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Forecasting Financial Distress of Airline Company: The Impact of Financial Performance

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ABSTRACT

This study aims to predict the financial distress of airline companies which is influenced by the ratio of liquidity, solvency, profitability, activity and investment. This research is inferential research with a quantitative approach. This research used financial statements of airline companies listed on the Indonesia Stock Exchange in 2018-2021 as the data. Data analysis was performed using multiple linear regression. The results showed that the liquidity ratio (Current Ratio) and solvency ratio (Debt to Equity Ratio) partially had no effect on the prediction of financial distress as measured using Springate model. Profitability ratio (Return on Assets), activity ratio (Total Assets Turnover) and investment ratio (Price Erning Ratio) partially have a positive effect on the prediction of financial distress. The profitability ratio has an influence of 81%, the activity ratio has 27.8% and the investment ratio has 7.6% on the prediction of financial distress. The prediction results of financial distress are not solely influenced by the company's ability to pay debts, both short term and long term. Conditions related to asset performance, such as Return on Assets and Total Asset Turnover actually affect the prediction results of financial distress.

Keywords: Airline Companies, Financial Distress, Financial Ratios, Prediction, Springate.

INTRODUCTION

To avoid bankruptcy, each company expected to be able to forecast future financial conditions related to financial difficulties. Knowing condition of financial health in the future, the company can make decisions to improve conditions so as not to go bankrupt (Oktaria, Yanida, Alexandro, Tonich, & Putri, 2021). The way to determine the condition of the company's financial health is by analyzing financial statements. Companies can analyze financial statements with financial ratios as an assessment for several years and compare them with companies in the same industry (Mbona & Yusheng, 2019). Airline industry in Indonesia is experiencing a decline in financial performance as evidenced by the deteriorating liquidity and solvency ratios and profitability ratios in 2020 (Rachmawati, 2021, 2022). Moreover, Rachmawati and Maulana (2022) proves that four airline companies listed on the Indonesia Stock Exchange (IDX) have indications of bankruptcy based on predictions of financial distress. This study examines the financial ratios of companies in the airline industry as an assessment of company health related to financial distress predictions. Financial distress in this study was measured using the Springate model. The Springate model has an accuracy rate of 90% for predicting financial distress (Hungan & Sawitri, 2018). Lestari, Situmorang, & Pratama, (2021) found that the Springate model has the highest level of accuracy compared to Altman, Zmijewski and Grover in predicting financial distress.

According to Kumendong and Hutabarat (2019) solvability is significant at 10%, and liquidity is significant at 5% for the regression model's ability to explicate variations in bankruptcy potential. The best ratios for predicting financial distress are liquidity and debt ratios (Lumbantobing, 2019). Reschiwati, Sayekti, Priharti, and Muhammad (2021) and Masdupi, Tasman, and Davista (2018) The solvency ratio has a substantial impact on financial distress. Moch, Prihatni, and Buchdadi (2019) also found that CR, DER, and ROA affect on financial distress. Profitability ratio with ROA affects financial distress (Subiyanto & Siagian, 2020). Yacobus and KP (2021) find the activity ratio affects financial distress and Keter, Bogonko, and Kimutai (2018) found that PER affects financial distress.

LITERATURE REVIEW

Financial Distress

Kristanti, Effendi, Herwany, and Febrian (2016) assessing the financial distress associated with a very extreme reduction in performance and firm value, which is characterized by a decrease in sales and results in a significant decrease in operating profit and even losses. Company problems related to financial distress conditions that are not addressed immediately will bring the company to bankruptcy (Kamaluddin, Ishak, & Mohammed, 2019). Financial distress conditions can be predicted by predicting bankruptcy, one of which is the Springate Model. The S-Score formula developed by Springate:

$$\text{S-Score} = 1{,}03X_1 + 3{,}07X_2 + 0{,}66X_3 + 0{,}40X_4 \quad (1)$$

Information:
S-Score = Predicted value of bankruptcy using Springate model
X_1 = Working Capital to Total Assets (WCTA)
X_2 = Earning Before Interest and Taxes to Total Assets (EBITTA)
X_3 = Earning Before Taxes to Current Liabilities (EBTCL)
X_4 = Sales to Total Assets (STA)

The Springate model is a Multivariate Discriminant Analysis (MDA) model developed by Gorgon L.V. Springate. Furthermore, Springate determines the company is in a healthy condition if the value of S-Score ≥ 0,862 and distress condition if the value of S-Score < 0,862 (Kamaludin et al., 2019).

Financial Ratio

Financial ratios help companies to evaluate financial statements. Processed with trend analysis and financial ratios, the financial statements are to investigate the financial situation for decision-making (Agustina, Juniar, Pratikto, & Siswanto, 2020). Brigham and Houston (2019) divide that ratio analysis consists of five categories, namely:

1. Liquidity ratio, is an answer to the question "Can the company pay off its short-term debt when it is due and fixed?" If "yes", then liquidity is good. The liquidity ratio in this study is the Current Ratio (CR) which divides current assets with current liabilities.
2. Debt management or solvability ratio, evaluate the company's debt management effectiveness. The ratio used in this study is Debt to Equity (DER) which divides total debt by equity.
3. Assets management or activity ratio, measure the effectiveness of asset management by the company. This study uses the Total Assets Turnover Ratio (TATO) which divides income by total assets.
4. Profitability ratio, reflects the profits or net results obtained by the company from operating activities and financing policies. The ratio used is Return on Assets which divides the company's net profit by total assets.
5. Market value or investment ratio, is a ratio related to shares. The ratio used is the Price to Earnings Ratio (PER) which reflects the amount of capital per share that investors are willing to pay from reported profits.

Hypothesis Development

The company's ability to pay off its debts will increase with the amount of liquidity it has, resulting in very high internal cash flow and a favorable view of the company's health (Permana & Rahyuda, 2018). When companies find it difficult to pay off their short-term debt, this is an early indication of financial distress. Dewi, Foanto, and Christiawan (2021) and Kristanti et al. (2015) demonstrate the impact of liquidity on a company's financial distress.

H_1: The liquidity ratio significantly affects financial distress prediction.

The lower solvability ratio, the better company can avoid the risk of financial distress (Restianti & Agustina, 2018). According to Kumendong and Hutabarat (2019) using debt raises the likelihood of being in trouble, as demonstrated in the first model, which is considerable. This causes the manager to rethink and manage the company's debt effectively, using the necessary debt to optimize the company's financial performance and avoid becoming distressed. According to Simanjuntak and Hutabarat (2019), solvency affects financial distress.

H_2: The solvability ratio significantly affects financial distress prediction.

The lower of the profitability indicates the higher likelihood of financial distress (Lumbantobing, 2019). The higher profitability shows that the business's operational and financial strategies can provide more earnings. Moch et al. (2019) and Subiyanto and Siagian (2020) provides evidence that the profitability ratio affects financial distress.

H_3: The profitability ratio significantly affects financial distress prediction.

Activity ratio measures the effectiveness of asset management by the company (Brigham & Houston, 2019). The more effective asset management indicates the company is better

able to prepare assets to maintain the company's financial condition. Yacobus and KP (2021) discovered that the activity ratio affects financial distress.
H_4: The activity ratio significantly affects financial distress prediction.

Investment ratio is related to the equity that comes from shareholders. This ratio reflects the perspective of investors who think that this ratio is good, then the stock market value will be high and the company has performed well (Brigham & Houston, 2019). Keter et al. (2018) discovered that PER affects financial distress.
H_5: The investment ratio significantly affects financial distress prediction.

RESEARCH METHOD.

Research Variables

Table 1. Variable Operations

Variables	Indicators	Measurement	Scale
Independent Variables: Liquidity ratio (X_1)	Current Ratio (CR)	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	Ratio
Solvability ratio (X_2)	Debt to Equity Ratio (DER)	$\frac{\text{Total Debts}}{\text{Total Equity}}$	Ratio
Profitability ratio (X_3)	Return on Assets (ROA)	$\frac{\text{Earning After Tax}}{\text{Total Assets}}$	Ratio
Activity ratio (X_4)	Total Assets Turnover (TATO)	$\frac{\text{Net Sales}}{\text{Total Assets}}$	Ratio
Investment ratio (X_5)	Price Earning Ratio (PER)	$\frac{\text{Price of Stock}}{\text{Earning per Share}}$	Ratio
Dependent Variable: Financial distress (Y)	Springate	$1{,}03X_1+3{,}07X_2+0{,}66X_3+0{,}4X_4$	Ratio

Data, Population and Sample

The data used includes financial statements from airline firms registered on the IDX from 2018 to 2021. Companies listed on the IDX in the aviation sub-sector comprise the research population. The sample is determined based on several criteria, namely: a) issuing complete audited financial reports along with annual reports and independent auditor reports in 2018-2021; and b) financial statements have the information needed in this study. Based on these criteria, a sample of 4 (four) airline companies was obtained, namely companies with stock codes GIAA, CMPP, IATA and HELI.

Research Model

Multiple linear regression analysis was performed on the data using SPSS software. Researchers can include multiple predictors with the aim of finding factors that better predict outcomes (Pandis, 2016). Acceptance and rejection of the hypothesis is determined using a partial test with criteria H_0 is rejected if the p-value is less than 0.05 and accepted if it is more than 0.05. Acceptance of H_0 indicates that the independent variable has no effect on the dependent variable.

In order to ensure that the multiple linear regression model can be used, it is necessary to first test the classical assumptions as follows:

1. Normality test, is the basic assumption in parametric testing (Mishra et al., 2019). Normality is tested using Kolmogorov-Smirnov fulfilled if H_0 is accepted, which means that the data comes from a normal distribution with p-value criteria more than the selected alpha value (0.05) so that the population cannot be rejected (Khatun, 2021).
2. Multicollinearity test, the existence of multicollinearity indicates that two or more independent variables in the regression model are correlated with each other (Daoud, 2017). Data with multicollinearity is actually bad data (Etaga et al., 2021). Multicollinearity tested using Collinearity Statistics is met if the VIF value is above 1 and below 10. When the VIF value is more than 10, the multicollinearity that occurs is very high (Tsagris & Pandis, 2021).
3. Heteroscedasticity test was tested using the Gejser Test which has a high test power every time the test sample is added (Oyenuga & Favour, 2022). The test is met if H_0 is accepted with a p-value of more than 0.05, which means that there is no variance inequality for each independent variable in the regression model which shows no errors in the regression model.
4. Autocorrelation test, is the assumption that successive residual values are independent temporarily when data is taken from time to time (Mukherjee & Laha, 2019). Autocorrelation in this study was tested using a run test of randomness which shows the autocorrelation condition occurs when the residuals are not randomly distributed (Uyanto, 2020). The test is fulfilled if H_0 is accepted with a p-value of more than 0.05, which means that the residual data is randomly distributed.

RESULTS

Result of Basic Assumption Test

Table shows the results of the normality test:

Table 2. Normality Results

Kolmogorov-Smirnov	Test Statistic	P-Value	Information
Unstandarized Residual	0.166	0.200	Normality test fulfilled

Source: Secondary data processed, 2022

Table 2 demonstrates that the p-value of the normality test produced by Kormogorov-Smirnov is 0.200 or greater than 0.05. This information depicts that H_0 is accepted, proving that the data is normally distributed. The next test is the multicollinearity test results presented in the following table:

Table 3. Multicollinearity Results

Variables	Tolerance	VIF	Information
Liquidity (X_1)	0.488	2.049	Multicollinearity test fulfilled
Solvability (X_2)	0.233	4.290	
Profitability (X_3)	0.306	3.268	
Activity (X_4)	0.880	1.136	
Investment (X_5)	0.477	2.094	

Source: Secondary data processed, 2022

The multicollinearity test results show that the VIF value for each independent variable is more than 1 and less than 10, even less than 5. The VIF value for the liquidity ratio is 2,049, the solvency ratio is 4,290, the profitability ratio is 3,268, the activity ratio is 1,136 and investment ratio of 2,094. These results prove that H_0 is accepted, which means that there are no symptoms of multicollinearity in the data used in this study. Additionally, the following table displays the heteroscedasticity test results:

Table 4. Heteroscedasticity Results

Variables	Beta	T Statistics	P-Value	Information
Liquidity (X_1)	-0.142	-0.426	0.679	Heteroscedasticity test fulfilled
Solvability (X_2)	0.106	0.614	0.553	
Profitability (X_3)	0.321	0.757	0.467	
Activity (X_4)	0.081	1.137	0.282	
Investment (X_5)	0.002	0.994	0.344	

Note: Dependent variable: absolute residual value
Source: Secondary data processed, 2022

Table 4 shows that each independent variable's p-value for the Glejser test is more than 0.05. The liquidity ratio has a p-value of 0.679, a solvency ratio of 0.553, a profitability ratio of 0.467, an activity ratio of 0.282 and an investment ratio of 0.344. The results of the glejser test reveal that H_0 is accepted, this implies that the regression model's heteroscedasticity is not present. Furthermore, as shown in the table below, the autocorrelation test:

Table 5. Autocorrelation Result

Run Test	Z	P-Value	Information
Unstandarized Residual	0.776	0.438	Autocorrelation test fulfilled

Source: Secondary data processed, 2022

The run test of randomness shows that the residual data in the regression model has a p-value of 0.438 or more than 0.05. This value proves that H_0 is accepted, that there is no autocorrelation or no correlation between residual data errors in the regression model. Thus, the multiple linear regression model in this study can be continued.

Result of Hypothesis Test
This study uses 16 observations obtained from 4 (four) companies in 4 (four) financial reporting periods. The purpose of hypothesis testing in multiple linear regression is to demonstrate that each independent variable has a partial impact on the dependent variable.

Table 6. Multiple Regression Results

Model	Beta	T Statistics	P-Value	Information
Constant	-0.421	-1.225	0.249	
Liquidity (X_1)	1.193	2.215	0.051	H_0 accepted
Solvability (X_2)	-0.262	-0.937	0.371	H_0 accepted
Profitability (X_3)	4.025	5.890	0.000*	H_0 rejected
Activity (X_4)	0.451	3.904	0.003*	H_0 rejected
Investment (X_5)	0.007	2.343	0.041*	H_0 rejected

Note: *significant at 5% level
Source: Secondary data processed, 2022

The liquidity ratio has p-value of 0.051 and t-statistic of 2.215, according to the partial test results in the table above, and the solvency ratio has p-value of 0.371 and t-statistic of -0.937. The liquidity and solvency ratio has p-value higher than 0.05, reflecting that H_0 is accepted, the liquidity and solvency ratio does not affect financial distress. While the activity ratio has p-value of 0.003 and t-statistic of 0.041, the profitability ratio has p-value of 0.000 and t-statistic of 5.890. Profitability, activity, and investment ratios all have an impact on financial distress, hence H_0 is disregarded when these ratios have p-values

under 0.05. The T-statistic is at a positive number indicating that the direction of the influence of the three ratios is positive on financial distress.

Table 7. Coefficient of Determination Result

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Profitability (X_3)	0.900	0.810	0.797	0.60634
Activity (X_4)	0.527	0.278	0.226	1.18300
Investment (X_5)	0.275	0.076	0.010	1.33822

Source: Secondary data processed, 2022

The profitability ratio variable is recognized to have an effect on financial distress by 81% based on Table 7, as evidenced from the R Square value of 0.810. The activity ratio variable has an effect on financial distress of 27.8% as seen from the R Square value of 0.278. The investment ratio has an effect of 7.6% on financial distress based on the R Square value of 0.076.

DISCUSSION

The Liquidity and Solvency Ratio Partially Does NOT Affect Financial Distress Prediction

The solvency ratio of 0.371 and the liquidity ratio variable's p-value of 0.051 in multiple linear regression are both smaller than 0.05, indicating that the profitability ratio has no impact on financial distress. This study uses CR as an indicator of liquidity measurement and DER as an indicator of solvency ratio measurement. Destriwanti, Sintha, Bertuah, and Munandar (2022) and Oktaria et al. (2021) confirmed that financial distress is unaffected by the liquidity ratio as determined by CR. This, however, disagrees with Suharti, Purnamasari, Mahari, Astutik, and Pawiati (2020) who discovered proof that the liquidity ratio affected financial distress. Dirman (2020) and Restianti and Agustina (2018) obtained the same result, but contrary to Moch et al. (2019). The average CR of 0.262 and DER of 1.012 are values that indicate poor liquidity and solvency conditions. CR 0.262 shows the proportion of current assets is far below current debt, while DER 1.012 shows the proportion of debt is greater than total equity indicating that there is a deficit in equity or net assets. However, this condition will not have an impact on the company's financial distress. There is a tendency for companies to be able to maintain CR from year to year with not too many changes in this ratio each year. The financial distress of the airline industry is not related to the ability to cover its long-term debts.
H_1 rejected: The liquidity ratio does not affect financial distress
H_2 rejected: The solvability ratio does not affect financial distress

The Profitability, Activity, and Investment Ratio Partially Affects Financial Distress Prediction

The results of this study demonstrate that financial distress is significantly and favorably impacted by the profitability ratio, as evaluated by ROA, activity ratio, and investment ratio, respectively. This result is based on p-value of the profitability ratio of 0.000, the activity ratio of 0.05 and the investment ratio of 0.041 which is smaller than 0.05 with positive t-statistics of 5.890, 3.0904 and 2.343, respectively. Similar thing about profitability ratio obtained by Moch et al. (2019), Indriaty, Setiawan, and Pravasanti (2019) and Subiyanto and Siagian (2020), about activity ratio obtained by Yacobus and KP (2021) and about investment ratio obtained by Keter et al. (2018). However, these results contradict research of Nurhayati, Mufidah, and Kholidah (2017), Amoa-Gyarteng (2021) and Kristanti et al. (2015). The greater the ratio of profitability, activity and investment, the effect on increasing the prediction of financial distress. ROA shows the efficiency of the use of assets in obtaining net income. The increasing ROA indicates the

better asset management in obtaining the company's net profit. The larger net profit will increase retained earnings so that the company's ability to increase. Increasing the company's ability will improve financial distress conditions. The average ROA in this industry is -0.142, TATO is 0.689 and PER is -3.183 indicating an unhealthy condition so that it can be predicted that the financial distress condition of the airline industry is quite bad in 2018-2021 as indicated by an average figure of -0.656 . TATO is an activity ratio indicator that measures the efficiency of the company's asset turnover in obtaining revenue so that the lower the TATO will affect the prediction results of financial distress to a less good number. The low value of the investment ratio indicates a decrease in investment from shareholders. If it continues, companies in this industry will find it difficult to obtain funding from investors. This difficulty will bring the company to a worse condition of financial distress.

H_3 accepted: Profitability ratio affects financial distress
H_4 accepted: Activity ratio affects financial distress
H_5 accepted: Investment ratio affects financial distress

CONCLUSION

The results showed that the liquidity ratio as measured using CR and solvency ratio as measured using DER partially had no effect on the prediction of financial distress as measured using Springate model. Profitability ratio as measured using ROA, activity ratio as measured using TATO and investment ratio as measured using PER partially have a positive effect on the prediction of financial distress. The profitability ratio has an influence of 81%, the activity ratio has 27.8% and the investment ratio has 7.6% on the prediction of financial distress. The ability of the company to pay short and long term debts does not solely influence the prediction of financial distress. Conditions related to asset performance, such as Return on Assets and Total Asset Turnover actually affect the prediction results of financial distress.

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DECLARATION OF CONFLICTING INTERESTS

The authors certify that we have no collaboration or involvement in any company that has a financial or non-financial interest in the subject of this paper.

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