



## ALTMAN Z-SCORE IS A METHOD OF ANALYZING BANKRUPTCY

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**Abstract:** Altman Z-Score is one of three bankruptcy prediction methods. This study aims to determine whether this manufacturing company is experiencing bankruptcy. The bankruptcy prediction method used in this research is the Altman Z-Score method which is equipped with a cut-off point to determine the bankruptcy classification. Altman used five financial ratios that cater for companies to go public Working Capital to Total Assets ( $X_1$ ), Retained Earnings to Total Assets ( $X_2$ ), Earnings Before Interest and Taxes to Total Assets ( $X_3$ ), and Total Equity to Total Assets ( $X_4$ ). This research was conducted on manufacturing companies listed on the Indonesian Stock Exchange. The results of calculations based on the Altman Z-Score Modification method from the 2020 - 2021 quarter period show that PT. Krakatau Steel Tbk is in an unhealthy condition or bankrupt because the average Z-Score value is below 1 or  $Z < 1$  which means PT. Krakatau Steel is experiencing unhealthy finances. And the company's financial condition was not good or went bankrupt, resulting from the level of solvency that was not maximized, while other problems were caused by companies that could not manage capital properly.

**Keywords:** Altman Z-Score; Bankruptcy

### INTRODUCTION

Currently, the development of the economy is getting more advanced which has resulted in more and more competition in the business world, both on a small and large scale. Every company must compete with other companies to keep moving forward, this makes the company must develop a good strategy for the future. On the other hand, if the company does not develop a good strategy, the company will not be able to compete with other companies.

Companies move through different stages of the company life cycle as they grow and mature. Financial distress, default, and bankruptcy are fundamental stages in a company's life cycle. The distance falling to the default metric for the enterprise indicates that it is approaching the default; the increasing distance to the default indicates that the enterprise is less likely to default. Companies that are moving toward default and then drifting away again can be considered as companies recovering.

Company leaders are responsible for various duties and responsibilities. Among them, and perhaps the most important is the obligation to maintain the solvency of the company. The importance of the role of the board of directors became clear after the financial and accounting crises that led so many companies to petition bankruptcy courts for protection or to force sell-offs of critical assets to pay off creditors.

Altman tries to combine several financial ratios into a model prediction with statistical techniques, namely analysis discriminant that can be used to predict company bankruptcy in his research, Altman used five financial ratios intended for go public companies, namely Working Capital for Total Assets, Retained Earnings to Total Assets, EBIT to Total Assets, and Market Value of Equity to Total Debt. From the calculation results will obtain the value of Z (Z-Score) can be described as the company's financial position in good health, vulnerable, or bankrupt condition.

Financial difficulties and early signs of bankruptcy can be known through analysis of the data contained in the report finance. Published financial reports by the company are one of the sources of information about the company's financial position,



performance, and changes in the financial position of the company, which is very useful for supporting the right decision-making.

Financial data in financial statements are useful to see the condition of financial health companies. One way to see health company finances is by using financial ratios. Several studies have been conducted to test the benefits of financial ratios in analyzing the level of financial health companies. As for research on the benefits of financial ratios, the results show that financial ratios are useful in assessing the condition of corporate health and are even beneficial in predicting corporate bankruptcy.

Bankruptcy is a general confiscation of all assets of a bankrupt debtor whose management and enlargement are carried out by the curator under the supervision of the supervisory judge (Pratiwi et al., 2020). Bankruptcy is often associated with debt problems between parties called creditors. The problem in question is the inability of the debtor to fulfill his obligations to pay his debts to creditors. Problems occur as a result of the level of solvency that has not been maximized, while other problems are caused by companies that cannot manage capital properly. This study aims to determine whether this manufacturing company is experiencing bankruptcy.

Bambang Kesowo in Hariyanto (2015) suggests that various parties understand that bankruptcy is the same as liquidation and dissolution. Even some of the general public is bankrupt as a verdict that smells of criminal acts which are a legal defect of the law. According to Faillissements Verordening in Setiawan (2018) says that the objectives of bankruptcy are: "Protecting concurrent creditors to obtain their rights related to the application of the principle that guarantees the rights of the debtor (the creditor) from the wealth of the person who owes it (the debtor). If the problem of financial distress is not addressed immediately will result in bankruptcy, the financial difficulties faced must be handled immediately by the management to take immediate action so that the company will recover as soon as possible (Utami & Sasongko, 2021).

Many studies have been carried out to know the use of financial ratio analysis in predicting business failure or bankruptcy. One of the studies on this prediction is the Multiple Discriminant Analysis which has been done by Altman. Research conducted by Edward I. Altman is looking for common ground financial ratios commonly used to predict bankruptcy for all countries in his studies. Bankruptcy Analysis Z is a tool used to predict the level of the bankruptcy of a company with calculate the value of several ratios ago and then putting in an equation discriminant (Araniri et al., 2021).

Bankruptcy according to Zaeny Asyhadie in Murniati et al. (2021) says that: "Bankruptcy etymologically comes from the word bankrupt. The term bankruptcy in Dutch is *faillissement*, some translate it as bankruptcy and *faillissement* as bankruptcy. In English-speaking countries, bankruptcy and bankruptcy use the terms *bankrupt* and *bankruptcy*", while according to Subekti and Tjitrosudibio in Tambunan et al. (2018) "Bankruptcy is the condition of a debtor when he has stopped paying his debts". A situation that requires the intervention of the panel of judges to ensure the common interests of its creditors. Debtors who have two or more Creditors and do not pay in full at least one debt that has matured and is collectible are declared bankrupt with the Court's decision, either at his request or at the application of one or more creditors (Christiawan, 2020).

Altman has combined several ratios into a predictive model with the technique statistics, namely discriminant analysis used to predict bankruptcy companies with the term Z-Score. Z-Score is a score that is determined from the counting standard that will indicate the level of the possible bankruptcy of the company. Formula Z-Score to predict the bankruptcy of Altman is a multivariate formula used to measure the health finances of a company (Sanjaya, 2019). In many financial distress models, the Z-Score model developed by Edward Altman is the model that is considered the most accurate in predicting failure effort (Maulana, 2018).



## METHODS

This research was conducted at the manufacturing company PT. Krakatau Steel Tbk, the type of research used in this research is a type of descriptive search. According to Sugiyono in Inayah & Albar (2021), descriptive is research conducted to know the value of the independent variable, either one variable or more (independent) without making the comparison, or linking with another variable. The method used is the Altman Z-Score. This is done to find out whether a company is bankrupt or not.

In this study, the focus is: (1) Working Capital to Total Assets /Capital work to total assets ( $X_1$ ) is used to measure the level of liquidity by comparing net current assets with total assets expressed in percent (%); (2) Retained Earnings to Total Assets ( $X_2$ ) Profit retained against total assets used to measure cumulative profitability with compare retained earnings to total assets expressed in percent (%); (3) Earnings Before Interest and Tax to Total assets ( $X_3$ ) Income before tax and interest on total assets is used to measure the actual productivity of company assets by comparing profit before interest and tax in total assets expressed in percent (%); (4) Total equity to Total Assets ( $X_4$ ) Market value of equity to value the book of debt is used to measure how much the company's assets can be decreased in value before the amount owed is over greater than its assets and the company becomes bankrupt by comparing the value of equity market with a book value of debt that expressed in percent (%).

The stages of analysis that will be carried out are:

Carry out calculations against the net. Ratio working capital to total assets ( $X_1$ ) at quarterly financial statements 2020 - 2021 using the formula:

$$\frac{\text{Net Working Capital}}{\text{Total Asset}}$$

Carry out calculating against the net. Ratio retained earnings to total assets ( $X_2$ ) at quarterly financial statement 2020 – 2021 using the formula:

$$\frac{\text{Net Profit}}{\text{Total Asset}}$$

Carry out calculating against the net. Ratio earnings before interest and tax to total assets ( $X_3$ ) at quarterly financial statement 2020 – 2021 using the formula:

$$\frac{\text{Profit before tax}}{\text{Total Asset}}$$

Total equity to total assets ( $X_4$ ) at quarterly financial statement 2020 – 2021 using the formula:

$$\frac{\text{Total Equit}}{\text{Total Amount of debt}}$$

The first Altman model is intended to predict a publicly traded manufacturing firm. According to Hanafi in Paleni & Kusuma (2021), the equation of the first Altman model is as follows:

$$Z = 6.56 X_1 + 3.26 X_2 + 6.72 X_3 + 1.05 X_4$$

Description:

- Z = Bankruptcy Index
- $X_1$  = Working Capital/Total Assets
- $X_2$  = Retained Earnings/Total Assets
- $X_3$  = Profit Before Interest and Tax/Total Assets
- $X_4$  = Total Equity to Total Assets



In this model, the company has a Z qualification:  
Overall Index  
Z<1: Bankrupt,  
1,1<Z<2,6: Gray Area,  
z>2.6: Not Bankrupt.

## RESULTS AND DISCUSSION

Financial Statement Analysis Based on Altman Z-Score Bankruptcy Prediction Method. Many studies have been conducted to determine the usefulness of financial ratio analysis in predicting the failure or bankruptcy of a company. One of the studies on this prediction is the Multiple Discriminant Analysis conducted by Altman, namely the Z-Score analysis. Z-Score is a score that is determined from a standard calculation time financial ratios which will show the level of probability of the company's bankruptcy.

The following is the calculation and analysis of the ratio of the four variables (Net Working Capital to Total Assets ( $X_1$ ), Retained Earnings to Total Assets ( $X_2$ ), Earning Before and Tax to Total Assets ( $X_3$ ), Total Equity to Total Assets ( $X_4$ ) based on the report financial statements financial PT. Krakatau Steel Tbk Quarter period 2020 - 2021.

**Table 1.  $X_1$  Ratio Calculation (Net Working Capital to Total Assets) PT. Krakatau Steel Quarter Period 2020 – 2021**

Month	Net Working Capital (Rp)	Total Assets (Rp)	$X_1 = \text{NWC} / \text{Total assets} (\%)$
Mar 20	- 212.849	2.929.603	- 0,072
Jun 20	- 186.441	3.324.157	- 0,057
Sep 20	- 527.921	3.220.364	- 0,163
Des 20	7.846	3.486.349	0,002
Mar 21	41.190	3.454.929	0,011
Jun 21	- 11.336	3.590.753	- 0,003
Sep 21	-514.646	3.742.961	- 0,013

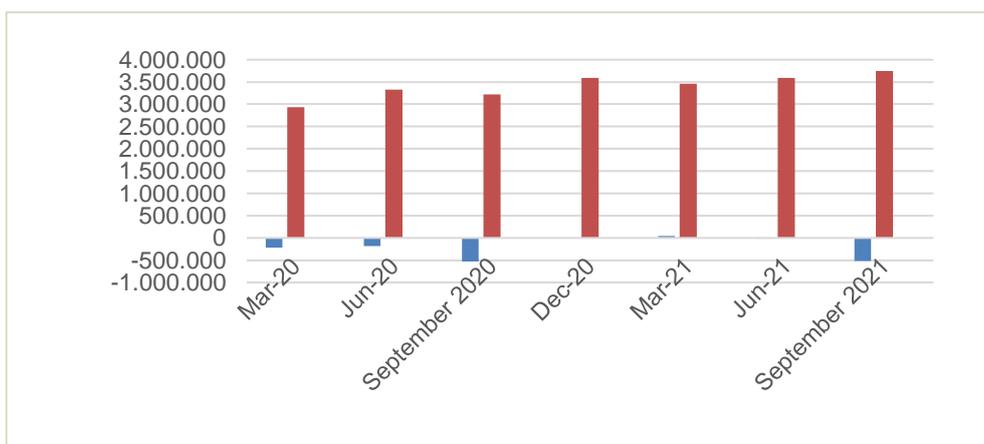
Source: Data that has been processed by the author (2021)

So based on the above value in March 2020, the ratio of networking capital to total assets shows a ratio of  $X_1 - 0.072$  which means every Rp. 1.00 total assets can be guaranteed by a networking capital of -0.072. The value of the ratio is the division between net working capital of – Rp. 212,849 with total assets of Rp. 2,929,603. Then in June 2020, the ratio of networking capital to total assets showed a ratio of  $X_1 - 0.057$ , which means every Rp. 1.00 total assets can be guaranteed by a net working capital of – 0.057. The value of the ratio is the division between net working capital of – Rp. 186,441 with total assets of Rp. 3,324,156.

Meanwhile, in September 2020, the ratio of networking capital to total assets showed a ratio of  $X_1 - 0.163$ , which means that every Rp. 1.00 total asset can be guaranteed by a net working capital of – 0.163. The value of the ratio is the division between net working capital of – Rp. 527,921 with total assets of Rp. 3,220,364. In December 2020, the ratio of networking capital to total assets showed a ratio of  $X_1 0.002$ , which means that every Rp. 1.00 total asset can be guaranteed by a net working capital of 0.002. The value of this ratio is the division between the net working capital of Rp. 7,846 with total assets of Rp. 3,486,349.



Then in the following year, March 2021, the ratio of networking capital to total assets shows a ratio of  $X_1$  0.011, which means every Rp. 1.00 total assets can be guaranteed by a net working capital of 0.011. The value of this ratio is the division between the net working capital of Rp. 441.190 with total assets of Rp. 3,590,753. Meanwhile, in June 2021, the ratio of networking capital to total assets shows a ratio of  $X_1 - 0.003$  which means every Rp. 1.00 total assets can be guaranteed by a networking capital of -0.003. The value of the ratio is the division between net working capital of - Rp. 11,336 with total assets of Rp. 3,590.753. And in September 2021, the ratio of networking capital to total assets shows a ratio of  $X_1 - 0.013$ , which means every Rp. 1.00 total assets can be guaranteed by a networking capital of -0.013. The value of the ratio is the division between net working capital of - Rp. 514,646 with total assets of Rp. 3,742,961



**Figure 1. Score Net Working Capital to Total Asset ( $X_1$ )**

Source: Data that has been processed by the author (2021)

**Table 2.  $X_2$  Ratio Calculation (Retained Earnings to Total Assets) PT. Krakatau Steel Quarter Period 2020 – 2021**

Month	Net Profit (Rp)	Total Assets (Rp)	$X_2 = \text{Net Profit} / \text{Total assets}$ (Rp)
Mar 20	53.641	2.929.603	0,019
Jun 20	70.267	3.324.157	0,021
Sep 20	72.672	3.220.364	0,022
Des 20	166.657	3.486.349	0,048
Mar 21	39.548	3.454.929	0,011
Jun 21	70.270	3.590.753	0,020
Sep 21	88.135	3.742.961	0,024

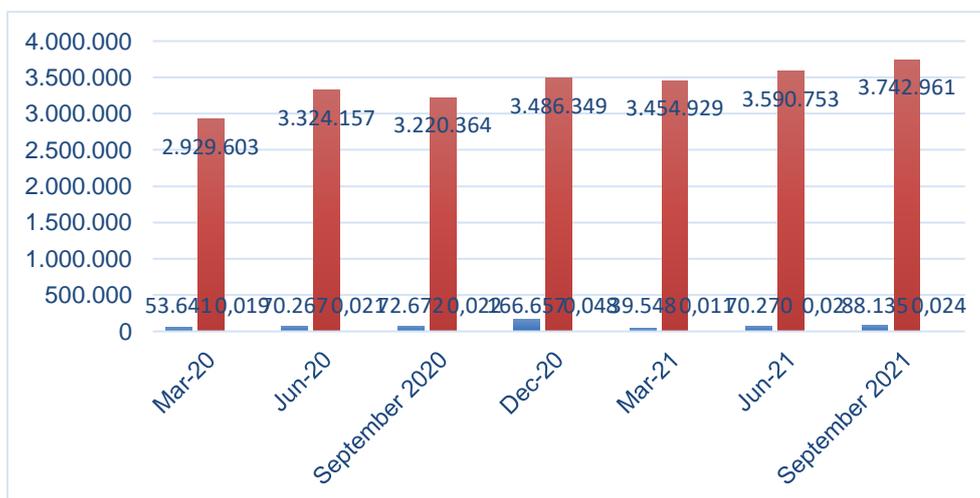
Source: Data that has been processed by the author (2021)

Based on the above assessment in the March 2020 period, the  $X_2$  Ratio shows 0.019, which means every Rp. 1.00 Total assets owned by the company can generate a profit of 0.019. The value of this ratio is the result of the division between net income of Rp. 53,641 with total assets of Rp. 2,929,603. Meanwhile, in the June 2020 period, the  $X_2$  ratio of net profit to total assets increased to 0.021, which means every Rp. 1.00 Total assets owned by the company can generate a profit of 0.021. The value of this ratio is the result of the division between net income of Rp. 70,267 with total assets of Rp. 3,324,157.



Then in the September 2020 period, the  $X_2$  Ratio showed 0.022, which means every Rp. 1.00 Total assets owned by the company can generate a profit of 0.022. The value of this ratio is the result of the division between net income of Rp. 72,672 with total assets of Rp. 3,220,364. In the December 2020 period, the  $X_2$  Ratio showed 0.048, which means that every Rp. 1.00 Total assets owned by the company can generate a profit of 0.048. The value of this ratio is the result of the division between net income of Rp. 166,657 with total assets of Rp. 3,486,349.

While in the following year, namely the period March 2021, the  $X_2$  ratio shows 0.011, which means every Rp. 1.00 Total assets owned by the company can generate a profit of 0.011. The value of this ratio is the result of the division between net income of Rp. 39,548 with total assets of Rp. 3,454,929. Then in June 2021, the  $X_2$  Ratio shows 0.020, which means every Rp. 1.00 Total assets owned by the company can generate a profit of 0.020. The value of this ratio is the result of the division between net income of Rp. 70,270 with total assets of Rp. 3,590,753. Meanwhile, in the September 2021 period, the  $X_2$  ratio shows 0.024, which means that every Rp. 1.00 Total assets owned by the company can generate a profit of 0.024. The value of this ratio is the result of the division between net income of Rp. 88,135 with total assets of Rp. 3,742,961



**Figure 2. Score Retained Earnings to Total Asset ( $X_2$ )**  
 Source: Data that has been processed by the author (2021)

**Table 3.  $X_3$  Ratio Calculation (Earning Before and Tax to Total Assets) PT. Krakatau Steel Tbk Quarterly Period 2020 - 2021**

Month	Profit Before Tax (Rp)	Total Assets (Rp)	$X_3 = \frac{\text{Profit Before Tax}}{\text{Total Assets}}$
Mar 20	91.765	2.929.603	0,031
Jun 20	24.970	3.324.157	0,007
Sep 20	13.099	3.220.364	0,004
Des 20	8.167	3.486.349	0,002
Mar 21	27.858	3.454.929	0,008
Jun 21	44.809	3.590.753	0,006
Sep 21	76.367	3.742.961	0,020

Source: Data that has been processed by the author (2021)

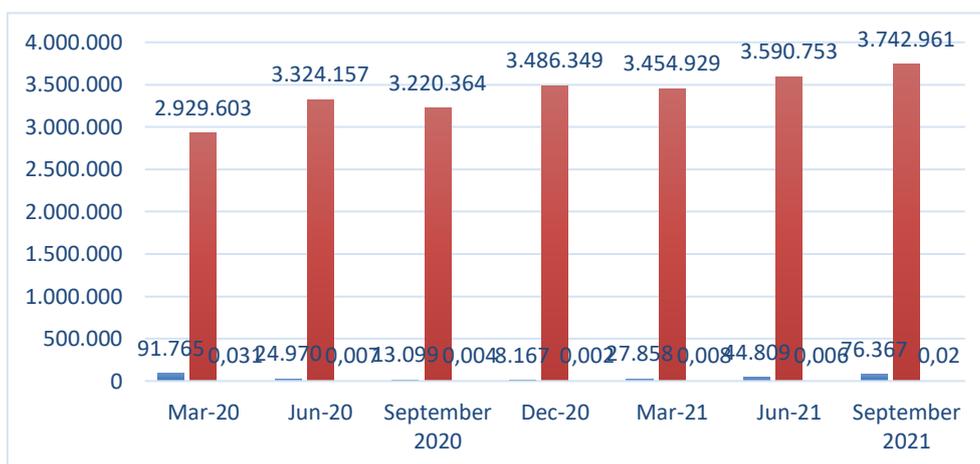


Based on the results of the above calculations, in March 2020, the ratio of profit before tax to total assets shows a ratio of  $X_3$  0.031, which means every Rp. 1.00 total asset can generate profit before tax of 0.031. The value of this ratio is the result of the division between profit before tax (ETB), which is Rp. 91,765 with total assets of Rp. 2,929,603.

Meanwhile, in June 2020, the ratio of profit before tax to total assets experienced a very significant decrease, namely  $X_3$  0.007, which means that every Rp. 1.00 total asset can generate a profit before tax of 0.007. The value of this ratio is the result of the division between profit before tax (ETB) of Rp. 24,970 with total assets of Rp. 3,324,157. Then in September 2020, the ratio of profit before tax to total assets shows  $X_3$  0.004 which means that every Rp. 1.00 of total assets can generate a profit before tax of 0.004. The value of this ratio is the result of the division between profit before tax (ETB) of Rp. 13,099 with total assets of Rp. 3,220,364.

In December 2021, the ratio of profit before tax to total assets shows  $X_3$  0.002, which means that every Rp. 1.00 of total assets can generate a profit before tax of 0.002. The value of this ratio is the result of the division between profit before tax (ETB) of Rp. 8,167 with total assets of Rp. 3,486,349. Meanwhile, in the following year, March 2021, the ratio of profit before tax to total assets shows  $X_3$  0.008, which means every Rp. 1.00 total asset can generate a profit before tax of 0.008. The value of this ratio is the result of the division between profit before tax (ETB) of Rp. 27,858 with total assets of Rp. 3,454,929.

Then in June 2021, the ratio of profit before tax to total assets shows  $X_3$  0.006, which means that every IDR 1.00 total asset can generate a profit before tax of 0.006. The value of this ratio is the result of the division between profit before tax (ETB) of Rp. 22,809 with total assets of Rp. 3,590.753. And in September 2021, the ratio of profit before tax to total assets shows  $X_3$  0.020, which means that every Rp. 1.00 of total assets can generate a profit before tax of 0.020. The value of this ratio is the result of the division between profit before tax (ETB) of Rp. 76,367 with total assets of Rp. 3,742,961.



**Figure 3. Score Earning Before and Tax to Total Asset ( $X_3$ )**

Source: Data that has been processed by the author (2021)



**Table 4. X<sub>4</sub> Ratio Calculation (Total Equity to Total Debt Ratio) PT. Krakatau Steel Tbk Quarterly Period 2020 – 2021**

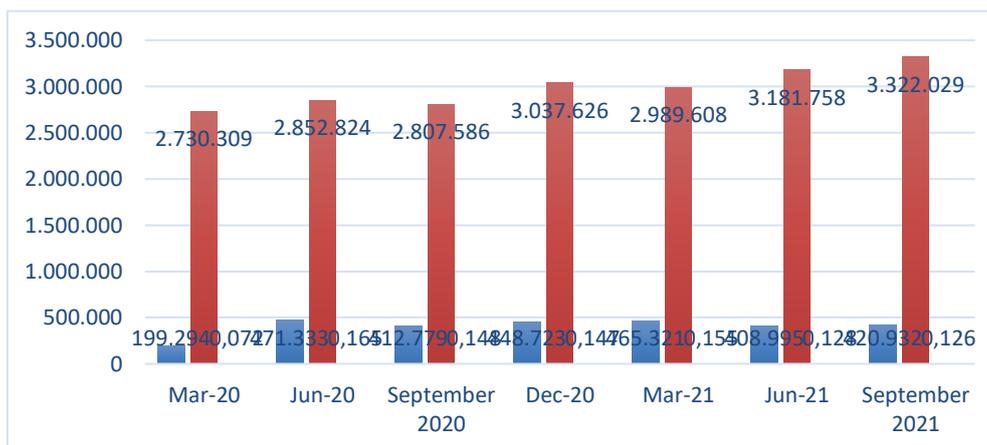
Month	Total Equity (Rp)	The total amount of debt (Rp)	$X_4 = \frac{\text{Total Equity}}{\text{Total Amount of Debt}}$
Mar 20	199.294	2.730.309	0,072
Jun 20	471.333	2.852.824	0,165
Sep 20	412.779	2.807.586	0,147
Des 20	448.723	3.037.626	0,147
Mar 21	465.321	2.989.608	0,155
Jun 21	408.995	3.181.758	0,128
Sep 21	420.932	3.322.029	0,126

Source: Data that has been processed by the author (2021)

Based on the above calculation results in March 2020, the ratio of total equity to total debt or liabilities shows a ratio of X<sub>4</sub> 0.072, which means that for every IDR 1.00 total debt can be guaranteed by total equity of 0.072. The value of the ratio is the result of the division between the total equity or capital of Rp. 199,294 with a total debt or liability of Rp. 2,730,309. Meanwhile, in June 2020, the ratio of total equity to total debt or liabilities showed a ratio of X<sub>4</sub> 0.165, which means that for every IDR 1.00 total debt can be guaranteed by total equity of 0.165. The value of the ratio is the result of the division between the total equity or capital of Rp. 471,333 with a total debt or liability of Rp. 2,852,824.

Then in September 2020, the ratio of total equity to total debt or liabilities shows a ratio of X<sub>4</sub> 0.147, which means that for every IDR 1.00 total debt can be guaranteed by total equity of 0.147. The value of the ratio is the result of the division between the total equity or capital of Rp. 412,779 with a total debt or liability of Rp. 2,807,586. Then in December 2020, the ratio of total equity to total debt or liabilities shows a ratio of X<sub>4</sub> 0.147, which means that every IDR 1.00 of total debt can be guaranteed by total equity of 0.147. The value of the ratio is the result of the division between the total equity or capital of Rp. 448,723 with a total debt or liability of Rp. 3,037,626.

In the following year, namely March 2021, the ratio of total equity to total debt or liabilities shows a ratio of X<sub>4</sub> 0.155, which means that for every IDR 1.00 total debt can be guaranteed by total equity of 0.155. The value of the ratio is the result of the division between the total equity or capital of Rp. 465,321 with a total debt or liability of Rp. 2,989,608. Then in June 2021, the ratio of total equity to total debt or liabilities shows a ratio of X<sub>4</sub> 0.128, which means that every IDR 1.00 of total debt can be guaranteed by total equity of 0.128. The value of the ratio is the result of the division between the total equity or capital of Rp. 408,995 with a total debt or liability of Rp. 3,181,758. Meanwhile, in September 2021, the ratio of total equity to total debt or liabilities shows a ratio of X<sub>4</sub> 0.126, which means that for every IDR 1.00 total debt can be guaranteed by total equity of 0.126. The value of the ratio is the result of the division between the total equity or capital of Rp. 420.932 with a total debt or liability of Rp. 3,322,029.



**Figure 4. Score Total Equity to Total Debt Ratio (X<sub>4</sub>)**  
 Source: Data that has been processed by the author (2021)

### Altman Z-Score results at PT. Krakatau Steel Tbk quarterly period 2020 – 2021

Based on the data from the calculations used in the Altman Z-Score model, the next step is to enter these results into the equation model of the Altman Z-Score by multiplying the results of the data above by the Constant or Standard value of each variable. The equation model and the results of calculations based on the Z-Score are:

$$Z = 6.65 (X_1) + 3.26 (X_2) + 6.72 (X_3) + 1.05 (X_4)$$

Description:

Z: Overall Index

Z < 1: Bankrupt

1,1 < Z < 2,6: Gray Area

z > 2.6: Not Bankrupt

Description:

X<sub>1</sub>: Net Working Capital to Total Asset

X<sub>2</sub>: Retained Earnings to Total Asset

X<sub>3</sub>: Earnings Before and Tax to Total Assets

X<sub>4</sub>: Total Equity to Total Debt Ratio

The Z-Score calculation for each quarter at PT. Krakatau Steel Tbk in 2020 are as follows:

1. Z-Score for Mar 2020

$$Z = 6,56 (X_1) + 3,26 (X_2) + 6,72 (X_3) + 1,05 (X_4)$$

$$Z = 6,56 (-0,072) + 3,26 (0,019) + 6,72 (0,031) + 1,05 (0,072)$$

$$= - 0,472 + 0,061 + 0,209 + 0,076$$

$$= - 0,126$$

2. Z-Score for Jun 2020

$$Z = 6,56 (X_1) + 3,26 (X_2) + 6,72 (X_3) + 1,05 (X_4)$$

$$Z = 6,56 (-0,057) + 3,26 (0,021) + 6,72 (0,007) + 1,05 (0,165)$$

$$= -0,373 + 0,068 + 0,047 + 0,173$$

$$= -0,085$$

3. Z-Score for Sep 2020

$$Z = 6,56 (X_1) + 3,26 (X_2) + 6,72 (X_3) + 1,05 (X_4)$$

$$Z = 6,56 (-0,163) + 3,26 (0,022) + 6,72 (0,004) + 1,05 (0,148)$$

$$= -1,069 + 0,071 + 0,026 + 0,155$$

$$= -0,817$$



4. Z-Score for Des 2020

$$Z = 6,56 (X_1) + 3,26 (X_2) + 6,72 (X_3) + 1,05 (X_4)$$

$$Z = 6,56 (0,002) + 3,26 (0,048) + 6,72 (0,002) + 1,05 (0,147)$$

$$= 0,013 + 0,156 + 0,013 + 0,154$$

$$= 0,336$$

5. Z-Score for Mar 2021

$$Z = 6,56 (X_1) + 3,26 (X_2) + 6,72 (X_3) + 1,05 (X_4)$$

$$Z = 6,56 (0,011) + 3,26 (0,011) + 6,72 (0,008) + 1,05 (0,155)$$

$$= 0,072 + 0,036 + 0,054 + 0,163$$

$$= 0,325$$

6. Z-Score for Jun 2021

$$Z = 6,56 (X_1) + 3,26 (X_2) + 6,72 (X_3) + 1,05 (X_4)$$

$$Z = 6,56 (-0,003) + 3,26 (0,020) + 6,72 (0,006) + 1,05 (0,128)$$

$$= -0,020 + 0,065 + 0,040 + 0,134$$

$$= 0,219$$

7. Z-Score for Sep 2021

$$Z = 6,56 (X_1) + 3,26 (X_2) + 6,72 (X_3) + 1,05 (X_4)$$

$$Z = 6,56 (-0,013) + 3,26 (0,024) + 6,72 (0,020) + 1,05 (0,126)$$

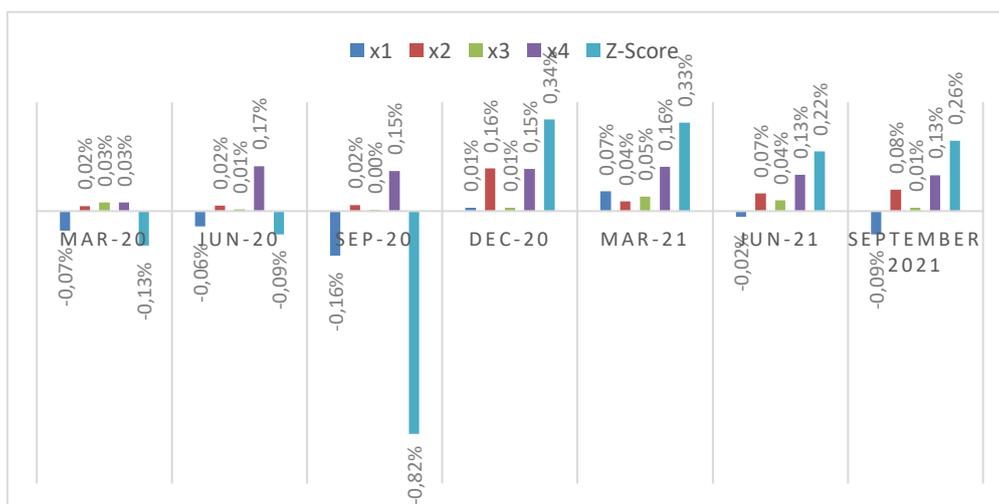
$$= -0,085 + 0,078 + 0,134 + 0,132$$

$$= 0,259$$

**Table 5. Altman Z-Score results at PT. Krakatau Steel Tbk quarterly period 2020 – 2021**

Month	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	Z-Score	Analysis Result
Mar	-0,072%	0,019%	0,031%	0,031%	-0,126%	Not Healthy
Jun	-0,057%	0,021%	0,007%	0,165%	-0,085%	Not Healthy
Sep	-0,163%	0,022%	0,004%	0,148%	-0,817%	Not Healthy
Des	0,013%	0,156%	0,013%	0,154%	0,336%	Not Healthy
Mar	0,072%	0,036%	0,054%	0,163%	0,325%	Not Healthy
Jun	-0,020%	0,065%	0,040%	0,134%	0,219%	Not Healthy
Sep	-0,085%	0,078%	0,013%	0,132%	0,259%	Not Healthy

Source: Data that has been processed by the author (2021)



**Figure 5. The Highest Z-Score Value at PT. Krakatau Steel Tbk period 2020 – 2021**

Source: Data that has been processed by the author (2021)



The results of calculations based on the Altman Z-Score Modification method from the 2020 - 2021 quarter period show that PT. Krakatau Steel Tbk is in an unhealthy condition or bankrupt because the average Z-Score value is below 1 or  $Z < 1$  which means PT. Krakatau Steel is experiencing unhealthy finances. It can also prove that the Altman Z-Score method is effectively used in assessing the level of bankruptcy at PT. Krakatau Steel Tbk.

### CONCLUSION

The results of the study based on descriptive analysis and calculating bankruptcy using the Altman z-score method showed that the company's financial condition was not good or went bankrupt, resulting from the level of solvency that was not maximized, while other problems were caused by companies that could not manage capital properly.

### REFERENCES

- Araniri, R. H., Buulolo, A., Simanjuntak, T. L., Yasir, J. A., & Hanggraeni, D. (2021). Analisis Prediksi Risiko Kebangkrutan Berdasarkan Nilai Aset dan Liabilitas Menggunakan Metode Altman Z-Score: Studi Kasus Jiwasraya (Periode 2014, 2015, 2016, 2018, dan 2019). *ISOQUANT: Jurnal Ekonomi, Manajemen Dan Akuntansi*, 5(1), 25–37.
- Christiawan, R. (2020). *Hukum Kepailitan & Penundaan Kewajiban Pembayaran Utang*.
- Hariyanto, Y. S. (2015). *INKONSISTENSI SIKAP MAHKAMAH AGUNG RI TERHADAP PERNYATAAN PAILIT PERUSAHAAN PERSEROAN*. Universitas Islam Indonesia.
- Inayah, S. N., & Albar, M. K. (2021). Pelatihan pidato bahasa Inggris menggunakan metode CLT pada siswa SMP/MTS Desa Ciakar. *Connection: Jurnal Pengabdian Kepada Masyarakat*, 1(2), 58–68.
- Maulana, M. I. (2018). *PENGARUH UKURAN PERUSAHAAN DAN FINANCIAL DISTRESS TERHADAP OPINI AUDIT GOING CONCERN (Studi Empiris pada Perusahaan Property, Real Estate dan Kontruksi Bangunan yang Terdaftar di BEI Tahun 2014-2016)*. Perpustakaan Fakultas Ekonomi dan Bisnis Unpas Bandung.
- Murniati, Rilda., Dwiatin, Lindati., Wahyuningdiah, Kingkin., & Rodliyah, Nunung. (2021). *IMPLEMENTASI HUKUM KEPAILITAN DAN DAMPAKNYA BAGI KEGIATAN USAHA PERUSAHAAN (Penyuluhan Hukum Menyikapi Permasalahan Utang Perusahaan di Masa Pandemi)*. Lppm Unila, Bandar Lampung, Universitas Lampung.
- Paleni, H., & Kusuma, R. E. (2021). Prediksi Kebangkrutan Model Altman Z-Score (Studi Pada Perusahaan Telekomunikasi di Bursa Efek Indonesia). *EKOMBIS REVIEW: Jurnal Ilmiah Ekonomi Dan Bisnis*, 9(2), 231–240.
- Pratiwi, A. R., Prabowo, T. Y. J., & Pradana, I. R. (2020). SITA UMUM DAN PENJUALAN SAHAM DEBITOR PAILIT OLEH KURATOR. *Ensiklopedia Sosial Review*, 2(3), 227–238.
- Sanjaya, S. (2019). Analisis Prediksi Kebangkrutan Perusahaan dengan menggunakan Metode Altman Z-Score pada Perusahaan Sektor Perkebunan yang terdaftar di Bursa Efek Indonesia (BEI) Periode 2011-2016. *Jurnal Ilman: Jurnal Ilmu Manajemen*, 6(2).
- Setiawan, D. (2018). *PEMBAYARAN PIUTANG KREDITOR DALAM HUKUM KEPAILITAN (Studi Beberapa Putusan Mahkamah Agung dan Mahkamah Konstitusi)*.



- Tambunan, D., Habeahan, B., & Silaen, A. (2018). PENUNDAAN KEWAJIBAN PEMABAYARAN UTANG TERHADAP PERJANJIAN SEWA MENYEWA MENURUT UNDANG–UNDANG NO. 37 TAHUN 2004 TENTANG KEPAILITAN DAN PENUNDAAN KEWAJIBAN PEMABAYARAN UTANG. *Jurnal Hukum PATIK*, 7(2), 112–122.
- Utami, Y. W., & Sasongko, M. Z. (2021). ANALISIS METODE ALTMAN Z-SCORE MODIFIKASI DALAM MEMPREDIKSI FINANCIAL DISTRESS PADA PERUSAHAAN SEMEN YANG TERDAFTAR DI BURSA EFEK INDONESIA (BEI) PERIODE 2018-2020. *Seminar Nasional Manajemen, Ekonomi Dan Akuntansi*, 6(1), 1015–1020.