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PREDICTING BANKRUPTCY IN INDONESIA'S AIRLINE SECTOR: A ZMIJEWSKI MODEL ANALYSIS

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Abstract: This study aims to determine the analysis of bankruptcy potential based onThe Zmijewski model was applied to aviation subsector companies listed on the Indonesia Stock Exchange (IDX) for the 2021-2022 period. The data used in this study is quantitative, and the data sources are secondary data, with data collection techniques using literature and documentation. The method used in this study is descriptive with a quantitative approach. This method aims to describe a condition in detail by using numbers to process and interpret data. The analysis technique used in this study is the Zmijewski method using 3 ratios. Based on the results of this study, it can be concluded that using the Zmijewski method, all 3 aviation subsector companies have the potential to go bankrupt. The aviation subsector companies listed on the IDX are: PT AirAsia Indonesia Tbk (CMPP), PT Garuda Indonesia (Persero) Tbk (GIAA), and PT Jaya Trishindo Tbk (HELI).

Keywords: Bankruptcy Analysis, Zmijewski

INTRODUCTION

A company definitely needs financial reports. Financial reports are records of a company's financial information over a specific period that can be used to describe the company's performance. Performance is an activity or work process aligned with the ability to achieve success. achieve its goals. A business is said to be successful if a company experiences an increase in previous results. All companies want success inachieve its goals. One of these transportation service companies is aviation.

Transportation is a means used to move people or goods from one place to another. Transportation is divided into three groups: land, sea, and air. Aviation is a unified system that utilizes airspace, aircraft, airports, air transportation, air navigation, safety and security, the environment, and supporting facilities and other public facilities (Law Article 1 No. 1 of 2009).

Air transportation is the most popular transportation sector among both young and old. Besides its advanced technology, aviation is the fastest mode of transportation compared to other transportation sectors, which often face traffic obstacles, such as areas separated by waterways that are impassable by land transportation.

The initial onset of the COVID-19 pandemic had a profoundly negative impact on people's lives. With the onset of COVID-19, the government implemented Large-Scale Social Restrictions (PSBB) with the aim of minimizing the spread of the virus to various parts of the world.

Table 1. Net Profit of Airlines Listed on the IDX for the 2021-2022 Period

Year	PT AirAsia Indonesia Tbk	PT Garuda Indonesia (Persero) Tbk	PT Jaya Trishindo Tbk
2021	-2,337,876,178,035	-59,558,874,034,592	3,450,833,932
2022	-1,646,936,950,638	58,781,560,552,224	-86,113,836,298

Source: IDX, 2023

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Table 1 shows that of the three aviation subsector companies listed on the Indonesia Stock Exchange (IDX), two of them generated negative profits in 2021: PT AirAsia Indonesia Tbk (-IDR 2.3 trillion) and PT Garuda Indonesia (Persero) Tbk (-IDR 59.5 trillion). In 2022, PT AirAsia Indonesia Tbk still generated negative profits of -IDR 1.6 trillion, and PT Jaya Trishindo Tbk (-IDR 86.1 billion). This indicates that the company's profit Many aviation sector companies have negative values, in other words, the companies are experiencing a decline in revenue which will result in losses.

In this case, it is necessary to analyze the potential for bankruptcy and identify it early before it's too late, using a predictive model that can provide early warning. This study aims to analyze the potential for bankruptcy of aviation subsector companies listed on the Indonesia Stock Exchange for the 2021-2022 period using the Zmijewski method.

RESEARCH METHODS

The objects of this research are aviation sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2021-2022 period, including PT AirAsia Indonesia Tbk, PT Garuda Indonesia (Persero) Tbk, and PT Jaya Trishindo Tbk. The type of data used in this study is quantitative. The data used in this study are annual financial reports, in the form of balance sheets and income statements, for aviation sub-sector companies for 2021-2022. The data source used in this study is secondary data. Secondary data is data obtained indirectly or from existing sources.

In obtaining the data and information needed in this study, data collection techniques such as library research and documentation studies were used. This study uses 2 (two) data analysis techniques, namely descriptive analysis, where this study is used to describe the subject or object being studied in more depth, detail, and breadth. And quantitative analysis is used to measure certain variables and explain how the relationship between variables is mathematically or in the form of numbers. In this study, the analysis uses the Zmijewski method. The following equation uses the Zmijewski method (X-Score) as follows:

Information:
X = Zmijewski Score
X1 = Net Profit / Total Assets X2 = Total Liabilities / Total Assets X3 = Current Assets /Current Liabilities

$$\textit{X-score} = -4.3 - 4.5X1 + 5.7X2 - 0.004X3$$

Cut-off value	Prediction
X < 0	Not bankrupt
X > 0	Bankrupt

RESULTS AND DISCUSSION

In the calculation of the Zmijewski method (X-Score) in the first stage it is necessary to calculate each of the three values of the company's financial ratios during the 2021-2022 period.

Table 2. Overall Value of Zmijewski Calculation Ratios (X-Score)

Company code	Year	X1	X2	X3
	2021	-0.4540	2,0108	0.0250
PT AirAsia Indonesia Tbk	2022	-0.3074	2,2722	0.0385
	2021	-0.5803	1.8494	0.0529
PT Garuda Indonesia (Persero) Tbk	2022	0.5993	1.2462	0.4765
	2021	0.0114	0.5317	1.0266
PT Jaya Trishindo Tbk	2022	-0.3795	0.7579	0.4922

Source: Processed data, 2023

After calculating the value of each of the company's financial ratios, at this stageThe next step is to enter and recalculate the results of the overall Zmijewski index (X-Score). Using the Zmijewski equation (X-Score) as follows:

$$X\text{-}score = -4.3 - 4.5X1 + 5.7X2 - 0.004X3$$

Table 3. Overall Zmijewski Index X-Score 2021-2022

Company code	Year	X1	X2	X3	*X-Score*
	2021	-0.4540	2,0108	0.0250	9,2168
PT AirAsia Indonesia Tbk	2022	-0.3074	2,2722	0.0385	10,0346
	2021	-0.5803	1.8494	0.0529	8,8527
PT Garuda Indonesia (Persero) Tbk	2022	0.5993	1.2462	0.4765	0.1045
	2021	0.0114	0.5317	1.0266	-1.3247
PT Jaya Trishindo Tbk	2022	-0.3795	0.7579	0.4922	1,7258

Source: Processed data, 2023

As seen in Table 3, the X-Score values for each company produced relatively different values. Then, after determining the X-Score values for each company, the next step was to group them into bankruptcy and non-bankruptcy categories. According to the cut-off value used by the Zmijewski method (X-Score), if the result (X-Score is less than 0), then the company can be said to have the potential to not go bankrupt. Conversely If the result (X-Score is more than 0), then the company can be said to have the potential to go bankrupt.

Table 4. Company X-Score Categories

Company code	Year	*X-Score*	Cut-off Value	Category
	2021	9,2168	$X > 0$	Bankrupt
PT AirAsia Indonesia Tbk	2022	10,0346	$X > 0$	Bankrupt
	2021	8,8527	$X > 0$	Bankrupt
PT Garuda Indonesia (Persero) Tbk	2022	0.1045	$X > 0$	Bankrupt
	2021	-1.3247	$X < 0$	Not bankrupt
PT Jaya Trishindo Tbk	2022	1,7258	$X > 0$	Bankrupt

Source: Processed data, 2023

As seen in Table 4, each airline company listed on the Indonesia Stock Exchange for the 2021-2022 period has a relatively high risk of bankruptcy. This can be explained as follows:

1. PT AirAsia Indonesia Tbkin 2021-2022 the X1 (ROA) ratio showsthe company's ability to utilize its assets less effectively to obtainprofit.In 2021-2022 rThe X2 ratio (Debt Ratio) indicates that the company does not have sufficient total assets to pay off its total debt.in 2021-2022 rThe X3 ratio (Current Ratio) shows that the company has limited ability to pay off current debts using its current assets.
2. PT Garuda Indonesia (Persero) Tbkin 2021 the X1 ratio (ROA) showsThe company's ability to utilize its assets to generate profits is less effective. While the company showed improvement in 2022, this value still indicates the company is at risk of bankruptcy. In 2021-2022, the X2 (Debt Ratio) ratio indicates that the company does not have sufficient total assets to pay off its total debt. And in 2021-2022, the X3 (Current Ratio) ratioindicates that the company has limited ability to pay off current liabilities using its current assets.

PT Jaya Trishindo Tbkin 2021 the X1 ratio (ROA) showsThe company's ability to effectively utilize its assets to generate profits. Meanwhile, in 2022, the company showed a decline, making it less effective in utilizing its assets to generate profits. In 20222021-2022 X2 ratio (Debt Ratio) shows that the company has total assets that sufficient to pay off its total debt. In 2021, the X3 (Current Ratio) indicated that the company had the ability to pay off current debt using its current assets. However, in 2022, the company did not have the ability to pay off current debt using its current assets.

CONCLUSION AND SUGGESTIONS

Conclusion

The Zmijewski method (X-Score) calculation shows that there is a potential for bankruptcy in aviation subsector companies for the 2021-2022 period. In 2021, PT AirAsia Indonesia Tbk and PT Garuda

Indonesia (Persero) Tbk produced X-Score values above the cut-off point or X > 0 (positive), namely 9.2168 for PT AirAsia Indonesia Tbk and 8.8527 for PT Garuda Indonesia (Persero) Tbk. Thus, both companies can be said to have the potential to experience bankruptcy. Meanwhile, in the same year, PT Jaya Trishindo Tbk produced an X-Score value below the cut-off point or X < 0 (negative), namely -1.3247. Thus, it can be said that the company does not have the potential to experience bankruptcy.

In 2022, all three aviation subsector companies produced X-Scores above the cut-off point, or X > 0 (positive), namely 10.0346 for PT AirAsia Indonesia Tbk, 0.1045 for PT Garuda Indonesia (Persero) Tbk, and 1.7258 for PT Jaya Trishindo Tbk. Therefore, these three companies can be said to have the potential to go bankrupt.

Suggestion

1. For Companies. Companies must detect financial health early, which can be useful in decision-making so they can maintain and grow their business to become larger and more profitable. Companies can also review their capital structure and improve the efficiency of their asset use.
2. For Investors. Investors must be more cautious when making decisions about investing in companies predicted to face bankruptcy. This is to prevent future negative risks.

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