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Bankruptcy Analysis Using the Altman Z-Score Method (Case Study on PT Garuda Indonesia, Tbk 2016 – 2019)

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Abstract *Bankruptcy is a state in which a company is unable to fulfil its financial obligations or a situation where the corporation initially functions but thereafter fails in business management. Bankruptcy is a state in which a firm lacks the money to operate its operation. The objective of the research is to identify the variables contributing to bankruptcy in PT. Garuda Indonesia. This research employs the Altman Z-score methodology using a bankruptcy calculation. This analysis indicates that the firm is at risk of bankruptcy, since its present assets from 2016 to 2019 are insufficient to meet its financial obligations. Companies must use deliberate, clear, and suitable measures to enhance operational cost efficiency. An inadequate business plan and human resources without a clear vision and goal for the organisation contribute to losses. This research seeks to evaluate the financial performance of PT Garuda Indonesia (Persero) Tbk from 2016 to 2019 using the Altman Z-Score model. The population and sample in this research consist of the complete financial statements of PT Garuda Indonesia (Persero) Tbk for the years 2016 to 2019. The findings of this research indicate that from 2016 to 2019, the bankruptcy rate at PT Garuda Indonesia (Persero) Tbk was unfavourable, as shown by a Z-Score below 1.10, signifying a state of bankruptcy. The most pronounced decrease was seen in the Working Capital to Total Asset ratio, particularly in 2019. This results from the annual growth in current obligations.*

Keywords: *Bankruptcy, Altman Z-Score Method, PT Garuda Indonesia*

1. INTRODUCTION

The analysis of a company's financial statements is to ascertain its profitability and assess its risk or overall financial health. The health of a corporation may be defined from the pinnacle of optimal wellness to the nadir of severe dysfunction. Financial challenges might vary from transitory liquidity issues that are quite mild to declarations of bankruptcy (Utomo, 2018).

Foster (1986) posits that financial troubles signify a company's incapacity to fulfil its financial commitments at maturity, resulting in bankruptcy. Bankruptcy occurs when a corporation can no longer meet its responsibilities due to financial constraints and inadequate cash, preventing it from achieving its intended objectives. Bankruptcy may result in the cessation of all corporate operations and the dissolution of connections among parties associated with the firm.

In the last 50 years, bankruptcy prediction has emerged as a progressively intriguing domain for scholars globally. A multitude of academic research has focused on enhancing the accuracy of business failure prediction models.

A breakthrough in the bankruptcy prediction model introduced by Altman in 1968, many studies have focused on predicting the financial difficulties of companies (Shi & Li, 2019). Bankruptcy generally begins with financial problems, especially liquidity. Liquidity can

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hinder companies from carrying out their operations. This kind of situation can be called financial distress. The final stage of a bankruptcy is bankruptcy, this happens because management fails to overcome the company's financial difficulties. Under these conditions, the company can no longer carry out its operations (Effendi & others, 2018).

Bankruptcy is a critical concern that firms must recognise. If a corporation has had financial problems, it has effectively suffered business failure. Consequently, organisations must do numerous evaluations promptly, particularly those pertaining to potential bankruptcy. Conducting an analysis enables organisations to develop predictions that may mitigate or avert the danger of bankruptcy.

Bankruptcy analysis is conducted to identify early indicators of insolvency. Early detection of bankruptcy indicators is advantageous for management, as it enables them to implement corrective measures to avert insolvency and devise strategies to address potential bankruptcy should it occur. The occurrence of bankruptcy of a company is the worst risk for several parties, such as for investors, creditors, and also for the company itself. Bankruptcy is a state in which a company's financial challenges are so severe that it can no longer function effectively. Numerous models exist to assess a company's probable insolvency, including the Altman Z-score model, the Zmijewski model, the Springate model, the Foster model, and the Grover model.

Altman (1968) argues that the measurement of profitability, liquidity, and solvency ratios is the most significant ratio of several financial ratios to predict a company's bankruptcy. In his research, Altman used a sample of 33 bankrupt and non-bankrupt firms using a meticulously constructed model, successfully identifying 90 percent of bankruptcy situations in the year before the event. This Altman model has an accuracy of up to 95%. In his research, Arini (2013) stated that Z-Score analysis is a tool/method used to predict the condition of the company whether it is in a healthy state, or not and also shows the company's performance which at the same time reflects the company's prospects in the future. Altman's Z-score model makes it possible to estimate bankruptcy up to two years before bankruptcy occurs. Diratama (2012) stated that the Z-Score model is an appropriate and accurate model in discussing research on corporate bankruptcy analysis compared to other methods.

The Springate model is a model that uses the same statistical methods and sampling techniques as Altman but the samples are different. The ratios used in predicting bankruptcy in this model are working capital/total assets (X1), profit before interest and taxes/total assets (X2), profit before tax/current assets (X3), and sales/total assets (X4). The cut-off applicable for this model is 0.862. A Z value smaller than 0.862 indicates that the company is predicted to go bankrupt. The fourth is the Foster model, originally it used Univariate Models by using two ratio variables separately, namely Transportation Expense to Operating Revenue Ratio (TE/OR Ratio) and Time Interest Earned Ratio (TIE Ratio). Companies with a Z < 0.640 are included in the group of bankrupt companies.

The Zmijweski approach of the probit model is an alternative regression analysis using a cumulative normal probability distribution. Zmijewski's probit analysis use financial parameters that assess performance, leverage, and liquidity to forecast a company's financial distress. Zmijewski's probit model utilises data from 40 insolvent firms and 800 non-bankrupt firms. Previous study indicates that Zmijewski's approach has an accuracy rate of 84 percent in predicting corporate insolvency.

FosterModel The Foster Method is a framework that use Univariate Models using two distinct ratio variables: the Transportation Expense to Operating Revenue Ratio (TE/OR Ratio) and the Time Interest Earned Ratio (TIE Ratio) (Effendi, 2018). Companies that have a Z of less than 0.640 are predicted to go bankrupt.

Grover Method The Grover Model according to Effendi (2018) is a technique developed via the construction and reassessment of the Altman Z-Score Model. If the value is less than or equal to -0.02, the firm is forecasted to be insolvent; if the value is more than or equal to 0.01, the company is deemed financially sound.

2. RESEARCH METHODS

-Research Variables and Types of Research

The variable examined in this research is the likelihood for corporate bankruptcy in PT Garuda Indonesia (Persero) Tbk. This research employs a descriptive methodology using a quantitative approach. Descriptive study aims to gather information on an existent symptom, specifically its condition at the time the research is conducted. This descriptive research technique employs a quantitative approach by analysing the company's financial statement data, which is then tabulated to ascertain the company's health status.

PT Garuda Indonesia, it can be known that the financial performance achieved by the company for four years. The following is the financial statement of PT Garuda Indonesia for the period of 2016 – 2019: Table

Table 1. Financial Position of PT. Garuda Indonesia (Persero) Tbk. in 2016-2019

Year	Total Debt (USD)	Pertum buhan %	Own Capital (USD)	Pertum buhan %	Revenue (USD)	Pertum buhan %	Profit and Loss (USD)	Pertum Foam %
2016	2,727,672,171		1,309,433,569		3,863,921,565		99,103,939	
2017	2,825,822,893	3,59	1,310,326,950	0,07	4,177,325,781	8,11	(76,181,178)	-176,87
2018	3,515,668,247	24,41	1,310,326,950	0	4,330,441,061	3,66	(199,105,549)	-361,36
2019	3,735,052,883	6,24	1,310,326,950	0	4,572,638,083	5,6	147,014,670	-26,16

Based on the table above, it shows that the company's total debt for four consecutive years has increased. It can also be seen in revenue which has increased from year to year, while in profit and loss in 2016-2018 it has decreased and in 2019 it has increased. From 2017 to 2019, there was an increase in total debt from US$ 2,727,672,171 to US$ 3,735,052,883. The rise was attributed to heightened bank and financial institution debt associated with the company's working capital facilities for fuel payments and aircraft asset maintenance, an escalation in bond debt corresponding to the issuance of sukuk, and the expansion of third-party debt in aviation services. The revenue column indicates an increase from US$ between 2016 and 2019.

3,863,921,565 to US$ 4,572,638,083. The factors that caused the increase were the increase in scheduled flight revenue and other income (maintenance and repair revenue of other airlines, travel agency revenue, groundhandling revenue, information technology revenue, food service growth and training income). The profit and loss column shows that PT. Garuda Indonesia (Persero) Tbk in every year from 2016 to 2019 suffered losses caused by a decrease in revenue from scheduled flights, debt payments, increased fuel operating costs, and additional costs related to extraordinary transactions (tax amnesty program and cargo cartel cases in Australia). This signifies a deterioration in the firm's performance that, if unaddressed, would adversely affect the company and may ultimately lead to bankruptcy.

Based on the title used in this study, the variable used is the potential for bankruptcy of the company in PT Garuda Indonesia (Persero) Tbk. This research employs a descriptive methodology using a quantitative approach. Descriptive study aims to gather information on an existent symptom, specifically its condition at the time the research is conducted. This descriptive research technique employs a quantitative approach by analysing the company's financial statement data, which is then tabulated to ascertain the company's health status.

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3. RESULTS AND DISCUSSION

Research Results

The Z-Score statistics indicate a consistent annual decline from 2016 to 2019. The following table delineates the findings of the calculated Z-Score value ratio.

Table 2. Z-Score Ratio Results of PT Garuda Indonesia (Persero) Tbk.

Year	Ratio				*Z-Score*
	X1	X2	X3	X4	
2016	-0,11	-0,06	0,05	0,32	-0,24
2017	-0,25	-0,12	-0,04	0,20	-1,56
2018	-0,25	-0,09	-0,06	0,15	-2,16
2019	-0,48	-0,15	0,01	0,24	-6,34

Source : Data Processed 2021.

Based on the results of the *Z-Score calculation*, it can be known that the bankruptcy condition of PT Garuda Indonesia (Persero) Tbk is in accordance with the criteria that have been determined by *Altman*. The following are the Altman *Z-Score criteria*:

Table 3. *Almant Z-Score Assessment Criteria*

Criterion	Category
Z>2.60	*Non Bankrupt*
1.10 < Z < 2.60	*Grey Area*
Z < 1.10	*Bankrupt*

Source : Munawir (2011).

Z-Score > 2.60: Company is very healthy and does not face financial difficulties.

1.10 < Z-Score < 2.60: Company is in the gray area, facing financial difficulties with outcomes depending on management decisions.

Z-Score < 1.10: Company faces severe financial difficulties with a high risk of bankruptcy.

The following table shows PT Garuda Indonesia's condition from 2016–2019 based on Z-Score calculations.

Table 4. Analysis of Calculation Results *Z-Score* PT Garuda Indonesia (Persero) Tbk Year 2016 – 2019

Year	Value	Interpretation
2016	-0,24	The company has a very financial difficulty large and high-risk so that the possibility of bankruptcy is bigger *(Bankrupt)*
2017	-1,56	The company has a very financial difficulty large and high-risk so that the possibility of bankruptcy is bigger *(Bankrupt)*

2018	-2,16	The company has a very financial difficulty large and high-risk so that the possibility of bankruptcy is bigger *(Bankrupt)*
2019	-6,34	The company has a very financial difficulty large and high-risk so that the possibility of bankruptcy is bigger *(Bankrupt)*
Average	-2,32	The company has a very financial difficulty large and high-risk so that the possibility of bankruptcy is bigger *(Bankrupt)*

4. RESEARCH DISCUSSION

Table 2 The net working capital analysis for 2016-2019 indicates that PT Garuda Indonesia (Persero) Tbk had negative working capital for four consecutive years, attributed to the annual rise in the company's current liabilities. This ratio assesses PT. Garuda Indonesia (Persero) Tbk.'s capacity to meet its short-term liabilities and evaluates asset liquidity. Wardah (2020) asserts that a work model characterised by positive values indicates a company's capacity to meet its financial responsibilities, while negative working capital signifies challenges in achieving such commitments.

The increase in current liabilities from 2016 to 2017 was due to an increase in bank and financial institution debt of US$868.38 million related to the increase in the Company's working capital facility to finance fuel payments and maintenance of aircraft assets and long-term liabilities maturing in one year amounting to US$243.17 million in 2017.

The increase in current liabilities that occurred from 2017 to 2018 was due to an increase in short-term loans and operating debt of US$ 1.05 billion. The increase was mainly due to an increase in business debt from related parties and third-party business debt on aviation services and long-term liabilities maturing in one year amounting to US$ 680.46 million in 2018.

The increase in current liabilities from 2018 to 2019 was due to the increase in short-term long-term liabilities and long-term liabilities growth of US$ 984.85 million, related to the increase in the growth of related party debt and long-term loans maturing in one year and long-term liabilities maturing in one year reaching USD805. 05 million in 2019.

Based on table 3 regarding total assets in 2016-2019, it shows that the total assets of PT Garuda Indonesia (Persero) Tbk have increased every year. The increase was due to the growth of current and non-current assets, an increase in cash and cash equivalents, an increase in

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accounts receivable, an increase in inventory, an increase in advances and prepaid costs, aircraft maintenance funds and security deposits, investments in associated entities, an increase in assets in the form of buildings and equipment, thus giving an idea that the company is improving. The adequacy of the increase in assets will facilitate every activity of the company and is expected to increase. This is in accordance with research conducted (Putri, 2018), that total assets have a positive and significant influence on net profit.

Based on table 4 regarding *retained earnings* for 2016-2019, it shows that PT Garuda Indonesia (Persero) Tbk's retained earnings have fluctuated. From 2016 to 2017 it decreased. In 2018 retained earnings increased again, and in 2019 retained earnings decreased. The decline is due to the fact that unreserved profits are decreasing every year. The decline in unreserved profit was due to a decrease in net profit followed by a decrease in the amount of comprehensive profit (loss) that can be attributed to owners of parent entities or non-controlling interests which annually decreased. This has an effect on the decrease in the profit balance, especially the profit that has not been reserved. Wardah (2020) posits that low retained profits may signify a poor business year or a decrease in longevity.

Negative retained profits occur when the company's losses surpass the cumulative retained earnings from prior years.

5. CONCLUSION

The financial performance of PT Garuda Indonesia (Persero) Tbk, as shown by the net working capital to total assets ratio, is subpar due to the annual reduction in the company's working capital. Meanwhile, the total assets have increased every year, indicating that the company is experiencing difficulties in paying off its current liabilities. This was due to an increase in current liabilities such as an increase in bank and financial institution debt, an increase in the growth of current and non-current assets, an increase in cash and cash equivalents, an increase in accounts receivable, an increase in inventories, an increase in advances and prepaid costs, aircraft maintenance funds and security deposits, investments in associated entities, and an increase in assets in the form of buildings and equipment.

The financial performance of PT Garuda Indonesia (Persero) Tbk, as assessed through the retained earnings to total assets ratio, is subpar due to a yearly decline in retained earnings, attributable to diminishing net profit and a reduction in comprehensive profit (loss), which consequently impacts the profit balance negatively.

Analysis of the test findings and subsequent discussion indicates that PT. Garuda Indonesia, Tbk faced a probable bankruptcy risk due to insufficient current assets from 2016 to

2019, impairing the company's capacity to meet its debt obligations. PT Garuda Indonesia's financial performance necessitates decisive and suitable measures to address the significant operating expenses, particularly with fuel and the depreciation of the Rupiah against the US dollar. PT Garuda Indonesia suffered a loss factor due to inadequate business strategies and the presence of human resources without a clear vision and goal, leading to unfavourable reports on the conduct of the directors in 2018.

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