, we can find the specific results that are important in predicting when a company will go bankrupt. (Mudzakar, 2019). The Z-score is a bankruptcy analysis model developed in several countries. (Permata & Purwanto, 2018). Altman then modified the analysis model by changing the X 4 variable (Nominal SP book and joint stock or total book value of debt). As a result, the equation obtain as follows:

$$Z" = 6{,}56\ X1 + 3{,}26\ X2 + 6{,}72\ X3 + 1{,}05\ X4$$

Information:
Z" = Bankruptcy Index
X1 = Working Capital Ratio divided by Total Assets
X2 = Retained Earnings divided by Total Assets
X3 = Profit Before Interest and Tax divided by Total Assets
X4= Equity divided by Total Debt

Classification of assessment is as follows:

The Company is included in the Bankrupt category if the resulting Z is less than 1.1. While the Z produced is more than 1.1 and less than 2.6, stated that the Company Entered the Gray area. Moreover, the Company is declared Healthy if the resulting Z is more than 2.6. The Modified Altman Z-score model could predict bankruptcy accurately with a 94% correct value or 62 correct data from 66 samples.

$X1$ (WCTA): namely, the ratio that gives an overview of a company's ability to obtain net working capital to the total assets of a company.

$X2$ (RETA): Measures the amount of profit while the Company is operating. In this ratio, the age of the Company is very influential. If the Company's age is longer, the Company can collect more accumulated profits. On the other hand, while the age of a company that is still young can produce a small ratio value, it is another matter of being initially established with huge profits.

$X3$ (EBITTA): Measures the ability of capital invested in total assets to generate returns for all investors, including shareholders. This ratio provides the most information in assessing the viability of the Company because it serves as a safety net if the Company goes bankrupt.

$X4$ (BVEL): Shares here are the combined market value of ordinary shares, SP, and liabilities, including current and non-current liabilities.

Research Hypothesis Thinking Framework

The framework of thought is a description of the flow of thought of a researcher. It describes the research subject in terms of variables or the focus of the problem about why the researcher has the assumptions formulated in the research hypothesis. For example, the researcher described a scheme for measuring indications of bankruptcy in Kompas 100 companies for the 2019 – 2021 period.
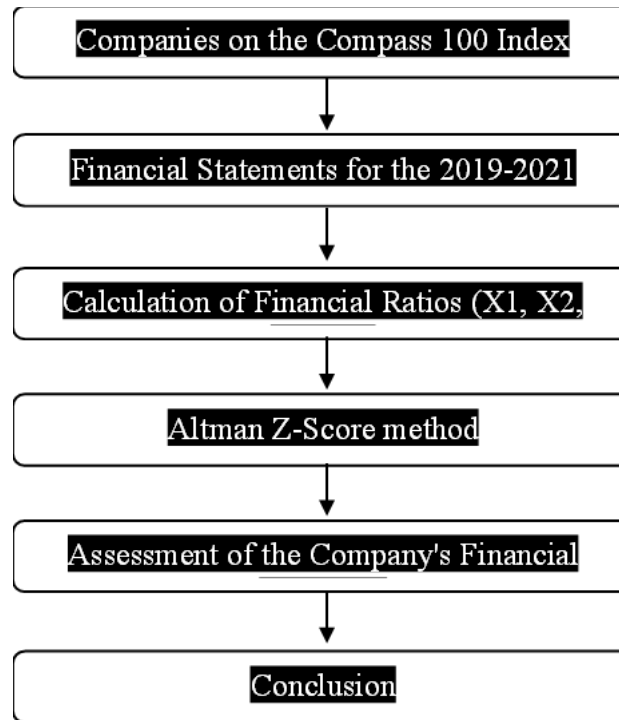
Figure 1. conceptual framework

The hypothesis of the problem above is as follows:

H0: There was no bankruptcy in the Kompas100 company for the period 2019 – 2021

H1: There was bankruptcy at the Kompas100 company for the period 2019 – 2021

RESEARCH METHODS

Type of Research

Descriptive research this research aims to identify and explain the characteristics of the variables studied.

Time and Place of Research

Researchers conducted research for the 2019-2021 period. Examining secondary data, where researchers collect data or information through internet access to the Indonesian Stock Exchange website and the websites of each Company.

Data and Data Sources

Before conducting a survey, this study used secondary data from a second party or other sources available on the Internet, the IDX website, or the Company's official website. The data sources used come from many sources, including literature, research journals, and other data that support research. The sources processed are from the official IDX and Company websites.

Data Collection Methods

In addition, a literature survey was to collect data by researching and understanding relevant materials for predicting bankruptcy using the Altman Z-score method.

Retrieve the data from the data issued by the Company, other research reports, the Company's LK, and the website published and audited for three years from 2019 to 2021. The way to obtain the necessary data is to publish the Indonesian stock market online and obtain reports and reports. Finance and its trends, and use it for research materials. Another website used is www.idx.co.id, the official IDX website.

In addition, researchers conducted a review of relevant literature.

Research Instruments

Data from historical company data, literature reviews, research reports, and audited financial reports published by companies and on the Internet. Elements that form the basis of scientific research involve operationalizing research variables. In more detail, the operationalization of research variables is as follows:

Z'' = Bankruptcy Index

X1 = Working Capital Ratio to Total Assets

X2 = Retained Earnings divided by Total Assets

X3 = Profit Before Interest and Tax divided by Total Assets

X4 = Equity divided by Total Debt

Data analysis technique

The data analysis technique used in this study consisted of several stages: Collected data in the form of financial reports (in rupiah currency), and this data has been processed, including 100 Kompas companies for three years, namely 2019 – 2021. Calculating financial ratios Processing data by calculating the value of the Altman Z-Score model from the analysis of the company's financial ratios. By using the Altman Z-Score method formula.

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

Perform interpretation with interpretation classification. Conclusion regarding the prediction of company bankruptcy from the results of the data analysis.

Population and Sample

The population is the total number of all units/elements that investigators are interested in researching. (Silalahi in Ifanda, 2012: 37). The population in this study are companies that are included in the Kompas 100 stock index constantly from 2019 - 2021, totaling 30 companies.

The sampling method used is purposive sampling., purposive sampling is based on specific considerations made by the researchers based on previously known population traits or characteristics. Therefore, carry out purposive sampling by identifying all the data and characteristics of the population, for example, by conducting a preliminary study and looking at various things related to the population. This purposive sampling technique

is then based on the personal considerations of the researcher because, based on the considerations of the researcher, the researcher determines the population to use as the research sample.

The sample selection is directional sampling which aims to obtain a representative sample based on the specified criteria. Establishing sampling criteria is necessary to avoid mistakes in determining the research sample, which affects the analysis results. Focusing the research sample on the following: Companies included in the Kompas 100 stock index, period 2019 – 2021 (continuously), companies other than the financial sector.

Table 1. Company Sample List 2019-2021
in the Kompas 100 Stock Index

No.	Code	Name of Companies
1.	ADHI	Adhi Karya (Persero) Tbk.
2.	AGII	Aneka Gas Industri Tbk.
3.	AKRA	AKR Corporindo Tbk.
4.	AMRT	Sumber Alfaria Trijaya Tbk.
5.	ANTM	Aneka Tambang Tbk.
6.	ASII	Astra Internasional Tbk.
7.	ASSA	Adi Sarana Armada Tbk.
8.	BBCA	Bank Cenrtral Asia Tbk.
9.	CTRA	Ciputra Developmemt Tbk.
10.	DSNG	Dharma Satya Nusantara Tbk.
11.	ELSA	Elnusa Tbk.
12.	GGRM	Gudang Garam Tbk.
13.	HEAL	Medikaloka Hermina Tbk,
14.	PTPP	PP (Persero) Tbk.
15.	ICBP	Indofood CBP Sukses Makmur Tbk.
16.	INDF	Indofoof Sukses Makmur Tbk.
17.	INDY	Indika Energy Tbk.
18.	INKP	Indah Kiat Pulp & Paper Tbk.

19.	JPFA	Japfa Comfeed Indonesia Tbk.
20.	PWON	Pakuwon Jati Tbk.
21.	WIKA	Wijaya Karya (Persero) Tbk.
22.	BPRT	Erajaya Swasembada Tbk.
23.	DOID	Delta Dunia Makmur Tbk
24.	ERAA	Erjaya Swasembada Tbk.
25.	IPTV	MNC Vision Netrworks Tbk.
26.	MAPI	Mitra Adiperkasa Tbk.
27.	MARI	Mahaka Radio Integra Tbk.
28.	MIKA	Mitra Keluarga Karyasehat Tbk.
29.	PNLF	Panin Financial Tbk.
30.	PTBA	Bukit Asam Tbk.

Source: www.idx.co.id

RESULT AND DISCUSSION

Description of research results

Based on the company's financial report data, it will then calculate the ratios of a financial report that believes in predicting company bankruptcy. Then these ratios are made into the variables used in the modified Altman Z-Score model by multiplying the results of the data obtained from these ratios with each variable's constant or standard value. The model equation and the calculation results based on the modified Z-score are as follows.

$$Z'' = 6{,}56 \, X1 + 3{,}26 \, X2 + 6{,}27 \, X3 + 1{,}05 \, X4$$

Information:

X1 = Working capital divided by total assets

X2 = Retained Earnings divided by Total Assets

X3 = Profit before interest and tax divided by Total Assets

X4 = Total Equity divided by Liabilities

Then, add up the multiplication results of each variable to get the results of the bankruptcy prediction analysis using the modified Altman Z-score method, which is seen in the table below:

Table 2. Calculation Value of the Altman Z Score Method

No.	Code	Year	X1	X2	X3	X4	Z-SCORE	Result
1	ADHI	2019	1,03341	0,30359	0,26537	0,24091	1,84328	Grey Area
		2020	0,51797	0,17055	0,17618	0,17900	1,04370	Bankrupt
		2021	0,07785	0,16704	0,17855	0,17142	0,59486	Bankrupt
2	AGII	2019	- 0,22676	0,15907	0,37478	0,91446	1,22155	Grey Area
		2020	0,01366	0,20096	0,33604	0,91992	1,47058	Grey Area
		2021	0,05177	0,25299	0,46643	0,79698	1,56817	Grey Area
3	AKRA	2019	0,63278	0,97472	0,30280	0,77173	2,68203	Healty
		2020	1,03237	1,20928	0,43468	1,13077	3,80710	Healty
		2021	0,75785	1,04259	0,41342	0,80366	3,01752	Healty
4	AMRT	2019	0,44163	0,51467	0,48604	0,41102	1,85337	Grey Area
		2020	-0,44648	0,50723	0,40328	0,42506	0,88908	Bankrupt
		2021	-0,51637	0,65168	0,67586	0,49352	1,30469	Grey Area
5	ANTM	2019	0,51533	0,85430	0,27512	1,57858	3,22334	Healty
		2020	0,33023	0,90271	0,48564	1,57536	3,29394	Healty
		2021	1,02951	1,01729	0,82099	1,81131	4,67909	Healty
6	ASII	2019	0,54231	1,30126	0,53608	0,93973	3,31938	Healty
		2020	0,90334	1,43689	0,28451	1,14498	3,76973	Healty
		2021	1,00878	1,45378	0,49324	0,92522	3,88101	Healty
7	ASSA	2019	-0,79508	0,32074	0,48413	0,35641	0,36620	Bankrupt
		2020	-1,02664	0,35864	0,40679	0,34670	0,08550	Bankrupt
		2021	-0,13153	0,39134	0,51577	0,35379	1,12937	Grey Area
8	BBCA	2019	0,19021	0,55025	0,35303	0,24535	1,33884	Grey Area
		2020	-0,03559	0,48659	0,26845	0,21757	0,93703	Bankrupt
		2021	-0,11257	0,47661	0,25364	0,20756	0,82524	Bankrupt
9	CTRA	2019	1,78091	0,64964	0,40596	0,87445	3,71096	Healty
		2020	1,51005	0,59994	0,45057	0,73855	3,29912	Healty
		2021	1,76328	0,70611	0,54836	0,75193	3,76967	Healty
10	DSNG	2019	-0,24228	0,82425	0,43611	0,48529	1,50336	Grey Area
		2020	0,14838	0,78487	0,48954	0,80051	2,22331	Grey Area
		2021	0,22269	0,95085	0,69488	1,08355	2,95196	Healty
11	ELSA	2019	1,15104	1,18077	0,52701	1,16276	4,02159	Healty
		2020	1,42588	1,13162	0,38852	1,02695	3,97297	Healty
		2021	1,70967	1,19824	0,29280	1,14661	4,34731	Healty
12	GGRM	2019	2,23727	2,06902	1,28964	1,92944	7,52536	Healty
		2020	2,72899	2,39760	0,86670	3,12414	9,11742	Healty

No.	Code	Year	X1	X2	X3	X4	Z-SCORE	Result
		2021	2,25632	2,11159	0,54865	2,02935	6,94591	Healty
13	HEAL	2019	0,80594	0,91071	0,77749	0,98739	3,48153	Healty
		2020	0,79764	0,78228	1,09477	0,70457	3,37926	Healty
		2021	0,73383	0,83070	1,57389	0,79511	3,93353	Healty
14	PTPP	2019	1,01782	0,23187	0,24784	0,33715	1,83468	Grey Area
		2020	0,47962	0,19048	0,13490	0,28266	1,08765	Bankrupt
		2021	0,42332	0,19888	0,10282	0,25482	0,97984	Bankrupt
15	ICBP	2019	1,70630	1,55762	1,31025	2,20680	6,78096	Healty
		2020	0,73080	0,71049	0,59674	0,41670	2,45474	Grey Area
		2021	0,83907	0,74323	0,66814	0,42259	2,67303	Healty
16	INDF	2019	0,45802	0,90753	0,70226	0,94454	3,01234	Healty
		2020	0,41991	0,62180	0,52943	0,36843	1,93956	Grey Area
		2021	0,50401	0,66989	0,65232	0,38658	2,21280	Grey Area
17	INDY	2019	1,30616	0,46173	0,30191	0,34750	2,41730	Grey Area
		2020	1,28883	0,33646	- 0,08123	0,27409	1,81815	Grey Area
		2021	1,69921	0,36941	1,13856	0,27375	3,48093	Healty
18	INKP	2019	1,83775	0,69014	0,44291	0,93528	3,90609	Healty
		2020	1,86751	0,78478	0,42024	1,05047	4,12300	Healty
		2021	1,78057	0,92716	0,64296	1,18384	4,53453	Healty
19	JPFA	2019	1,33653	0,98748	0,83229	0,82339	3,97969	Healty
		2020	1,45030	0,96750	0,64055	0,77111	3,82945	Healty
		2021	1,62843	1,06868	0,73706	0,78533	4,21950	Healty
20	PWON	2019	1,57607	1,67415	0,88870	1,96511	6,10404	Healty
		2020	1,05454	1,60947	0,38113	1,73443	4,77957	Healty
		2021	1,91669	1,63139	0,52843	1,31434	5,39085	Healty
21	WIKA	2019	1,26593	0,38111	0,27627	0,40396	2,32728	Grey Area
		2020	0,36296	0,01668	0,08747	0,27914	0,74625	Bankrupt
		2021	0,02052	0,01952	0,09678	0,26370	0,40053	Bankrupt
22	BRPT	2019	0,65989	0,08285	0,39795	0,27884	1,41952	Grey Area
		2020	0,81722	0,09463	0,37200	0,21882	1,50267	Grey Area
		2021	1,72603	0,11081	0,45338	0,24494	2,53516	Grey Area
23	DOID	2019	1,18866	0,02433	0,50271	0,32685	2,04255	Grey Area
		2020	0,99144	0,23873	0,13588	0,38963	1,75568	Grey Area
		2021	0,80172	0,14250	0,33611	0,20356	1,48389	Grey Area
24	ERAA	2019	1,56736	0,87622	0,52544	1,06163	4,03066	Healty
		2020	1,40666	0,93345	0,65023	0,97874	3,96908	Healty
		2021	1,35264	1,12810	0,96545	1,23171	4,67790	Healty
25	IPTV	2019	-0,62392	-0,32779	0,28715	1,26986	0,60531	Bankrupt
		2020	0,14978	-0,26560	0,33505	1,87930	2,09853	Grey Area
		2021	0,14571	-0,16186	0,26566	2,00106	2,25057	Grey Area

No.	Code	Year	X1	X2	X3	X4	Z-SCORE	Result
26	MAPI	2019	1,17040	0,85238	0,94753	0,98675	3,95706	Healty
		2020	0,30495	0,53811	-0,05249	0,50364	1,29421	Grey Area
		2021	0,60668	0,65149	0,47344	0,56553	2,29714	Grey Area
27	MARI	2019	1,83021	1,40088	0,89123	1,96450	6,08682	Healty
		2020	2,48767	1,14165	-0,59433	1,62245	4,65744	Healty
		2021	2,54715	0,90607	-0,49809	1,23487	4,19000	Healty
28	MIKA	2019	2,40522	1,62352	1,10556	5,75729	10,89159	Healty
		2020	2,60985	1,74186	1,12277	6,04066	11,51515	Healty
		2021	2,32823	1,97459	1,61565	5,91582	11,83430	Healty
29	PNLF	2019	0,97746	1,86486	0,15269	5,70070	8,69572	Healty
		2020	1,04440	1,83884	0,14494	5,94589	8,97407	Healty
		2021	1,12140	1,92433	0,12590	6,31060	9,48222	Healty
30	PTBA	2019	1,75666	2,13066	1,27752	2,49780	7,66264	Healty
		2020	1,22489	2,10324	0,69099	2,41337	6,43249	Healty
		2021	1,94507	1,99562	1,84385	2,09405	7,87858	Healty

Table 3. Bankruptcy Prediction Percentage

Year	Information	Number of Companies	Precentage (%)
2019	Healty	18	60
	Grey Area	10	33
	Bankrupt	2	7
Score		**30**	**100**
2020	Healty	15	50
	Grey Area	9	30
	Bankrupt	6	20
Score	**Score**	**Score**	**100**
2021	Healty	18	60
	Grey Area	8	27
	Bankrupt	4	13
Score	**Score**	**Score**	**100**

Based on the table above, in 2019–2021, out of a total sample of 30 companies studied, companies listed on the Indonesia Stock Exchange (IDX) Kompas Index 100. In 2019 companies included in the healthy category were 18 companies (60%), a gray area of 10 Companies (33%), and the potential bankruptcy of 2 Companies (7%). Then in 2020, 15 companies (50%) are in the healthy category, nine companies (30%) are in the gray area category, and six companies (20%) have the potential to go bankrupt, and in

2021, the healthy category 18 companies (60%), eight companies (27%) in the gray area category, and four companies (13%) with potential bankruptcy.

The details are as follows: Healthy: There were 18 healthy companies in 2019, including AKRA, ANTM, ASII, CTRA, ELSA, GGRM, HEAL, ICBP, INDF, INKP, JPFA, PWON, ERAA, MAPI, MARI, MIKA, PNLF and PTBA. There are 15 healthy companies in 2020, including AKRA, ANTM, ASII, CTRA, ELSA, GGRM, HEAL, INKP, JPFA, PWON, ERAA, MARI, MIKA, PNLF, and PTBA. There are nine healthy companies in 2021, including AKRA, ANTM, ASII, CTRA, DSNG, ELSA, GGRM, HEAL, ICBP, INDY, INKP, JPFA, PWON, ERAA, MARI, MIKA, PNLF, and PTBA.

The companies mentioned above fall into the category where the company is in excellent/healthy condition because, based on the calculation of the Altman Z-Score method, it is considered capable of carrying out operational activities properly by obtaining calculation results above 2.6.

A gray area / Prone to Bankruptcy: Ten companies are in the gray area / prone to bankruptcy in 2019, including ADHI, AGII, AMRT, BBCA, DSNG, PTPP, INDY, WIKA, BRPT, and DOID. Meanwhile, in 2020, 9 companies were analyzed, including AGII, DSNG, ICBP, INDF, INDY, BRPT, DOID, IPTV, and MAPI. Then in 2021, there will be eight companies, including AGII, AMRT, ASSA, INDF, BRPT, DOID, and MAPI. The companies above are a gray area / a gray area / prone to bankruptcy category. The analysis is based on the Altman Z-Score calculation formula and obtains results above 1.1 but still below 2.6.

Bankrupt: Predicts two companies going bankrupt in 2019: ASSA and IPTV. Then in 2020, it is predicted that six companies will experience bankruptcy, including ADHI, AMRT, ASSA, BBCA, PTPP, and WIKA. Finally, in 2021 there will be four companies: ADHI, BBCA, PTPP, and WIKA. The companies mentioned above went bankrupt. The analysis is based on the Altman Z-Score calculation formula with a result below 1.1, which means the company is experiencing difficult conditions.

Discussion of Research Results

Suppose the net working capital is negative, likely. In that case, the company will have difficulty covering its short-term obligations because it does not have enough working capital to cover them. However, if the calculation is optimistic, the company rarely struggles to meet its obligations. This liquidity ratio is significant for companies because it can indicate a company's bankruptcy. When a company is in financial trouble, this ratio falls because working capital is shrinking faster than total assets.

Retained earnings are company profits that are still in the company and have not reached the shareholders. Withholding in question means showing how much profit the company still pays its shareholders dividends. This ratio affects the bankruptcy prognosis because it is a retained earnings ratio to total assets. If the value decreases, it will suffer a loss—so the smaller the ratio, the higher the risk of bankruptcy for the company.

Earnings before interest and tax/total assets impact the bankruptcy prognosis because the opportunity to profit is relatively small. One indicator that uses this ratio to identify a company's bankruptcy is ongoing losses. Therefore, based on this information, companies can predict bankruptcy by using this.

This ratio shows the company's ability to fulfill its obligations beyond the market value of its equity capital (ordinary shares). The higher this variable, the more influential it is on the security of company funds. This indicator describes the company fulfilling its obligations outside the market value of its equity capital (ordinary shares). Fair Nominal Equity to book value of debt is a ratio to describe a company's ability to finance itself. The lower the results of this calculation, shows the high risk of the company experiencing bankruptcy.

CONCLUSIONS

In 2019, 18 out of 30 companies included in the healthy category were included in the sample (60%), 10 (33%) companies were gray or vulnerable, and two companies (7%) had the potential to go bankrupt. While in 2020, 15 companies from a sample of 30 companies (50%) are in the healthy category, a decrease from the previous year. Nine companies (30%) are gray or prone to bankruptcy, and six companies (20%) have the potential to go bankrupt. Moreover, in 2021, 18 companies (60%) are in the healthy category, eight companies (27%) are gray or prone to bankruptcy, and four companies (13%) have the potential to go bankrupt.

This research can be used as information and reference in making investment decisions for investors to choose a healthy company and can be used as additional literature in taking further actions that companies must choose. In addition, companies should pay more attention to their financial ratios to avoid the risk of bankruptcy.

Suggestions for the following companies, investors, and researchers, namely:

Companies in the healthy category can maintain stability in internal and external conditions, companies that are vulnerable or bankrupt need to improve their performance and immediately take corrective or preventive actions.

This research can be used as comparative literature and reference in analyzing for making investment decisions in healthy companies and providing additional knowledge for further action regarding company health. In addition, companies must pay more attention to financial indicators to avoid bankruptcy risk.

Future researchers can add analytical tools in addition to the Altman model and a research period to make research results more optimal.

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