



## **Financial Ratio Analysis to Predict The Potential of The Company's Financial Distress With Altman Z-Score Method at PT Bali Kulina Utama**

**N L Erawati U<sup>1)</sup>, I M Sudana<sup>2)</sup>, and L Mei W**  
Accounting Department, Politeknik Negeri Bali  
Jalan Kampus Bukit Jimbaran, Kuta Selatan, Badung, Bali - 80364

E-mail to:

<sup>1)</sup>ermiutami99@gmail.com

<sup>2)</sup>madesudana@pnb.ac.id

<sup>3)</sup>meiwahyuni@pnb.ac.id

**Abstract:** Identification of potential financial distress in a company is an important step in predicting the company's financial health condition. Financial distress conditions can occur before the company goes bankrupt which is marked by a decline in company finances. To deal with these conditions, the company is expected to be able to prepare a strategy to anticipate the occurrence of bankruptcy by analyzing financial ratios. This study aims to calculate, analyze, and classify the potential of financial distress at PT Bali Kulina Utama through financial ratios with the prediction model used is Altman Z-Score Modification method. Primary and secondary data obtained through interviews and documentation data collection techniques. The data analysis technique is descriptive qualitative by calculating each financial ratio that contained in the Altman Z-Score Modification model and calculating the Z-Score Modification equation to predict financial distress position. Based on the results, it can be concluded that the potential of financial distress at PT Bali Kulina Utama in 2018-2020 is in a non financial distress condition, because the Z-Score Modification equation value is in Z"-Score > 2,6.

**Keywords:** *financial ratio, financial distress, Altman Z-Score Modification*

### **1. Introduction**

The existence of the company can be seen from the company's financial condition which is reflected in the financial statements. The information contained in the financial statements is analyzed using financial statement analysis techniques. Basically the analysis of financial statements is carried out in order to be able to analyze the condition of the company in a certain time, whether the company is in good condition or experiencing financial distress.

Financial distress, which is the initial stage before the company can no longer operate and eventually goes bankrupt. Financial distress analysis can be used as a tool to anticipate and predict this potential.

One of the predictions of potential financial distress can be using Altman Z-Score Modification prediction model which is used as a measurable control tool on the financial status of companies experiencing financial distress[1]. Altman Z-Score Modification is expressed in the form of a linear equation consisting of 4 coefficients to represent certain financial ratios.

The technique used in this model is the Multiple Discriminant Analysis (MDA) technique, with a combination technique in the form of related financial ratios to form an equation. The Altman model is dynamic and always evolving and can be used by non-manufacturing companies. Because of these developments, the Altman model was able to predict with an accuracy of 95% [2].

The condition of potential financial distress can be seen in the financial statements of PT Bali Kulina Utama which are presented in Table 1.

**Table 1.** Total Asset, Current Liabilities, Total Liabilities, and Profit/Loss  
PT Bali Kulina Utama in 2018-2020 (in IDR)

Year	Total Asset	Current Liabilities	Total Liabilities	Profit/Loss
2018	2.002.480.042	223.015.996	622.480.042	302.950.650
2019	2.276.092.954	235.103.789	623.142.304	249.974.216
2020	2.228.836.344	300.623.891	675.911.478	225.957.161

Based on table 1, PT Bali Kulina Utama experienced an increase in debt from 2018 to 2020 to fulfill the company's operational activities. The increase in debt that occurs is interpreted as a negative indicator because the company chooses to increase its debt. This is a bad consequence for the company if it is not followed by the ability to generate profits to cover debt. In addition, the profit earned from year to year tends to decrease significantly. The profit obtained in 2018 was the highest profit and in the following year it decreased.

The decrease in profit is indicated as the company's inability to use working capital and is an illustration of the ineffectiveness of the company's management in carrying out operational activities. Therefore, it is necessary to make decisions based on appropriate financial statement analysis using the Altman Z-Score Modification model.

## 2. Literature Review

The financial statements of a company reflect the financial condition of the company itself. The company's financial condition is not always in a good state, so it is very important to determine the company's financial position through financial statements. The financial statements are presented and arranged in such a way that the users of the financial statements can determine the background of the company's performance [3]. The company's performance is assessed and evaluated by analyzing the financial statements in order to maximize performance in the coming period [4]. The problem analysis process in the financial statements is carried out using a measuring instrument in the form of financial ratios [5], based on the variables that exist in the components of the financial ratios [6]. This measuring tool is useful for management to find out the early signs of financial distress [7]. Financial distress is indicated as the inability to pay off the company's debt which has an impact on liquidity so that the company has an excess amount of debt [8]. One of the financial distress analysis methods is Altman Z-Score Modification method issued by Edward I. Altman in 1968 [9], which later developed into the most widely used bankruptcy prediction model today because it is very flexible for all types of companies [10]. This model is a statistical model that combines four financial ratios to produce a Z-Score [11], namely working capital to total asset, retained earning to total asset, earning before interest and tax to total asset, and book value of equity to book value of debt [12], and there is a Z-Score Modification equation that is used to determine the company financial status [13].

## 3. Research Method

This study uses descriptive qualitative data analysis with PT Bali Kulina Utama financial report data, collected through interviews and documentation. The financial statements used in this study are in the form of income statements and balance sheets during 2018-2020. Data analysis was carried out by

calculating each financial ratio contained in the Altman Z-Score Modification model and calculating the Z-Score Modification equation to predict financial distress position.

### 3.1. Altman Z-Score Modification Method

#### 3.1.1. Working Capital to Total Asset ( $X_1$ )

This ratio shows the company's ability to provide net working capital of the total assets owned by the company.

$$\text{WCTA } (X_1) = \frac{\text{Working Capital}}{\text{Total Assets}}$$

#### 3.1.2. Retained Earning to Total Asset ( $X_2$ )

This ratio shows the amount of retained earning used to finance the total assets owned by the company.

$$\text{RETA } (X_2) = \frac{\text{Retained Earning}}{\text{Total Assets}}$$

#### 3.1.3. Earning Before Interest and Tax to Total Asset ( $X_3$ )

This ratio shows the company's ability to earn operating profit before interest and taxes from the total assets owned by the company.

$$\text{EBITTA } (X_3) = \frac{\text{EBIT}}{\text{Total Assets}}$$

#### 3.1.4. Book Value of Equity to Book Value of Debt ( $X_4$ )

This ratio shows the company's ability to fulfill its obligations with the company's own capital.

$$\text{BVEBVD } (X_4) = \frac{\text{Book Value of Equity}}{\text{Book Value of Debt}}$$

#### 3.1.5. Altman Z-Score Modification equation formula

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

Company classification based on the cut off contained in the Altman Z-Score Modification method:

**Table 2.** Score Classification

Criteria	Description
$Z \leq 1,1$	Financial Distress
$1,1 < Z \leq 2,6$	Grey Area
$Z > 2,6$	Non Financial Distress

## 4. Result and Discussion

### 4.1. Calculation of ratios with Altman Z-Score Modification Method

The calculation of each ratio component in the Altman Z-Score Modification prediction model can be shown in Table 3.

**Table 3.** Altman Z-Score Modification Ratio Value  
PT Bali Kulina Utama in 2018-2020

Year	WCTA ( $X_1$ )	RETA ( $X_2$ )	EBITTA ( $X_3$ )	BVEBVD ( $X_4$ )
2018	0,4183	0,2472	0,1949	2,2491
2019	0,4778	0,1977	0,1408	2,6526
2020	0,4373	0,0897	0,1286	2,2975

The results of the calculation of the ratio reflect the condition of PT Bali Kulina Utama for three years which can be concluded in the analysis of each ratio as follows:

#### 4.1.1. Ratio Analysis of Working Capital to Total Asset ( $X_1$ )

The ratio of working capital to total asset in 2018 has a value of 0,4183, which means that net working capital is 41,83% of the company's total assets. This ratio increased by 5,95% in 2019 when compared to the previous year, so that the acquisition of working capital for 2019 was 0,4778. The increase in the ratio value that occurred in 2019 was due to an increase in the company's current assets in the cash and bank cash sections. This is inversely proportional to the value in 2020 which decreased by 4,04% from 2019. The ratio value in 2020 was 0,4373 which was caused by a decrease in working capital due to an increase in current debt and also had an effect on the decline in the value of current assets in 2020.

#### 4.1.2. Ratio Analysis of Retained Earning to Total Asset ( $X_2$ )

The ratio of Retained Earning to Total Assets in 2018 is 0,2472 which means 75,27% is profit distributed to shareholders and every IDR 1 of the company's total assets is able to obtain retained earning of 0,2472. The value of the ratio decreased in 2019 by 4,95% when compared to the previous year, so the retained earning for 2019 was 0,1977. The decrease in the value of the ratio was caused by a decrease in the number of sales, so that the resulting retained earning decreased. The decline in the value of the ratio also occurred in 2020, so that the value of the ratio in 2020 was 0,0897 from 2019 which decreased by 10,79%. In 2020 there was a distribution of a number of dividends to shareholders, so this is what causes the value of the retained earning ratio in 2020 to decrease.

#### 4.1.3. Ratio Analysis of Earning Before Interest and Tax to Total Asset ( $X_3$ )

The ratio of Earning Before Interest and Tax to Total Asset in 2018 obtained a value of 0,1949 which means that operating profit before interest and taxes can be obtained from the total assets of 19,4%. The ratio value decreased in 2019 by 5,4% when compared to 2018, so that the acquisition value was 0,1408. The decrease in the value of the ratio was caused by a decrease in the number of sales. The decline in the value of the ratio also occurred in 2020, the value of the ratio in 2020 was 0,1286. The decrease occurred by 1,21% from 2019 due to a decrease in the amount of income from sales, current accounts, rentals, and others also in line with the increase in the company's short-term and long-term debt.

#### 4.1.4. Ratio Analysis of Book Value of Equity to Book Value of Debt ( $X_4$ )

The ratio of Book Value of Equity to Book Value of Debt in 2018 was 2,2491, which means that every IDR 1 of the company's debt can be guaranteed by 224,94% of the value of its own capital. The value of this ratio increased by 40,35% in 2019 when compared to 2018, the value of the ratio in 2019 was

2,6526. The increase in the value of the ratio was due to the increase in profit for the year in 2019. The value of this ratio was inversely proportional to the year 2020 which decreased by 35,5% from 2019 the value became 2,2975. The decrease occurred due to the reduced value of the paid-in capital to the company. This happens because the amount of company debt increases and is not followed by an increase in the number of sales, so that the resulting profit decreases.

#### 4.2. Calculating of Financial Distress Position with Altman Z-Score Modification Method

The results of the ratio calculation are entered into the Z-Score Modification equation by adding up the results of the  $X_1$  to  $X_4$  ratio calculations after being multiplied by the Z-Score value of each ratio. The results of obtaining the Altman Z-Score Modification model equation values can be shown in table 4.

**Table 4.** Equation Value of Altman Z-Score Modification  
PT Bali Kulina Utama in 2018-2020

Year	WCTA ( $X_1$ )	RETA ( $X_2$ )	EBITTA ( $X_3$ )	BVEBVD ( $X_4$ )	Z-Score (Score)
2018	2,7441	0,8059	1,3096	2,3615	7,2211
2019	3,1345	0,6445	0,9463	2,7852	7,5105
2020	2,8690	0,2925	0,2925	2,4124	6,4384

Based on the calculation results of the Z-Score Modification equation in table 4, the financial distress position of PT Bali Kulina Utama can be grouped into the criteria determined by Altman. These criteria are classified based on the cut off value which can be seen in table 5.

**Table 5.** Classification of Potential *Financial Distress*  
PT Bali Kulina Utama in 2018-2020

Year	Z-Score (Score)	Classification
2018	7,2211	Non Financial Distress
2019	7,5105	Non Financial Distress
2020	6,4384	Non Financial Distress

Table 5 presents the results of the financial distress classification which describes the financial condition of PT Bali Kulina Utama in 2018-2020. The classification results show that PT Bali Kulina Utama is in a condition of non financial distress.

##### 4.2.1. Financial Distress Position Analysis

Financial distress position at PT Bali Kulina Utama obtained a value of Z-Score Modification in 2018, 2019, and 2020 respectively is 7,2211; 7,5105; and 6,4384. The company is categorized as non financial distress because it is on the criteria  $Z''\text{-Score} > 2,6$ . This is also supported by the value of the four financial ratios after being multiplied by the Z-Score value in the equation of each ratio. The results of the calculation of the ratio component provide an illustration of the company has operated its assets effectively. In this regard, the effectiveness of management work in managing assets for investment and funding purposes in fulfilling obligations, makes the company able to avoid financial distress condition.

## 5. Conclusion

Based on the calculation results of the ratio component and the Z-Score Modification equation, it can be concluded that in 2018, 2019, and 2020 provide a positive illustration of the company's sustainability

as reflected in the value of the calculation of the four financial ratios. The results of these calculations make PT Bali Kulina Utama in a condition of non financial distress, with the criteria Z"-Score > 2,6.

## 6. Acknowledgment

During the completion of this article, the author received a lot of guidance from various parties. Therefore, on this occasion the author would like to thank all those who helped. The author also expects suggestions and constructive criticism from readers because this research is still not perfect.

## 7. References

- [1] L. Pratiwi, D. Amboningtyas SE.MM, and A. Fathoni SE.MM, "Analisis Laporan Keuangan Dengan Menggunakan Model Altman Z-Score dan Springate Dalam Memprediksi Kebangkrutan (Studi pada Perusahaan Kosmetik yang Terdaftar di IDX pada Tahun 2013-2017)," *J. Ekon. Dan Bisnis*, vol. 23, no. 7, pp. 88–96, 2017, [Online]. Available: <https://jurnal.unpand.ac.id/index.php/MS/article>.
- [2] M. D. Anugrah, "Analisis Model Altman, Taffler, Dan Zmijewski Dalam Memprediksi Perusahaan Yang Delisting Secara Paksa Karena Kegagalan Keuangan Dari Bursa Efek Indonesia Periode 2010-2014," *TECHNOBIZ Int. J. Bus.*, vol. 2, no. 1, p. 38, 2019, doi: 10.33365/tb.v2i1.283.
- [3] D. P. Darminto, *Analisis Laporan Keuangan Konsep dan Aplikasi*. Yogyakarta: UPP STIM YKPN, 2019.
- [4] M. N. Lakanda, L. S. L. H. V. J, and J. R. Tumiwa, "Analyzing The Financial Statement Using Horizontal-Vertical Analysis To Evaluating The Company Financial Performance Period 2012-2016 (Case Study at PT. Unilever Indonesia Tbk)," *J. EMBA J. Ris. Ekon. Manajemen, Bisnis dan Akunt.*, vol. 5, no. 3, pp. 3985–3994, 2017, doi: 10.35794/emba.v5i3.18270.
- [5] J. Faello, "Understanding The Limitations Of Financial Ratios," *Acad. Account. Financ. Stud. J.*, no. July, 2019.
- [6] M. Sari and H. Diana, "Analisis Rasio Keuangan Untuk Memprediksi Kondisi Financial Distress Perusahaan Pulp Dan Kertas Yang Terdaftar Di Bursa Efek Indonesia Tahun 2012-2017 Dengan Model Altman Z-Score," *Res. Account. J.*, vol. 1, no. 1, pp. 32–48, 2020, doi: 10.37385/raj.v1i1.32.
- [7] E. C. Yuliastry and M. G. Wirakusuma, "Analisis Financial Distress dengan Metode Z-Score Altman, Springate, Zmijewski," *E-Jurnal Akunt. Univ. Udayana*, vol. 6, no. 3, pp. 379–389, 2014, [Online]. Available: <https://ojs.unud.ac.id/index.php/Akuntansi/article/pdf>.
- [8] Hantono, "Memprediksi Financial Distress Dengan Menggunakan Model Altman Score, Grover Score, Zmijewski Score (Studi Kasus Pada Perusahaan Perbankan)," *Going Concern J. Ris. Akunt.*, vol. 9, no. 1, pp. 1–12, 2019, doi: 10.32400/gc.14.1.22372.2019.
- [9] E. I. Altman, M. Iwanicz-Drozdowska, E. K. Laitinen, and A. Suvas, "Financial Distress Prediction in an International Context: A Review and Empirical Analysis of Altman's Z-Score Model," *J. Int. Financ. Manag. Account.*, vol. 28, no. 2, pp. 131–171, 2017, doi: 10.1111/jifm.12053.
- [10] W. Qiu, S. Rudkin, and P. Dłotko, "Refining Understanding Of Corporate Failure Through a Topological Data Analysis Mapping of Altman's Z-Score Model," *Expert Syst. Appl.*, vol. 156, p. 113475, 2020, doi: 10.1016/j.eswa.2020.113475.
- [11] R. Zannati and E. R. Dewi, "Model Prediksi Financial Distress Perusahaan Perdagangan Eceran: Pendekatan Altman Z-Score," *J. Ris. Manaj. dan Bisnis Fak. Ekon. UNIAT*, vol. 4, no. 3, pp. 469–480, 2019, doi: 10.36226/jrmb.v4i3.322.
- [12] N. L. G. E. Sulindawati, *Manajemen Keuangan Sebagai Dasar Pengambilan Keputusan Bisnis*.

- Depok: Rajawali Pers, 2017.
- [13] A. T. Widiyawati, S. W. Utomo, and N. Amah, "Analisis Rasio Altman Modifikasi Pada Prediksi Kebangkrutan Perusahaan Property dan Real Estate yang Terdaftar di BEI," *J. Akunt. dan Pendidik.*, vol. 4, no. 2, 2015, [Online]. Available: <http://e-journal.unipma.ac.id/index.php/assets/article>.