

ANALYSIS OF FINANCIAL DISTRESS AND BANKRUPTCY OF PT GARUDA INDONESIA TBK

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Abstract

The research uses five bankruptcy prediction models, namely Altman, Springate, Grover, Zmijewski, and Ohlson. The research complements this with an independent samples t-test. The results of the analysis prove that the company is experiencing financial distress. Accuracy tests show that the Zmijewski method produces the highest accuracy rate of 80%, followed by Springate (60%), Grover (60%), Altman (50%), and Ohlson (40%). Based on the independent sample t-test, there are significant differences between the Altman and Springate, Altman and Zmijewski, Altman and Ohlson, Springate and Zmijewski, Springate and Ohlson, Grover and Zmijewski, and Grover and Ohlson methods, but there is no real difference between the Altman and Grover, Springate and Grover, and Zmijewski and Ohlson.

INTRODUCTION

Understanding, maintaining and continuing to improve financial conditions is one of the keys to success in maintaining a company's business. When experiencing financial difficulties, it will be difficult for a company to plan and realize its goals. If this happens,

the company will face very serious problems. In fact, if it fails to improve financial performance, the company will be threatened with bankruptcy.

The most logical factor related to a company's financial difficulties is a continuous period of general economic weakness for the company. Intuitively, if the economy is weak and demand for goods and services is sluggish, many businesses will have difficulty increasing unit growth or prices, which could lead to reduced cash flow (Moyer, 2014).

In any industry, there are two main factors that influence company performance, namely external and internal factors. In the aviation industry, Shi, Li, & Origin (2023) found the fact that competition has reached a very tight level, especially those operating in the Asia Pacific region, including Indonesia. From an internal perspective, financial management or governance is an important factor in determining whether a company is facing financial problems or not (Lee & Yeh, 2004).

Maintaining company performance so that it does not experience financial distress is now becoming increasingly difficult because competition is getting tougher. Facts prove that in many cases players in the same industry continue to increase over time, including in the Indonesian aviation industry. PT Garuda Indonesia Tbk, which is an old player in the air transportation industry, has felt this for a long time.

Opler & Titman (1994) found evidence that competition in similar businesses affects a company's financial performance. If companies cannot compete, they will experience financial difficulties. PT Garuda Indonesia Tbk, which experienced financial problems, even had to restructure its debt for a long time and only started to show signs of improvement in 2022 (Ashar, 2022).

The company's financial problems can be seen in Table 1. The company's revenue from 2013 to 2022 is always fluctuating. As an illustration, in 2013 the company managed to record revenues of 3.8 billion US dollars. However, in 2022 the revenue will actually be lower to 2.1 billion US dollars, which means a decrease of 1.7 billion US dollars or a decline of 44.1% from 2013.

More severe fluctuations occurred in the company's net profit. For several years the company was only able to record losses, thus adding to its financial problems. As an illustration, in 2013 the company recorded a net profit of 23.5 million US dollars. The following year in 2014 it actually lost up to 368.9 million US dollars. After that, there were fluctuations until finally in 2022 it was able to rebound again by achieving a net profit of 3.7 billion US dollars. This is certainly encouraging because in 2021 the company still recorded a negative net profit of 4.1 billion US dollars.

Table 1. Revenue and net profit of PT Garuda Indonesia (US dollars)

Year	Income	Net profit	Current assets	Revenue Trend (%)	Current Assets Trend (%)
2013	3,759,450,237	23,531,387	836,522,314	-	
2014	3,933,530,272	- 368,911,279	810,514,943	4.6%	-3.1%
2015	3,814,989,745	77,974,161	1,007,848,005	-3.0%	24.3%
2016	3,863,921,565	9,364,858	1,165,133,302	1.3%	15.6%

2017	4,177,325,781	- 213,389,678	986,741,627	8.1%	-15.3%
2018	4,330,441,061	- 228,889,524	1,079,945,126	3.7%	9.4%
2019	4,572,638,083	6,457,765	1,133,892,533	5.6%	5.0%
2020	1,492,331,099	- 2,476,633,349	536,547,176	-67.4%	-52.7%
2021	1,336,678,470	- 4,174,004,768	305,725,029	-10.4%	-43.0%
2022	2,100,079,558	3,736,670,304	801.153.825	57.1%	162.1%

Source: PT Garuda Indonesia Financial Report (2022)

Several cases of fraud such as aircraft rental fees and bribes in the past have added to the financial burden. The research results show that PT Garuda is suspected of applying financial conventions in its financial reports to create a better picture of the financial situation than the actual situation (Abdillah, Ludmilla, Ridwan, & Madewi, 2023; Meiryani & Primado, 2023).

As a result of these various cases, the company took steps to lay off and cut employee salaries (Saputro, 2022). However, is it true that PT Garuda Indonesia Tbk's financial condition has now improved? Is the company really no longer experiencing financial difficulties? So, what is the real condition of the company? Is the company free from the threat of bankruptcy?

Questions like these need to be further proven in research. With this background, researchers want to analyze the financial distress (financial crisis) and threat of bankruptcy of PT Garuda Indonesia Tbk using five different methods, namely Altman Z-Score, Springate, Grover, Zmijewski, and Ohlson. With these five methods, it is believed that we will be able to provide more convincing conclusions for assessing the company's financial performance.

A financial crisis is a low cash flow situation that causes a company to suffer without facing bankruptcy. Companies experiencing financial difficulties may lose customers, valuable suppliers, and key employees (Purnanandam, 2008). Nasdaq (2023) defines financial distress as events before and including bankruptcy. Beaver (1966) interprets it as the corporation's inability to pay debts when the time comes.

Evidence of bankruptcy can be ascertained through the company's financial performance and can be obtained through accounting information recorded in financial reports (Altman, Iwanicz-Drozowska, Laitinen, & Suvas, 2017). Many corporations face financial difficulties due to mismanagement rather than economic pressures. Management actions are the key to recovery and increasing market value tailored to the industry (Whitaker, 1999). Solvency and profitability are useful predictors of financial distress in international modeling (Gupta, 2017; Laitinen & Suvas, 2016).

Several researchers have conducted research on the financial crisis and bankruptcy of PT Garuda Indonesia Tbk. However, there are still several suggestions and recommendations that need to be developed further due to a number of limitations from previous research. Khotimah (2021) had researched this case, but he only used the Altman Z-Score method. The data is also too old, namely from 2008 to 2017. Similar research emerged from Fau (2021) which also only uses the Altman Z-Score model, but the data

range is more recent, starting from 2016 to 2020. Similar research emerged from Jonah (2021) which only uses the Altman model and observation data from 2016 to 2019.

Research development with three models was carried out by Bilondatu, Dungga, & Selvi (2019) to analyze similar cases. They used data from 2014 to 2018. Seto (2022) conducting research using more updated models and data. However, he was more focused on comparing the influence of the emergence of the Covid-19 pandemic on the company's potential financial distress.

RESEARCH METHODS

This research uses financial distress theory with the Bankruptcy Prediction Model (BPM) which uses Altman (Z-Score), Springate (S-Score), Grover (G-Score), Zmijewski (X-Score), and Ohlson (O-Score) model analysis. Each model will use financial ratios for its respective calculation results in accordance with the analysis rules of the bankruptcy prediction model. The research utilizes five predictive model analyzes in order to provide more accurate and valid information related to the financial performance of the company that is the subject of the study, namely PT Garuda Indonesia Tbk. Each model analyzes financial performance for 10 years, from 2013 to 2022.

After getting the calculation results, the next step is to compare the analysis results of each model. After analyzing with BPM, the research continued using independent sample test analysis. However, this test can be carried out if two important conditions are met, namely normally distributed data and homogeneous variance between groups. This independent sample test aims to compare between models so that it can be seen whether there are real differences between the models or not (Frost, 2021; Watts, Lane, Bonifay, Steinley, & Meyer, 2020). If the data does not meet these two requirements, the researcher uses the Mann Whitney U difference test. From the five model analyses, the researcher packages 10 pairs of comparisons that can be tested using the independent sample test or the Mann Whitney difference test, namely:

- Pair 1: Altman-Springate (USA)
- Pair 2: Altman-Grover (AG)
- Pair 3: Altman- Zmijewski (AZ)
- Pair 4: Altman-Ohlson (AO)
- Pair 5: Springate-Grover (SG)
- Pair 6: Springate-Zmijewski (SZ)
- Pair 7: Springate-Ohlson (AO)
- Pair 8: Grover-Zmijewski (GZ)
- Pair 9: Grover-Ohlson (GO)
- Pair 10: Zmijewski- Ohlson (ZO)

Altman Z-Score Model

The modified Altman Z-Score is an analysis choice because it is able to map the potential bankruptcy of all types of businesses, both manufacturing companies and those



operating in the service sector. Edward I. Altman was the first to develop this model(Altman, 1968). The calculation formula is:

$$Z\text{-score} = 6.56 X1 + 3.26 X2 + 6.72 X3 + 1.05 X4$$

X1 = Working Capital/Total Assets

X2 = Retained Earnings/Total Assets

X3 = Earnings Before Interest and Taxes/Total Assets

X4 = Market Value of Equity/Total Liabilities

Criteria:

$Z < 1.1$: Company in an unsafe zone

$1.1 < Z < 2.6$: Business enters the area *gray area*

$Z > 2.6$: Business in the safe zone

Springate Model (S-Score)

LV Gorgon Springate implemented this model in 1978(Chun, 2021). The model is similar to the Z-Score developed by Altman, approved within the scope of multiple discriminant analysis. S-Score is obtained by calculating the ratio between given financial variables and the resulting ratio multiplied by a certain coefficient. Calculation of Springate (1978)are below:

$$S\text{-Score} = 1.03A + 3.07B + 0.66C + 0.4D$$

A = Working Capital/Total Assets

B = Earnings Before Interest and Taxes/Total Assets

C = Profit Before Taxes/Current Liabilities

D = Sales/Total Assets

Criteria:

$S > 0.862$: The business is in the safe zone

$S \leq 0.862$: Unhealthy business, likely to go bankrupt

Grover Model (G-Score)

Grover's method was designed and recalculated by Altman's method(Saputra, Hermanto, Azmi, & Akhmad, 2021). Jeffrey S. Grover used the Z-Score sample in 1968, but with the addition of 13 new financial ratios. He conducted research on a sample of 70 companies, 35 of which went bankrupt and 35 which did not go bankrupt over the period 1982-1996. Grover's analysis requires financial statements as data that will then be processed(Fauzan & Sutiono, 2017; Parquinda, 2019; Saragih, Sinambela, & Sari, 2019). This method is capable of producing a high level of accuracy. To find out the results of this model calculation, the formula is:

$$G = 1.650X1 + 3.404X3 - 0.016ROA + 0.057$$

X1= Working Capital/Total Assets

X3= EBIT/Total Assets

ROA= Net Income/Total Assets

Criteria:

$G \leq -0.02$: Company goes bankrupt

$G \geq 0.01$: The company is not bankrupt



Zmijewski (X-Score)

Zmijewski (1984) Use ratio analysis to see performance, leverage and liquidity.

$$X\text{-Score} = -4.3 - 4.5X_1 + 5.7X_2 - 0.004X_3$$

X_1 = EAT/Total Assets

X_2 = Total Debt/Total Assets

X_3 = Current Assets/Current Liabilities

Criteria:

$X > 0$: The company's business goes bankrupt

$X \leq 0$: The business does not go bankrupt

Ohlson (O-Score)

This is a method developed by James Ohlson that follows the case of conditional indices for bankruptcy prediction (Ohlson, 1980). The formula for this model is:

$$O = -1.32 - 0.407 (X_1) + 6.03 (X_2) - 1.43 (X_3) + 0.0757 (X_4) - 2.57 (X_5) - 1.83 (X_6) + 0.285(X_7) - 1.72 (X_8) - 0.521 (X_9)$$

Information:

X_1 = size (log (total assets/GNP price level index))

X_2 = debt ratio (total liabilities/total assets)

X_3 = working capital/total assets

X_4 = current liabilities/current assets

X_5 = 1 if total liabilities > total assets, 0 otherwise

X_6 = ROA (net profit/total assets)

X_7 = funds provided by operations/total liabilities

X_8 = 1 if net profit was negative for the last two years, 0 otherwise

X_9 = delta net profit / absolute net profit amount

Decision making criteria

- If the O score is > 0.38 then the company is in an unhealthy condition

- If the O score < 0.38 then the company is in a healthy position

RESULT AND DISCUSSION

Computational results using five financial distress prediction models show a similar trend. In detail, the calculation results of the five models and their conclusions are presented in Table 2. In general, the test results using the Altman method show uniform results. Altman noted that from 2013 to 2022 the company always experienced financial distress. Never in one year has the company been free from financial distress in that period. Specifically for the Springate method, the test results show that only in 2022 the company experienced good financial performance with indications of not experiencing financial distress. The rest, from 2013 to 2021, the company always faced financial distress problems.

Grover's prediction analysis turned out to show exactly the same results as the Springate method. Slightly varying results occurred in the Zmijewski and Ohlson tests. Based on Zmijewski's prediction analysis, the company was in a healthy zone in 2013,

2015 and 2016, while Ohlson showed that companies in a healthy condition appeared in 2014, 2017 and 2022.

Table2. Calculation results of analysis of five financial distress prediction methods

Year	Altman		Springate		Grover		Zmijewski		Ohlson	
2013	-8,057	Distress	-3,344	Distress	-4,259	Distress	-0.719	Healthy	0.776	Distress
2014	-18.110	Distress	-4,598	Distress	-5,255	Distress	0.320	Distress	-0.219	Healthy
2015	-8,824	Distress	-2,917	Distress	-3,795	Distress	-0.347	Healthy	1,237	Distress
2016	-6,966	Distress	-2,796	Distress	-3,568	Distress	-0.154	Healthy	1,423	Distress
2017	-15,990	Distress	-3,549	Distress	-4,378	Distress	0.233	Distress	0.079	Healthy
2018	-18,010	Distress	-3,812	Distress	-4,679	Distress	0.769	Distress	1,002	Distress
2019	-17,430	Distress	-3,084	Distress	-4,093	Distress	0.470	Distress	2,659	Distress
2020	-7.104	Distress	-5.137	Distress	-2,338	Distress	3,459	Distress	2,727	Distress
2021	-15,500	Distress	-13,388	Distress	-4,398	Distress	8,853	Distress	7,831	Distress
2022	-1,959	Distress	3,831	Healthy	0.479	Healthy	0.105	Distress	0.280	Healthy

Source: Processed research data (2023)

Altman Method Predictions

Edward L. Altman has several times developed and perfected methods for predicting financial distress and bankruptcy of a company. For this reason, the method is often used by researchers to observe a company's potential financial difficulties. Based on calculations according to the Altman method formula for the indicators, as presented in Table 2, the value in 2013 was -8,057, so it is smaller than 1.1, which means the company is facing financial distress. The score in 2014 was -18,106, which means it was lower than 1.1, so the company was in the financial distress category. In 2015 the condition was still the same because it had a value of -8,824 so it was smaller than 1.1, which means the company was caught in financial distress. From 2016 to 2022, the results of the Altman method calculations show negative values, respectively -6,966, -15,985, -18,009, -17,429, -7,104, -15,502, and -1,959, which provide a picture of the company being in financial distress, respectively. in that time range.

Springate Method Prediction

Calculations using the Springate method provide results that are not much different from Altman. In 2013, Springate's calculations produced a score of -3,344, which means it is lower than 0.862, so the company is in a state of financial distress. In 2014, the value of -4,598 was also lower than 0.862 and indicated that the company was threatened with bankruptcy because it was in the financial distress zone. In 2015, the score was -2,917 which is clearly lower than 0.862 so the company is again in the unhealthy zone. In the period 2016 to 2021 the conditions are no different because the respective values are still negative, namely -2,796 (2016), -3,549 (2017), -3,812 (2018), -3,084 (2019), -5,137 (2020), and -13,388 (2021). Thus, in the period 2016 to 2021 the company was still in financial distress because the value was below 0.862. Specifically in 2022, the



calculation results of the Springate method show that the value has increased to 3,831, which means it is higher than 0.862, which means the company's position is still safe or in a healthy condition.

Grover Method Predictions

The calculation results using the Grover method are very similar to the Springate method. The value from 2013 to 2021 is negative. Only in 2022 will a positive calculated value be recorded. In 2013, the calculation result was recorded at -4,259, meaning it was smaller than -0.02 so that the company experienced financial distress. A year later, in 2014, the value was -5,255, clearly much smaller than -0.02, which means the company was in the threat zone of bankruptcy. In 2015 the value was still very low, only -3,795, which means it was lower than -0.02, thus placing the company in the financial distress zone. In the 2016-2021 period, the company is still in the financial distress category because each value is negative and smaller than -0.02, namely -3,568 (2016), -4,378 (2017), -4,679 (2018), -4,093 (2019), -2,338 (2020), and -4,398 (2021). Only in 2022 will the company succeed in entering the safe zone, which is indicated by a calculated value of 0.479, which means it is greater than -0.02.

Prediction Method Zmijewski

From the Zmijewski test, we get more varied results because there are positive and negative values. The calculation results show that in 2013 the value was -0.719, meaning it was lower than 0.0, so the company's position was in the safe zone. In 2014, a positive value appeared of 0.320, which means it was greater than 0.0, so the company was in the zone threatened with bankruptcy because it was experiencing financial distress. The scores in 2015 and 2016 were -0.347 and -0.154 respectively, meaning they were lower than 0.0 so the company was in a healthy condition. For the remainder of the period 2017 to 2022, the Zmijewski test produces a score above 0.0 so that the company enters the financial distress area with respective values of 0.233 (2017), 0.769 (2018), 0.470 (2019), 3.459 (2020), 8.853 (2021), and 0.105 (2022)

Ohlson's prediction

Analysis using the Ohlson method also found more varied results because there were positive scores and in other periods negative scores were recorded. In 2013, the Ohlson score reached 0.776, which means it was higher than 0.38, so according to the criteria for this model the company was already in the unsafe zone. In 2014 the score was recorded at -0.219, smaller than 0.38 so the company was in the healthy zone. The score in 2015 reached 1,237, greater than 0.38 so the company entered the unsafe zone. Then, in 2016 the score was 1,423, which means it was greater than 0.38, so the company was stuck in financial distress. In 2017, the company entered the healthy group because it recorded a score of 0.079, which means it is smaller than 0.38.

In the 2018 to 2021 period, the company entered another dark period because it was trapped in an unhealthy zone with an indication of a score greater than 0.38. The scores in the 2018-2021 period were 1,002 (2018), 2,659 (2019), 2,727 (2020), and 7,831 (2021), respectively. In 2022 the company will be able to improve its financial

performance by being in a safe position with an Ohlson calculation value of 0.280, smaller than 0.38.

Prediction Accuracy Level

To determine the level of accuracy of each method, it is necessary to compare the financial conditions per year of the period being tested with the qualitative results of testing each method. One of the most accurate financial performances is to use the company's current year's net profit. A comparison of net profit with the test results for each method is shown in Table 3 below.

Table3. Model accuracy results based on net profit indicators

Year	Net profit	Altman	Springate	Grover	Zmijewski	Ohlson
2013	Healthy	Not Safe	Not Safe	Not Safe	Healthy	Not Safe
2014	Not Safe	Not Safe	Not Safe	Not Safe	Not Safe	Healthy
2015	Healthy	Not Safe	Not Safe	Not Safe	Healthy	Not Safe
2016	Healthy	Not Safe	Not Safe	Not Safe	Healthy	Not Safe
2017	Not Safe	Not Safe	Not Safe	Not Safe	Not Safe	Healthy
2018	Not Safe	Not Safe	Not Safe	Not Safe	Not Safe	Not Safe
2019	Healthy	Not Safe	Not Safe	Not Safe	Not Safe	Not Safe
2020	Not Safe	Not Safe	Not Safe	Not Safe	Not Safe	Not Safe
2021	Not Safe	Not Safe	Not Safe	Not Safe	Not Safe	Not Safe
2022	Healthy	Not Safe	Healthy	Healthy	Not Safe	Healthy
Level of accuracy		50%	60%	60%	80%	40%
Error Level		50%	40%	40%	20%	60%

Source: Processed research data (2023)

Based on the test results of the model's accuracy level using the company's profit indicators for the current year, it turns out that the Zmijewski method is able to provide accurate financial distress prediction information with a score of 80%. Following in the next position are the Springate and Grover methods which both show a percentage value of 60%. Altman's method is ranked next with an accuracy rate of 50%. The Ohlson method ranks last with an accuracy rate of 40%.

Independent Sample Test

Initially the researcher wanted to use an independent sample test (independent sample t-test). However, the research data did not meet the two main criteria in parametric analysis, namely normally distributed data and homogeneous variance (Table 4). For this reason, as a further test the researchers analyzed it using the Mann Whitney U test which is part of the non-parametric statistical test. The Mann Whitney test is to detect whether or not there is a real difference between one method and another prediction method.

Table4. Test normality and variance

Variable	Shapiro-Wilk Test of Normality			Test of Variances	
	Statistics	df	Sig.	F	Sig.
US	0.901	20	0.043	5,582	0.030
AG	0.832	20	0.003	2,344	0.143
A-Z	0.947	20	0.323	0.452	0.510
AO	0.955	20	0.451	1,055	0.318
S.G	0.768	20	0,000	1,142	0.299
SZ	0.916	20	0.082	0.081	0.779
SO	0.930	20	0.153	0.369	0.551
GZ	0.861	20	0.008	1,317	0.266
GO	0.900	20	0.041	0.573	0.459
ZO	0.716	20	0,000	0.196	0.663

Source: Processed research data (2023)

As stated in the research method, there were 10 pairs tested, namely: Pair 1: Altman-Springate (AS), Pair 2: Altman-Grover (AG), Pair 3: Altman-Zmijewski (AZ), Pair 4: Altman-Ohlson (AO), Pair 5: Springate-Grover (SG), Pair 6: Springate-Zmijewski (SZ), Pair 7: Springate-Ohlson (AO), Pair 8: Grover-Zmijewski (GZ), Pair 9: Grover-Ohlson (GO), as well as Pair 10: Zmijewski- Ohlson (ZO). Pairs that provide significantly different results are indicated by a significance result (Asymp. Sig. 2-tailed) that is smaller than 0.05.

Based on Table 5, there are pairs that provide significantly different results and others that are not significantly different. In a comparison between the Altman and Springate methods, it turns out that both provide different results in predicting company financial distress. This means that each of these methods is able to provide different information when estimating a company's financial distress condition, especially at PT Garuda Indonesia Tbk. The second pair, namely the Altman and Grover methods, did not provide a different response from the Mann Whitney test, which means that the prediction results for both tend to be the same within the time span of the test data. The test between the Altman and Zmijewski methods gave significantly different results. This means that the two methods can provide different information and levels of accuracy in predicting a company's financial distress. Significantly different results also occurred in the pairing of Altman and Ohlson. This means that Altman's method can provide different information when compared to Ohlson's method.

In the fifth pair between the Springate and Grover methods, it turned out that the test results did not show any significant differences. This means that both tend to give the same conclusions when used as predictors of company financial distress. The pair test of the Springate and Zmijewski methods shows significantly different results. This means that each method can provide different information or conclusions when used as a

predictor of company financial distress. Significantly different results also occur between the Springate and Ohlson methods. Thus, each of these methods is able to provide different conclusions when estimating financial distress.

The Grover and Zmijewski test methods also provide significantly different responses, which means that each method is able to describe different conditions when used as a financial distress predictor. Testing of the Grover and Ohlson method gave significantly different results. Thus, the Grover and Ohlson method can provide a different picture when predicting a company's financial distress. In the last pair between the Zmijewski and Ohlson methods, the test gave results that were not significantly different. This means that the Zmijewski method can provide different conclusions from Ohlson's when used as a predictor of financial distress.

Table 5. Mann Whitney U Test Results

	US	AG	A-Z	AO	S.G	SZ	SO	GZ	GO	ZO
Mann-Whitney U	13	49	9	9	41	9	9	7	3	33
Wilcoxon W	68	104	64	64	96	64	64	62	58	88
Asymp. Sig. (2-tailed)	0.005*	0.94	0.002*	0.002*	0.496	0.002*	0.002*	0.001*	0,000*	0.199

Source: Processed research data (2023), Note: *significantly different at the 5% level

CONCLUSIONS AND RECOMMENDATIONS

Based on calculations and data analysis, there is some interesting information that can be the conclusion of this research, including:

1. The five prediction models, namely Altman, Springate, Grover, Zmijewski, and Ohlson are able to predict different financial distress conditions seen from independent tests of each method.
2. The Zmijewski test was able to produce the highest level of accuracy in estimating PT Garuda Indonesia Tbk's financial distress with a score of 80%, followed by the Springate (60%), Grover (60%), Altman (50%), and Ohlson (40%) methods.
3. Based on the independent sample t-test, there are significant differences between the Altman and Springate, Altman and Zmijewski, Altman and Ohlson, Springate and Zmijewski, Springate and Ohlson, Grover and Zmijewski, and Grover and Ohlson methods, but there is no real difference between the Altman methods. and Grover, Springate and Grover, and Zmijewski and Ohlson.

Referring to the results of this research, researchers can provide several suggestions as follows:

1. It needs to be researched further over a different time span using the five financial distress predictor methods.
2. Similar research could be developed to examine other airline companies with the same method.



3. Companies can take advantage of improving their performance, especially from the financial side, based on information from the results of this research.

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