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The Effect of Capital Structure, Sales Growth, and Firm Size on Financial Distress in Transportation and Logistics Companies Listed on the Indonesia Stock Exchange During the 2021–2024 Period

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Abstract

This study aims to analyze the effects of capital structure, sales growth, and firm size on financial distress in transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period. The data used in this study are secondary data obtained from the financial statements and annual reports of each company, accessed through the official IDX website at www.idx.co.id. The population consists of 39 transportation and logistics companies listed on the Indonesia Stock Exchange. The sampling technique employed was purposive sampling, resulting in 26 companies selected as research samples with a total of 104 firm-year observations. The data analysis methods include classical assumption tests (normality test, multicollinearity test, and heteroscedasticity test), inferential analysis, partial hypothesis testing (t-test), and coefficient of determination analysis (R^2) using SPSS 27 software. The results of the partial test (t-test) indicate that capital structure has a positive and significant effect on financial distress, sales growth has no significant effect on financial distress, and firm size has a negative and significant effect on financial distress in transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period.

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1. Introduction

Financial condition is one of the fundamental aspects that determines the sustainability and performance of a company. A stable financial condition reflects the company's ability to manage resources effectively, fulfill short-term and long-term obligations, and maintain business continuity. Companies with strong financial conditions generally have greater flexibility in responding to economic changes, implementing business strategies, and maintaining competitiveness. Conversely, companies experiencing financial instability may face difficulties in managing operational activities, maintaining liquidity, and fulfilling financial obligations. Therefore, identifying factors that influence corporate financial conditions is an important issue for managers, investors, creditors, and other stakeholders (Altman et al., 2017; Phan et al., 2022; Ermaya & Mashuri, 2021; Sulawati et al., 2025).

The current business environment is characterized by increasing competition, technological development, and economic uncertainty. Global economic fluctuations, inflation pressures, interest rate changes, and changes in consumer behavior have created challenges for companies in maintaining sustainable performance. These challenges are particularly significant for industries requiring substantial operational expenditures and continuous investment, such as the transportation and logistics sector. Companies operating in this sector are highly dependent on economic activity, fuel prices, infrastructure availability, and fluctuations in service demand. Such conditions may increase financial risks and create greater possibilities for companies to experience financial difficulties (Carnevali et al., 2022; Febrianti & Widhiastuti, 2025; Suyono et al., 2024).

Financial distress describes a condition in which a company experiences difficulties in fulfilling financial obligations and maintaining

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operational sustainability. This condition is often considered an early warning indicator of corporate failure because prolonged financial problems may lead to bankruptcy. Early identification of financial distress is essential because it allows companies to implement preventive strategies and improve financial decision-making. Financial distress prediction can be conducted by analyzing financial indicators, including profitability, liquidity, leverage, and other financial characteristics that reflect the company's ability to maintain financial stability (Ramadani & Ratmono, 2023; Altman et al., 2017).

Financial distress is influenced by various internal financial factors because these factors represent the company's ability to manage resources and meet its obligations. Companies with weak profitability, high leverage, limited liquidity, and inefficient financial management tend to face greater financial pressure. Therefore, financial indicators such as profitability, liquidity, leverage, firm size, and free cash flow are frequently used to analyze the probability of financial distress occurrence (Dirman, 2020; Az Zahra & Kristanti, 2026).

The transportation and logistics sector has an important role in supporting economic activities because it facilitates goods distribution, supply chain operations, and national economic connectivity. However, this sector also faces considerable financial challenges due to high operating costs, dependence on fuel prices, infrastructure requirements, and changes in transportation demand. The characteristics of this industry make transportation and logistics companies more vulnerable to financial pressure, particularly during periods of economic recovery and market adjustment after the COVID-19 pandemic (Carnevali et al., 2022).

During the 2021–2024 period, transportation and logistics companies listed on the Indonesia Stock Exchange (IDX) experienced various challenges related to maintaining financial performance. Changes in mobility patterns, increasing operational expenses, and fluctuations in market demand affected the profitability of several companies. The financial performance condition of several transportation and logistics companies during the observation period is presented in Table 1.

Table 1. Net Profit Condition of Transportation and Logistics Companies Listed on the Indonesia Stock Exchange (2021–2024)

Issuer	2021	2022	2023	2024
BLTA	5.89 B	9.03 B	15.61 B	3.56 B
CMPP	(2.33 T)	(1.64 T)	(1.08 T)	(1.52 T)
GIAA	(4.17 B)	3.73 B	251 M	(69 M)
MIRA	(13.19 B)	31.35 B	(10.17 B)	(8.69 B)
TAXI	188.59 B	(14.90 B)	(4.04 B)	(1.78 B)
PURA	8.22 B	6.14 B	4.19 B	5.75 B

Source: Indonesia Stock Exchange (IDX), processed by researchers (2025)

Based on Table 1, several transportation and logistics companies experienced unstable profitability during the 2021–2024 period. CMPP recorded negative net profit continuously throughout the observation period, indicating persistent financial pressure. MIRA experienced fluctuating financial performance with losses occurring in several years, while TAXI showed a decline from positive profitability in 2021 to consecutive losses in subsequent years. These conditions indicate that several companies faced difficulties in maintaining sustainable financial performance.

Continuous losses may reduce the company's ability to generate internal funds, fulfill financial obligations, and maintain operational continuity. If these conditions continue for a prolonged period, companies may experience a higher probability of financial distress. Previous studies have shown that financial distress is associated with various financial factors, including capital structure, profitability, liquidity, leverage, and firm size, because these variables reflect the company's financial capability and risk exposure (Phan et al., 2022; Az Zahra & Kristanti, 2026).

One of the important factors affecting financial distress is capital structure. Capital structure represents the proportion between debt and equity used by companies to finance operational activities and investments. Financing decisions determine the level of financial risk because excessive debt utilization may increase interest expenses and repayment obligations. Although debt can provide additional funding capacity and support business expansion, inappropriate debt levels may reduce financial flexibility and increase the possibility of financial distress.

Companies with high dependence on external financing may experience greater financial pressure when operational performance declines because they must continue fulfilling debt obligations despite reduced cash flow availability. Effective capital structure management is therefore required to maintain an appropriate balance between financing benefits and financial risks. Previous studies indicate that capital structure is an

important determinant of financial distress because financing decisions influence the company's ability to manage financial risks and maintain financial stability (Az Zahra & Kristanti, 2026).

Another factor that may influence financial distress is sales growth. Sales growth reflects the company's ability to increase revenue generated from operational activities over time. Higher sales growth generally indicates stronger market performance, improved competitiveness, and greater ability to generate operational cash flows. Companies with sustainable sales growth tend to have better financial capacity to fulfill obligations and maintain business continuity.

Conversely, declining sales growth may indicate weakening business performance and reduced market competitiveness. A decrease in revenue may negatively affect profitability and liquidity, thereby increasing the possibility of financial difficulties. Sales growth is considered an important indicator in financial distress analysis because it reflects operational capability, revenue-generating ability, and future business sustainability (Suyono et al., 2024; Nurkhasannah & Nawirah, 2024).

Firm size is also considered an important factor influencing financial distress. Firm size reflects the scale of company operations and is generally measured through total assets, sales, or market capitalization. Larger companies usually have greater resources, stronger access to financing, and better ability to overcome temporary financial difficulties. These advantages may reduce the probability of financial distress because large companies generally possess greater financial flexibility (Az Zahra & Kristanti, 2026).

However, large company size does not automatically guarantee financial stability. Companies with extensive operational structures may also face higher complexity, greater operating costs, and more complicated management challenges. Therefore, the relationship between firm size and financial distress remains an important empirical issue. Company characteristics, including firm size, play an important role in determining the probability of financial distress because they represent the company's resource capacity and risk management capability (Carnevali et al., 2022; Dirman, 2020).

Although previous studies have investigated financial distress determinants, several research gaps remain. First, previous studies have mostly focused on manufacturing, consumer goods, and financial sectors, while research specifically examining transportation and logistics companies is still limited. Second, previous findings regarding the effects of capital structure, sales growth, and firm size on financial distress remain inconsistent due to differences in industry characteristics, research periods, and measurement approaches. These inconsistencies indicate the need for further investigation to obtain more comprehensive empirical evidence.

The 2021–2024 period provides an important research context because companies experienced financial adjustments during the post-pandemic economic recovery period. Transportation and logistics companies faced operational changes, cost pressures, and market uncertainty that could influence their financial sustainability. Therefore, examining the determinants of financial distress in this period provides relevant evidence regarding how companies manage financial risks under changing economic conditions.

The novelty of this study lies in examining the simultaneous effects of capital structure, sales growth, and firm size on financial distress in transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period. This research contributes by focusing on a strategic sector with unique operational characteristics and high sensitivity to economic fluctuations, while previous studies have mostly examined broader industrial sectors.

Financial distress analysis has become increasingly important because financial difficulties do not occur suddenly but generally develop through a gradual process influenced by changes in financial performance and business conditions. Early identification of financial distress enables companies to evaluate their financial strategies, improve operational efficiency, and implement appropriate corrective actions before financial problems become more severe. Therefore, examining financial indicators that reflect financing decisions, operational performance, and company characteristics is essential for understanding the factors that contribute to financial vulnerability.

Capital structure, sales growth, and firm size represent important financial characteristics that provide information regarding a company's ability to maintain sustainability. Capital structure reflects the

company's financing strategy and level of financial risk, while sales growth represents operational capability and market performance. Meanwhile, firm size indicates the availability of resources, financial capacity, and access to external funding. The interaction among these factors may determine how effectively companies manage financial pressure and respond to economic uncertainty. Therefore, analyzing these variables simultaneously provides a more comprehensive understanding of financial distress determinants.

Furthermore, transportation and logistics companies have unique characteristics compared with other industries because they require substantial investments in operational assets, continuous maintenance expenditures, and sensitivity to external economic conditions. Fluctuations in fuel prices, changes in transportation demand, and economic recovery conditions may significantly influence company performance. Consequently, understanding the determinants of financial distress in this sector is important not only from an academic perspective but also from a practical perspective, as the findings may assist managers and stakeholders in developing strategies to maintain financial resilience and business continuity.

Based on the background, empirical phenomenon, and research gap described above, this study aims to analyze the effect of capital structure, sales growth, and firm size on financial distress in transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period. The findings of this study are expected to contribute to financial management literature and provide practical implications for company management, investors, and stakeholders in identifying and managing financial distress risks.

2. Literatur Review

2.1 Signalling Theory

Signalling theory explains how companies communicate information to external stakeholders to reduce information asymmetry between internal management and external parties. In the corporate environment, managers generally possess more comprehensive information regarding company performance, financial conditions, and future prospects compared with investors. Therefore, financial information disclosed through financial reports, corporate announcements, and other disclosures becomes an important mechanism for providing signals to the market. Effective disclosure allows investors to evaluate company quality and make more informed investment decisions (Connelly et al., 2021).

Corporate signals can be interpreted positively or negatively depending on the information conveyed by the company. Strong financial performance, stable growth, and effective resource management may provide positive signals that increase stakeholder confidence. Conversely, declining profitability, excessive financial obligations, and unstable operational performance may become negative signals indicating potential financial problems. The quality and reliability of corporate information are therefore important because investors use these signals to assess future company prospects and financial sustainability (Connelly et al., 2021).

In relation to financial distress, signalling theory explains that financial indicators can provide early information regarding potential financial difficulties. Variables such as capital structure, sales growth, and firm size represent important signals because they reflect financing decisions, operational capability, and resource availability. Companies with increasing financial risks may provide negative signals to investors, while companies with stable financial conditions may provide positive signals regarding their ability to maintain business continuity (Carnevali et al., 2022).

2.2 Financial Distress

Financial distress represents a condition in which a company experiences financial difficulties that affect its ability to fulfill obligations and maintain operational activities. This condition generally occurs before bankruptcy and serves as an early warning indicator of corporate failure. Identifying financial distress at an early stage is important because companies can implement corrective actions, restructure financial decisions, and reduce potential losses. Financial distress analysis has become an important topic in financial management because it provides information regarding corporate sustainability and failure risk (Ramadani & Ratmono, 2023; Altman et al., 2017).

Financial distress prediction has developed from traditional financial ratio analysis into more advanced analytical approaches. Financial indicators such as profitability, liquidity, leverage, and cash flow

remain important factors in identifying companies with higher failure risks. Recent studies also demonstrate that predictive models incorporating statistical and computational approaches can improve the accuracy of financial distress identification and provide better decision-support information for stakeholders (Sun et al., 2021).

The occurrence of financial distress is influenced by various internal and external factors. Internal factors include financing decisions, operational performance, company growth, and asset management, while external factors include economic conditions and industry characteristics. Companies operating in industries with high capital requirements and operational complexity are generally more vulnerable to financial pressure. Therefore, understanding the determinants of financial distress is essential for maintaining corporate resilience and preventing bankruptcy risks.

2.3 Capital Structure

Capital structure refers to the proportion of debt and equity used by companies to finance assets, operations, and investment activities. Financing decisions represent important strategic decisions because they determine the company's financial risk, cost of capital, and ability to maintain financial flexibility. An appropriate capital structure allows companies to obtain sufficient funding while controlling financial obligations. However, excessive dependence on debt may increase financial pressure and create difficulties when companies experience declining performance (Vo & Ellis, 2021).

Capital structure decisions are influenced by company characteristics and financial conditions. Companies generally adjust their debt and equity composition to achieve an optimal balance between funding benefits and financial risks. Excessive leverage may increase interest obligations and reduce the company's ability to respond to operational uncertainty. Therefore, companies with inappropriate capital structures may face higher possibilities of financial distress, particularly when cash flow generation is insufficient to cover financial commitments (Dang et al., 2022).

The relationship between capital structure and financial distress is particularly relevant for companies with high operational investment requirements. Transportation and logistics companies, for example, require substantial assets, maintenance costs, and continuous operational funding. Therefore, financing decisions become an important determinant of financial sustainability because capital structure influences the company's ability to manage financial obligations and maintain long-term business continuity.

2.4 Sales Growth

Sales growth reflects the company's ability to increase revenue generated from operational activities over time. Growth in sales indicates market acceptance, competitive capability, and operational effectiveness. Companies with consistent sales growth generally have stronger opportunities to generate cash flows, support expansion activities, and maintain financial stability. Therefore, sales growth is frequently used as an indicator to evaluate company performance and future prospects (Suyono et al., 2024).

Declining sales growth may become an early indication of financial problems because reduced revenue generation can affect profitability and liquidity. When companies experience decreasing sales, they may face difficulties covering operational expenses and financial obligations. This condition may increase financial pressure and contribute to the possibility of financial distress. Therefore, sales growth represents an important signal regarding the company's operational sustainability and financial capacity (Nurkhasannah & Nawirah, 2024).

The influence of sales growth on financial distress is particularly important in industries that depend heavily on market demand, including transportation and logistics. Changes in economic activity, consumer behavior, and business demand directly affect revenue performance. Companies that are unable to maintain sales growth may experience reduced financial flexibility and increased exposure to financial difficulties (Suyono et al., 2024).

2.5 Firm Size

Firm size represents the scale of company operations and is commonly measured through total assets, sales volume, or market capitalization. Larger companies generally possess greater resources, stronger market positions, and better access to external financing. These advantages may improve the company's ability to overcome temporary financial difficulties and reduce the probability of financial distress (Az Zahra & Kristanti, 2026).

However, firm size does not always guarantee financial stability. Large companies may also face greater operational complexity, higher administrative costs, and more complicated management structures. Therefore, the relationship between firm size and financial distress depends on how effectively companies utilize their resources and manage operational activities. Companies with large assets but inefficient management may still experience financial difficulties (Younus et al., 2022).

In financial distress analysis, firm size represents an important company characteristic because it reflects resource capacity, operational scale, and financial strength. Larger firms generally have greater ability to access financing and manage risks; however, efficient asset utilization remains necessary to maintain sustainability. Therefore, firm size becomes an important variable in evaluating the probability of financial distress, especially in sectors requiring significant investment and operational resources (Carnevali et al., 2022).

3. Method

3.1 Research Design

This study employs a quantitative research approach with an associative research design. A quantitative approach is selected because this study aims to examine the relationship between independent variables and dependent variables using numerical data and statistical analysis. Quantitative research emphasizes objective measurement, hypothesis testing, and statistical evaluation to identify patterns and relationships among variables based on empirical evidence (Ghanad, 2023). The associative research design is applied to analyze the influence of capital structure, sales growth, and firm size on financial distress. This design enables researchers to evaluate whether variations in independent variables are associated with changes in the dependent variable through statistical testing (Sürücü & Maslakci, 2020).

The object of this research consists of transportation and logistics companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period. This sector was selected because transportation and logistics companies experienced significant financial challenges during the post-pandemic recovery period, including changes in operational costs, fluctuations in demand, and adjustments in business activities. The use of quantitative methods allows this study to analyze financial conditions objectively based on company financial information.

3.2 Population and Sample

The population of this study consists of all transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period. Based on the IDX sector classification, the total population consists of 39 companies. Public companies were selected as the research population because they provide standardized financial information through annual reports and financial statements, enabling researchers to conduct consistent empirical analysis.

The sample selection process was conducted using purposive sampling. This sampling technique involves selecting research samples based on predetermined criteria that are relevant to the research objectives. Purposive sampling is appropriate when researchers require specific characteristics from the population and when complete and relevant data availability becomes an important consideration in sample determination (Campbell et al., 2020). Therefore, this study applies several criteria to ensure that selected companies provide adequate information for the analysis.

The criteria applied in selecting the research sample include: (1) transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period; (2) companies that continuously publish financial reports during the observation period; and (3) companies that continuously publish annual reports during the 2021–2024 period. Based on these criteria, 26 companies were selected as research samples. Since each company was observed for four years, the total number of firm-year observations used in this study was 104 observations.

3.3 Data Source and Data Collection

This study uses secondary data obtained from publicly available company documents. The data sources include annual financial statements and annual reports of transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period. Secondary data analysis is widely used in quantitative research because it enables researchers to utilize existing information sources to examine relationships among

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variables and evaluate empirical phenomena systematically.

The data collection method used in this study is documentation. Financial reports and annual reports published by companies through the Indonesia Stock Exchange database were collected, reviewed, and processed according to the research requirements. The collected data were then transformed into numerical measurements based on the operational definitions of each research variable.

3.4 Research Variables and Measurement

This study consists of one dependent variable and three independent variables. The dependent variable is financial distress, while the independent variables are capital structure, sales growth, and firm size. Financial distress represents the financial difficulties experienced by companies and is measured using the financial distress measurement model applied in this research.

Capital structure represents the proportion between debt and equity used by companies to finance operational activities and investments. In this study, capital structure is measured using the Debt-to-Equity Ratio (DER). Sales growth represents the company's ability to increase sales performance from one period to another and is measured using the percentage change in sales. Meanwhile, firm size reflects the scale of company operations and is measured using the natural logarithm of total assets. *The operational measurement of research variables is presented in Table 2.*

Table 2. Variable Measurement

Variable	Measurement
Financial Distress (Y)	Based on the financial distress measurement model applied in the study
Capital Structure (X1)	Debt to Equity Ratio (DER)
Sales Growth (X2)	(Current Sales – Previous Sales) / Previous Sales
Firm Size (X3)	Natural logarithm of total assets

The measurement of research variables is designed to ensure that each variable can be quantitatively analyzed based on standardized indicators. Financial distress as the dependent variable is measured using the financial distress model applied in this study to identify the financial condition and potential difficulties experienced by companies. Capital structure is measured using the Debt-to-Equity Ratio (DER), which reflects the proportion of company financing obtained from debt compared with equity. A higher DER indicates greater dependence on external financing and potentially higher financial risk. Sales growth is measured by comparing changes in current sales with previous sales, representing the company's ability to increase operational revenue over time. Meanwhile, firm size is measured using the natural logarithm of total assets because total assets represent the scale of company operations and financial capacity. The use of these measurement indicators allows the research variables to be analyzed consistently and objectively through statistical testing.

3.5 Data Analysis Technique

The data analysis process in this study involves descriptive statistical analysis, classical assumption testing, and hypothesis testing. Descriptive statistical analysis is conducted to describe the characteristics of research data, including minimum value, maximum value, mean, and standard deviation. These analyses provide an overview of the distribution and characteristics of the variables used in the study.

Before conducting regression analysis, classical assumption tests are performed to ensure that the regression model meets statistical requirements. The tests include normality testing, multicollinearity testing, heteroscedasticity testing, and autocorrelation testing. Multicollinearity testing is conducted to determine whether strong correlations exist among independent variables because such conditions may affect the accuracy of regression estimation (Shrestha, 2020).

Hypothesis testing is conducted using multiple linear regression analysis to examine the effect of capital structure, sales growth, and firm size on financial distress. The regression equation applied in this study is formulated as follows:

$$FD = \alpha + \beta_1 CS + \beta_2 SG + \beta_3 FS + e$$

The significance level used in hypothesis testing is 5% ($\alpha = 0.05$). The results of statistical analysis are used to determine whether capital structure, sales growth, and firm size significantly influence financial distress in transportation and logistics companies listed on the Indonesia Stock Exchange.

4. Result and Discussion

4.1 Descriptive Statistical Analysis

Descriptive statistical analysis was conducted to provide an overview of the characteristics of the research variables based on the observed data. This analysis presents the minimum value, maximum value, mean value,

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and standard deviation of each variable used in the study. Descriptive statistics are important to understand the distribution characteristics of the data before conducting further statistical analysis. The descriptive statistical results provide an initial overview of the financial characteristics of transportation and logistics companies during the observation period. The variation in capital structure indicates that companies have different financing strategies, particularly in the utilization of debt and equity to support operational activities. Meanwhile, the variation in sales growth reflects differences in companies' ability to maintain revenue performance amid changing economic conditions. The relatively consistent firm size values indicate that companies in this sector have similar operational scales, while the variation in financial distress values suggests that differences exist in companies' financial conditions and risk exposure. These descriptive findings provide an important basis for understanding the characteristics of the data before conducting further regression analysis.

Table 3. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Capital Structure	104	0.69	7.19	6.7595	0.60205
Sales Growth	104	0.00	4.06	2.1970	0.52046
Firm Size	104	5.51	5.74	5.5962	0.05986
Financial Distress	104	0.69	6.90	4.4486	1.19329
Valid N (listwise)	104				

Based on Table 3, the capital structure variable has a minimum value of 0.69 and a maximum value of 7.19, with an average value of 6.7595 and a standard deviation of 0.60205. The mean value is higher than the standard deviation, indicating that the distribution of capital structure data is relatively stable. The sales growth variable has a minimum value of 0.00 and a maximum value of 4.06, with a mean value of 2.1970 and a standard deviation of 0.52046. The relatively lower standard deviation compared with the mean value indicates that sales growth data have a relatively good distribution.

The firm size variable shows a minimum value of 5.51 and a maximum value of 5.74, with an average value of 5.5962 and a standard deviation of 0.05986. The small standard deviation indicates that firm size among transportation and logistics companies during the observation period tends to be relatively consistent. Meanwhile, the financial distress variable has a minimum value of 0.69, a maximum value of 6.90, a mean value of 4.4486, and a standard deviation of 1.19329. The mean value being higher than the standard deviation indicates that the financial distress data have a relatively acceptable distribution.

4.2 Classical Assumption Test

4.2.1 Normality Test

The normality test was conducted to determine whether the residual data in the regression model follow a normal distribution. This test is an important requirement in regression analysis because normally distributed residuals indicate that the regression estimation is statistically reliable.

Table 4. One-Sample Kolmogorov-Smirnov Test

Test	Value
N	104
Mean	0.0000000
Std. Deviation	1.06864098
Absolute Difference	0.073
Positive Difference	0.073
Negative Difference	-0.057
Test Statistic	0.073
Asymp. Sig. (2-tailed)	0.200

Based on Table 4, the Kolmogorov-Smirnov test results show an Asymp. Sig. (2-tailed) value of 0.200. Since the significance value is greater than 0.05, the residual data are normally distributed. Therefore, the regression model satisfies the normality assumption.

The normal distribution of residuals indicates that the differences between the observed values and the predicted values in the regression model are distributed appropriately. This condition is important because normally distributed residuals support the accuracy of parameter estimation and statistical inference in regression analysis. Therefore, the normality test results provide evidence that the regression model used in this study is suitable for further analysis, including hypothesis testing regarding the effect of capital structure, sales growth, and firm size on financial distress.

4.2.2 Multicollinearity Test

The multicollinearity test aims to determine whether there is a high correlation among independent variables in the regression model. Multicollinearity can affect the accuracy of regression coefficient estimation.

Table 5. Multicollinearity Test

Variable	Tolerance	VIF
Capital Structure	0.995	1.005
Sales Growth	0.964	1.037
Firm Size	0.962	1.039

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Based on Table 5, all independent variables have tolerance values above 0.10 and VIF values below 10. Capital structure has a tolerance value of 0.995 and VIF of 1.005, sales growth has a tolerance value of 0.964 and VIF of 1.037, while firm size has a tolerance value of 0.962 and VIF of 1.039. Therefore, it can be concluded that there is no multicollinearity problem among the independent variables.

The absence of multicollinearity indicates that each independent variable provides unique information in explaining variations in financial distress. The low VIF values demonstrate that capital structure, sales growth, and firm size do not have excessive linear relationships with each other, allowing the regression coefficients to be interpreted more accurately. Therefore, the regression model is considered capable of estimating the individual contribution of each independent variable without being affected by correlation problems among predictors.

4.2.3 Heteroscedasticity Test

The heteroscedasticity test was performed to determine whether the regression model has unequal residual variances among observations.

Table 6. Heteroscedasticity Test

Variable	Sig.
Capital Structure	0.177
Sales Growth	0.359
Firm Size	0.676

Based on Table 6, the significance values of capital structure, sales growth, and firm size are 0.177, 0.359, and 0.676, respectively. All significance values are greater than 0.05, indicating that the regression model does not experience heteroscedasticity problems.

The results of classical assumption testing indicate that the regression model fulfills the required statistical assumptions. The normally distributed residuals, absence of multicollinearity, and absence of heteroscedasticity indicate that the regression coefficients can be interpreted reliably. Therefore, the multiple linear regression model used in this study is considered appropriate for examining the relationship between capital structure, sales growth, firm size, and financial distress. The fulfillment of these assumptions strengthens the validity of the hypothesis testing results and reduces the possibility of biased estimation in the regression analysis.

4.3 Multiple Linear Regression Analysis

Multiple linear regression analysis was conducted to examine the effect of capital structure, sales growth, and firm size on financial distress.

Table 7. Multiple Linear Regression Analysis

Variable	B	Std. Error	Beta	t	Sig.
Constant	33.567	10.114		3.319	0.001
Capital Structure	0.645	0.178	0.326	3.626	0.001
Sales Growth	-0.218	0.209	-0.095	-1.043	0.300
Firm Size	-5.897	1.820	-0.296	-3.240	0.002

The regression equation obtained is:

$$FD = 33.567 + 0.645CS - 0.218SG - 5.897FS + e$$

The interpretation of the regression equation is as follows:

The constant value of 33.567 indicates that when capital structure, sales growth, and firm size remain constant, the predicted value of financial distress is 33.567. The capital structure coefficient is 0.645, indicating a positive relationship. This means that an increase in capital structure by one unit will increase financial distress by 0.645 units. The sales growth coefficient is -0.218, indicating a negative relationship. This means that an increase in sales growth by one unit will reduce financial distress by 0.218 units. The firm size coefficient is -5.897, indicating a negative relationship. This means that an increase in firm size by one unit will reduce financial distress by 5.897 units.

The regression model demonstrates that each independent variable has a different contribution to explaining financial distress. Capital structure shows a positive coefficient, indicating that increased dependence on debt financing is associated with higher financial distress risk. In contrast, sales growth and firm size show negative coefficients, suggesting that improvements in operational growth and company resources may contribute to reducing financial pressure. However, the effect of each variable must be evaluated based on its statistical significance because coefficient direction alone does not determine whether a variable has a meaningful influence on financial distress.

4.4 Partial Hypothesis Test (t-Test)

The partial test was conducted to examine the individual effect of each independent variable on financial distress.

Table 8. Partial Test Results

Variable	t-value	Sig.	Decision
Capital Structure	3.626	0.001	Significant
Sales Growth	-1.043	0.300	Not Significant
Firm Size	-3.240	0.002	Significant

The results show that capital structure has a t-value of 3.626 with a significance value of 0.001 (<0.05). Therefore, capital structure has a significant effect on financial distress. Sales growth has a t-value of -1.043 with a significance value of 0.300 (>0.05). Therefore, sales growth does not have a significant effect on financial distress. Firm size has a t-value of -3.240 with a significance value of 0.002 (<0.05). Therefore, firm size has a significant effect on financial distress.

The partial hypothesis testing results demonstrate that financial distress in transportation and logistics companies is influenced differently by each financial factor. Capital structure and firm size have significant effects, indicating that financing decisions and company resource capacity are important determinants of financial conditions. Meanwhile, sales growth does not significantly influence financial distress, suggesting that revenue growth alone may not be sufficient to explain financial difficulties without considering other factors such as profitability, liquidity, and operational efficiency. These findings highlight the importance of evaluating financial distress through multiple indicators rather than relying on a single financial measure.

4.5 Coefficient of Determination Test

The coefficient of determination was conducted to determine how much variation in financial distress can be explained by capital structure, sales growth, and firm size.

Table 9. Model Summary

R	R Square	Adjusted R Square	Std. Error of Estimate
0.445	0.198	0.174	1.08455

Based on Table 9, the Adjusted R Square value is 0.174. This indicates that capital structure, sales growth, and firm size explain 17.4% of the variation in financial distress. Meanwhile, the remaining 82.6% is explained by other factors outside this research model.

The Adjusted R Square value indicates that the research model provides a limited but meaningful explanation of financial distress variations among transportation and logistics companies. The relatively moderate explanatory power suggests that financial distress is a complex phenomenon influenced by various internal and external factors beyond the variables examined in this study. Other factors such as profitability, liquidity, cash flow, corporate governance, macroeconomic conditions, and operational risks may also contribute to variations in financial distress. Therefore, future research may consider incorporating additional variables to obtain a more comprehensive understanding of financial distress determinants.

4.6 Discussion of Research Findings

4.6.1 The Effect of Capital Structure on Financial Distress

The results of hypothesis testing indicate that capital structure has a positive and significant effect on financial distress. The regression analysis shows that capital structure has a t-value of 3.626 with a significance value of 0.001, which is lower than 0.05. Therefore, the first hypothesis (H1) is accepted, indicating that capital structure significantly influences financial distress in transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period.

The positive relationship between capital structure and financial distress indicates that higher debt utilization increases the probability of experiencing financial difficulties. Companies with a higher proportion of debt financing must fulfill greater financial obligations, including interest payments and debt repayment requirements. When operating performance and cash flow are insufficient to cover these obligations, companies may experience increased financial pressure. High leverage can reduce financial flexibility because companies have greater fixed financial commitments, thereby increasing vulnerability to financial distress (Vo & Ellis, 2021; Marginingsh et al., 2024).

From the perspective of signalling theory, capital structure provides important information to external stakeholders regarding the company's financial condition and risk level. A high Debt to Equity Ratio (DER) may be perceived as a negative signal because it reflects greater dependence on external financing and higher financial obligations. Investors may interpret excessive debt utilization as an indication of increased financial risk and a greater possibility of financial difficulties. Therefore, companies need to implement effective financial decision-making strategies to maintain an optimal financing structure and ensure long-term financial sustainability (Connelly et al., 2021). Financial decision-making practices also play an important role in managing corporate risks and improving financial resilience (Sulawati et al., 2025).

The findings of this study are consistent with previous research showing that capital structure is an important determinant of financial distress. Companies with high leverage tend to have lower financial flexibility because debt obligations may limit their ability to respond to operational uncertainty. Financial distress prediction studies also highlight that leverage, financial structure, and internal financial management are important indicators in assessing corporate failure risk (Altman et al., 2017; Az Zahra & Kristanti, 2026).

Additional evidence from previous studies also confirms that excessive debt dependence can increase corporate vulnerability, particularly when companies face declining operational performance or unstable economic conditions. High leverage increases fixed financial obligations and reduces the ability of firms to allocate resources toward operational recovery and strategic investment. Therefore, companies operating in capital-intensive sectors, such as transportation and logistics, need to carefully manage their financing composition to maintain an appropriate balance between debt benefits and financial risks (Dang et al., 2022; Li et al., 2022; Jiang et al., 2023).

The findings further indicate that financing decisions play an important role in maintaining corporate financial stability, particularly in transportation and logistics companies that require substantial capital investment. Although debt financing can support business expansion and operational development, excessive reliance on debt may increase financial pressure when companies face fluctuations in revenue, operating costs, or economic conditions. Therefore, companies need to establish an optimal capital structure by balancing the benefits of external financing with the potential risks arising from increased financial obligations. Effective debt management is essential to ensure that financing decisions contribute positively to business sustainability rather than increasing the probability of financial distress.

4.6.2 The Effect of Sales Growth on Financial Distress

The results of hypothesis testing indicate that sales growth does not have a significant effect on financial distress. The sales growth variable has a t-value of -1.043 with a significance value of 0.300, which is greater than 0.05. Therefore, the second hypothesis (H2) is rejected, indicating that sales growth does not significantly influence financial distress in transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period.

The insignificant relationship indicates that increasing sales does not always improve the financial condition of companies. Although sales growth reflects the company's ability to expand revenue, financial distress is influenced by various other factors, including profitability, liquidity, operational efficiency, and debt management. Companies may experience financial difficulties despite achieving sales growth when increased revenue is not accompanied by effective cost control and sufficient cash flow generation. Therefore, sales growth alone cannot fully describe corporate financial health (Ramadani & Ratmono, 2023; Sun et al., 2021).

From the perspective of signalling theory, sales growth represents information regarding company performance and future business prospects. However, the results indicate that sales growth does not provide a sufficiently strong signal to predict financial distress. Investors and stakeholders need to consider additional financial indicators because increased revenue does not necessarily indicate the company's ability to fulfill financial obligations. Sustainable corporate performance depends on effective resource management and appropriate financial decision-making (Connelly et al., 2021; Sulawati et al., 2025).

The findings of this study support previous research indicating that sales growth does not always have a significant relationship with financial distress. Companies with increasing sales may still experience financial pressure due to inefficient operations, increasing costs, or excessive financial obligations. Therefore, financial distress evaluation requires a comprehensive assessment involving multiple financial indicators rather than relying solely on revenue growth (Altman et al., 2017; Sun et al., 2021).

Additional analysis shows that sales growth should be interpreted together with other financial performance indicators because revenue expansion does not automatically generate sufficient profitability and liquidity. Companies may experience increased sales while simultaneously facing higher operating expenses, inefficient asset utilization, or increased financing requirements. In such conditions, sales growth may provide a positive operational signal but does not necessarily

reduce financial distress risk. Previous studies emphasize that the ability of companies to convert revenue growth into sustainable cash flow and profitability is a more important factor in maintaining financial stability (Habib et al., 2021; Farooq et al., 2022). Furthermore, the characteristics of transportation and logistics companies may explain why sales growth does not significantly affect financial distress in this study. This sector generally requires substantial operational expenditure, including fuel costs, asset maintenance, infrastructure investment, and fleet management expenses. Therefore, an increase in sales volume may not immediately improve financial conditions when operational costs and financial obligations remain high. Companies need to ensure that sales growth is supported by effective cost management, operational efficiency, and appropriate financing strategies to reduce financial vulnerability (Noor & Tjong, 2025; Suyono et al., 2024).

These findings suggest that sales growth should not be interpreted as the sole indicator of corporate financial improvement. In transportation and logistics companies, increased sales may require additional operational resources, higher maintenance expenses, and greater working capital requirements. Consequently, revenue expansion may not immediately reduce financial distress risk if companies are unable to manage the relationship between revenue growth, cost efficiency, and cash flow generation. Therefore, sustainable growth requires not only increasing sales volume but also improving operational effectiveness and financial management capabilities.

4.6.3 The Effect of Firm Size on Financial Distress

The results of hypothesis testing indicate that firm size has a negative and significant effect on financial distress. The regression analysis shows that firm size has a t-value of -3.240 with a significance value of 0.002, which is lower than 0.05. Therefore, the third hypothesis (H3) is accepted, indicating that firm size significantly influences financial distress in transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period.

The negative relationship indicates that larger companies tend to have a lower probability of experiencing financial distress. Companies with larger total assets generally possess stronger operational capacity, greater financial resources, wider access to external financing, and better ability to withstand economic uncertainty. These advantages provide greater flexibility for large companies in managing financial pressure compared with smaller companies that have limited resources and weaker financial capacity (Altman et al., 2017; Younus et al., 2022).

From the perspective of signalling theory, firm size provides information regarding company stability and financial capability. Large companies generally provide positive signals to investors because they are considered more capable of fulfilling obligations, maintaining operational activities, and managing business risks. However, company size must be supported by effective managerial capability because large resources require proper management to generate sustainable benefits. Strategic financial management is therefore essential to ensure that company resources contribute to long-term performance (Connelly et al., 2021; Sulawati et al., 2025).

The findings of this study are consistent with previous research showing that firm characteristics and internal financial factors influence the probability of financial distress. Companies with greater resources and stronger financial capacity generally have better resilience in facing financial uncertainty. Effective management of internal financial factors contributes to maintaining corporate stability and reducing financial risks (Carnevali et al., 2022; Az Zahra & Kristanti, 2026).

Additional analysis indicates that firm size can act as a protective factor against financial distress because larger companies generally have greater financial flexibility, stronger bargaining power, and easier access to external funding sources. These advantages allow large companies to manage temporary financial difficulties more effectively than smaller firms. However, firm size alone does not guarantee financial stability because inefficient resource utilization, excessive operational complexity, and poor managerial decisions may reduce the benefits associated with company scale. Therefore, the effect of firm size on financial distress depends not only on the amount of resources owned but also on the effectiveness of resource management (Li & Wang, 2023; Andaris & Dasman, 2024).

In the context of transportation and logistics companies, firm size becomes particularly relevant because this sector requires significant investment in assets,

infrastructure, and operational facilities. Companies with larger asset bases generally have greater capacity to maintain operational continuity during periods of economic uncertainty. Nevertheless, companies must ensure that asset expansion is accompanied by efficient operational management and sustainable financing strategies to prevent financial pressure. Thus, firm size provides an important indication of financial resilience but must be evaluated together with other financial indicators such as leverage, profitability, and liquidity (Younus et al., 2022; Suyono et al., 2024).

The results emphasize that firm size represents an important indicator of corporate resilience, particularly for companies operating in asset-intensive industries. Larger companies generally have advantages in terms of financial resources, operational capacity, and access to external financing, which may help them overcome temporary financial difficulties. However, the benefits associated with firm size depend on the company's ability to manage resources effectively. Without efficient asset utilization and appropriate strategic decisions, a large company may still face financial challenges. Therefore, firm size should be considered together with other financial indicators to obtain a comprehensive assessment of financial distress risk.

5. Conclusion

This study examines the effect of capital structure, sales growth, and firm size on financial distress in transportation and logistics companies listed on the Indonesia Stock Exchange during the 2021–2024 period. The results show that capital structure has a positive and significant effect on financial distress, indicating that higher debt utilization increases the risk of financial difficulties. Sales growth does not have a significant effect on financial distress, suggesting that changes in sales performance alone cannot determine financial conditions because operational efficiency and financial management also play important roles. Meanwhile, firm size has a negative and significant effect on financial distress, indicating that larger companies tend to have lower financial distress risk due to stronger resources, asset capacity, and financial flexibility.

The findings imply that companies should optimize financing decisions by maintaining an appropriate balance between debt and equity and improving asset utilization to strengthen financial sustainability. Investors should consider leverage and firm size, in addition to sales growth, when evaluating corporate financial conditions.

This study has limitations related to the research scope, which only covers transportation and logistics companies listed on the Indonesia Stock Exchange during 2021–2024, and examines only three independent variables. Future research is recommended to extend the observation period, include other sectors, and incorporate additional variables such as profitability, operating cash flow, managerial ownership, corporate governance, and corporate social responsibility to provide a broader understanding of financial distress determinants.

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