



Financial Distress Analysis of Companies Carrying Out Mass Layoffs Throughout 2023 using the Altman Z-Score Method, Springate Method, and Zmijewski Method

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Abstract

This research aims to estimate the financial condition of four companies that will carry out mass layoffs throughout 2023 using three financial distress prediction methods, namely the Z-Score Altman method, the Springate method and the Zmijewski method. Secondary data was used sourced from the financial reports of each company from 2022 to 2023. The research results showed that financial performance was analyzed using the Z-Score Altman method, the Springate method and the Zmijewski method in four companies, namely PT Net Visi Media Tbk for the period 2022-2023 classified as having the potential to experience bankruptcy, PT GoTo Gojek Tokopedia Tbk for the 2022-2023 period is classified as having a high potential for bankruptcy, PT Bukalapak.com Tbk for the 2022-2023 period is classified as being in good health, and JD.com, Inc. (JD) for the 2022-2023 period is classified as having absolutely no potential for bankruptcy.

Keywords: Financial Distress, Bankruptcy, Altman Z-Score Method, Springate Method, Zmijewski Method.

1. Introduction

The problem of company financial instability is certainly a concern for various parties related to the company, both internal and external. A continuous decline in a company's financial performance can result in bankruptcy, where the bankruptcy of the company can cause massive employee layoffs, damage to the company's reputation, loss of jobs, and delisting from the Indonesian Stock Exchange. Worse yet, bankruptcy of a company can even cause systemic risk. Therefore, a company needs to assess its financial condition as a preventive measure to avoid bankruptcy.

Before experiencing bankruptcy, a company will first go through a financial distress phase. Platt and Platt (2002) state that financial distress is the final stage of decline in financial conditions that occurs before bankruptcy or liquidation occurs. Meanwhile, Atmaja (2008) defines financial distress as a condition when a company is in financial difficulty and is threatened with bankruptcy. But of course, predictions and analysis can be carried out as steps to prevent financial distress. That way, if it is detected that there is a possibility of bankruptcy, analysis and control of the company's performance can be carried out before it experiences a loss. The sooner a company detects potential financial distress, the better the company can control and overcome this problem.

Financial ratio analysis is the most commonly used method to predict financial distress. There are various methods and numerous ratios that can be employed to determine a company's financial distress status. Several studies have produced different results regarding which ratios influence a company's likelihood of experiencing financial distress. A study conducted by Curry and Banjarnahor (2018) found that the current ratio, return on assets (ROA), and debt to equity ratio (DER) negatively affect the occurrence of financial distress, while earnings per share (EPS) positively affect financial distress. Sutra and Mais (2019), in their research, concluded that profitability ratios, liquidity ratios, and operating capacity have a negative influence on financial distress, while leverage does not negatively affect financial distress, and sales growth does not positively affect financial distress. In another study, the current ratio, quick ratio, and return on assets (ROA) were found to indicate financial distress, while the debt to asset ratio (DAR), debt to equity ratio (DER), total asset turnover (TATO), and sales growth were not indicators of financial distress (Anggraeni & Wibowo, 2021). Meanwhile, Yosandra and Sembiring (2022) revealed that the fixed asset ratio positively affects financial distress, while the net profit margin and current ratio negatively affect financial distress.

Quoting an article from DetikFinance published on December 29, 2023, more than 20 companies had carried out mass layoffs. This decision was made for various reasons, ranging from efficiency to companies being on the brink of bankruptcy. As a result of these decisions, hundreds to thousands of people lost their jobs. Based on KSPN data as of September 2023, 5,044 employees from six textile companies were on the verge of bankruptcy due to declining demand in the industry, which was considered to be caused by the flood of imported products. Of these 5,044 employees, 4,584 were laid off, and the remaining 460 were furloughed. These numbers are predicted to grow as many companies do not report layoffs or factory closures. Besides these cases, several other companies conducted mass layoffs throughout 2023 in Indonesia.

PT Net Visi Media Tbk. or NET TV, for example, made adjustments and evaluations, including human resources (HR) management, which led to laying off 30% of the company's total employees. Additionally, PT Bukalapak.com Tbk. laid off less than 5% of its employees as part of an evaluation of the company's performance. In the e-commerce sector, JD.ID, which closed all its services in March 2023, laid off about 200 employees as a response to the rapid changes in business challenges. Another company that carried out mass layoffs in March 2023 was PT GoTo Gojek Tokopedia Tbk. (GOTO). For the purpose of strengthening company operations, GOTO cut around 600 employees.

In previous years, similar studies on predicting bankruptcy and financial distress have been conducted for companies across various industry sectors, as shown in Table 1. In 2019, Munawarah and Hayati tested the accuracy of three methods—Springate, Zmijewski, and Grover—in predicting the financial condition of financing companies in Indonesia. A year later, Silaen et al. (2020) compared two methods, Altman Z-Score and Springate, in predicting companies' financial distress. Indriani et al. (2023), using the Springate method, conducted a financial distress analysis on property companies listed on the Indonesia Stock Exchange (IDX) for the 2020-2022 period. A year later, in 2024, Say predicted financial distress in chemical sector companies in Istanbul using the Altman Z-Score method, with results showing that most companies were in the gray zone—neither safe nor dangerous. Meanwhile, in Greece, Toudas et al. (2024) predicted the bankruptcy of construction companies, and in the same year, Umar et al. (2024) predicted the bankruptcy of pharmaceutical companies in Indonesia from 2019 to 2022, finding that all companies were in a safe condition during the first two years, but some were identified as experiencing financial distress in the last two periods of the study.

Tabel 1. Research Gap

Author	Variable	Metode	Method		
			Z-Score Altman	Springate	Zmijewski
Munawarah dan Hayati, 2019.	The accuracy measurement of three methods in predicting financial distress in financial companies.	Springate, Zmijewski, and Grover.	-	Yes	Yes
Silaen, et al., 2020.	A comparative analysis of the Altman and Springate methods in predicting financial distress.	Altman Z-Score and Springate.	Yes	Yes	-
Indriani, et al., 2023.	Analysis of Financial Distress in Property Companies in Indonesia.	Springate	-	-	Yes
Say, 2024.	Prediction of financial distress in the chemical sector companies in Istanbul.	Altman Z-Score	Yes	-	-
Toudas, et al., 2024.	Prediction of bankruptcy in construction companies in Greece.	Altman Z-Score, Ohlson, and Zmijewski	Yes	-	Yes

Umar, et al., 2024	Analysis of Financial Distress in Pharmaceutical Companies in Indonesia.	Zmijewski	-	-	Yes
Ths research.	Analysis of Financial Distress in Companies That Conducted Mass Layoffs Throughout 2023.	Altman Z-Score, Springate, and Zmijewski	Yes	Yes	Yes

2. Literature Review

2.1. Financial Distress and Bankruptcy

A company's poor financial condition and the risk of bankruptcy, primarily caused by a high level of debt, is referred to as financial distress. Financial distress is a situation where a company cannot meet its short-term obligations that have come due, such as accounts payable, tax liabilities, and short-term bank loans. Kristanti et al. (2019) define financial distress as a condition where the company's profit is negative for a certain year. A company's finances enter a state of financial distress when it is unable to manage and maintain stable financial performance. Meanwhile, Spica and Kristijadi (2003) categorize a company as experiencing financial distress if it meets one of two criteria: incurring losses for two consecutive years or failing to pay dividends for one year.

The level of financial difficulty faced by a company is determined by the ownership of liquid assets and access to credit facilities to rescue itself from the situation. Companies with lower liquidity levels relative to their total assets tend to have a higher likelihood of bankruptcy. The higher the liquidity level, the lower the financial distress, and vice versa. Liquidity is defined as the company's ability to meet short-term obligations.

According to Law Number 37 of 2004, Article 1, bankruptcy refers to the general residue of a bankrupt debtor's assets, whose management and settlement are conducted by a curator under the supervision of a supervising judge as stipulated in this law. Furthermore, it is clarified in Article 2, Paragraph 1, that a debtor who has two or more creditors and fails to pay at least one due and collectible debt in full is declared bankrupt by a court ruling, either upon their own petition or upon the petition of one or more of their creditors. Timothy, in Odibi et al. (2015), defines bankruptcy as a legal process where an individual cannot pay their petitioned debts or obligations.

Case studies show that financial distress is often a result of management errors or internal weaknesses within a company. Early signs of financial distress can usually be detected through financial ratio analysis long before a company actually goes bankrupt. Ratio analysis has been widely used to predict the probability of bankruptcy occurring in a company.

2.2. Financial Report

Financial reports, as explained by James and Moira (2005:2) are the main means for conveying financial information reports to interested parties such as internal parties (management and employees) and external parties (banks, investors, government). In accordance with PSAK No. 1 concerning the presentation of financial reports (revised 2009) financial reports are prepared in a structured manner to present the financial position and financial performance of an identity. Thus, financial reports are very important information in assessing a company's development and performance, both in the past, present and future.

The purpose of financial reports is to provide relevant information to support decision making. This information includes financial position, company performance, and changes in financial position. PSAK No. 1 concerning the Presentation of Financial Reports (revised 2009) states that the purpose of financial reports is to provide information regarding the financial position, financial performance and cash flows of an entity that is useful for various report users in making economic decisions.

In line with this, Ryan and Miyosi (2013) also state that financial reports function to provide various kinds of information for a certain period, provide an assessment of the company's condition or the company's financial performance, and help various parties in making decisions.

2.3. Financial Statement Analysis

According to Harahap (2011:190), financial statement analysis is the process of breaking down items in financial statements into smaller units of information to analyze their significant or meaningful relationships with one another, both quantitative and non-quantitative data. Its main objective is to gain a deeper understanding of a company's financial condition to support informed decision-making.

Ratios represent a mathematical relationship between one amount and another. Ratio analysis, as a tool, is used to explain the assessment of a company's financial position, whether good or bad, especially when these ratio figures are compared with benchmark ratios used as standards to evaluate the company's financial performance. Kasmir (2008) explains that ratio analysis involves comparing figures in the financial statements by dividing one number by another, which can be done between components within a single financial statement or among components across different financial statements. The purpose is to assess liquidity, solvency, operational efficiency, and profitability.

Kasmir (2008:68) identifies several objectives and benefits of financial statement analysis, namely:

- (a) Understanding the overall financial position of the company during a specific period, including assets, liabilities, equity, and the results achieved over several periods.
- (b) Identifying weaknesses within the company.
- (c) Recognizing the strengths possessed by the company.
- (d) Formulating necessary corrective actions related to the company's financial position.
- (e) Evaluating the management's future performance to determine whether a refresh is needed, based on whether it is deemed successful or unsuccessful.

Thus, financial statement analysis, including ratio analysis, becomes essential for various stakeholders to make decisions related to the company.

2.4. Signaling Theory

According to Houston in Kartikasari (2018), the signaling theory assumes the existence of symmetric information, where managers and investors have equal access to information about the company's prospects. However, in practice, asymmetric information is more common, with managers having broader access to information than investors. This asymmetric information significantly impacts the optimal capital structure. The signaling theory also explains how financial statements can be used as a tool to convey positive or negative signals to users.

Research by Sumeth Tuvatragool (2013) on the comparative arrangement of financial ratios in signaling financial distress using multi-measurement techniques (IMM) found that information from financial reports can serve as a medium to identify the existence of corporate bankruptcy. This theory further suggests that companies should utilize financial statements to provide positive signals to users, and this information should then be included in the company's annual financial reports.

3. Material and Method

3.1. Material

This study compares three methods to assess the financial condition and predict the likelihood of bankruptcy for four companies that conducted layoffs in 2023. The methods used are the Altman Z-Score Analysis Method, the Springate Analysis Method, and the Zmijewski Analysis Method. Various variables are required for the ratio calculations of each method, including working capital, retained earnings, EBIT, total assets, market value of equity, book value of debt, total sales, EAIT, total debt, current assets, and current liabilities. These variables are obtained from the financial statements of each company for the periods of 2022 and 2023. The ratio calculations are performed using Microsoft Excel.

In this study, the four companies analyzed for their financial distress conditions are PT Net Visi Media Tbk. (NET TV), PT GoTo Gojek Tokopedia Tbk. (GOTO), PT Bukalapak.com Tbk., and JD.com, Inc. (JD.ID).

3.1.1. PT Net Visi Media Tbk. (NET TV)

PT Net Visi Media Tbk. (NET TV) is a company operating in the media industry. Its business lines include television broadcasting, content production, artist management, and digital media. The company was founded through NET TV, a national television channel established in 2013, which later transferred its management to a subsidiary called PT Net Media Digital in 2017.

In 2023, NET TV announced mass layoffs of some of its employees in a disclosure to the Indonesia Stock Exchange. The layoffs were carried out after the company adjusted and evaluations, one of which involved managing human resources.

3.1.2 PT GoTo Gojek Tokopedia Tbk. (GOTO)

The second company, PT GoTo Gojek Tokopedia Tbk. (GOTO), is a parent company operating in the digital services sector. GoTo provides several services, including on-demand transportation, e-commerce, food and grocery delivery, logistics and fulfillment, as well as financial and payment services through the Gojek, Tokopedia, and GoTo Financial platforms.

The company has 14 subsidiaries in Indonesia and several other countries and was founded on December 15, 2015, as PT Aplikasi Karya Anak Bangsa. However, in 2021, PT Tokopedia acquired this company, and they merged to become GoTo. In March 2023, GoTo conducted mass layoffs affecting approximately 600 employees after previously laying off 1,300 employees in November 2022. The aim of these mass layoffs was to strengthen the company's operations.

3.1.3 PT Bukalapak.com Tbk.

The third company, PT Bukalapak.com Tbk., is one of Indonesia's e-commerce platforms established in 2010. Its primary goal is to support small and medium-sized enterprises in establishing online businesses and has expanded to support traditional family-owned businesses on a small scale.

As of August 2023, the company laid off less than 5% of its employees. This layoff was part of an evaluation of the company's performance.

3.1.4 JD.com, Inc. (JD.ID)

The last company, JD.com, Inc. (JD.ID), is an e-commerce platform operating under PT Jingdong Indonesia Pertama. The parent company of JD.ID is the giant retail company from China, JD.com. JD.ID began its operations in Indonesia in November 2015.

According to Yahoo Finance, JD.com launched JD.ID with investors including Provident Capital. Provident Capital is an investment company with a portfolio in sectors such as infrastructure, mining, technology, renewable energy, and more. Some of its investment portfolios in Indonesia include Tower Bersama Group, Merdeka Copper Gold, and GoTo. On March 31, 2023, JD.ID announced that it would cease all its services in Indonesia. Before closing, JD.ID laid off around 200 employees, citing the need to adapt to rapidly changing business challenges.

3.2. Method

3.2.1 Metode Analisis Z-Score Altman

The Altman Z-Score analysis method is used to predict a company's financial health and the likelihood of bankruptcy. This method was developed by Edward Altman in 1968 and has become a commonly used approach for analyzing financial conditions. The Z-Score calculation utilizes five variables in the formula that Altman revised in 1983, which are as follows:

$$Z - Score = 0.717X_1 + 0.874X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5 \quad (1)$$

With the descriptions:

X_1 : Working capital ratio to total assets

X_2 : Retained earnings ratio to total assets

X_3 : EBIT ratio to total assets

X_4 : Market value of equity to book value of debt

X_5 : Sales to total assets

The results of the Z-Score calculation will be compared to the threshold values. If $Z > 2.675$, the company's financial condition can be considered healthy. If $Z < 1.81$, the company's financial condition is deemed unhealthy and has the potential for bankruptcy. However, if the Z-Score is between 1.81 and 2.675, the company's financial condition is in the gray zone.

3.2.2 Metode Analisis Springate

The Springate analysis method is a technique used to predict financial difficulties and assess a company's financial performance. This method was developed by Springate in 1978. It utilizes four variables in its calculations, with the following formula:

$$S = 1.03A + 3.07B + 0.66C + 0.4D \quad (2)$$

With the following descriptions:

A: Working capital to total assets

B: Earnings after interest and taxes to total assets

C: Earnings before taxes to current liabilities

D: Sales to total assets

The calculation results of the *S* score indicate that if $S > 0.862$, the company can be classified as healthy; if $S < 0.862$, the company may be classified as unhealthy and potentially bankrupt

3.2.3 Zmijewski analysis method

The Zmijewski analysis method is a technique used to predict the likelihood of a company's bankruptcy. This method was developed by Mark Zmijewski in 1984. It utilizes three variables in its calculations, with the formula employed being:

$$Z = -4.3 - 4.5X_1 + 5.7X_2 + 0.004X_3 \quad (3)$$

With the following descriptions:

X_1 : Net income after tax to total assets

X_2 : Total debt to total assets

X_3 : Current assets to current liabilities

4. Result and Discussion

The investment allocation of the analyzed stocks provides an overview of the portfolio distribution that tends to be concentrated

Table 1.
Results of Financial Distress Analysis Using the Altman Z-Score, Springate, and Zmijewski Methods

Analysis Method	NET TV		GOTO		Bukalapak.com		JD.ID	
	2022	2023	2022	2023	2022	2023	2022	2023
Z-Score Altman	-0.236	0.047	-0.443	-6.568	1.989	1.966	2.263	2.313
Springate	1.387	0.681	-2.151	-9.013	2.705	2.469	1.237	1.342
Zmijewski	2.242	7.2	-2.305	5.183	-4.508	-4.396	-1.185	-1.303

Using the Altman Z-Score, the financial distress analysis of PT Net Visi Media Tbk. (NET TV) indicates that the company has a significant potential for bankruptcy, although in 2023, the *Z* value increased by 0.283, as it still remains below the standard. However, the conclusion drawn from the Springate Method differs from that of the

Altman Z-Score Method, as the company can still be classified as healthy since its S value is above the standard of 0.862. Therefore, using the Springate Method, the company is still classified as being in good condition. Additionally, using the Zmijewski Method, the company is assessed as having a high potential for bankruptcy due to the Z value being significantly greater than 0.

For PT GoTo Gojek Tokopedia Tbk. (GOTO), the financial distress analysis using the Altman Z-Score Method indicates that the company is at a very high risk of bankruptcy since its Z value is well below the standard. The results shown by the Springate Method are not much different, as the S value being far below the standard suggests a high potential for bankruptcy. Meanwhile, the results from the Zmijewski Method are quite different. In 2022, the Z value was below 0, indicating that the company was still considered healthy. However, it saw a rapid increase in 2023, with the Z value rising well above 0, indicating a significant potential for bankruptcy.

For PT Bukalapak.com Tbk., the financial distress analysis using all three methods yielded similar results, classifying the company as being in a healthy condition and safe from bankruptcy risk in both 2022 and 2023. Using the Springate and Zmijewski methods, the S and Z values were at the normal threshold, indicating that the company is in good condition. Nevertheless, the Z value from the Altman Z-Score method was 1.81 and 2.675, suggesting that the company is in a gray area—neither healthy nor at significant risk of bankruptcy.

The financial distress analysis for the last company, JD.com, Inc. (JD) or JD.ID, indicates that the company is in a healthy condition. The analysis results using the Altman Z-Score, Springate, and Zmijewski methods showed similar outcomes to those for PT Bukalapak.com Tbk. Using Springate and Zmijewski, the company was classified as healthy and without bankruptcy risk, while the Altman Z-Score indicated that the company was in the gray zone—not healthy, but also not at risk of bankruptcy.

5. Conclusion

This study aims to estimate the financial conditions of companies that have conducted mass layoffs of their employees throughout 2023, including PT Net Visi Media Tbk, PT GoTo Gojek Tokopedia Tbk, PT Bukalapak.com Tbk, and JD.com, Inc. (JD), using the Altman Z-Score, Springate, and Zmijewski methods. Based on the research results and calculations, it can be concluded that overall, the financial distress analysis using these three methods indicates that PT Net Visi Media Tbk. (NET TV) and PT GoTo Gojek Tokopedia Tbk (GOTO) have a significant potential for bankruptcy, while PT Bukalapak.com Tbk and JD.com, Inc. (JD) or JD.ID can be classified as having healthy financial conditions and are safe from bankruptcy risks. The financial distress analysis of PT Net Visi Media Tbk. (NET TV), PT GoTo Gojek Tokopedia Tbk. (GOTO), PT Bukalapak.com Tbk., and JD.com, Inc. (JD.ID) using the Altman Z-Score, Springate, and Zmijewski methods shows varied results. For NET TV, both the Altman Z-Score and Zmijewski methods indicate a high potential for bankruptcy, despite a slight increase in 2023, whereas the Springate method indicates that the company is still classified as healthy. GOTO also shows a high potential for bankruptcy according to all three methods, with the Zmijewski method previously indicating a healthy condition in 2022 but changing significantly in 2023. Meanwhile, Bukalapak is considered healthy based on all three methods, although the Altman Z-Score places it in the gray zone—neither healthy nor at significant risk of bankruptcy. The analysis of JD.ID also mirrors Bukalapak's results, where the company is deemed healthy by the Springate and Zmijewski methods, but falls into the gray zone according to the Altman Z-Score. These results indicate that, although there are variations among the methods, most companies show a greater potential for bankruptcy when analyzed with the Altman Z-Score and Zmijewski methods, while the Springate method tends to assess the companies as healthy..

References

- Jati, K.W., Agustina, L., Amal, M.I., Wahyuningruma, I.F., & Zulaikha, Z. (2021). Exploring The Internal Factors Influencing Financial Distress. *Accounting*.
- Marsenne, M., Ismail, T., Taqi, M., & Hanifah, I. A. (2023). An Analysis Of Financial Distress Determinants In Indonesia's Micro And Small Enterprises. *International Journal Of Professional Business Review: Int. J. Prof. Bus. Rev.*, 8(11), 9.
- Munawarah, M., & Hayati, K. (2019). Accuracy Of Springate, Zmijewsky And Grover As Logistic Models In Finding Financial Difficulty Of Financing Companies. *Accruals (Accounting Research Journal Of Sutaatmadja)*, 3(1), 1-12. <https://doi.org/10.35310/Accruals.V3i1.36>.
- Nurhayati, I., Endri, E. N. D. R. I., Suharti, T. I. T. I. N. G., Sundarta, I., & Rinda, R. T. (2022). The Accuracy Of Financial Distress Prediction During The Covid-19 Pandemic On Healthcare Sub-Sector Companies. *Wseas Transactions On Business And Economics*, 19, 1463-1475.
- Say, S. (2024). Determining Financial Distress With The Help Of The Altman Z-Score Model. *Toplum Ekonomi Ve Yönetim*

Dergisi, 5(2), 327-341. <https://doi.org/10.58702/Teyd.1416150>.

Silaen, M.F., Butarbutar, M., & Nainggolan, C.D. (2020). Comparative Analysis Of Financial Distress Altman And Springate Methods As A Early Warning Of Financial Difficulty. *Jurnal Penelitian Ilmu Manajemen (JPIM)*, 5(2), 138-148.

Umar, W., Muchran, M., & Ridwan, M. (2024). Financial Distress Prediction Analysis Using The Zmijewski Method. *Contemporary Journal On Business And Accounting*, 4(1), 39-48. <https://doi.org/10.58792/Cjba.V4i1.49>.