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Profitability, Liquidity, Capital Structure, and Stock Prices: Testing Firm Size Interactions in the Transportation and Logistics Sector

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Abstract: This study examines the effects of profitability, liquidity, capital structure, and firm size on stock prices and evaluates the moderating role of firm size among transportation and logistics companies listed on the Indonesia Stock Exchange. Secondary data were obtained from annual financial statements and year-end closing stock prices. The sample was selected through purposive sampling based on the criteria established in the thesis. Profitability was measured by return on assets, liquidity by the current ratio, capital structure by the debt-to-equity ratio, and firm size by the natural logarithm of total assets. The data were analyzed using moderated regression analysis after mean-centering the main variables. The findings indicate that profitability, liquidity, capital structure, and firm size do not affect stock prices in the observed sample. The interaction tests also show that firm size does not moderate the effects of profitability, liquidity, or capital structure on stock prices. These results suggest that the selected financial ratios and asset scale alone are insufficient to explain stock-price variation in the sector during the study period.

Keyword: Capital Structure, Firm Size, Liquidity, Profitability, Stock Price.

INTRODUCTION

Stock prices summarize the market's assessment of an issuer's prospects, risks, and performance. Under the efficient market framework, public information is incorporated into security prices (Fama, 1970), while early evidence on the information content of earnings indicates that financial statements can trigger market responses (Ball & Brown, 1968). Accounting-based valuation models likewise identify earnings and book value as relevant equity information (Ohlson, 1995). Nevertheless, the explanatory power of fundamental indicators is not necessarily uniform across industries because investors evaluate company information together with sectoral and macroeconomic conditions.

The 2024 setting provides a strong empirical reason to examine the transportation and logistics sector. During the year, the Indonesia Composite Index declined by 2.65%, whereas the transportation and logistics sector index fell more sharply by 18.78% (Otoritas Jasa Keuangan, 2024). This sector is asset- and capital-intensive: operations depend on fleets,

warehouses, terminals, distribution facilities, and supporting technology. Large investment requirements, fuel and maintenance costs, changes in trade volumes, and supply-chain disruptions may cause investors to assess companies in this sector differently from firms in other industries.

This study focuses on three fundamental indicators. Profitability, proxied by return on assets (ROA), reflects the ability of assets to generate earnings; liquidity, measured by the current ratio (CR), represents the ability to meet short-term obligations; and capital structure, measured by the debt-to-equity ratio (DER), captures the proportion of debt financing relative to equity (Brigham & Houston, 2019; Kasmir, 2019; Myers, 1984). Under signaling theory, this information may reduce information asymmetry between management and investors (Spence, 1973; Ross, 1977). However, an identical signal may be interpreted differently according to firm scale because larger firms generally possess broader financing access, resources, and information disclosure.

Prior empirical findings remain inconsistent. Several studies report that ROA affects stock prices (Akbar, 2023; Aisyiah & Waharini, 2026; Cahyati & Hanifah, 2025; Sukartaatmadja et al., 2023), whereas others find no effect (Muyasaroh & Sa'diyah, 2023; Ningrum & Pertiwi, 2025; Wardhani et al., 2024). CR findings are also mixed: some studies report an effect on stock prices or market value (Cahyati & Hanifah, 2025; Ishak & Selamat, 2025; Saputra et al., 2025), whereas others find no effect (Aisyiah & Waharini, 2026; Sukartaatmadja et al., 2023). Similarly, DER affects the dependent variable in certain studies (Alifian & Susilo, 2024; Cahyati & Hanifah, 2025; Muyasaroh & Sa'diyah, 2023) but has no effect in other research (Adiba & Bawono, 2025; Daulay & Fitra, 2025; Okpanti et al., 2025).

The role of firm size is equally inconsistent. Firm size moderates selected relationships in Akbar (2023), Dewi and Fachrurrozie (2021), and Ishak and Selamat (2025), but does not consistently moderate all indicators in Ningrum and Pertiwi (2025). Other transportation and logistics studies tend to position profitability, liquidity, size, or capital structure as predictors of performance and firm value rather than testing their interactions in a stock-price model (Daulay & Fitra, 2025; Novianty et al., 2022; Saputra et al., 2025; Zidan et al., 2025). Rizky and Kisman (2023) further demonstrate that a moderating function may depend on the object and relationship examined. The research gap therefore concerns not only inconsistent findings but also the limited simultaneous examination of three firm-size interactions in the sector that experienced the sharpest market pressure in 2024.

Figure 1 presents the research model adapted from the thesis. H1-H4 represent the proposed direct effects, whereas H5-H7 represent the proposed moderating effects of firm size.

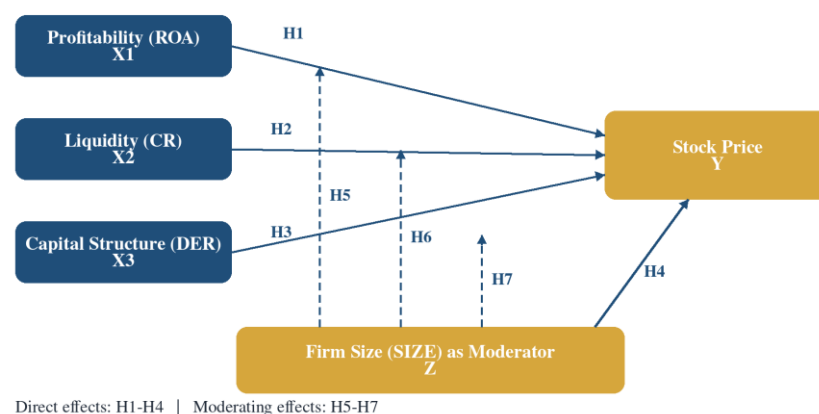


Figure 1. Research Model

Source: Adapted from the thesis research model (2026).

The study's novelty lies in integrating ROA, CR, and DER within one moderated regression analysis (MRA) model and testing their interactions with firm size among 25 transportation and logistics companies in 2024. Firm size is described as a moderator only when the interaction test demonstrates a moderating effect. The study aims to examine the effects of ROA, CR, DER, and firm size on stock prices and to determine whether firm size moderates the effect of each fundamental indicator on stock prices.

METHOD

The study applies a quantitative, associative design to cross-sectional data for 2024. The units of analysis are transportation and logistics companies listed on the Indonesia Stock Exchange. Secondary data were obtained from annual financial statements, annual reports, and year-end 2024 closing stock prices. The population comprised 36 companies. Purposive sampling was based on the availability of audited financial statements, reporting in Indonesian rupiah, profitable operations, complete ratio data, and available stock-price information. The final sample consisted of 25 companies.

The principal variables were calculated according to the operational definitions in Table 1. All main variables were mean-centered before three interaction terms were constructed: C_ROA×ASET, C_CR×ASET, and C_DER×ASET. Centering was used to reduce non-essential association between the main effects and product terms and to facilitate coefficient interpretation when other variables are at their means. Firm size is determined to have a moderating effect when the relevant interaction term affects stock prices under the hypothesis-testing criterion established in the thesis (Baron & Kenny, 1986; Sharma et al., 1981).

The conceptual MRA model is $HS = \alpha + \beta_1ROA + \beta_2CR + \beta_3DER + \beta_4SIZE + \beta_5(ROA \times SIZE) + \beta_6(CR \times SIZE) + \beta_7(DER \times SIZE) + \epsilon$. After mean-centering, the same specification was estimated using the operational variables shown in Figure 2. The analysis includes descriptive statistics, an F-test of simultaneous effects, R^2 and adjusted R^2 , and t-tests of partial and moderating effects at the 5% decision level. Data were processed using IBM SPSS Statistics [software version must be confirmed]. Following the thesis terminology, hypothesis decisions are reported as the presence or absence of an effect; the cross-sectional design nevertheless limits definitive causal interpretation.

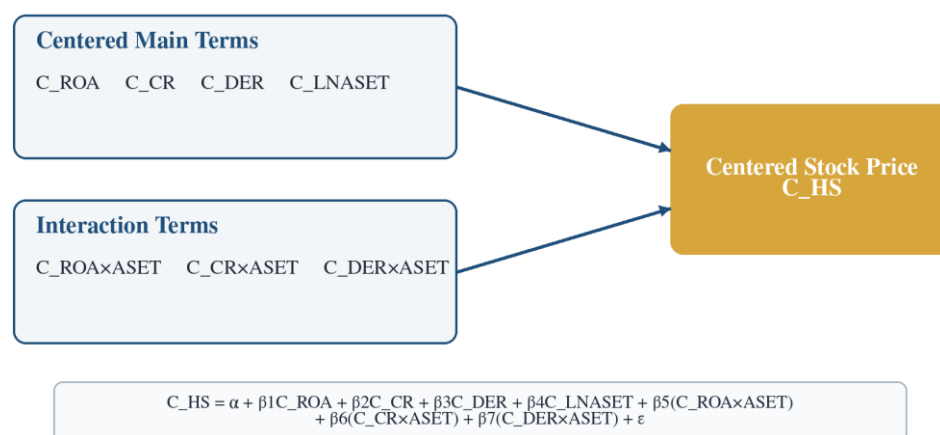


Figure 2. Moderated Regression Analysis Model
Source: Adapted from the thesis MRA specification (2026).

Table 1. Operational Definitions and Variable Measurement

Variable	Operational definition	Measurement
Stock price (HS)	Market price established through trading on the Indonesia Stock Exchange	Year-end 2024 closing price
Profitability	Ability to generate net income from assets	ROA = Net income / Total assets
Liquidity	Ability to meet short-term obligations using current assets	CR = Current assets / Current liabilities
Capital structure	Proportion of liabilities relative to equity	DER = Total liabilities / Total equity
Firm size	Scale of economic resources controlled by the company	SIZE = Ln total assets

Source: Thesis data and operational definitions, processed (2026).

RESULTS AND DISCUSSION

Descriptive Statistics

All 25 observations contain complete data. Because the descriptive statistics are reported after centering, the means of the main variables are close to zero, and negative values cannot be read as negative actual ratios or stock prices. Centered stock prices (C_HS) have the largest dispersion (standard deviation 406.4277), while C_DER ranges widely from -19.8845 to 5.0001. This variation demonstrates heterogeneity across issuers but does not itself establish relationships among the variables.

Table 2. Descriptive Statistics of Centered Variables

Variable	N	Minimum	Maximum	Mean	Std. deviation
C_ROA	25	-1.5000	0.1628	-0.0594	0.3066
C_CR	25	-1.6529	3.6795	0.0000	1.4865
C_DER	25	-19.8845	5.0001	0.0000	4.3147
C_LNASET	25	-2.4290	3.8619	0.0000	1.6048
C_ROA×ASET	25	-0.2059	0.2080	0.0219	0.0875
C_CR×ASET	25	-4.0050	4.9532	-0.0978	1.9526
C_DER×ASET	25	-4.5458	22.0134	1.6326	5.9224
C_HS	25	-278.9600	1,319.0400	0.0000	406.4277

Source: SPSS output, processed (2026).

Moderated Regression Analysis

The estimated equation is $C_HS = -10.651 - 141.116C_ROA - 11.819C_CR - 37.449C_DER + 138.360C_LNASET + 1,383.956C_ROA \times ASET - 22.399C_CR \times ASET - 18.480C_DER \times ASET$. Coefficient direction alone is insufficient to establish an effect; hypothesis decisions combine the coefficient estimates with p-values at the 5% decision level. Because every p-value exceeds 0.05, the tests indicate no direct or moderating effect in the specified model.

Table 3. Moderated Regression Analysis and Hypothesis Decisions

Predictor	B	Std. error	Beta	t	p	Decision
Constant	-10.651	130.110	-	-0.082	0.936	-

Predictor	B	Std. error	Beta	t	p	Decision
C_ROA	-141.116	331.934	-0.106	-0.425	0.676	No effect; H1 rejected
C_CR	-11.819	64.149	-0.043	-0.184	0.856	No effect; H2 rejected
C_DER	-37.449	38.912	-0.398	-0.962	0.349	No effect; H3 rejected
C_LNASET	138.360	82.244	0.546	1.682	0.111	No effect; H4 rejected
C_ROA×ASET	1,383.956	1,730.733	0.298	0.800	0.435	No moderating effect; H5 rejected
C_CR×ASET	-22.399	61.044	-0.108	-0.367	0.718	No moderating effect; H6 rejected
C_DER×ASET	-18.480	39.024	-0.269	-0.474	0.642	No moderating effect; H7 rejected

Source: SPSS output, processed (2026). Dependent variable: C_HS.

Table 4. Model Fit Summary

R	R ²	Adjusted R ²	Std. error	F (df=7;17)	p
0.522	0.273	-0.027	411.8176	0.911	0.521

Source: SPSS output, processed (2026). Total df=24; N=25.

The F-test yields $F=0.911$ with $p=0.521$. Because the p-value exceeds 0.05, ROA, CR, DER, firm size, and the three interaction terms collectively have no effect on C_HS in the specified model. $R^2=0.273$ represents the proportion of C_HS variation covered by the model within the sample, but adjusted $R^2=-0.027$ indicates that, after accounting for the number of predictors and sample size, the model's explanatory capacity is very limited. The remaining 72.7% is more accurately described as variation not explained by the model rather than a percentage automatically caused by specific external factors.

Direct Effect Tests of Fundamental Indicators

ROA has a coefficient of -141.116 with $p=0.676$. Because the p-value exceeds 0.05, profitability does not affect stock prices in the 2024 sample; therefore, H1 is rejected. This result differs from Akbar (2023), Aisyiah and Waharini (2026), Cahyati and Hanifah (2025), and Sukartaatmadja et al. (2023), which report an effect, but is consistent with the no-effect findings of Muyasaroh and Sa'diyah (2023), Ningrum and Pertiwi (2025), and Wardhani et al. (2024). Differences in industries, profitability measures, periods, and market conditions may account for the divergence, but the present study does not test those mechanisms directly. Consequently, the possibility that investors place greater weight on industry prospects or market sentiment is an interpretation rather than an observed result.

CR has a coefficient of -11.819 with $p=0.856$. Because the p-value exceeds 0.05, liquidity does not affect stock prices; therefore, H2 is rejected. This finding is consistent with Sukartaatmadja et al. (2023) and Wardhani et al. (2024), but differs from Cahyati and Hanifah (2025), Ishak and Selamat (2025), and Saputra et al. (2025). In an industry dominated by fixed assets, the current ratio may describe short-term payment capacity more directly than value-creation capacity. However, because working-capital efficiency, cash flows, and investor behavior are not tested, this explanation remains interpretive. The empirical result supports only the conclusion that CR does not affect stock prices in the specified model.

DER has a coefficient of -37.449 with $p=0.349$. Because the p-value exceeds 0.05, capital structure does not affect stock prices; therefore, H3 is rejected. The negative coefficient cannot be interpreted as a negative effect because the hypothesis test indicates no effect. This finding aligns with Adiba and Bawono (2025), Daulay and Fitra (2025), and Okpianti et al. (2025), but

differs from Alifian and Susilo (2024), Cahyati and Hanifah (2025), and Muyasaroh and Sa'diyah (2023). Within the trade-off framework, debt can offer financing benefits while also creating financial-distress costs (Myers, 1984). Transportation and logistics companies commonly require substantial financing, but this study does not measure the purpose of debt or operating cash-flow capacity. Investor tolerance for debt therefore cannot be stated as a direct finding.

Firm size has a coefficient of 138.360 with $p=0.111$. Because the p -value exceeds 0.05, firm size does not affect stock prices after the other variables and interaction terms are included; therefore, H4 is rejected. This result differs from Akbar (2023) but is consistent with Alifian and Susilo (2024) and Novianty et al. (2022), which indicate that asset scale does not always affect market valuation. In an asset-intensive industry, total assets may represent operational requirements as well as economic capacity. The available data do not permit these interpretations to be separated.

Firm Size Interaction Tests

The $C_ROA \times ASET$ interaction has a coefficient of 1,383.956 with $p=0.435$. Because the p -value exceeds 0.05, firm size does not moderate the effect of profitability on stock prices; therefore, H5 is rejected. This result differs from Akbar (2023) and Adiba and Bawono (2025) but is consistent with evidence that firm size does not moderate every financial relationship (Dewi & Fachrurrozie, 2021). The positive coefficient must not be interpreted as a strengthening effect because no moderating effect is detected.

The $C_CR \times ASET$ interaction has a coefficient of -22.399 with $p=0.718$. Because the p -value exceeds 0.05, firm size does not moderate the effect of liquidity on stock prices; therefore, H6 is rejected. The finding differs from Ishak and Selamat (2025) and Ningrum and Pertiwi (2025), which report moderation in other settings. Differences in dependent-variable measures, industries, and observation horizons may produce different patterns. Nevertheless, this study supports only the conclusion that firm size does not moderate the effect of CR on stock prices among 25 observations in 2024.

The $C_DER \times ASET$ interaction has a coefficient of -18.480 with $p=0.642$. Because the p -value exceeds 0.05, firm size does not moderate the effect of capital structure on stock prices; therefore, H7 is rejected. The result differs from settings in which firm size moderates the effect of capital structure on firm value or performance (Alifian & Susilo, 2024; Okpianti et al., 2025). Because firm size has no direct effect and all interaction tests indicate no moderating effect, firm size is not described as a moderator in this article's conclusion.

Taken together, the finding of no direct or moderating effects does not imply that financial ratios have no analytical value. It indicates that, under this specification, sample, and period, the available evidence does not support H1 through H7. The sector's 18.78% decline suggests that common factors such as macroeconomic conditions, energy costs, industry prospects, or market sentiment may be relevant, but these variables were not measured. Because the variables collectively have no effect on stock prices in the model and adjusted R^2 is negative, the principal theoretical contribution is to identify contextual limits on the ability of ROA, CR, DER, and firm size to explain one-year stock-price variation.

Implications and Limitations

For investors, the findings suggest that ROA, CR, DER, and asset size should not be used in isolation when evaluating transportation and logistics stocks. The analysis should be supplemented with operating efficiency, cash-flow quality, demand prospects, and macroeconomic risks. For management, the findings emphasize the importance of connecting asset ownership and financing decisions to productivity, cash flows, and transparent business strategy; the study does not demonstrate that improving any single ratio will automatically increase stock prices.

Generalizability is limited by the one-year period, 25 observations, seven predictors, the use of year-end closing prices, and the exclusion of market and macroeconomic factors. The small sample relative to model complexity reduces estimation precision, as reflected in large standard errors and a negative adjusted R^2 . Future studies should employ multi-year panel data, clarify the sampling flow, incorporate systematic risk, cash flows, dividend policy, governance, and macroeconomic variables, and report complete regression-diagnostic tests.

CONCLUSION

Based on 25 transportation and logistics companies listed on the Indonesia Stock Exchange in 2024, ROA, CR, DER, firm size, and their interaction terms collectively have no effect on stock prices ($F=0.911$; $p=0.521$), with $R^2=0.273$ and adjusted $R^2=-0.027$. The partial tests also show that ROA, CR, DER, and firm size do not affect stock prices. Furthermore, firm size does not moderate the effects of ROA, CR, or DER on stock prices. Accordingly, H1 through H7 are rejected, and firm size is not established as a moderator in the sample and period examined. This conclusion does not imply that fundamental variables are generally irrelevant; it indicates only that this one-year model does not support the hypothesized effects. The study contributes contextual evidence that stock-price responses in an asset-intensive sector under market pressure in 2024 cannot be adequately explained by ROA, CR, DER, asset size, and their interactions alone.

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