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Analysis Financial Distress of PT Sri Rejeki Isman Tbk: Altman Z-Score, Zmijewski, Zavgren Methods

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ABSTRACT: Globalization that triggers increasingly sharp business competition requires the Company to act more strategically in order to avoid financial distress and bankruptcy. The textile and garment industry has an important role in the Indonesian economy, but faces financial distress due to decreased export demand and weak purchasing power, as experienced by Sritex in PKPU, so this study aims to analyze financial distress at PT Sri Rejeki Isman Tbk for the 2019-2023 period, using the Altman Z Score, Zmijewski and zavgren methods. The type of data in this study is secondary data obtained from the Company's published financial statements. The research method uses descriptive analysis with saturated sample technique in the form of financial statements of PT Sri Rejeki Isman Tbk listed on the Indonesia Stock Exchange (IDX). The results of this study indicate that the three approaches analyzed produce significant differences, especially based on the findings of the Altman Z Score method, which shows that PT Sri Rejeki Isman Tbk is likely to experience bankruptcy between 2021 and 2023. The Zmijewski method shows that in 2019 and 2020, experiencing financial difficulties but in the last three years the company has been in a healthy condition. The calculation results using the Zavgren method show that the company's condition in 2019 is classified as healthy, experiencing finacial distress in 2020 - 2021 and the company is back in a healthy condition in 2022-2023.

Keywords: Financial Distress, Altman Z Score, Zmijewski, Zavgren

INTRODUCTION

Economic development in the world today has led to fierce business competition, especially in an increasingly modern era like today. Continuous changes in economic conditions affect the activities and performance of companies, both large and small companies. As a result, many companies have gone bankrupt, especially those listed on the Indonesia Stock Exchange. In addition, the emergence of the AEC (ASEAN Economic Community) further increases the pressure on

industries that are not ready to compete effectively, so that these companies are at risk of facing financial problems that can lead to bankruptcy (Idawati, 2020).

The manufacturing sector has an important role in driving Indonesia's economic growth, one of which is the textile and garment industry. The textile and garment industry plays an important role in meeting domestic market demand, providing a large number of jobs, and becoming an important source of foreign exchange through non-oil and gas exports. Thus, the textile industry not only supports domestic needs, but also strengthens Indonesia's position in international trade and creates extensive employment opportunities for the community. The textile and textile products (TPT) business is currently facing a difficult situation. The evidence is that there are many layoffs, and the cause of the downturn in the domestic textile industry is the cancellation and reduction of export orders. Meanwhile, the domestic market is also not helped because purchasing power is still weak. If the company is unable to compete and maintain its company, the risk of experiencing financial distress will increase. Financial distress is a situation in which a company experiences a financial decline or crisis that arises before bankruptcy.(Yoga Agung Indrawan, 2023).

One concrete example is PT Sri Rejeki Isman Tbk (Sritex), which is one of the largest integrated textile companies in Southeast Asia. Established in 1966, the company produces a range of textile products, including yarns, raw fabrics, finished fabrics, and apparel. Sritex is an example of a company that experienced financial distress, which shows that large companies in this industry are not immune to financial risks. PT Sri Rejeki Isman Tbk faced serious financial difficulties due to its high debt burden. Although the company has a history of more than 50 years and was once successful because of the quality of its products, Sritex is currently entangled in financial problems that threaten its business continuity. Sritex's financial health problems are caused by its enormous amount of debt, which led to a capital deficit in the first half of 2023. The amount of the company's liabilities exceeded the amount of its assets, causing equity to become negative. In fact, the company's ability to repay its debts became very doubtful, as even selling assets was not enough to cover all of its debts.

To predict the financial condition of companies that have the potential to experience financial difficulties, various methods such as Altman Z-score, Zmijewski, and Zavgren can be used. (Christella & OSESOGA, 2020), Altman analysis combines several ratios into a prediction model using a statistical technique known as discriminant analysis, in this case using the Altman Z-score, referring to five important ratios. This method aims to assess the extent to which the assets owned by the company can be utilized to fund operational activities, generate profits, and fulfill obligations, both short and long term. Zmijewski (1984), this method is a probit one of the alternative regression analysis using a cumulative normal probability distribution through financial ratios that can measure company performance, levarage, and liquidity to predict financial distress (Pratikto & Afiq, 2021). The Zmijewski method has an accuracy of 94.9%. The last method is Zavgren (1985). This method relies on logit analysis and shows an accuracy rate of 82.2% in predicting bankruptcy based on research conducted from 1980 to 1990. Unlike the other methods, Zavgren assesses corporate bankruptcy in the form of probabilities, rather than cut-off values. One of the main advantages of this method is its ability to show the level of asset activity at a given level of activity, as well as highlight low activity at a given level of sales. Thus, this method allows

the identification of the value of excess funds tied up in the company's assets (Fahma and Setyaningsih, 2021).

Referring to the problem of gaps between theory and data obtained, as well as differences in results from previous studies, this study will focus on analyzing the Altman Z-Score, Zmijewski, and Zavgren methods in predicting bankruptcy. The purpose of this study is to analyze financial distress with the Altman Z Sore, Zmijewski and Zavgren methods. It is hoped that the results of this study can be useful for PT Srijeki Isman Tbk, for further researchers and investors.

Financial Distress

Financial distress is a situation in which a company faces financial problems and is unable to fulfill its various obligations, such as obligations to creditors, bondholders, and other parties. If this condition is not addressed, it can lead to bankruptcy (Hutabarat, 2020: 27).Financial distress occurs when a company is unable to fulfill its obligations, especially short-term obligations related to liquidity, as well as other obligations included in the solvency category (Eska Tazkiya Laras Pramesti & Hendratno 2019). Financial distress as a stage of decline in financial condition that occurs before bankruptcy or liquidation (Plat and Plat in Subramanyam 2017: 158).

Financial distress refers to a situation where a company faces challenges in meeting its financial obligations, thus disrupting its smooth operations. This condition is often an early sign before bankruptcy. Therefore, the prediction of financial distress is very important for various parties, including lenders, investors, policy makers, governments, auditors, and company management. Given the significance of the issue of financial distress, early detection of this potential problem will greatly assist all parties in making the right decisions.

According to Subramanyam (2017: 160), in a general study of the problem of financial distress, there are four categories of classification that can be identified, namely:

First, there is category A in financial distress, which is a very high level and truly threatens the survival of the company. In this category, the company may face the risk of bankruptcy or insolvency. Thus, the company has the possibility to report to the authorities as described by the court, that they have been in a state of bankruptcy. In this situation, the company may hand over various affairs to an outside party to handle.

Second, it is a category B with a high degree of financial distress and is considered risky. In this situation, the company needs to consider various realistic solutions to manage its assets, including determining which ones to sell and which ones to keep. In addition, the company must also consider the various impacts that may arise from the decision to merge or take over. One of the most significant impacts under these conditions is the possibility of layoffs and early retirement for some employees.

Third, this is considered a category C media or financial distress, and a company that can save itself from internal and external means with additional measures. However, here, we have to reform the various guidelines and management concepts that have been implemented until now, and it is even necessary to recruit new skilled professionals with a high level of competence to take

up strategic positions assigned to control and save the company, including the goal of increasing profits.

Fourth, in category D or low, the company is experiencing temporary financial difficulties. This condition is usually influenced by various external and internal factors, including the birth and implementation of inappropriate decisions. This condition is usually short-term, so it can be handled quickly. One of the ways that can be done is by submitting available financial proposals or utilizing predetermined sources of funds to deal with similar problems can be a solution. In fact, if this situation occurs in a subsidiary company, it can usually be resolved quickly without the need for further handling from head office management.

Bankruptcy

Bankruptcy is a situation in which a company experiences financial difficulties that are insufficient to support its operational activities. The importance of bankruptcy analysis lies in its impact, especially if it occurs in a public company (go public), because this can be detrimental to various parties, such as investors who own shares or bonds, creditors who face the risk of default, employees who may be exposed to layoffs, and the company's management itself (Peter 2021). Bankruptcy is often defined as the failure of a company to carry out its operations to achieve profit. (Sumolang in Misidawati and Abadi, 2020: 1).

Based on Law Number 37 of 2004, article 1 paragraph (1), bankruptcy or insolvency is defined as the general residue of the assets of a debtor in bankruptcy, where the management and settlement of these assets is carried out by the Curator under the supervision of the Supervisory Judge, in accordance with the provisions stipulated in the law. Article 2 paragraph (1) provides further explanation debtors who have two or more creditors and are unable to pay off at least one debt that is due and collectible, will be declared bankrupt through a court decision. This can occur either based on a request from the debtor himself or at the request of another party from one or more of his creditors.

Altman Z Score and Financial Distress

Z-score analysis was introduced by Prof. Edward Altman with the aim of predicting the financial condition of a company and the likelihood of bankruptcy. Thus, this analysis serves as an indicator of the company's financial risk level. Altman Z-score is one of the effective methods for evaluating the company's financial health, and can be used as a measure of management's success in managing the company (Rahmat, 2020).

This method was first developed by Altman in 1968 by applying Multiple Discriminant Analysis (MDA). This approach produces a prediction model used to determine whether a company has the potential for bankruptcy or not, by identifying various financial ratios as the main indicators. Altman developed a prediction model by combining several ratios using statistical techniques, namely discriminant analysis, which serves to predict the bankruptcy of a company and is known as the Z-Score. Z-Score is a value calculated based on certain standards to indicate the likelihood of a company going bankrupt. The Z-Score formula developed by Altman is a multivariate formula used to measure the financial health of a company. Z- Score analysis serves to assess whether the company's current financial condition is in a healthy state or not. In addition, this analysis can also

be used to estimate the company's future prospects. The higher the Z-Score value, the greater the assurance of the company's survival, and the smaller the risk of failure.

Zmijewski and Financial Distress

The method developed by Mark Zmijewski is specifically aimed at predicting the likelihood of a company's bankruptcy. Through his research, Zmijewski formulated a model known as the Zmijewski Score, which has the ability to predict potential bankruptcy. Introduced in 1984, this model is a development of various bankruptcy prediction models that have existed before. Zmijewski Score uses a ratio-based approach and applies the Multiple Discriminant Analysis (MDA) method. In the MDA method, more than one financial ratio related to corporate bankruptcy is required in order to build an accurate prediction model. Zmijewski developed this model by using ratio analysis that includes aspects of company performance, leverage, and liquidity, this model focuses on the amount of debt as the main factor that most affects the likelihood of bankruptcy.

Zavgren and Financial Distress

The Logit analysis used to classify bankruptcy is a prediction model developed by Zavgren, which results in the potential occurrence of bankruptcy. In his research, Zavgren achieved an accuracy rate of 82.2% in predicting bankruptcy (Zavgren, 1988). The Zavgren model was introduced based on nonparametric statistical analysis in the form of logit analysis. Unlike other models that rely on the assumption of normality, the Zavgren model does not rely on this assumption. Because it uses logit analysis, the measurement method in this model emphasizes a clearer and more contrasting level of accuracy. The advantage of Zavgren's (1985) method lies in the fact that logit analysis can be used to identify the level of asset activity within a given level of activity, as well as measure the lowest activity at a specific level of sales. In this way, this method provides the ability to determine the amount of funds invested in the company's assets (Pandita & husanah 2024).

METHOD

This study uses a type of descriptive research analysis with a quantitative approach. meaning that the research conducted aims to describe or describe the data that has been collected to be processed into information. The data source used uses a case study approach at PT SRITEX Tbk in the 2019-2023 period. The sampling technique used in this study is a saturated sample, which is taken from the Financial Statements of PT Sri Rejeki Isman Tbk which is listed on the Indonesia Stock Exchange (IDX). The data used is secondary data, especially quantitative data obtained from these financial statements. In this study, researchers used documentation data collection techniques to obtain the information needed. This method involves collecting data through recording, observing, and reading the company's financial statements accessed from the Indonesia Stock Exchange (IDX) website at www. idx. co. id. For data analysis, several calculation methods are used, namely Altman Z Score, Zmijewski, and Zavgren.

Operational Variable

a. Dependent Variable

Financial distress is a situation where a company faces problems in meeting its financial obligations to other parties, such as creditors and bondholders. If this condition is not handled properly, it can lead to bankruptcy. (Hutabarat 2020: 27). Financial downturn can be understood as a phase of decline in financial conditions that occurs before bankruptcy or liquidation. (Plat and Plat in Subramanyam 2017: 158).

b. Independent Variable

Altman Z Score

After the research conducted by Beaver in 1966, Edward Altman continued with his research on financial distress. Altman applied Beaver's suggestion at the end of his research to conduct multivariate analysis. The model he developed became one of the most well-known in predicting financial distress, known as the Z-Score. The Altman Z-Score approach is one of the effective methods to identify potential financial difficulties in a company (Azizah & Yunita, 2022).

The Altman Z Score formula is as follows:

$$Z = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$$

Description:
X1 = Working Capital / Total assets
X2 = Retained Earnings / Total assets
X3 = Earnings before interest and taxes / Total assets
X4 = Book value of equity / Book value of liabilities

Table 1
Cut off value in the Altman Z Score method

Z > 2,6	**Non-Financial Distress**
1,1 < Z < 2,6	**Grey area**
Z < 1,1	**Financial distress**

Zmijewski

Zmijewski developed a study on the financial health prediction model by combining several financial statement ratios. The goal is to measure the performance, leverage, and liquidity of a company. Zmijewski has measured the accuracy of his own model, and obtained an accuracy value of 94.9%. The Zmijewski formula is as follows:

$$X = -4.3 - 4.5\ X1 + 5.7\ X2 - 0.004\ X3$$

Description:
X1 = Net income / Total Asset (Return on asset)
X2 = Total Liability / Total Asset (Debt Ratio)
X3 = Current Asset / Current Debt (Current Ratio)

Table 2
Cut off value in the Zmijewski method

X < 0	**Non-Financial Distress**
X > 0	**Financial distress**

Zavgren

This method is considered more accurate as it achieves a percentage of 100%, while other methods fall below this figure. The superiority of Zavgren's (1985) method lies in the application of logit analysis, which is effective in identifying the level of asset activity at different levels of a given activity. This method can also reveal the lowest activity that appears at a certain level of sales. Thus, this method provides the ability to determine the amount of funds to be invested in the company's assets. (Pandita & husanah 2024).

The formula for the Zavgren method is as follows:

Y = 0.23883- 0.108 (X1) - 1.583 (X2) - 10.78 (X3) + 3.074 (X4) + 0.486 (X5) - 4.35 (X6) + 0.11 (X7)

Description:
X1 = Inventory / sales (Inventory Turnover)
X2 = Receivables / Inventory (Receivable Turnover)
X3 = Cash / Total assets (Cash Ratio)
X4 = (Current assets - inventory) / Current debt (Quick Ratio)
X5 = Net income / (Total assets - Current debt) (Return on Investment)
X6 = Long-term debt / (Total assets - current debt) (Debt Ratio)
X7 = Sales / (Working capital + fixed assets) (Asset Turnover)
While the Probability Formula is as follows:

$$Pi = \frac{1}{1 + e^{y}}$$

Description:
Pi : Probability of Company Bankruptcy
e : Natural Numbers which is worth 2.71828
y : Multivariate Function

If the probability value shows a value of 1, then the company is categorized as bankrupt / Financial distress. If the probability value shows a value below 1, then the company can be categorized as healthy / Non Financial Distress.

RESULT AND DISCUSSION

Table 3. Calculation Results of Financial distress Analysis Altman Z Score Method

Year	Working Capital/Total Asset (X1)	Retained Earnings/Total Asset (X2)	EBIT/Total Asset (X3)	Book Value of Equity/Book Value of Debt (X4)	Z Score	Classification
2019	0,456	0,254	0,065	0,613	4,908	Non-Financial Disress
2020	0,406	0,258	0,054	0,570	4,477	Non-Financial Distress
2021	-0,801	0,487	-0,957	0,244	-9,844	Financial Distress
2022	0,218	-1,291	-0,387	-0,505	-5,915	Financial Distress
2023	0,129	-1,790	-0,232	-0,595	-7,176	Financial Distress

Source: Data Processed, (2025)

Table 4. Calculation Results of Financial Distress Analysis Zmijewski Method

Year	Return On Asset (X1)	Debt Ratio (X2)	Current Ratio (X3)	Z-Score	Classification
2019	0,056	0,619	4,901	-1,039	*Financial Distress*
2020	0,046	0,636	2,889	-0,888	*Financial Distress*
2021	-0,876	1,323	0,373	7,183	Non-Financial Distress
2022	-0,517	2,021	2,566	9,540	Non-Financial Distress
2023	-0,296	2,471	1,743	10,991	Non-Financial Distress

Source: Data Processed, (2025)

Table 5. Analysis Calculation Result of Financial Distress Zavgren Method

Year	INV (X1)	REC (X2)	Cash (X3)	Quick (X4)	ROI (X5)	Debt (X6)	TURN (X7)	Y Score	*Pi*	Classification
2019	0,305	1,208	0,107	2,923	0,063	0,569	0,858	3,762	-2,288	Non-Financial Distress
2020	0,385	1,186	0,101	1,647	0,058	0,537	0,882	0,077	0,274	*Financial Distress*
2021	0,447	0,228	0,007	0,132	3,139	-0,158	-2,460	2,103	0,619	*Financial Distress*
2022	0,286	0,567	0,021	1,155	-0,601	2,186	0,797	-7,085	0,092	Non-Financial Distress
2023	0,220	1,281	0,003	1,109	-0,326	2,781	0,606	-10,634	0,069	Non-Financial Distress

Source: Data Processed, (2025)

RESULT AND DISCUSSION

Based on the results of the analysis using the Altman Z-Score, Zmijewski, and Zavgren methods, it can be concluded that PT Sri Rejeki Isman Tbk recorded a significant decline in financial performance during the period 2019 to 2023. The results of the calculation of financial ratios show that the company is having difficulty maintaining its liquidity, profitability, and solvency, which is reflected in the increase in total debt and the decrease in net profit and company equity.

Altman Z-Score method shows that in 2019 and 2020, it is in a healthy condition with Z-Score of 4.908 and 4.477 respectively. This shows that the company has a good financial structure, and maximizes assets to generate profits. However, in 2021 the company's condition changed drastically with the Z-Score value dropping to -9.844, which is significantly below the Financial Distress limit. This decline is likely due to large operating losses or the company's inability to maintain good liquidity and solvency ratios indicating great financial stress. Conditions worsen in 2022 and 2023, with Z-scores of -5.915 and -7.176 respectively, indicating the company continues to be in a financially critical condition and at high risk of bankruptcy as the EBIT to total assets and book value of equity to book value of debt values are negative indicating that the company is having difficulty generating operating profits and has lower equity than debt.

In the zmijewski method, the results of the assessment of the company in 2019 and 2020 show a Z-Score of -1.039 and -0.888 respectively, which is below the healthy threshold. This indicates that the company is in an unstable condition and is experiencing financial difficulties. In 2021, the financial condition began to improve with a Z-Score of 7.183, which indicates that the company is in a healthy state. This change is supported by an increase in Current Ratio even though the Debt Ratio is quite high. The Z score value which increased sharply from 7.183 in 2021 to 10.991 in 2023, indicates that the company is in a healthy financial condition, with improvements in Current Ratio and Debt Ratio. Overall, the company experienced an improvement in financial

performance after the 2020 period, with a change from Financial Distress to Healthy in the last three years.

The table above shows the results of the calculation of Financial Distress analysis using the Zavgren method In 2019, the Y Score value of 3.762 and P*i* of -2.288 indicates that the company is in a healthy condition with a high Quick Ratio value, which is 2.923, indicating good liquidity, so the company has sufficient ability to meet its short-term obligations. However, in 2020, the Y Score decreased dramatically to 0.077 with P*i* of 0.274, which indicates that the company is experiencing Financial Distress. This decline occurred due to a decrease in the Quick Ratio to 1.647, which indicates that the company's liquidity began to weaken. In addition, the small ROI (0.058) also indicates a low return on investment.

Conditions worsened in 2021, where the Y Score increased to 2.103 but P*i* reached 0.619, which still classified the company in Financial Distress. This is due to the very low Quick Ratio of only 0.132, which indicates that the company's current assets are not sufficient to cover its short-term liabilities. In 2022, the company's condition improved with a Y Score of -7.085 and P*i* fell to 0.092, so the company was classified as healthy again. This improvement is supported by an increase in Quick Ratio to 1.155, which indicates an improvement in liquidity. In addition, the Debt Ratio increased to 2.186, indicating that the company began to be able to manage its debts better. In 2023, the company remains in a healthy condition with a Y Score of -10.634 and P*i* of 0.069 with a Quick Ratio of 1.109, which still indicates that the company has enough assets to meet its short-term liabilities.

CONCLUSION

Based on the results of the analysis using the Altman Z-Score, Zmijewski, and Zavgren methods, it was found that PT Sri Rejeki Isman Tbk (Sritex) experienced a significant shift in financial condition from 2019 to 2023. Based on the data analysis and discussion that has been carried out, this study concludes that the potential bankruptcy of PT Sri Rejeki Isman Tbk in the 2019-2023 period shows different results depending on the method used. Analysis using Altman Z-Score shows that the company is in a healthy condition in 2019 and 2020. However, from 2021 to 2023, the company experienced financial distress, which indicates a decline in financial condition due to external and internal pressures, such as market instability, increased debt burden, or decreased profitability.

Meanwhile, the Zmijewski method provides a different conclusion, which predicts that the company experienced financial distress in 2019 and 2020. but began to experience recovery since 2021. This indicates that although financial pressure occurred at the beginning of the observation period, the company was able to adjust its financial strategy so that it returned to a more stable condition in the following few years.

On the other hand, the Zavgren Method shows fluctuations, with companies in a healthy condition in 2019, experiencing financial difficulties in 2020-2021, but returning to health in 2022-2023, reflecting an improvement in financial conditions. The difference in the results of these three

methods shows the variation in each model in detecting financial distress, and confirms that even though companies experience financial stress, there are indications of recovery within a certain period.

The implications of this study include the need for financial restructuring strategies and more effective debt management to avoid the risk of bankruptcy in the future. The results of this study can also be the basis for investors and stakeholders in making wiser decisions related to the company's financial condition. This study still has some limitations. First, this study only uses three methods, namely the Altman Z-Score, Zmijewski, and Zavgren methods. Second, the object of research is only PT Sri Rejeki Isman Tbk. Third, the research period only covers five years, from 2019 to 2023. Based on the conclusions that have been obtained and the limitations that exist, there are several recommendations that can be given for further research related to financial distress. Future research is advised to add the Ohlson method to predict company bankruptcy more accurately. In addition, the research object can be expanded by examining other companies listed on the Indonesia Stock Exchange (IDX) in order to provide a more comprehensive picture of the development of a company's financial performance. Furthermore, research with a shorter period of time can also be carried out so that the development of company conditions can be analyzed more specifically and accurately.

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