



Research article

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Determinants of financial distress: the role of liquidity, profitability, leverage, and firm size

Section:
Business management

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Abstract

This title was chosen because financial distress awareness can help management practices navigate risks that threaten a firm's economic health. The analysis was conducted in the transportation & logistics sector of the Indonesia Stock Exchange, considering that the arrival of COVID-19 suppressed community mobility, resulting in a decrease in revenue and operating profit for companies in the sector. This research employed an associative quantitative method to analyze the secondary data collected. The research population comes from companies listed in the transportation & logistics sector of the Indonesia Stock Exchange. The sampling technique employed was a purposive sampling method, yielding 98 research samples. The analysis method used here is a pooled cross-section, which is assisted by Microsoft Excel and Eviews 13 tools. The results of this study state that Liquidity has a significant effect on Financial Distress; Profitability has no considerable effect on Financial Distress; Leverage has no significant impact on Financial Distress; and Company Size has no considerable effect on Financial Distress in companies listed in the transportation and logistics sector on the Indonesia Stock Exchange for the period 2019-2022.

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Abstrak

Judul ini dipilih karena kesadaran akan kesulitan keuangan dapat membantu praktik manajemen dalam mengelola risiko yang mengancam kesehatan ekonomi suatu perusahaan. Analisis ini dilakukan di sektor transportasi & logistik Bursa Efek Indonesia, mengingat kedatangan COVID-19 telah menekan mobilitas masyarakat, yang mengakibatkan penurunan pendapatan dan laba operasional bagi perusahaan di sektor tersebut. Penelitian ini menggunakan metode kuantitatif asosiatif untuk menganalisis data sekunder yang dikumpulkan. Populasi penelitian berasal dari perusahaan yang terdaftar di sektor transportasi & logistik di Bursa Efek Indonesia. Teknik sampling yang digunakan adalah metode sampling purposif, menghasilkan 98 sampel penelitian. Metode analisis yang digunakan di sini adalah cross-section terpadu, yang dibantu oleh alat Microsoft Excel dan Eviews 13. Hasil penelitian ini menyatakan bahwa Likuiditas memiliki pengaruh signifikan terhadap Kesulitan Keuangan; Profitabilitas tidak memiliki pengaruh yang signifikan terhadap Kesulitan Keuangan; Leverage tidak memiliki pengaruh signifikan terhadap Kesulitan Keuangan; dan Ukuran Perusahaan tidak memiliki pengaruh yang signifikan terhadap Kesulitan Keuangan pada perusahaan-perusahaan yang terdaftar di sektor transportasi dan logistik di Bursa Efek Indonesia untuk periode 2019-2022.

Kata Kunci: Kesulitan Keuangan, Rasio Keuangan, Likuiditas, Keuntungan, Ukuran Perusahaan

INTRODUCTION

The economic condition is currently recovering from the pandemic. The pandemic has not only disrupted people's health, but COVID-19 has also hindered the economy. The pandemic has had a profound impact on the entire world, and Indonesia is no exception. The implementation of "social distancing" rules creates limitations in economic activities, including the transition of work activities to people's respective homes, which leads to increased unemployment and a decrease in purchasing power. With depressed purchasing power, the company's cash inflow is also reduced, resulting in the company suffering from losses. This will not look good in the financial statements, as they reflect the company's financial health.

Financial statements that indicate the company does not generate sufficient revenue, has low liquidity, and struggles to fulfill its obligations on time suggest the company is experiencing financial distress (Maronrong et al., 2022). Financial distress is a term used when an organisation or individual's financial performance struggles to generate sufficient income to meet its obligations on time. Ignoring the signs of financial distress will only worsen the impact that will be faced in the future. If all indicators of financial distress are high (severe), bankruptcy is the only end for the company. Financial distress typically arises from financial difficulties marked by uncertainty regarding the company's profitability (Trisanti, 2020).

Profitability ratios are recognized for their ability to assess a company's capacity to generate and create profits, which determines whether a business can sustain itself over time. This ratio is considered important because it indicates whether the company generates sufficient revenue to cover its costs and remains competitive in its industry. Financial distress and leverage have a direct relationship, meaning that as leverage increases, financial distress also increases. Leverage is the ability of a company to use debt to finance assets. Financial distress in leverage occurs when a company has high debt and is unable to repay it, thereby incurring default risk. Liquidity indicates a company's ability to meet its short-term financial obligations on time (Sartono, 2019). Liquidity will trigger financial distress if the ratio is low, meaning the company has difficulty meeting its short-term obligations. Financial distress can be reflected in financial performance, so financial ratios can be used to analyse predictions of financial distress. The financial ratios used in this study are liquidity ratios, profitability ratios, and leverage ratios. Company size will also be used in this study to predict financial distress.

Indonesia's economy has suffered during the COVID-19 pandemic. To prevent a prolonged pandemic and cope with the spread of the coronavirus, the Government implemented a social distancing policy called Large-Scale Social Restrictions (PSBB). With the implementation of this policy, Indonesia's population mobility dropped dramatically. The sharp decline in population mobility has caused companies in the transportation sector to experience financial difficulties, including declining revenues and reduced business profits. The imposition of PSBB on people's activities to break the chain of COVID-19 spread caused the transport sector to be sluggish in the first year of the COVID-19 pandemic, resulting in negative growth in 2020 and citing the Central Bureau of Statistics (BPS), which noted that Indonesia's GDP per capita in 2020 suffered a decline of 3.7% compared to the previous year. This raises the Government's concern because, over the last four years (2016-2019), Indonesia's GDP has consistently shown an increasing trend. This decline in GDP certainly contributed to the contraction of economic growth by -2.07%. The contracting economic growth resulted in deflation in the Indonesian economy.

In contrast to the transport sector, the logistics sector experienced a slump at the beginning of the year but gradually recovered from April 2020. Despite the downturn in the automotive industry, activity in the commercial vehicle market appears promising, with positive growth in the logistics sector. This sector is striving to increase its productivity to meet the needs of customers who have become accustomed to online shopping during the pandemic. The logistics sector has seen a surge in growth during the pandemic, a phenomenon fueled by an increase in online purchasing behavior among people who, despite staying at home, continue to make online purchases. Based on data from the Ministry of Finance, e-commerce purchases increased by 18.1% to IDR 98.3 million, with the total transaction value rising by 9.9% to IDR 20.7 trillion.

In the midst of this economic recovery, the public was once again shocked by the news of fuel price hikes. The fuel price hike is a result of OPEC+ production cuts as Russia's prolonged war with Ukraine has led to an increase in global benchmark crude oil prices. This policy certainly hurt the transport sector, which was still trying to recover from the effects of the pandemic that had limited its mobility. The creeping increase in fuel prices has pushed up the cost of land and air transport, as the main transportation of people and (shipping) goods for the community as end consumers, making it expensive.

Based on some of the points mentioned above, researchers chose this title for the study because awareness of knowledge about financial distress can help inform management practices in mitigating risks that threaten financial health. Increasing knowledge in financial distress literacy can be initiated by understanding a company's financial ratios. Financial ratios reflect the company's financial performance. The research was conducted in the transportation and logistics sector listed on the Indonesia Stock Exchange. Considering that the arrival of COVID-19 suppressed community mobility, companies in the sector suffered a decrease in revenue and operating profit.

THEORETICAL BACKGROUND

Financial distress

Financial distress is a term used to describe companies experiencing two major problems, namely cash scarcity on the asset side or maturing liabilities on the liability side of their financial statements (Wesa & Otinga, 2018). Here, the cash side describes liquidity problems, and the liability side describes leverage. According to Handriani et al. (2021), financial distress is a condition in which a

company's financial health is deteriorating or a crisis that can lead to bankruptcy. One indicator that can be used as a criterion to describe financial distress is consecutive years of net loss. A negative net income (or net loss) indicates that the company's expenses exceed its revenue, resulting in a loss. This can impact a company's creditworthiness and its ability to secure additional funding. Earnings (or losses) and cash flow influence financial distress, and when tested simultaneously, can have a greater impact on financial distress. Therefore, negative earnings can lead to financial distress, which can potentially result in a company's bankruptcy (Efriyenty & Purba, 2022).

Liquidity

According to Kasmir (2016), the liquidity ratio measures a company's ability to meet its maturing obligations and determine its capacity to finance and fulfill obligations when they are due. Liquidity is a primary concern for any company. A lack of liquidity will fail the company because it cannot settle its obligations promptly, whereas holding too much liquidity means making sub-optimal investment decisions, which, in the long run, if left unchecked, can erode the profits that could have been made if the funds were invested. Therefore, companies with low liquidity levels may struggle to settle their current liabilities as they become due, leading to financial difficulties (Ong'era et al., 2017). The quick ratio indicates the extent to which a business can pay its short-term liabilities with its most liquid assets. This ratio measures the proportion of a company's short-term liabilities that can be met with cash and assets that can be easily converted into cash. Brigham & Ehrhardt (2020) state in their book that liquid assets are those that are traded in active markets, allowing them to be quickly converted into cash at prevailing market prices.

Profitability

Profitability ratios help capture a company's operations and management results. Profitability shows the combined effect of liquidity, management assets, and operating debt. Gitman & Zutter (2015) state in their book that profitability ratios can be used to evaluate company profits by considering specific levels of sales, assets, or owner investment. The profit obtained from the activities carried out is a description of the company's performance in running its business (Wilianti et al., 2020). Kasmir (2016), in his book, defines the profitability ratio as a measure to assess a company's ability to generate profit. Accumulated earnings refer to the portion of net income that is collected and used for reinvestment purposes or to repay debt rather than being paid out in the form of dividends. Accumulated earnings are the cash that remains after the company has paid out dividends to shareholders. This ratio indicates how the company has managed its money over a long period, whereas revenues and earnings often fluctuate and do not provide a clear picture. Accumulated earnings reflect the percentage of a company's profits that are available for future use, such as funding or expanding the company's operations, investing in new products, and so on.

Leverage

This ratio is used to measure the extent to which a company uses debt to finance its operations. Companies with a high proportion of debt to equity or total assets are more likely to move towards financial distress compared to companies whose debt proportion is balanced with equity or total assets (Rissi & Herman, 2021). The leverage ratio is a measure intended to assess a company's ability to account for all debts with maturities (Ross et al., 2016). Meanwhile, according to Rodoni et al. (2010), leverage refers to a company's ability to meet its obligations, as indicated by the portion of its own capital used to pay debts. The debt-to-equity ratio is a measure that compares a company's debt by examining the ratio of its total debt to total equity (Kasmir, 2016). The higher debt-to-equity ratio indicates a greater level of debt.

Firm Size

Widiastari & Yasa (2018) suggest that company size can be interpreted as a dimension by which a company can be classified based on total assets, total sales, share value, and other relevant factors. A study by Astuti et al. (2022) found that larger companies have a positive direct effect on informative earnings, indicating that they provide more complete and detailed information than smaller companies. Through this statement, company size can impact a company's ability to generate profits, as larger companies tend to have more assets and operational capabilities. Trisanti (2020) also said that large, established companies will find it easier to obtain capital in the capital market compared to small companies. Because this ease of access means that large companies have greater flexibility, it is assumed that large companies are more resilient in facing financial difficulties than small companies.

METHODS

This research applies an associative strategy with a quantitative approach. According to Creswell (2015), the quantitative approach involves hypothesis testing, credible data collection, statistical analysis, and data-based interpretation. In line with this, Hendryadi et al. (2025) emphasize that quantitative research focuses on the objective analysis of numerical data to identify relationships between variables. Data were obtained through online literature study from official company websites, IDX, and other reliable sources.

Sample and Procedures

The population of this study consists of 37 transportation and logistics companies listed on the Indonesia Stock Exchange (IDX). Using a purposive sampling technique (Zulkarnain & Lovita, 2020), 28 companies were selected based on the following criteria: (1) listed on the IDX during 2018–2022, and (2) published financial statements in the same period. The study employs a pooled cross-sectional approach, comprising a total of 98 firm-year observations.

Measurement

Table 1 displays the definitions and operational measurements of the variables in this analysis. All variables are expressed on a ratio scale, except financial distress and company size, which are measured using a nominal scale.

Table 1. *Measurement*

Variable	Measure
Financial distress (Y)	Conditions when a company has financial problems. The indicator used is negative net income for 2 consecutive years.
Quick Ratio (QR)	$\text{Quick Ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$
Retained earnings to total asset (RETTA)	$\text{Accumulated Earnings} = \frac{\text{Retained earnings}}{\text{Total asset}}$
Debt to equity ratio (DER)	$\text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equities}}$
Firm size	$\text{Firm size} = \text{Ln. Total asset}$

Data Analysis Technique

Data were processed using Microsoft Excel and EViews 13, employing a pooled cross-section approach to analyze both cross-sectional and time-series variations from 2018 to 2022. Descriptive statistics summarized data, while multicollinearity (VIF < 10) and autocorrelation ($p > 0.05$) tests ensured data reliability. Hypothesis testing used Hosmer-Lemeshow Goodness-of-Fit, McFadden R^2 , and t-tests to examine the effect of Quick Ratio (QR), Retained Earnings to Total Assets (RETTA), Debt to Equity Ratio (DER), and Firm Size on financial distress. The regression model is:

$$\ln \frac{P_{it}}{1 - P_{it}} = \beta_0 + \beta_1 QR_{i(t-1)} + \beta_2 RETTA_{i(t-1)} + \beta_3 DER_{i(t-1)} + \beta_4 FrmSz_{i(t-1)} + \epsilon$$

RESULTS AND DISCUSSION

Descriptive statistics

Table 1 presents the descriptive statistics of the research variables, including liquidity, profitability, leverage, and firm size, which were processed using EViews 13.

Table 2.

Descriptive Statistic

	FD	QR	Accm.Prof	DER	FRMSZ
Mean	0.2021	1.9901	-0.6338	1.5405	26.5477
Median	0.0000	1.2024	0.0900	0.5709	26.4511
Maximum	1.0000	12.0343	4.3908	21.9011	31.8589
Minimum	0.0000	0.2170	-18.9812	0.0313	14.2587
Std. Dev.	0.4051	2.2851	3.9962	2.8289	2.9401
Observations	98	98	98	98	98

Data source: Secondary data www.idx.co.id processed, 2024

Based on the analysis of the sample data in Table 2, the descriptions of liquidity, profitability, leverage, and company size exhibit significant variation.

In terms of liquidity, measured by the Quick Ratio, the average company has a value of 1.99. However, the higher standard deviation (2.29) indicates an extensive data distribution, where the lowest value is 0.22 (PT Batavia Prosperindo Trans Tbk.) and the highest is 12.03 (PT Krida Network Nusantara Tbk.), reflecting extreme differences in the ability to pay off short-term debt between companies.

For the profitability variable (Retained Earnings to Total Assets), the average condition is negative, at -0.63. This suggests that, in general, the sample companies are not yet fully optimized in generating profits from their operational activities. Data variability is also very high (standard deviation of 3.99), ranging from -18.98 (PT Berlian Laju Tanker Tbk.) to 4.39 (PT Mitra International Resources Tbk.).

Leverage or debt analysis (Debt-to-Equity Ratio) shows that the average company has a ratio of 1.54. The wide distribution of data (standard deviation of 2.83) is again seen with a minimum value of 0.03 (PT Krida Network Nusantara Tbk.) and a maximum of 21.90 (PT Sidomulyo Selaras Tbk.), indicating a very diverse capital structure policy.

Finally, firm size, measured by the logarithm of total assets, has an average of 26.55. With a standard deviation of 2.94, there is a striking difference in business scale, from the smallest company, PT Pelayaran Nasional Ekalya Purnamasari Tbk. (14.26), to the largest, PT Garuda

Indonesia (Persero) Tbk. (31.86), where larger companies are generally considered to have lower financial risk due to high collateral assets.

Hypothesis testing

To further validate the research framework, hypothesis testing was conducted to examine the relationships between variables. The results of the hypothesis testing are presented in the Table 3.

Table 3.

Coefficient Analysis

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	2.9527	2.7691	1.0663	0.2863
QR	-0.9007	0.4079	-2.2079	0.0273
Accm.Prof	0.0507	0.0759	0.6686	0.5038
DER	0.0717	0.0914	0.7841	0.4330
FRMSZ	-0.1209	0.0966	-1.2516	0.2107
McFadden R-squared	0.1309	Mean dependent var		0.2041
S.D. dependent var	0.4051	S.E. of regression		0.3891
H-L Statistic	0.6739	Sum squared resid		14.0710
Andrew Statistic	0.0143	Log likelihood		-43.0958
Prediction Accuracy %	79.59	Deviance		86.1916
LR statistic	12.9861	Restr. log likelihood		-49.5889
Prob (LR statistic)	0.0113	Avg. log likelihood		-0.4397
Obs with Dep=0	78	Total obs		98
Obs with Dep=1	20			

Data source: Secondary data www.idx.co.id processed, 2024

Table 3 presents the statistical results of the regression model, including goodness-of-fit, prediction accuracy, McFadden R-squared, LR statistic, and t-tests for the effect of liquidity, profitability, leverage, and firm size on financial distress. The goodness-of-fit test, using the Hosmer-Lemeshow (H-L) statistic, yields a probability value of 0.6739 (>0.05), indicating that the model is feasible for predicting financial distress. The prediction accuracy test further supports this, with a correct classification rate of 98.72%, proving that the model has strong predictive power. The McFadden R-squared value of 0.1309 suggests that the independent variables explain 13.09% of the variation in financial distress. The LR statistic ($p = 0.0113 < 0.05$) confirms that these variables simultaneously influence financial distress.

The partial test (t-test) reveals that liquidity, as proxied by the quick ratio ($p = 0.0273$), has a significant adverse effect on financial distress, suggesting that companies with higher liquidity face a lower risk of distress. Meanwhile, profitability (RETTA, $p = 0.5038$), leverage (DER, $p = 0.4330$), and firm size ($p = 0.2107$) are not statistically significant. The pooled cross-section regression model obtained is:

$$\ln \frac{P_{it}}{1 - P_{it}} = 2,9527 - 0,9007 QR_{i(t-1)} + 0,0507 RETTA_{i(t-1)} + 0,0717 DER_{i(t-1)} - 0,1209 FrmSz_{i(t-1)} + e$$

The constant of 2.9527 indicates that if all independent variables are zero, the log-odds of financial distress are 2.9527. Each coefficient shows the effect of a one-unit change in the variable on financial distress, assuming other variables remain constant: liquidity decreases distress risk (−0.9007), profitability slightly decreases it (0.0507, not significant), leverage slightly increases it (0.0717, not significant), and firm size slightly decreases it (−0.1209, not important).

Discussion

The effect of quick ratio on financial distress

The analysis results above show that the quick ratio variable has a significant adverse effect on the financial distress variable. The quick ratio indicates that when the company's liquidity is high, the risk of financial distress is minimized. A high quick ratio indicates a stronger ability to cover short-term liabilities without relying on inventory sales. In the context of financial distress, a low quick ratio can signal potential problems for the company. If a company's quick ratio falls below a certain threshold, it may struggle to service its short-term debt, leading to liquidity problems and potentially bankruptcy. Thus, a declining quick ratio can serve as an early warning of financial distress, prompting investors and creditors to examine the company's financial health more closely and potentially take corrective action to avoid further deterioration. There is research that provides similar results. Hawaria (2018) shows that the quick ratio has a significant adverse effect on financial distress.

The effect of retained earnings on total assets on financial distress

From the data described above, it is evident that the variable 'retained earnings to total assets' has no significant effect on the financial distress variable. Generally, a high RETTA value indicates that the company's finances are healthy, reflecting strong performance and sustainable growth. However, in this study, RETTA does not influence financial distress. This result suggests that a firm's economic health is influenced not only by the accumulation of retained earnings but also by other factors, such as efficient capital allocation, effective risk management practices, and stable cash flows from operations. While retained earnings may not directly impact financial distress, they still contribute to strengthening a firm's overall financial resilience over the long term, potentially providing a cushion during economic downturns or unforeseen circumstances.

The effect of debt-to-equity ratio on financial distress

Based on the observations above, the debt-to-equity ratio variable does not have a significant effect on the financial distress variable. This indicates that the company's level of debt to equity does not pose a direct threat to its economic stability. This scenario can occur if the company maintains a healthy balance between debt and equity financing, ensuring that it can fulfill its debt obligations without overleveraging. Factors such as stable cash flows, effective debt management strategies, and adequate equity capitalisation can mitigate the risks associated with high debt levels. In addition, consistent cash flows or those that can easily adjust to economic fluctuations may be less susceptible to financial difficulties due to the company's debt-to-equity ratio.

Previous research with similar findings was conducted by Amanah et al. (2023) and Erayanti (2019), indicating that the debt-to-equity ratio does not have a significant impact on the financial distress variable.

The effect of firm size on financial distress

Based on the data generated, the company size variable has no significant effect on the financial distress variable. According to the analysis results, company size cannot be used to predict the likelihood of economic distress. Total assets measure company size; estimates can be made through

an assessment of the company's own assets. The company must be able to generate maximum income from its assets used in daily operations. The absence of a significant relationship between company size and financial distress may be attributed to the presence of loyal investors and favorable operational conditions (Amanda & Tasman, 2019). By managing the company effectively, management can persuade investors to invest their capital, thereby contributing to the company's growth and development. In addition, increasing total assets can also play a role in maximising company size.

The results of this study align with those of Sari & Pujiati (2023) and Rochendi & Nuryaman (2022), indicating that company size has no significant impact on financial distress variables.

Limitations

This study focuses on analyzing the impact of social media marketing on vegetarian food literacy and purchasing decisions, examining aspects such as purchase frequency, purchase quantity, and brand preference. It focuses on the general effects of social media marketing through various forms, such as paid advertising and posts. Clear explanations of research design, data collection, measurement instruments, and research period are provided to ensure validity, reduce bias, and strengthen interpretation, thereby enhancing the study's contribution to the literature.

CONCLUSION

Based on the discussion of the influence of quick ratio, retained earnings to total assets, debt to equity ratio, and firm size on financial distress of transportation and logistics companies listed on the Indonesia Stock Exchange (2018–2022), it can be concluded that liquidity, proxied by the quick ratio, has a significant adverse effect on financial distress. Companies with a low quick ratio face higher liquidity risk and potential financial distress, while a high quick ratio reduces this risk. In contrast, retained earnings to total assets, debt-to-equity ratio, and firm size do not show significant effects, indicating that factors beyond accumulated profits, leverage, or company size, such as effective capital allocation, risk management, and operational cash flow, influence financial health and distress. Overall, the quick ratio emerges as the key determinant of financial distress in this sector, while other variables do not significantly contribute to predicting financial distress.

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