Evaluating Financial Distress Risk
A Comparative Analysis Using the Altman Z-Score Model

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Abstract: This research aims to determine bankruptcy predictions and determine the average value of financial ratios used as Altman Z-Score analysis for metal and mineral industrial companies listed on the Indonesia Stock Exchange (BEI) for the 2020-2021 period. The population in this study is Metal and Mineral Industrial Companies listed on the Indonesia Stock Exchange during the 2020-2021 period with a total of 7 companies using annual financial report data taken by purposive sampling, resulting in a sample of 14 data that meets the criteria. The sampling criteria selected were 1) Metal and mineral industrial companies listed on the Indonesia Stock Exchange (BEI) which have gone public and are listed on the BEI during the 2020-2021 period. 2) Companies report financial statements in rupiah units. 3) The financial report contains information related to all variables studied in 2020-2021. The analysis method used is the Altman Z-Score method analysis where there are 2 (two) research periods, namely 2020-2021. The results of this research show that: in 2020, there were 5 (companies) in the safe zone category, one company in the gray zone category, and one company in the distress zone category. The company in the safe zone category is PT. Aneka Tambang Tbk, PT. Citra Mineral Investindo Tbk, PT. PAM Mineral Tbk, PT. Kapuas Prima Coal Tbk, and PT. Central Omega Resources Tbk. Companies in the gray zone category are PT. Iifshdeco Tbk. The company in the distress zone category is PT. Timah Tbk. In 2021, the seven companies, namely PT. Aneka Tambang Tbk, PT. Citra Mineral Investindo Tbk, PT. Timah Tbk, PT. PAM Mineral Tbk, PT. Kapuas Prima Coal Tbk, PT. Central Omega Resources Tbk, and PT. Iifshdeco Tbk is in the safe zone category.

Keywords: financial distress, bankruptcy, Altman z-score

Introduction

The existence of the Covid-19 pandemic, human resources are required to understand technology in order to keep up with the times and compete healthily so that companies are required to be able to produce quality products and be able to compete in the business world. To achieve these goals, the company must have good and maximum performance so that the company can progress and continue to grow rapidly. In general, a company has one goal, which is to make a profit. There are several important things that must be considered in achieving profitability, including the liquidity ratio, solvency ratio, and activity ratio to achieve profitability by a company (Giyatno and Thohir, 2012).

The mining sector is one of the nine sectors listed on the Indonesia Stock Exchange. This sector is an industry that manages natural resources such as coal, soil, quarry, metals and minerals. At the beginning of the Covid-19 pandemic, all sectors of the economy were affected, one of which was the mining sector. The mining sector, one of which is Metals and Other Minerals, experienced a decline in 2020 and 2021 due to declining demand, limited access for employees to work due to government regulations that urge the public not to crowd and maintain distance to avoid the Covid-19 virus (kontan, 2022)

The company experienced difficulties caused by 2 (two) factors, namely internal and external factors. Internal factors can be seen from the company's finances, if the company is no longer able to pay all its debts and fulfill its obligations so that the company begins to dissolve and will begin to have an impact on the legalization of bankruptcy. The initial stage of a company's bankruptcy usually begins with the occurrence of financial distress or financial difficulties.

Difficulties caused by external factors such as difficulties in raw materials or company resources, so that the company loses the opportunity to produce and make profits. Then difficulties caused by natural factors such as disasters that forced companies to dissolve.

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ISSN: 0889-6402
http://odjournal.org/

Companies that fall into the financial distress category are usually companies that have difficulty paying short-term debts or referred to as liquidity problems. In addition, if the company is unable to compete with other companies, it will result in a decline in financial performance which leads to financial distress. Therefore, an early warning system is needed to predict bankruptcy.

The basis for identifying bankruptcy is to monitor and test the financial condition of a company to know the early signals of bankruptcy. Bankruptcy does not just appear, but there are early indications of the company that can usually be recognized early if the income statement and financial position statement are analyzed more carefully using a predictive model that can provide early warnings. The earlier signs of bankruptcy are found, the better it is for management because it can make improvements from the beginning.

One of the methods of predicting potential bankruptcy is the Altman Z-Score method. This method can help managers to anticipate the occurrence of bankruptcy conditions. The Altman Z-Score method can show the condition of a company whether the company is in the category of financial distress or not.

Z-Score is a form of financial analysis that uses financial ratios that are combined into mathematical equations and represent the financial ratios used as a whole. Z-Score is an analysis tool without paying attention to the size of the company.

The ratios related to bankruptcy are liquidity, solvency, profitability, and activity. The liquidity ratio measures a company's ability to meet its short-term liabilities. The solvency ratio measures whether a company has enough assets to pay all of its debts if the company ceases operations. The profotability ratio measures a company's ability to earn a profit from revenue. And the activity ratio measures a company's ability to generate sales from its assets.

Financial ratio analysis is carried out to determine the company's ability and performance, by knowing the average value of each financial ratio, it can be known whether the company has liquidity, solvency, profitability, or activity problems. In addition, by knowing the Z-Score value, the company's financial health condition can be known whether the company is included in the safe zone, gray zone, or disstress zone category.

Literature Review

Wastam Wahyu Hidayat (2018) explained that: "Financial statements are information that describes the financial condition of a company, where the information can be used as an overview of the financial performance of a company. Financial statements are the output and final result of the accounting process, these financial statements are information materials for users as one of the materials in the decisionmaking process (Sofyan Syafri Harahap, 2019). In addition, the financial statements also highlight the financial performance of the company which is indicated by the ability to perform financial statements The purpose of the financial statements is to provide information about the financial position, financial performance and cash flow of the entity which is beneficial to most users of the report in making economic decisions to generate income in the company with the resources owned by the company. Financial statements are assessed and analyzed through financial analysis.

The general purpose of financial statements is to provide information about the organization's operating results, financial position, and cash flow. This information is used by readers of financial statements to make decisions regarding resource allocation (PSAK No.1 of 2022). Financial statement analysis is the process of analyzing a company's financial statements for decision-making purposes and to understand the overall health of the organization (Darmawan, 2020). Financial ratio analysis is used to assess a business performance based on financial statements in a certain period. Its function is as a benchmark in taking the company's strategic steps in the next period and evaluating the company's resources (Dini N. Rizeki, 2022).

Financial ratios are analytical tools used to measure and evaluate the financial performance of a company (Hafidh, 2023). Financial ratios can be grouped into five groups (Wastam Wahyu Hidayat, 2018), namely: 1) Liquidity ratio is the ability of a company to meet its short-term obligations appropriately. 2) Solvency/leverageratio is a ratio to measure how much a company is financed with debt. 3) Activity ratio is a ratio or efficiency used to measure the effectiveness of a company in utilizing its resources or assets. The ratio shows the comparison between sales and investments in various asset accounts. 4) Profitability ratio is a ratio that shows an overview of the level of

effectiveness of the company's management in generating profits. 5) Market ratio is a ratio that shows a group that relates to the stock price of a company compared to the company's profit, book value per share, and market value compared to book value.

Financial distress is a term commonly used in corporate finance. Financial distress is a condition in which a company is unable to generate sufficient income, so it cannot meet or pay its financial obligations. A condition in which a company's finances are in trouble, crisis or unhealthy that occurred before the company experienced bankruptcy. The category of financial distress is as follows: 1) Category A, the company is declared to be in a position of bankruptcy or bankruptcy. 2) Category B, the company must think of realistic solutions in saving its various assets. 3) Category C, the company is hungry to overhaul various policies and management concepts that were previously implemented.4) Category D, the company only experiences financial empower fluctuations caused by various external and internal conditions. Factors Causing Financial Distress (Economics Teacher, 2022) namely: 1) Lack of capital structure. 2) Using outdated business equipment and methods. 3) Absence of business planning. 4) Personal qualifications.

Bankruptcy is a legal process that gives a person and company too much debt, a way to rearrange or write off debt (Pluang.com, 2020). Bankruptcy is a legally declared inability by an individual or organization to pay creditors. Rofinus Leki (2017) indicators or signs of companies that will experience bankruptcy from a managerial and operational perspective are the business environment, internal and combination. The causes of bankruptcy of business people (Rion Nofiandra, 2022), namely: 1) Failure in business. 2) Financial mismanagement. 3) Economic conditions. 4) Legal issues

Altman Z-Score (bankruptcy model) is used as a measurable control tool for the financial status of a company that is experiencing financial distress. In other words, Altman Z-Score is used as a tool to predict the bankruptcy of a company. Altman ZScore is important because it facilitates analysis and decision-making. In addition, it can easily assess the credit quality of companies without having to develop their own model (Nasrudin, 2022). The financial variables or ratios used in the discrimination analysis of the Altman Z-Score model (Nurkhalidah, et al, (2020) are: 1) Working Capital to Total Assets. 2) Retained Earnings to Total Assets. 3) Earning Before Interest and Taxes to Total Assets. 3) Market Value of Equity to Book Value of Debt. 5) Sales to Total Asset.

Research Method

The research method used in this study is a descriptive research method with a quantitative approach. The population in this study is metal and mineral industry companies listed on the Indonesia Stock Exchange (IDX) in 2020-2021. The sample determination method in this study was chosen using the purposive sampling method, a sample of 7 companies.

The research objects include: Working Capital to Total Assets (WCTA), Retained Earning to Total Assets (RETA), Earning Before Interest and Taxes to Total Assets (EBITA), Book Value of Equity to Book Value of Total Liabilities (BVETL) as independent variables to predict bankruptcy. The subject of this study is a metal and mineral industry company listed on the Indonesia Stock Exchange (IDX).

The Altman Z-Score analysis in this study uses the Altman Z-Score model for non-manufacturing companies, the equation is as follows:

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

Keterangan:

Z : Financial Distress Indeks

X1 : Working Capital to Total Assets) X2 : Retained Earnings to Total Assets

X3 : Earnings Before Interest and Taxes to Total Assets

X4 : Book Value of Equity to Book Value of Total Liabilities

Result and Discussion

This analysis is used to provide a description of the research variables Working Capital to Total Assets (WCTA), Retained Earning to Total Assets (RETA), Earning Before Interest and Taxes to Total Assets (EBITA), Book Value of Equity to Book Value of Total Liabilities (BVETL. as an independent variable to predict bankruptcy.

Total Assets at PT. Central Omega Resources Tbk, total assets for the 2020 period amounted to IDR 2,564,738,565,369. In 2021, the total assets of PT. Central Omega Resources Tbk decreased to IDR 2,244,117,568,110. At PT. Iifshdeco Tbk, total assets for the 2020 period are worth IDR 1,134,528,730,678. In 2021, the total assets of PT. Iifshdeco Tbk decreased to IDR 1,009,751,983,088.

Working Capital at PT. Central Omega Resources Tbk, has a negative value and has an increase but also a negative value. In 2020, the working capital of PT. Central Omega Resources Tbk amounted to -IDR 52,073,931,159. And in 2021, the working capital of PT. Central Omega Resources Tbk experienced an increase in negative value also to -IDR 105,632,469,476. Working Capital has a negative value because current liabilities are greater than its current assets.

Retained Earnings at PT. Central Omega Resources Tbk, retained earnings for the 2020-2021 period had a negative value and increased but also had a negative value. In 2020, PT. Central Omega Resources Tbk amounted to -IDR 366,746,282,520. And in 2021, retained earnings of PT. Central Omega Resources Tbk experienced an increase in negative value also to -IDR 552,679,318,762. Retained earnings for the 2020-2021 period had a negative value, meaning that the company suffered more losses than profits.

Earning Before Interest and Taxes at PT. Citra Mineral Investindo Tbk, earnings before interest and taxes for the 2020-2021 period had a positive value and decreased. In 2020, earning before interest and taxes PT. Citra Mineral Investindo Tbk amounting to IDR 723,018,216,995. Meanwhile, in 2021, earning before interest and taxes PT. Citra Mineral Investindo Tbk decreased to IDR 361,113,531,038. Earning before interest and taxes has decreased, meaning that the profit earned by the company from its entire operations before paying routine expenses, taxes and interest has decreased.

Lifshdeco Tbk, book value of equity for the 2020-2021 period has a positive value and has increased. In 2020, the book value of equity of PT. Iifshdeco Tbk amounted to IDR 542,984,894,480. And in 2021, the book value of equity of PT. Iifshdeco Tbk has increased to IDR 676,465,269,241.

Kapuas Prima Coal Tbk, the book value of total liabilities for the 2020-2021 period has a positive value and has increased. In 2020, the book value of total liabilities of PT. Kapuas Prima Coal Tbk amounted to IDR 580,686,358,449. And in 2021, the book value of total liabilities of PT. Kapuas Prima Coal Tbk has increased to IDR 1,171,122,620,364.

Average Financial Ratio Value Used as ZScore Analysis in Metal and Mineral Industry Companies Listed on the Indonesia Stock Exchange (IDX), Based on the results of research on Indonesia Distress Analysis using the Altman Z-Score method to predict bankruptcy in Metal and Mineral Industry Companies Listed on the Indonesia Stock Exchange (IDX), variables in each company are analyzed from 2020 to 2021 based on the Altman Z-Score method as next:

Central Omega Resources Tbk, the working capital to total assets

(WCTA) ratio for the 2020-2021 period was negative and also experienced a negative increase. In 2020, the ratio of working capital to total assets of PT. Central Omega Resources Tbk at -0.02030. In 2021, the ratio of working capital to total assets of PT. Central Omega Resources Tbk experienced a negative increase to -0.04707. The value of WCTA is negative because it is influenced by the value of working capital which has a negative value during the 2020-2021 period.

Central Omega Resources Tbk, the retained earnings to total assets (RETA) ratio for the 2020-2021 period was negative and also experienced an increase in negative values. In 2020, the ratio of retained earnings to total assets of PT. Central Omega Resources Tbk at -0.14300. In 2021, the ratio of retained earnings to total assets of PT. Central Omega Resources Tbk experienced a decrease with a negative value to -0.24628. The RETA value is negative because retained earnings have a negative value as a result of the company experiencing more losses than profits.

PT. Timah Tbk in 2020, the RETA value is -0.21154. In 2021, the RETA value of PT. Timah Tbk of 0.08007. So that the average value of the RETA ratio is -0.065735. At PT. Timah Tbk, the average value of X2 is negative because it is influenced by retained earnings which have a negative

value in 2020 as a result of losses. The company has a profitability problem, the total assets owned by the company in managing profits or income received have not been able to cover the burdens that must be beared.

In 2020, the RETA value of PT. Central Omega Resources Tbk at -0.46618. In 2021, the RETA value of PT. Central Omega Resources Tbk at -0.80287. So that the average value of the RETA ratio is -0.634525. So that the average value of the RETA ratio is -0.065735. At PT. Central Omega Resources, the average RETA value is negative because it is influenced by the negative retained earnings value for the 2020-2021 period as a result of the company experiencing more losses than profits. The company has profitability problems, the total assets owned by the company in managing profits or revenues received have not been able to cover the burdens that must be borne.

It can be seen that in 2020, there are 5 (companies) in the safe zone category, 1 (one) company in the gray zone category, and 1 (one) company in the distress zone category. Companies in the safe zone category are PT. Aneka Tambang Tbk, PT. Citra Mineral Investindo Tbk, PT. PAM Mineral Tbk, PT. Kapuas Prima Coal Tbk, and PT. Central Omega Resources Tbk. Companies in the grey zone category are PT. Iifshdeco Tbk. The company that is in the distress zone category is PT.

In 2021, the seven companies, namely PT. Aneka Tambang Tbk, PT. Citra Mineral Investindo Tbk, PT. Timah Tbk, PT. PAM Mineral Tbk, PT. Kapuas Prima Coal Tbk, PT. Central Omega Resources Tbk, and PT. Iifshdeco Tbk is in the safe zone category.

Conclusion

PT. Aneka Tambang Tbk has an average value of WCTA, RETA, EBITA, and BVETL which is positive during the 2020-2021 period, meaning that the company has no problems with the liquidity, profitability, activity, and solvency ratios. In the 2020-2021 period, the Z-Score score of PT. Aneka Tambang Tbk is in the safe zone category (categorized as a very healthy company so that it does not experience financial difficulties).

PT. Citra Mineral Investindo Tbk has an average value of WCTA, RETA, EBITA, and BVETL.which is positive during the 2020-2021 period, meaning that the company has no problems with the ratio of liquidity, profitability, activity, and solvency. In the 2020-2021 period, the Z-Score score of PT. Citra Mineral Investindo Tbk is in the safe zone category (categorized as a very healthy company so that it does not experience financial difficulties).

PT. Timah Tbk has an average RETA value of negative value influenced by negative retained earnings in 2020, meaning that the company has profitability problems. However, PT. Timah Tbk WCTA, EBITA, and BVETL have positive values, meaning that the company does not have liquidity, activity, and solvency problems. In 2020, PT. Timah Tbk is in the distress zone category because it is influenced by the book value of total liabilities greater than the book value of equity. The company is experiencing solvency problems. The solvency ratio problem affects financial distress. However, in 2021 it has improved so that it is in the safe zone category.

PT. PAM Mineral Tbk has an average value of WCTA, RETA, EBITA, and BVETL which has a positive value during the period 2020-2021, meaning that the company has no problems with its liquidity, profitability, activity, and solvency ratios. In the 2020-2021 period, the Z-Score score of PT. PAM Mineral Tbk is in the safe zone category (categorized as a very healthy company so that it does not experience financial difficulties).

PT. Kapuas Prima Coal Tbk has an average value of WCTA, RETA, EBITA, and BVETL which is positive during the 2020-2021 period, meaning that the company has no problems with the ratio of liquidity, profitability, activity, and solvency. In the 2020-2021 period, the Z-Score score of PT. Kapuas Prima Coal Tbk is in the safe zone category (categorized as a very healthy company so that it does not experience financial difficulties).

PT. Central Omega Resources Tbk has an average WCTA and RETA value which is negative due to the negative value of working capital during the 2020-2021 period as a result of current liabilities that are larger than assets, meaning that the company has liquidity and profitability problems. However, PT. Central Omega Resources Tbk EBITA and BVETL were positive during the 2020-2021 period, meaning that the company did not have any activity and solvency problems. In the 2020-2021 period, the Z-Score score of PT. Central Omega Resources Tbk is in the safe zone

category. Although the company has a negative WCTA and RETA value, which means that the company has liquidity and profitability problems, it does not affect the Z-Score value.

PT. Iifshdeco Tbk has an average value of WCTA, RETA, EBITA, and BVETL which has a positive value during the 2020-2021 period, meaning that the company has no problems with the liquidity, profitability, activity, and solvency ratios. In 2020, the Z-Score score of PT. Iifshdeco Tbk is in the gray zone category because the company is experiencing solvency problems where in 2020, the book value of total liabilities is greater than the book value of equity. The solvency ratio problem affects financial distress. However, in 2021 it has improved so that it is in the safe zone category.

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