Analysis Of *Potential Financial Distress* Using Altman Z-Score Method (Study On Companies Listed In The LQ45 Index On The Indonesia Stock Exchange)

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Article Information

ABTRACT

Research aim: *The purpose of this study is to determine the company's financial condition and predict the potential for financial distress in companies listed on the LQ45 Stock Index for the 2020-2022 period on the IDX using the Altman Z-Score method.*

Design/Method/Approach: *The approach used in this study is a quantitative approach. The use of a quantitative approach with this descriptive method emphasizes data processed with the Altman Z-Score method which is measurable, rational and systematic.*

Research Finding: *From the results of data processing, although companies listed on the LQ45 index have good financial conditions and growth prospects, it is still possible to experience company threats. By looking at the company's financial statements, all information about the company's financial position will be known, the company's financial health condition and can be known the performance and changes in the company's financial position used for decision making by company stakeholders .*

Theoretical contribution / Originality: *The Altman Z-Score method is a method that can get an estimated accuracy rating of up to 95% and is the most complex method and makes more effective calculations to know and predict potential financial distress.*

Implications: *Research limitations: More than 45 samples of companies listed in the LQ45 index for the period 2020-2022 are companies with high levels of liquidity and market capitalization. The limitation of the study is that companies listed in the LQ45 Index present complete financial statements and data in the 2020-2022 period in accordance with the variables studied.*

Keywords : *Financial Distress, Altman Z-Score Method, Company LQ45*

1. Introduction

Every company has a goal that is able to achieve success in running its business according to the company's long-term targets with a large assumption that it has profits or profits that continue to increase. Companies certainly often experience an increase or

decrease in the economy caused by economic conditions that are always up and down, where the company or every business must be faced with economic dynamics that often change (1).

In general, investors will invest with the aim of obtaining profits or *return* expected. Investors will have great expectations and demands on companies experiencing increased profits, investing in companies that have a good fundamental background (2). One of them is that companies listed on the LQ45 index must have high interest because it is a percentage of share prices of 45 issuers that have a high level of liquidity and market capitalization on the Indonesia Stock Exchange (3). Although companies listed on the LQ45 index have financial conditions and growth prospects, it is still possible to experience corporate threats. Evidenced by the results *historical data* in the form of graphs *Chart* in the LQ45 index for the 2019-2023 period, there is an up or down movement in the company's position and is not based on good fundamentals, of course, it will always be a company that has a high level of liquidity and market capitalization.

Source : yahoo.finance (2023)

The threat or potential decline can definitely be experienced by every company when facing difficult global competition. The potential for financial decline or bankruptcy begins with the emergence of financial management difficulties. According to (4) Financial difficulties can be interpreted as the inability of the company to pay its financial obligations leading to the bankruptcy of the company. Therefore, companies must as early as possible conduct various analyses to make predictions of conditions *financial distress*. By looking at the company's financial statements, all information about the financial position will be known, the company's financial health condition and can be known the performance and changes in the company's financial position used for decision making by the company. *stake holder* company.

In research (5) shows that there is an influence between bankruptcy predictions and stock prices because the increasing risk of bankruptcy tends to be responded negatively by investors and as a result is stock prices fall. In overcoming this, the company can minimize the occurrence of bankruptcy in the company, namely by controlling or analyzing financial ratios in order to avoid *financial distress* until bankruptcy. Effective financial ratio analysis can be done using several methods, namely the Altman Z-Score, Springate, and Zmijewski methods.

Of the several calculation methods, Tambunan, Dwi Atmanto and Endang N.P (2015) argue that the Altman Z-Score method is easy to use and can get an estimated accuracy rating of up to 95%. So the Altman Z-Score method is the most complex method and makes calculations more effective and simpler. This is the basis of this study by using the Altman Z-Score method as a method to determine and predict potential *financial distress*. Research with an interesting object, namely shares of companies listed on the LQ45 Index, is quite attractive to investors. Based on the background description of the problem above, the title of this study is **"Analysis of *Financial Distress Potential* Using Altman Z-Score Method (Study on Stocks Listed in the LQ45 Index on the Indonesia Stock Exchange)".**

1.1 Problem Statement

Based on the above background, the researcher formulates the problem as follows:
1. How is the financial condition of companies listed on the Indonesia Stock Exchange LQ45 Stock Index reviewed using the Altman Z-Score method?
2. How can the Altman Z-Score method predict the occurrence of *financial distress* in companies listed on the LQ45 Stock Index for the 2020-2022 period on the Indonesia Stock Exchange?

1.2 Research Objectives

Based on the description of the problem formulation above, this research aims:
1. To determine the financial condition of companies listed on the LQ45 Stock Index, the Indonesia Stock Exchange is reviewed using the Altman Z-Score method.
2. To determine and predict the potential for *financial distress* in companies listed on the LQ45 Stock Index for the 2020-2022 period on the Indonesia Stock Exchange using the Altman Z-Score method.

2. Method

The approach used in this study is a quantitative approach. According to Sugiyono (2019:15) "Quantitative approach is a research approach that uses research data in the form of numbers and analyzed using statistics". Researchers use a quantitative approach that

emphasizes data processed with the Altman Z-Score method which is measurable, rational and systematic. In this study, the variables to be studied are Potential *Financial Distress* and Altman Z-Score Method Modified. The type of research in this study is descriptive research. Descriptive research is a type of research that aims to find out an overview or description related to the results of potential analysis *financial distress* in companies listed on the LQ45 index for the 2020-2022 period on the Indonesia Stock Exchange. Researchers obtained data from the IDX website, namely: www.idx.co.id and www.yahoofinance.com. The population used in this study is all companies listed in the LQ45 Index on the Indonesia Stock Exchange (IDX) for the 2020-2022 period, totaling 58 companies. According to (7) The samples used in this study are samples taken based on the method *purposive sampling* and samples have been obtained according to the criteria of 32 companies.

3. Results and Discussion

In the results of this study, calculations were carried out to predict *financial distress* using the Altman Z-Score model will then find results in analyzing the relationship between financial health conditions and company status *financial distress* and analyze financial and macroeconomic factors that affect conditions *financial distress* on LQ45 companies listed on the IDX (8). By looking at these results, the next value prediction will be known *cut off* Altman in order to be able to conclude whether each company is in a state of *Distress, Grey Area,* or Healthy.

The following are the results of calculations that have been carried out to determine the potential for *financial distress* in LQ45 companies on the Indonesia Stock Exchange using the Altman Z-Score method, namely samples have been obtained according to the criteria of 32 companies. Among them are ADRO (Adaro Energy Indonesia Tbk.), ANTM (Aneka Tambang Tbk.), ASII (Astra International Tbk.), BBCA (Bank Central Asia Tbk.), BBNI (Bank Negara Indonesia (Persero) Tbk.), BBRI (Bank Rakyat Indonesia (Persero) Tbk.), BBTN (Bank Tabungan Negara (Persero) Tbk.), BMRI (Bank Mandiri (Persero) Tbk.), CPIN (Charoen Pokphand Indonesia Tbk.), ERAA (Erajaya Swasembada Tbk.), EXCL (XL Axiata Tbk.), HMSP (H.M. Sampoerna Tbk.), ICBP (Indofood CBP Sukses Makmur Tbk.), INCO (Vale Indonesia Tbk.), INDF (Indofood Sukses Makmur Tbk.), INKP (Indah Kiat Pulp &; Paper Tbk.), INTP (Indocement Tunggal Prakarsa Tbk.), ITMG (Indo Tambangraya Megah Tbk.), JPFA (Japfa Comfeed Indonesia Tbk.), KLBF (Kalbe Farma Tbk.), MDKA (Merdeka Copper Gold Tbk.), MIKA (Mitra Keluarga Karyasehat Tbk.), MNCN (Media Nusantara Citra Tbk.), PGAS (Perusahaan Gas Negara Tbk.), PTBA (Bukit Asam Tbk.), SMGR (Semen Indonesia (Persero) Tbk.), TBIG (Tower Bersama Infrastructure Tbk.), TLKM (Telkom Indonesia (Persero) Tbk.), TOWR (Sarana Menara

Nusantara Tbk.), UNTR (United Tractors Tbk.), UNVR (Unilever Indonesia Tbk.), and WIKA (Wijaya Karya (Persero) Tbk.)

To assess the condition of each company, it is necessary to calculate 4 (four) financial ratios in the Altman Z-Score model. Financial ratios in the Altman Z-Score model consist of:

3.1 *Analysis of Working Capital to Total Assets*

This ratio is used to measure the company's ability to generate net working capital from the total assets owned by the company so that from this ratio can be known the level of liquidity of a company. Net working capital is known from the calculation of the difference between current assets and current liabilities. Table 1.1 is the result of the calculation of X1 in companies listed on LQ45 on the Indonesia Stock Exchange for the period 2020-2022.

Table 1.1
Working Capital to Total Assets (X1)

No	Company Code	Year			Company Average
		2020	**2021**	**2022**	
1	ADRO	0,091974917	0,194620595	0,266343464	0,184312992
2	ANTM	0,050339663	0,156936925	0,170142132	0,12580624
3	ASII	0,137704278	0,153777045	0,146674183	0,146051835
4	BBCA	0,010594217	0,007215761	0,004852557	0,007554178
5	BBNI	0,009264113	0,006489331	0,008307016	0,008020153
6	BBRI	0,015888187	0,013389225	0,018870961	0,016049458
7	BBTN	0,02493525	0,02790497	0,03008732	0,027642513
8	BMRI	0,007480668	0,007187348	0,007914569	0,007527528
9	CPIN	0,262373236	0,222280304	0,198810265	0,227821268
10	ERAA	0,214429169	0,206194901	0,128726777	0,183116949
11	EXCL	-0,166594388	-0,181720049	-0,182659802	-0,176991413
12	HMSP	0,490151574	0,364639102	0,306959798	0,387250158
13	ICBP	0,111403085	0,127906626	0,182440763	0,140583491
14	INCO	0,23124885	0,270195096	0,306518978	0,269320975
15	INDF	0,064009967	0,076830327	0,133848497	0,09156293
16	INKP	0,284680808	0,271428627	0,335733603	0,297281013
17	INTP	0,29560969	0,255976348	0,213565001	0,255050346
18	ITMG	0,174635712	0,374064585	0,501077011	0,349925769
19	JPFA	0,221081692	0,24823618	0,232145062	0,233820978

20	KLBF	0,438706512	0,474450716	0,450756214	0,454637814
21	MDKA	0,007628217	0,089218082	0,075100831	0,05731571
22	MICA	0,397843682	0,354913685	0,266224312	0,33966056
23	MNCN	0,325348018	0,310527482	0,341398874	0,325758125
24	PGAS	0,109189267	0,174447296	0,169537076	0,15105788
25	PTBA	0,186720902	0,296504846	0,302702999	0,261976249
26	SMGR	0,05202713	0,013856343	0,070129594	0,045337689
27	TBIG	-0,288885695	-0,129236107	-0,119665782	-0,179262528
28	TLKM	-0,0914786	-0,028334969	-0,055710195	-0,058507921
29	TOWR	-0,123296686	-0,219997244	-0,164494135	-0,169262688
30	UNTR	0,232983303	0,267541642	0,262621821	0,254382255
31	UNVR	-0,220562803	-0,251878016	-0,266100266	-0,246180361
32	WIKA	0,055329039	0,003128367	0,046616248	0,035024551

Source : Processed data, 2023

From the calculation above, it can be seen that there are 9 companies that experience an increase in liquidity ratio every year for three consecutive years, namely ADRO, ANTM, BBTN, ICBP, INCO, INDF, ITMG, PTBA and TBIG. Meanwhile, the decline in liquidity ratios for three consecutive years occurred in 8 companies, including companies: BBCA, CPIN, ERAA, EXCL, HMSP, INTP, MIKA, UNVR.

And there are 9 companies that experienced fluctuations in the form of a decrease in liquidity ratios in 2021, but then increased in 2022. The companies are BBNI, BBRI, BMRI, INKP, MNCN, SMGR, TLKM, TOWR, WIKA. In addition, there are also 6 companies that experienced fluctuations in the form of an increase in liquidity ratios in 2021, and then decreased in 2022. The companies are ASII, JPFA, KLBF, MDKA, PGAS and UNTR.

3.2 Analysis of Retained Earnings to Total Assets

This ratio shows how the company's ability to generate retained earnings from total assets in the company. Retained earnings are the company's retained net income and are not distributed to shareholders which are useful for financing various company interests both in the long and short term. Table 1.2 is the result of the calculation of X2 in companies listed on LQ45 on the Indonesia Stock Exchange for the period 2020-2022.

Table 1.2
Retained Earnings to Total Assets (X2)

No	Company Code	Year			Company Average
		2020	**2021**	**2022**	
1	ADRO	0,357039792	0,357839713	0,409269092	0,374716199
2	ANTM	0,261757847	0,297449453	0,376424621	0,311877307
3	ASII	0,439508224	0,444786571	0,43817884	0,440824545
4	BBCA	0,147176291	0,14415136	0,150701523	0,147343058
5	BBNI	0,072029163	0,078222267	0,088636687	0,079629373
6	BBRI	0,101827844	0,108448012	0,106208783	0,10549488
7	BBTN	0,004870031	0,00681146	0,007961772	0,006547754
8	BMRI	0,074046129	0,079512506	0,081109831	0,078222822
9	CPIN	0,743314731	0,70426511	0,655965179	0,701181673
10	ERAA	0,285550516	0,351152832	0,272181604	0,30296165
11	EXCL	0,088096655	0,095298903	0,086494546	0,089963368
12	HMSP	0,170685104	0,138901423	0,116276123	0,141954217
13	ICBP	0,217458888	0,227519456	0,253956853	0,232978399
14	INCO	0,682140515	0,692727112	0,719800791	0,698222806
15	INDF	0,189999154	0,204790576	0,228162767	0,207650832
16	INKP	0,239905902	0,282510947	0,349606217	0,290674356
17	INTP	0,630352012	0,66073893	0,675720875	0,655603939
18	ITMG	0,407529934	0,504896356	0,56884671	0,493757667
19	JPFA	0,287434725	0,318222927	0,302239979	0,302632544
20	KLBF	0,736767434	0,719552357	0,741063431	0,732461074
21	MDKA	0,201292166	0,174536596	0,072609925	0,149479563
22	MICA	0,528318264	0,598908962	0,6673438	0,598190342
23	MNCN	0,657002886	0,686165251	0,748256934	0,69714169
24	PGAS	-0,035143889	0,040450796	0,04534344	0,016883449
25	PTBA	0,07441465	0,232059072	0,276932024	0,194468582
26	SMGR	0,407486444	0,427306369	0,410043648	0,414945487
27	TBIG	0,058659517	0,080351398	0,104769943	0,081260286
28	TLKM	0,320527409	0,321988282	0,350882293	0,331132661
29	TOWR	0,302623947	0,188261543	0,223005679	0,237963723
30	UNTR	0,494042708	0,501828718	0,506391795	0,500754407
31	UNVR	0,231307189	0,216781711	0,207974249	0,218687716
32	WIKA	0,000188168	0,001149537	-15458,50115	-5152,83327

Source: Processed data, 2023

From the calculation above, it can be seen that there are 18 companies that have increased liquidity ratios every year for three consecutive years, namely ADRO, ANTM, BBNI, BBTN, BMRI, ICBP, INCO, INDF, INKP, INTP, ITMG, MIKA, MNCN, PGAS, PTBA, TBIG, TLKM, and UNTR. Meanwhile, the decline in liquidity ratios for three consecutive years occurred in 4 companies, including companies: CPIN, HMSP, MDKA, and UNVR

And there are 3 companies that experienced fluctuations in the form of a decrease in liquidity ratios in 2021, but then increased in 2022. These companies are BBCA, KLBF, and TOWR. In addition, there are also 7 companies that experienced fluctuations in the form of an increase in liquidity ratios in 2021, and then decreased in 2022. The companies are ASII, BBRI, ERAA, EXCL, JPFA, SMGR, and WIKA.

3.3 Analysis of Earnings Before Interest and Taxes (EBIT) to Total Assets

This ratio includes the profitability ratio which measures the company's ability to show the company's ability to manage total assets in order to earn profits or earnings before interest and taxes. The results of the calculations obtained will describe the ability of the assets owned by the company from the investment invested by investors in generating profits so that the profits obtained by the company can bear the benefits to be paid from these investments. Table 1.3 is the result of the calculation of X3 in companies listed on LQ45 on the Indonesia Stock Exchange for the period 2020-2022.

Table 1.3

Income Before Deducting Interest Cost to Total Assets (X3)

No	Company Code	Year			Company Average
		2020	**2021**	**2022**	
1	ADRO	0,034813555	0,195896077	0,415144829	0,215284821
2	ANTM	0,051724021	0,092462473	0,15502955	0,099738681
3	ASII	0,064283877	0,088072505	0,121922008	0,09142613
4	BBCA	0,031209962	0,031620745	0,038385804	0,033738837
5	BBNI	0,005735373	0,013008392	0,022029419	0,013591062
6	BBRI	0,017149841	0,022997096	0,034624437	0,024923791
7	BBTN	0,006286833	0,008049409	0,009637464	0,007991235
8	BMRI	0,015819044	0,022228891	0,028294335	0,02211409
9	CPIN	0,153010478	0,130721078	0,088767827	0,124166461
10	ERAA	0,081820225	0,131466343	0,087778192	0,10035492
11	EXCL	0,002158262	0,023470281	0,015502571	0,013710371
12	HMSP	0,224694191	0,17238825	0,151004074	0,182695505
13	ICBP	0,09613677	0,084149367	0,065264733	0,08185029

14	INCO	0,045209703	0,089227799	0,07539212	0,069943207
15	INDF	0,076171383	0,080599865	0,068273234	0,075014828
16	INKP	0,045130002	0,073802869	0,108653596	0,075862156
17	INTP	0,078564775	0,085475676	0,089056794	0,084365748
18	ITMG	0,0626197	0,372749047	0,585109256	0,340159334
19	JPFA	0,056241388	0,097722302	0,059788191	0,071250627
20	KLBF	0,160768671	0,161426093	0,163681424	0,161958729
21	MDKA	0,060460464	0,044359984	0,023200364	0,042673604
22	MICA	0,183568558	0,250623084	0,200402771	0,211531471
23	MNCN	0,123639589	0,150331761	0,124070097	0,132680482
24	PGAS	-0,023275267	0,062300902	0,075429442	0,038151692
25	PTBA	0,134335865	0,286755624	0,357200116	0,259430535
26	SMGR	0,044722702	0,045358754	0,039764158	0,043281871
27	TBIG	0,041330782	0,046237017	0,055753379	0,047773726
28	TLKM	0,157020041	0,157577638	0,132049624	0,148882434
29	TOWR	0,099239873	0,06153805	0,067950351	0,076242758
30	UNTR	0,070251687	0,12848326	0,209612857	0,136115935
31	UNVR	0,44835812	0,39313944	0,381797111	0,40776489
32	WIKA	0,004555563	0,002834362	0,002345568	0,003245164

Source: Processed data, 2023

From the calculation above, it can be seen that there are 18 companies that have increased liquidity ratios every year for three consecutive years, namely ADRO, ANTM, BBNI, BBTN, BMRI, ICBP, INCO, INDF, INKP, INTP, ITMG, MIKA, MNCN, PGAS, PTBA, TBIG, TLKM, and UNTR. Meanwhile, the decline in liquidity ratios for three consecutive years occurred in 4 companies, including companies: CPIN, HMSP, MDKA, and UNVR

And there is 1 company that experienced fluctuations in the form of a decrease in liquidity ratios in 2021, but then increased in 2022. The company is TOWR. In addition, there are also 9 companies that experienced fluctuations in the form of an increase in liquidity ratios in 2021, and then decreased in 2022. The companies are ERAA, EXCL, INCO, INDF, JPFA, MIKA, MNCN, SMGR, and TLKM.

3.4 *Analysis of Market Value of Equity to Book Value of Total Liabilities*

This ratio can indicate the level of solvency that describes the company's ability to meet its obligations and the market value of equity. The market value of equity can be calculated by multiplying the number of shares outstanding by the company's share price for each share. The book value itself is obtained by adding up the amount of current liabilities plus the amount of the company's long-term liabilities. Table 1.4 is the result

of the calculation of X4 in companies listed on LQ45 on the Indonesia Stock Exchange for the period 2020-2022.

Table 1.4
Market Value of Equity to Book Value of Debt (X3)

No	Company Code	Year			Company Average
		2020	**2021**	**2022**	
1	ADRO	1,626318805	1,425009613	1,534050659	1,528459692
2	ANTM	1,500343024	1,725060137	2,389073643	1,871492268
3	ASII	1,369214495	1,421362462	1,437223208	1,409266722
4	BBCA	0,2085904	0,198915625	0,203458461	0,203654829
5	BBNI	0,151255434	0,150921273	0,157589348	0,153255352
6	BBRI	0,170341199	0,210477172	0,19420486	0,19167441
7	BBTN	0,062194551	0,065325193	0,073736691	0,067085478
8	BMRI	0,172465026	0,167429958	0,163361185	0,167752056
9	CPIN	2,989866201	2,442683759	1,947231469	2,459927143
10	ERAA	1,029804857	1,316199841	0,730857784	1,025620827
11	EXCL	0,393712764	0,381447292	0,419068888	0,398076315
12	HMSP	1,556220978	1,221447723	1,05835948	1,27867606
13	ICBP	0,944580366	0,863932337	0,993783395	0,934098699
14	INCO	6,865762735	6,767224618	7,762942743	7,131976699
15	INDF	0,942136709	0,934300013	1,078478925	0,984971882
16	INKP	1,000706677	1,127727215	1,388968006	1,172467299
17	INTP	4,290717635	3,738967027	3,187175073	3,738953245
18	ITMG	2,709523947	2,585777309	2,826914742	2,707405333
19	JPFA	0,784878599	0,846048666	0,717309209	0,782745491
20	KLBF	4,261929176	4,832322266	4,295760769	4,463337404
21	MDKA	1,540181209	1,561373871	1,09342141	1,398325497
22	MICA	6,451325448	6,331450346	7,799330981	6,860702258
23	MNCN	3,241614829	4,550024492	7,922870688	5,238170003
24	PGAS	0,645497034	0,77730848	0,917050056	0,779951856
25	PTBA	2,379916485	2,043282806	1,758545452	2,060581581
26	SMGR	0,841815494	1,08337181	1,322466342	1,082551215
27	TBIG	0,341833378	0,305139425	0,338936178	0,328636327
28	TLKM	0,959025497	1,103304625	1,185277535	1,082535886
29	TOWR	0,423180368	0,22434009	0,281921158	0,309813872
30	UNTR	1,722798192	1,763014899	1,756399247	1,747404113
31	UNVR	0,316553467	0,293021763	0,279121265	0,296232165

| 32 | WIKA | 0,323748401 | 0,335608031 | 0,303825991 | 0,321060808 |

Source: Processed data, 2023

From the calculation above, it can be seen that there are 8 companies that experience an increase in liquidity ratio every year for three consecutive years, namely ANTM, ASII, BBTN, INKP, MNCN, PGAS, SMGR, and TLKM. Meanwhile, the decline in liquidity ratios for three consecutive years occurred in 7 companies, including companies: BMRI, CPIN, EXCL, HMSP, INTP, PTBA, and UNVR.

And there are 10 companies that experienced fluctuations in the form of a decrease in liquidity ratios in 2021, but then increased in 2022. These companies are ADRO, BBCA, BBNI, ICBP, INCO, INDF, ITMG, MIKA, TBIG, and TOWR. In addition, there are also 7 companies that experienced fluctuations in the form of an increase in liquidity ratios in 2021, and then decreased in 2022. These companies are BBRI, ERAA, JPFA, KLBF, MDKA, UNTR, and WIKA.

3.5 Prediction of potential *Financial Distress* using Altman Z-Score method

According to Altman, there are *Z value cut-off* numbers that can explain whether the company will fail or not in the future and he divides it into 3 categories, namely:

a. If the value is Z>2.6, then it includes companies that do not experience *financial distress* or are in good health/safe zone.

b. If the value is 1.1<Z<2.6 then it includes *gray areas* (it cannot be determined whether the company is healthy or experiencing *financial distress*.

c. If the value is Z<1.1, then it includes companies that experience *financial distress.*

The following table 1.5 is the result of calculating the Z-Score of companies listed on LQ45 on the Indonesia Stock Exchange for the period 2020 to 2022:

Table 1.5
Company Z-Score LQ45 (2020-2022)

No	Company Code	2020	PREDICTIONS	2021	PREDICTIONS	2022	PREDICTIONS
1	ADRO	3,709235147	HEALTHY	5,257909261	HEALTHY	7,486108262	HEALTHY
2	ANTM	3,107021609	HEALTHY	4,432777033	HEALTHY	5,89515285	HEALTHY
3	ASII	4,206442588	HEALTHY	4,543940178	HEALTHY	4,720265142	HEALTHY
4	BBCA	0,97835574	*DISTRESS*	0,938937847	*DISTRESS*	0,995087586	*DISTRESS*
5	BBNI	0,493004926	*DISTRESS*	0,543588418	*DISTRESS*	0,657176428	*DISTRESS*
6	BBRI	0,730461962	*DISTRESS*	0,817145318	*DISTRESS*	0,906971703	*DISTRESS*
7	BBTN	0,287066208	*DISTRESS*	0,328025933	*DISTRESS*	0,365611856	*DISTRESS*
8	BMRI	0,578014004	*DISTRESS*	0,631761664	*DISTRESS*	0,678287736	*DISTRESS*

9	CPIN	8,313494474	HEALTHY	7,198633856	HEALTHY	6,084642348	HEALTHY
10	ERAA	3,969495248	HEALTHY	4,764175105	HEALTHY	3,08990759	HEALTHY
11	EXCL	-0,377740588	*DISTRESS*	-0,322934449	DISTRESS	-0,371921442	*DISTRESS*
12	HMSP	6,918051701	HEALTHY	5,287544184	HEALTHY	4,520251307	HEALTHY
13	ICBP	3,078530063	HEALTHY	3,054235085	HEALTHY	3,507414963	HEALTHY
14	INCO	11,2540827	HEALTHY	11,73685916	HEALTHY	13,01579392	HEALTHY
15	INDF	2,541179575	*GREY AREA*	2,69507633	HEALTHY	3,213738499	HEALTHY
16	INKP	4,004066267	HEALTHY	4,382364365	HEALTHY	5,53178381	HEALTHY
17	INTP	9,028141572	HEALTHY	8,334380427	HEALTHY	7,549722507	HEALTHY
18	ITMG	5,740588577	HEALTHY	9,323493063	HEALTHY	12,04755124	HEALTHY
19	JPFA	3,589960169	HEALTHY	4,211858275	HEALTHY	3,663723136	HEALTHY
20	KLBF	10,83677534	HEALTHY	11,61847336	HEALTHY	10,98495234	HEALTHY
21	MDKA	2,730342759	HEALTHY	3,092245182	HEALTHY	2,033600735	*GREY AREA*
22	MICA	12,34148021	HEALTHY	12,6153932	HEALTHY	13,45998045	HEALTHY
23	MNCN	8,511902409	HEALTHY	10,06321747	HEALTHY	13,8329002	HEALTHY
24	PGAS	1,122841849	*GREY AREA*	2,511702839	*GREY AREA*	2,73052554	HEALTHY
25	PTBA	4,870473561	HEALTHY	6,776896663	HEALTHY	7,138959578	HEALTHY
26	SMGR	2,854593834	HEALTHY	2,926721188	HEALTHY	3,452994875	HEALTHY
27	TBIG	-1,066778926	*DISTRESS*	0,045728217	*DISTRESS*	0,287645716	*DISTRESS*
28	TLKM	2,508541384	*GREY AREA*	3,082771764	HEALTHY	2,911652774	HEALTHY
29	TOWR	1,289951543	*GREY AREA*	-0,17974112	*DISTRESS*	0,40124006	*DISTRESS*
30	UNTR	5,420681649	HEALTHY	6,106892778	HEALTHY	6,628550135	HEALTHY
31	UNVR	2,657000734	HEALTHY	2,007889882	*GREY AREA*	1,794950193	*GREY AREA*
32	WIKA	0,734166685	*DISTRESS*	0,39573326	*DISTRESS*	-50394,07316	*DISTRESS*

Source: Processed data, 2023

With the following explanation:

1. Analysis of Z-Score calculation results in 2020

Based on the Z-Score value calculation table, in 2020 there are 20 companies in the healthy category prediction because the Z-Score calculation value with a *cut off value of* >2.6, namely ADRO, ANTM, ASII, CPIN, ERAA, HMSP, ICBP, INCO, INKP, INTP, ITMG, JPFA, KLBF, MDKA, MIKA, MNCN, PTBA, SMGR, UNTR, and UNVR. And there are 4 companies that experience *Gray Area*, namely INDF, PGAS, TLKM, and TOWR companies because the Z-Score calculation results of each company in 2020 are between 1.1 and 2.6. And companies that experience *Distress with a* cut off *value of* <1.1 are 8 companies including BBCA, BBNI, BBRI, BBTN, BMRI, EXCL, TBIG and WIKA.

2. Analysis of Z-Score calculation results in 2021

Based on the Z-Score value calculation table, in 2021 there are 21 companies in the healthy category prediction because the Z-Score calculation value with a *cut off value of* >2.6, namely ADRO, ANTM, ASII, CPIN, ERAA, HMSP, ICBP, INCO, INDF, INKP, INTP, ITMG, JPFA, KLBF, MDKA, MIKA, MNCN, PTBA, SMGR, TLKM, and UNTR. And there are 2 companies that experience *Gray Area*, namely PGAS and UNVR companies because the Z-Score calculation results of each company in 2020 are between 1.1 and 2.6. And companies that experience *distress* *with a* cut off *value of* <1.1 are 9 companies between BBCA, BBNI, BBRI, BBTN, BMRI, EXCL, TBIG, TOWR and WIKA.

3. Analysis of Z-Score calculation results in 2022

Based on the Z-Score value calculation table, in 2021 there are 21 companies in the healthy category prediction because the Z-Score calculation value with a *cut off value of* >2.6, namely ADRO, ANTM, ASII, CPIN, ERAA, HMSP, ICBP, INCO, INDF, INKP, INTP, ITMG, JPFA, KLBF, MIKA, MNCN, PGAS, PTBA, SMGR, TLKM, and UNTR. And there are 2 companies that experience *Gray Area*, namely MDKA and UNVR companies because the Z-Score calculation results of each company in 2020 are between 1.1 and 2.6. And companies that experience *distress* *with a* cut off *value of* <1.1 are 9 companies between BBCA, BBNI, BBRI, BBTN, BMRI, EXCL, TBIG, TOWR and WIKA.

4. Conclusion

The purpose of this study is to predict *financial distress* in 32 samples of companies listed on the LQ45 index on the Indonesia Stock Exchange for the period 2020 to 2022 using the Altman Z-Score model. Based on the results of the analysis using the Altman Z-Score model can be concluded as follows:

1. Of the 32 samples of companies listed on the LQ45 index on the Indonesia Stock Exchange, there are 18 companies with *a cut-off* value of >2.6 and are included in the prediction of the SEHAT category for three consecutive periods of 2020-2022 using the Altman Z-Score method. So that 18 companies that are categorized as HEALTHY are highly recommended for investors in investing.

2. Of the 32 samples of companies listed on the LQ45 index on the Indonesia Stock Exchange, there are 8 companies with a *cut-off value of* <1.1 and are included in the prediction of *the FINANCIAL DISTRESS* category for three consecutive periods of 2020-2022 using the Altman Z-Score method. So that 18 companies categorized as *DISTRESS* are less recommended for investors in investing.

3. Meanwhile, there are 6 companies with a *cut off value of* <1.1 and are included in the prediction of the HEALTHY, *GREY AREA* to *DISTRESS* categories. So that this company is in a less stable condition, but it can also be maintained.

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