

Determinants of Financial Performance: The Role of Operating Efficiency in Indonesian Transportation and Logistics Companies

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Abstract

Purpose: This study examines the effects of sales growth, liquidity, asset tangibility, and operating efficiency on the financial performance of transportation and logistics companies. It also assesses the moderating role of operating efficiency.

Research Methodology: A quantitative explanatory design was applied using panel data from transportation and logistics companies listed on the Indonesia Stock Exchange during 2020–2024. Companies were selected through purposive sampling, and the data were analyzed using panel regression and moderation analysis with EViews 13 software.

Results: Sales growth and operating efficiency have significant positive effects on financial performance, while asset tangibility has a significant negative effect. Liquidity has no significant effect. Operating efficiency does not significantly moderate the relationships between sales growth, liquidity, asset tangibility, and financial performance.

Conclusions: Financial performance is primarily associated with firms' ability to sustain revenue growth and utilize assets efficiently. Operating efficiency acts as a direct determinant rather than a moderating mechanism.

Limitations: This study is limited to Indonesian transportation and logistics companies, the 2020–2024 period, and selected financial and operational factors. Future studies should examine other industries, countries, periods, and performance measures.

Contributions: This study extends corporate finance literature by providing evidence from an asset-intensive industry and offers practical guidance for improving profitability through effective asset utilization.

Keywords: *Asset Tangibility, Financial Performance, Liquidity, Operating Efficiency, Sales Growth*

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1. Introduction

The transportation and logistics industry has emerged as one of the key sectors underpinning Indonesia's economic development by ensuring the efficient distribution of goods, services, and

passengers while reinforcing the resilience of domestic supply chains. Accelerated digitalization, the rapid expansion of e-commerce, and continuous infrastructure development have significantly increased demand for logistics and transportation services, making the sector an important contributor to national economic growth ([OECD, 2023](#); [World, 2023](#)). Despite these opportunities, firms operating in this industry continue to encounter numerous challenges, including volatile fuel prices, increasing operating expenditures, global economic uncertainty, and intense market competition. These pressures require companies to improve operational effectiveness and financial performance to sustain competitiveness and achieve long-term business sustainability ([IDX, 2024](#); [OECD, 2023](#)).

The sector's financial performance experienced substantial deterioration during the transition from the Jakarta Industrial Classification (JASICA) to the Indonesia Stock Exchange Industrial Classification (IDX-IC). According to the Indonesia Stock Exchange Statistics, the Infrastructure, Utilities, and Transportation sector reported a Return on Assets (ROA) of -1.31% in 2020 following several consecutive years of weak profitability. After the implementation of the IDX-IC in 2021, Transportation and Logistics became an independent industrial sector. Although financial performance gradually recovered following the reopening of economic activities, the average ROA only increased from approximately -3.0% in 2021 to 1.5% in 2022 and 2.6% in 2023 ([IDX, 2024](#)). While these figures indicate a positive recovery trend, profitability remains relatively low, suggesting that many transportation and logistics firms continue to face operational inefficiencies and unequal recovery across the industry. This situation underscores the importance of identifying the internal factors that contribute to improving financial performance during the post-pandemic period.

Corporate financial performance reflects an organization's ability to transform its available resources into sustainable economic returns. Recent empirical studies suggest that superior profitability depends on management's ability to efficiently utilize corporate resources and operational capabilities to create sustainable competitive performance ([Bhat, & Sharma, 2021](#); [Dinarjito, & Wibowo, 2026](#); [Michael, Widjaja, & Simon, 2025](#)). This issue becomes particularly important in transportation and logistics companies because their business operations require substantial investments in fixed assets, transportation fleets, warehouses, and supporting infrastructure. Consequently, firms are expected to optimize both revenue generation and asset utilization to maintain profitability and strengthen long-term competitiveness.

Previous studies identify sales growth, liquidity, and asset tangibility as relevant determinants of financial performance, although their effects are not consistently observed. Sales growth may improve profitability through higher revenues and economies of scale, but rapid expansion can also increase costs and complexity ([Anokhin, Spitsin, Vukovic, & Maiti, 2026](#); [Fatima, & Yasmin, 2022](#)). Liquidity supports operational stability, yet excessive liquidity may reduce returns through idle resources ([Herdiyana, Sumarno, & Endri, 2020](#); [Ingracia, Wijayanto, & Saryadi, 2022](#)). Meanwhile, asset tangibility reflects the proportion of tangible assets employed in productive activities and financing decisions. Firms with higher tangible assets generally possess stronger collateral capacity and production capability, which may improve financial performance through more efficient resource utilization. However, excessive investment in fixed assets may also increase depreciation expenses, maintenance costs, and financing burdens, thereby reducing profitability when those assets are not utilized efficiently ([Alathamneh, Obeidat, Almomani, Almomani, & Darkal, 2025](#); [Oganda, 2023](#)). Likewise, tangible assets can strengthen productive capacity but may reduce profitability when underutilized because of depreciation and maintenance costs ([Anokhin et al., 2026](#)). These mixed findings suggest that the impact of these factors may depend on how efficiently firms utilize their resources.

One possible explanation for the inconsistent findings is operating efficiency, which reflects how effectively firms use their assets to generate revenue and profitability. In this study, operating efficiency is measured by Total Asset Turnover (TATO), representing management's ability to convert assets into sales. Thus, firms with similar levels of sales growth, liquidity, and asset tangibility may achieve different financial outcomes because of differences in asset utilization. This perspective is consistent with the Resource-Based View (RBV), which emphasizes that competitive advantage

depends not only on possessing valuable resources but also on the ability to utilize them effectively ([Bhat & Sharma, 2021](#)). Empirical evidence also indicates that efficient asset utilization can improve profitability by generating greater returns from existing resources ([Alathamneh et al., 2025](#); [Karim, Widyarti, & Santoso, 2023](#); [Oganda, 2023](#)). Accordingly, operating efficiency may directly affect financial performance and potentially alter the effects of other firm-specific factors on profitability.

Inconsistent findings is operating efficiency, which reflects how effectively firms use their assets to generate revenue and profitability. In this study, operating efficiency is measured by Total Asset Turnover (TATO), representing management's ability to convert assets into sales. Thus, firms with similar levels of sales growth, liquidity, and asset tangibility may achieve different financial outcomes because of differences in asset utilization. This perspective is consistent with the Resource-Based View (RBV), which emphasizes ([Alathamneh et al., 2025](#); [Fatima and Yasmin, 2022](#); [Karim et al., 2023](#); [Oganda, 2023](#)). Therefore, the role of TATO in determining whether these financial characteristics translate into superior profitability remains insufficiently explored. This study addresses this gap by examining the moderating role of TATO in the relationships between sales growth, liquidity, asset tangibility, and financial performance among transportation and logistics companies listed on the Indonesia Stock Exchange during 2020–2024. By integrating these variables within an asset-intensive industry context, the study extends previous research and provides further insight into the importance of effective asset utilization for corporate profitability.

2. Literature Review and Hypotheses Development

2.1 Trade-Off Theory

Trade-Off Theory explains that firms seek an optimal balance between the benefits and costs of financial and asset-related decisions to maximize firm value ([Kraus & Litzenberger, 1973](#)). In managing liquid and tangible assets, firms must balance financial flexibility and productive investment against the potential costs of idle resources, depreciation, maintenance, and financing. Thus, liquidity may reduce financial distress, whereas excessive liquidity can create opportunity costs. Similarly, tangible assets can improve profitability when their economic benefits exceed the costs associated with maintaining and financing them ([Alathamneh et al., 2025](#); [Karim et al., 2023](#)).

This perspective is particularly relevant to transportation and logistics firms, which depend heavily on fleets, warehouses, and logistics infrastructure. Effective liquidity management and productive asset utilization are therefore essential to maintaining profitability while controlling financial and operating costs. Consistent with Trade-Off Theory, firms that achieve a more efficient balance between liquid resources and tangible assets are expected to generate better financial performance ([Alathamneh et al., 2025](#); [Karim et al., 2023](#); [Oganda, 2023](#)).

2.2 Resource-Based View

The Resource-Based View (RBV) argues that sustainable competitive advantage depends on valuable, rare, inimitable, and organizationally embedded resources ([Barney, 1991](#)). However, possessing resources alone is insufficient; firm performance also depends on the ability to integrate, allocate, and utilize these resources effectively to create value ([Bhat, & Sharma, 2021](#); [Mohsin, Rashed, Gerschberger, Plasch, Ahmed, Dritan, & Islam, 2025](#)).

In the transportation and logistics industry, fleets, warehouses, infrastructure, and financial resources represent strategic assets whose contribution to financial performance depends on how efficiently they are utilized. Total Asset Turnover (TATO) captures this capability by indicating how effectively firms convert their asset base into sales. Accordingly, RBV provides a theoretical basis for expecting operating efficiency to directly improve financial performance. It also suggests that the benefits of sales growth, liquidity, and asset tangibility may vary according to firms' ability to utilize their resources effectively. Thus, TATO is proposed not only as a direct determinant but also as a potential moderator of the relationships between these financial characteristics and profitability ([Alathamneh, Obeidat, Almomani, Almomani, & Darkal, 2025](#); [Mohsin et al., 2025](#)).

2.3 Contingency Theory

Contingency Theory proposes that organizational performance depends on the fit between internal characteristics and contextual conditions rather than on universally effective management practices ([Donaldson, 2001](#)). Recent research similarly indicates that organizational capabilities and operating conditions jointly influence firm performance, particularly in logistics and supply chain industries ([Mohsin et al., 2025](#)).

In this study, the effects of sales growth, liquidity, and asset tangibility on financial performance are expected to vary according to firms' operating efficiency. Firms with similar financial characteristics may achieve different levels of profitability because of differences in their ability to utilize assets effectively. Therefore, Total Asset Turnover (TATO) represents a contextual factor that may strengthen or weaken the effects of these internal financial characteristics on financial performance. This perspective provides the theoretical basis for examining TATO as a moderating variable in the relationships between sales growth, liquidity, asset tangibility, and financial performance.

2.4 Financial Performance

Financial performance refers to a firm's capability to generate sustainable profits through the effective and efficient utilization of its available resources. It reflects how successfully management allocates and manages corporate assets to enhance operational outcomes and maximize shareholder value. Recent Indonesian studies continue to examine the determinants of corporate financial outcomes across various sectors, including profitability, liquidity, and governance-related factors ([Sa, Isthika, Triono, & Oktafiyani, 2025](#); [Shafitranata, & Octavia, 2025](#); [Narundana, Barusman, Defrizal, Waskito, & Habiburahhman, 2026](#)). As a comprehensive indicator of organizational success, financial performance demonstrates the extent to which firms transform their resources into economic benefits ([Kyerere, & Ausloos, 2021](#); [Pridarsanti, 2021](#)). Among the various profitability measures, Return on Assets (ROA) is widely recognized as an appropriate proxy because it evaluates the firm's ability to generate net income from its total asset base, thereby indicating the efficiency of asset utilization.

In the transportation and logistics industry, business operations rely heavily on substantial investments in transportation fleets, warehouses, terminals, and other logistics infrastructure. This asset-intensive nature makes efficient asset management a critical factor in achieving superior profitability and sustaining competitive advantage. A higher ROA indicates that a company is capable of converting its asset investments into greater earnings, whereas a lower ROA suggests that available resources are not being utilized optimally. Therefore, ROA provides an appropriate measure for assessing financial performance in transportation and logistics firms because it captures management's effectiveness in generating profits from significant asset investments ([Karim, Widyarti, & Santoso, 2023](#); [Pridarsanti, 2021](#)).

2.5 Sales Growth and Financial Performance

Sales growth represents a firm's capacity to expand its revenue by strengthening its market position, attracting new customers, and improving competitive performance. Sustained growth in sales enables firms to increase production efficiency, benefit from economies of scale, and allocate fixed operating costs across a larger revenue base, thereby enhancing profitability and overall financial performance ([Djaya, & Firdausy, 2023](#); [Hasanudin, 2021](#)).

From the perspective of the Resource-Based View (RBV), consistent sales growth reflects management's ability to leverage organizational resources and capabilities to capitalize on market opportunities and create sustainable competitive advantage. Increasing revenues also strengthen internal cash generation, providing firms with greater financial flexibility to support future investments, business expansion, and strategic development. Nevertheless, the influence of sales growth on financial performance is not always uniform. Rapid increases in revenue may fail to improve profitability when accompanied by higher operating expenses, inefficient resource allocation, or ineffective asset utilization, which can offset the benefits of revenue expansion ([Djaya and Firdausy, 2023](#); [Maulana, & Mesyani, 2023](#)). Therefore, firms that achieve sustainable sales growth while maintaining operational efficiency are more likely to experience superior financial performance.

H₁: Sales Growth positively affects Financial Performance

2.6 Liquidity and Financial Performance

Liquidity refers to a firm's ability to meet its short-term obligations while maintaining normal business operations. Adequate liquidity enables firms to finance working capital, reduce financial distress, and support operational stability ([Karim et al., 2023](#)).

According to Trade-Off Theory, firms should maintain an optimal level of liquidity to balance financial flexibility and profitability. While sufficient liquidity supports operational continuity, excessive liquid assets may reduce returns because idle resources generate lower productivity than productive investments.

Previous studies generally report a positive relationship between liquidity and financial performance. However, empirical evidence remains inconclusive, suggesting that the profitability effect of liquidity depends on firms' efficiency in managing current assets and industry characteristics ([Ingracia et al., 2022](#); [Karim et al., 2023](#)).

This proposition is broadly consistent with cross-country evidence on the liquidity–performance relationship, which similarly finds that the effect of liquidity on firm value and profitability is often context-dependent and, in some emerging markets, statistically weak or even negative ([Li et al., 2020](#); [Chia et al., 2020](#); [Wasiuzzaman, 2018](#); [Nguyen & Dao, 2022](#)).

H₂: Liquidity positively affects Financial Performance

2.7 Asset Tangibility and Financial Performance

Asset tangibility refers to the proportion of physical assets, such as transportation fleets, warehouses, buildings, and equipment, within a firm's total assets. These tangible assets support operational activities, increase production capacity, and serve as collateral for external financing ([Alathamneh et al., 2025](#); [Oganda, 2023](#)).

From the Resource-Based View (RBV), tangible assets represent strategic resources that can enhance competitive advantage when utilized efficiently. In transportation and logistics firms, effective management of physical assets is expected to improve operational performance and profitability. However, empirical evidence remains mixed, as excessive investment in fixed assets may reduce profitability because of higher depreciation, maintenance, and financing costs ([Alathamneh et al., 2025](#); [Oganda, 2023](#)).

This is consistent with the broader capital-structure and asset-utilization literature, which shows that the financial consequences of holding tangible or fixed assets depend heavily on how efficiently those assets and related financing decisions are managed ([Dao & Ta, 2020](#); [Essel, 2023](#); [Jensen & Meckling, 1976](#); [Barney et al., 2011](#)).

H₃: Asset Tangibility positively affects Financial Performance

2.8 Operating Efficiency and Financial Performance

Operating efficiency reflects management's ability to utilize organizational assets effectively to generate sales and improve profitability. In corporate finance, Total Asset Turnover (TATO) is widely used to measure how efficiently firms convert total assets into revenue ([Karim et al., 2023](#)).

From the Resource-Based View (RBV), competitive advantage depends not only on the ownership of strategic resources but also on the firm's capability to deploy those resources efficiently ([Bhat & Sharma, 2021](#); [Mohsin et al., 2025](#)). In transportation and logistics companies, where operations rely heavily on physical assets, efficient asset utilization is expected to improve financial performance.

Accordingly, firms with higher TATO are more likely to generate greater profitability because they maximize returns from existing asset investments ([Alathamneh et al., 2025](#); [Karim et al., 2023](#)).

H₄: Operating Efficiency (Total Asset Turnover) positively affects Financial Performance

This is in line with evidence from other asset-intensive and emerging-market settings, where efficient utilization of firm resources and productive assets has been shown to be a key driver of profitability and productivity ([Xu et al., 2022](#); [Yadav et al., 2022](#); [Fang et al., 2009](#)).

2.9 The Moderating Role of Operating Efficiency in the Relationship between Sales Growth and Financial Performance

Sales growth is commonly regarded as an important driver of profitability because increasing revenues provide firms with greater opportunities to improve financial performance. However, higher sales do not necessarily result in greater profitability, as revenue expansion may be accompanied by rising operating costs, inefficient business expansion, and suboptimal asset utilization that reduce overall financial gains ([Djaya & Firdausy, 2023](#); [Maulana & Mesyani, 2023](#)).

The Resource-Based View (RBV) argues that organizational resources generate competitive advantage only when they are managed and utilized effectively through superior organizational capabilities ([Barney, 1991](#)). Supporting this perspective, recent evidence indicates that firms with stronger operational capabilities are more successful in converting business growth into sustainable financial outcomes because they utilize their strategic resources more efficiently, particularly in asset-intensive industries ([Mohsin et al., 2025](#)). Therefore, operating efficiency is expected to strengthen the positive effect of sales growth on financial performance by enabling firms to translate higher revenues into greater profitability.

H₅: Operating Efficiency positively moderates the relationship between Sales Growth and Financial Performance

2.10 The Moderating Role of Operating Efficiency in the Relationship between Liquidity and Financial Performance

Liquidity enhances a firm's ability to meet short-term financial commitments and sustain operational activities. Nevertheless, maintaining a high level of liquidity does not necessarily improve profitability, as excessive current assets may remain underutilized and generate relatively low returns ([Karim, Widyarti, & Santoso, 2023](#); [Pangestuti, Pridarsanti, & Robiyanto, 2021](#)).

From the Resource-Based View (RBV), financial resources contribute to superior performance only when they are managed and deployed efficiently ([Barney, 1991](#)). Firms with higher operating efficiency, reflected by Total Asset Turnover (TATO), are expected to utilize liquid resources more productively, thereby increasing the contribution of liquidity to financial performance. Recent studies also suggest that efficient resource utilization strengthens firms' capability to transform available resources into superior organizational outcomes, particularly in asset-intensive industries ([Mohsin, Rashed, Gerschberger, Plasch, Ahmed, Dritan, & Islam, 2025](#); [Alathamneh, Obeidat, Almomani, Almomani, & Darkal, 2025](#)).

H₆: Operating Efficiency positively moderates the relationship between Liquidity and Financial Performance

2.11 The Moderating Role of Operating Efficiency in the Relationship between Asset Tangibility and Financial Performance

Transportation and logistics companies rely heavily on tangible assets such as vehicles, warehouses, Asset-intensive firms rely on physical resources such as transportation fleets, warehouses, logistics facilities, and infrastructure to support their operational activities. However, a high proportion of tangible assets does not automatically improve profitability, as underutilized assets may increase depreciation, maintenance, and operating costs, thereby reducing financial performance ([Oganda et al., 2023](#); [Alathamneh et al., 2025](#)).

According to the Resource-Based View (RBV), tangible assets create competitive advantage only when they are utilized efficiently through effective managerial capabilities ([Barney, 1991](#)). Total Asset Turnover (TATO) reflects the firm's ability to maximize the productivity of its physical assets by

converting asset investments into revenue and profitability. Recent studies further suggest that efficient resource utilization enhances the value generated from organizational assets, particularly in asset-intensive industries ([Alathamneh et al., 2025](#); [Mohsin et al., 2025](#)). Therefore, firms with higher operating efficiency are expected to obtain greater financial benefits from their tangible assets.

H₇: Operating Efficiency positively moderates the relationship between Asset Tangibility and Financial Performance

3. Research Methodology

This study employs a quantitative research design using panel data to examine the effects of sales growth, liquidity, and asset tangibility on financial performance and to assess the moderating role of operating efficiency. Panel data are appropriate because they combine cross-sectional and time-series observations, enabling more efficient estimation while accounting for firm-specific heterogeneity ([Baltagi, 2021](#)). The population comprises all transportation and logistics companies listed on the Indonesia Stock Exchange (IDX) during 2020–2024. This approach is consistent with recent panel-based studies of Indonesian and emerging-market firms ([Bukhori et al., 2022](#); [Abusharbeh, 2022](#)).

The sample is determined using purposive sampling to ensure that the selected firms provide complete, comparable, and consistent data required for all variables throughout the observation period. This criterion is important because panel regression requires sufficient observations across firms and years to produce reliable estimates. Companies are included in the sample based on the following criteria:

Table 1. Sample criteria

Sample Selection Criteria	Total
Transportation and logistics companies listed on the Indonesia Stock Exchange (IDX) during 2020–2024	26
Companies that did not consistently publish annual financial statements during 2020–2024	(1)
Final sample	25
Observation period (years)	5
Firm-year observations	125

As shown in Table 1, the purposive sampling criteria reduced the initial population of 26 transportation and logistics companies to a final sample of 25 firms, resulting in 125 firm-year observations for the 2020–2024 period. The sampling criteria were applied to ensure that the selected firms provided complete and consistent financial information required for calculating all study variables.

The data were analyzed using panel data regression and hypothesis testing in EViews 13. Panel regression was selected to examine both the cross-sectional and time-series dimensions of the data and to estimate the direct relationships between the explanatory variables and financial performance. Two regression models were estimated. Model 1 examines the direct effects of sales growth, liquidity, asset tangibility, and operating efficiency on financial performance. Model 2 extends Model 1 by including interaction terms between operating efficiency and each independent variable to assess whether operating efficiency moderates their relationships with financial performance. The coefficients and probability values from these models were subsequently used to evaluate the proposed hypotheses.

3.1 Model 1 (Direct Effect)

The following regression model 1 was employed to examine the direct effects of sales growth, liquidity, asset tangibility, and operating efficiency on financial performance:

$$ROA_{it} = \alpha + \beta_1 SG_{it} + \beta_2 CR_{it} + \beta_3 AT_{it} + \beta_4 TATO_{it} + \varepsilon_{it} \quad (1)$$

3.2 Model 2 (Moderating Effect)

The following moderated regression model [2](#) was used to examine whether operating efficiency moderates the effects of sales growth, liquidity, and asset tangibility on financial performance:

$$ROA_{it} = \alpha + \beta_1 SG_{it} + \beta_2 CR_{it} + \beta_3 AT_{it} + \beta_4 TATO_{it} + \beta_5 (SG \times TATO)_{it} + \beta_6 (CR \times TATO)_{it} + \beta_7 (AT \times TATO)_{it} + \varepsilon_{it} \quad (2)$$

Table 2. Variable measurements

Variables	Measurements	Reference	Scale
Financial Performance (ROA)	Net Income / Total Assets	(Kyere, 2021; Karim et al., 2023)	ROA measures the firm's ability to generate earnings from its total asset base and is appropriate for asset-intensive transportation and logistics firms.
Sales Growth (SG)	$(Sales_t - Sales_{t-1}) / Sales_{t-1}$	(Djaya, 2023; Anokhin et al., 2026)	Measures the firm's revenue expansion and captures changes in its operating scale and market performance.
Liquidity (CR)	Current Assets / Current Liabilities	(Karim et al., 2023; Herdiyana et al., 2020)	Current Ratio reflects the firm's ability to meet short-term obligations and maintain operational continuity.
Asset Tangibility (AT)	Fixed Assets / Total Assets	(Alathamneh et al., 2025; Oganda, 2023)	Captures the proportion of physical assets in the firm's asset structure, which is particularly relevant to asset-intensive transportation and logistics firms.
Operating Efficiency (TATO)	Net Sales / Total Assets	(Karim et al., 2023)	TATO measures how efficiently total assets are converted into revenue and therefore represents management's ability to utilize available assets productively.

The selected indicators in Table [2](#) are consistent with the characteristics of the transportation and logistics industry. ROA is used as the dependent variable because profitability in this sector is closely related to the effective utilization of substantial asset investments. Sales growth captures revenue expansion, while the Current Ratio represents short-term financial flexibility. Asset tangibility reflects the intensity of physical asset investment, which is particularly relevant for firms operating fleets, warehouses, and logistics infrastructure. Finally, TATO is selected as the measure of operating efficiency because it directly captures the extent to which firms transform their asset base into revenue. Importantly, TATO is also theoretically appropriate as a moderating variable because differences in asset utilization may determine whether sales growth, liquidity, and tangible assets are effectively translated into financial performance.

4. Results and Discussions

4.1 Results

Table 3. Descriptive statistics

Statistic	ROA	SG	CR	AT	TATO
Mean	0.023475	0.11226	2.115237	0.556884	0.656279
Median	0.013608	0.062632	1.171208	0.633263	0.539368
Maximum	2.071767	5.039162	60.85811	0.935867	2.36938
Minimum	-0.580308	-0.839542	0.025076	0.027169	0.04034
Std. Dev.	0.234578	0.562116	5.534021	0.262628	0.496288

Table 3 presents the descriptive statistics of the research variables, namely Return on Assets (ROA), Sales Growth (SG), Current Ratio (CR), Asset Tangibility (AT), and Total Asset Turnover (TATO). The mean ROA is 2.35%, indicating that, on average, the sample companies generated a net profit of 2.35 cents for every dollar of total assets. The average values of SG, CR, AT, and TATO are 11.23%, 2.115, 0.557, and 0.656, respectively. For AT and TATO, the standard deviation is lower than the mean, indicating that these variables are relatively homogeneous. Meanwhile, ROA, SG, and CR have standard deviations higher than their respective mean values, suggesting greater variability among the sample companies. Overall, these results indicate that profitability, sales growth, and liquidity vary considerably across transportation and logistics companies, while asset tangibility and asset utilization efficiency are relatively more consistent.

Table 4. Multicollinearity test

	SG	CR	AT	TATO
SG	1.000000	-0.072670	-0.080454	0.148332
CR	-0.072670	1.000000	-0.230616	-0.083958
AT	-0.080454	-0.230616	1.000000	-0.323628
TATO	0.148332	-0.083958	-0.323628	1.000000

Based on Table 4, which presents the correlation matrix among Sales Growth (SG), Current Ratio (CR), Asset Tangibility (AT), and Total Asset Turnover (TATO), it can be concluded that there is no indication of serious multicollinearity among the independent variables. This is evidenced by the correlation coefficients, all of which are below the commonly accepted threshold of 0.80 (Baltagi, 2021). The highest absolute correlation coefficient is observed between Asset Tangibility (AT) and Total Asset Turnover (TATO), with a value of -0.324 , followed by the correlation between Current Ratio (CR) and Asset Tangibility (AT) of -0.231 . These results indicate that the explanatory variables are not highly correlated with one another and, therefore, can be included simultaneously in the regression model without causing serious multicollinearity problems.

Meanwhile, the correlations between Sales Growth (SG) and Current Ratio (CR) (-0.073), Sales Growth (SG) and Asset Tangibility (AT) (-0.080), Sales Growth (SG) and Total Asset Turnover (TATO) (0.148), and Current Ratio (CR) and Total Asset Turnover (TATO) (-0.084) indicate weak relationships. Therefore, there is no strong linear relationship among the explanatory variables that could distort the regression estimates. Accordingly, Sales Growth (SG), Current Ratio (CR), Asset Tangibility (AT), and Total Asset Turnover (TATO) can be included simultaneously in the panel regression model without concerns regarding serious multicollinearity.

Table 5. Autocorrelation test

Statistic	Value
R-squared	0.88153
Adjusted R-squared	0.846976
S.E. of regression	0.206034
F-statistic	25.51178
Prob(F-statistic)	0

Statistic	Value
Durbin-Watson statistic	2.087811

Based on Table 5, the regression model produces a Durbin–Watson statistic of 2.0878. This value is close to 2, indicating that the residuals are not affected by serious autocorrelation. A Durbin–Watson statistic within the acceptable range of approximately 1.5 to 2.5 suggests that the residuals are independent and that autocorrelation is not a concern in the estimated regression model (Baltagi, 2021). Therefore, the regression model satisfies the autocorrelation assumption and is appropriate for subsequent hypothesis testing.

Table 6. Regression and hypothesis results

Variables	ROA	ROA
	Model 1	Model 2
C	0.0822 (0.1398)	0.0897 (0.1824)
SG	0.0142 (0.0421)**	-0.0204 (0.4408)
CR	-0.0072 (0.1684)	0.0069 (0.4285)
AT	-0.3406 (0.0002)***	-0.4133 (0.0002)***
TATO	0.2204 (0.0000)***	0.1856 (0.0019)***
SG×TATO		0.0712 (0.1070)
CR×TATO		-0.0173 (0.1801)
AT×TATO		0.1290 (0.1765)
Adjusted R ²	0,847	0,8078
F-statistic	25,5118	17,8125
P-value	0	0

***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 6 reports the panel regression results for the direct and moderating effects of Sales Growth (SG), liquidity (CR), Asset Tangibility (AT), and operating efficiency (TATO) on financial performance, measured by Return on Assets (ROA). Model 1 assesses the direct effects of the explanatory variables, while Model 2 includes the interaction terms to examine the moderating role of operating efficiency. Both models are statistically significant, with F-statistics of 25.5118 and 17.8125, respectively, and probability values of 0.0000, indicating that the models are jointly significant. The adjusted R² values of 0.8470 and 0.8078 indicate that the models explain approximately 84.70% and 80.78% of the variation in ROA, respectively.

4.2 Discussion

Sales Growth (SG) has a positive and statistically significant effect on financial performance, with a coefficient of 0.0142 and a p-value of 0.0421. Since the coefficient is positive and the p-value is below 0.05, H_1 is supported. This result indicates that higher sales growth is associated with improved profitability. Increasing sales may allow firms to generate greater revenue from their existing operations and distribute fixed operating costs across a larger revenue base. From the Resource-Based View (RBV), sales growth can reflect a firm's ability to utilize its resources and market opportunities effectively to generate superior performance (Barney, 1991). This finding is consistent with previous studies by Djaya and Firdausy (2023), Hasanudin (2021), and Maulana and Mesyani (2023), which reported that sales growth contributes positively to corporate profitability.

In contrast, liquidity (CR) does not have a statistically significant effect on financial performance, as indicated by a coefficient of −0.0072 and a p-value of 0.1684. Although the coefficient is negative, its p-value exceeds the 5% significance threshold; therefore, H_2 is not supported. The negative coefficient suggests that higher liquidity is associated with lower ROA in the sample, but this relationship is not statistically reliable. This result indicates that maintaining greater current assets does not necessarily translate into higher profitability. In asset-intensive industries such as transportation and logistics,

resources held in liquid form may generate limited returns if they are not productively deployed. Similar findings have been reported by ([Ingracia, Wijayanto, & Saryadi, 2022](#); [Karim, Widyarti, & Santoso, 2023](#)) which suggest that the impact of liquidity on profitability varies depending on firms' efficiency in managing working capital and operational resources.

Asset Tangibility (AT) has a negative and statistically significant effect on financial performance, with a coefficient of -0.3406 and a p-value of 0.0002 . Because the coefficient is negative and the p-value is below 0.01 , H_3 is supported. This finding indicates that a greater proportion of tangible assets is associated with lower profitability. Although tangible assets can support operational activities and provide collateral for financing, they also generate depreciation, maintenance, and other capital-related costs. This issue is particularly relevant to transportation and logistics companies because their operations require substantial investment in fleets, warehouses, and logistics infrastructure. From the Resource-Based View (RBV), tangible resources contribute to performance when they are effectively deployed and managed ([Barney, 1991](#)). This finding is consistent ([Oganda, 2023](#)) and ([Alathamneh, Obeidat, Almomani, Almomani, & Darkal, 2025](#)), who reported that the contribution of tangible assets to firm performance depends on the efficiency with which those assets are utilized rather than on their ownership alone.

Operating efficiency, measured by Total Asset Turnover (TATO), has a positive and statistically significant effect on financial performance, with a coefficient of 0.2204 and a p-value of 0.0000 . The positive coefficient and p-value below 0.01 provide strong evidence in support of H_4 . This result indicates that firms generating greater sales from their asset base tend to achieve higher profitability. For transportation and logistics companies, efficient utilization of fleets, warehouses, and other productive assets is particularly important because of the industry's high asset intensity. This result supports the Resource-Based View, which emphasizes that competitive advantage is derived from the effective utilization of organizational resources rather than merely possessing valuable assets ([Barney, 1991](#); [Mohsin, Rashed, Gerschberger, Plasch, Ahmed, Dritan, & Islam, 2025](#)). Similar findings were reported by ([Karim et al., 2023](#)) and ([Alathamneh et al., 2025](#)) who concluded that greater asset utilization efficiency contributes significantly to improved corporate profitability.

The moderating results in Model 2 indicate that TATO does not significantly moderate the relationship between sales growth and financial performance. The $SG \times TATO$ interaction has a coefficient of 0.0712 and a p-value of 0.1070 . Although the interaction coefficient is positive, the p-value exceeds 0.05 ; therefore, H_5 is not supported. This finding indicates that higher operating efficiency does not significantly strengthen the positive effect of sales growth on ROA. Thus, the contribution of sales growth to profitability does not appear to depend significantly on TATO within the observed sample.

Likewise, the $CR \times TATO$ interaction is statistically insignificant, with a coefficient of -0.0173 and a p-value of 0.1801 . Because the p-value is above 0.05 , H_6 is not supported. The negative coefficient suggests an inverse interaction, but the effect is not statistically significant. Therefore, operating efficiency does not significantly strengthen or weaken the relationship between liquidity and financial performance. Although liquidity and operating efficiency may independently relate to firm performance, their interaction does not provide sufficient statistical evidence of a moderating effect ([Karim et al., 2023](#); [Mohsin et al., 2025](#)).

Finally, the $AT \times TATO$ interaction is positive but statistically insignificant, with a coefficient of 0.1290 and a p-value of 0.1765 . Since the p-value exceeds 0.05 , H_7 is not supported. The positive interaction coefficient suggests a potential tendency for operating efficiency to reduce the negative association between asset tangibility and ROA; however, this effect is not statistically significant. Therefore, the results do not provide sufficient evidence that TATO moderates the relationship between asset tangibility and financial performance.

Overall, H_1 , H_3 , and H_4 are supported, whereas H_2 , H_5 , H_6 , and H_7 are not supported. The findings indicate that sales growth and operating efficiency are significant positive determinants of financial performance, while asset tangibility has a significant negative effect. Liquidity does not show a statistically significant relationship with ROA. More importantly, none of the interaction terms is

statistically significant, indicating that TATO acts primarily as a direct determinant of financial performance rather than as a significant moderating variable in the proposed relationships. These findings provide stronger support for the Resource-Based View, which emphasizes efficient resource utilization as a direct driver of competitive advantage and financial performance ([Barney, 1991](#); [Mohsin et al., 2025](#); [Alathamneh et al., 2025](#)).

5. Conclusions

5.1 Conclusion

This study provides empirical evidence on the determinants of financial performance among transportation and logistics companies listed on the Indonesia Stock Exchange during 2020–2024. By examining sales growth, liquidity, asset tangibility, and operating efficiency within an integrated framework, the study extends previous research by considering both direct financial determinants and the potential moderating role of asset utilization in an asset-intensive industry.

The findings show that sales growth and operating efficiency have positive and significant effects on financial performance, while asset tangibility has a significant negative effect. In contrast, liquidity does not have a significant effect on financial performance. These results indicate that profitability in the transportation and logistics sector is more strongly associated with the ability to generate revenue and utilize assets efficiently than with maintaining higher liquidity or holding greater amounts of tangible assets.

The moderation analysis further demonstrates that Total Asset Turnover (TATO) does not significantly moderate the relationships between sales growth, liquidity, asset tangibility, and financial performance. Thus, TATO functions primarily as a direct determinant of profitability rather than as a moderating mechanism. This finding suggests that efficient asset utilization improves financial performance independently, but does not significantly change the effects of the other financial characteristics examined in this study.

From a theoretical perspective, the findings provide stronger support for the Resource-Based View, as efficient utilization of organizational resources is shown to contribute directly to financial performance. The insignificant interaction effects provide more limited empirical support for the proposed Contingency Theory perspective, because operating efficiency does not significantly alter the relationships between the examined financial characteristics and profitability. Accordingly, this study extends previous literature by demonstrating that resource utilization may operate as an independent performance-enhancing capability rather than necessarily functioning as a contingent mechanism.

Finally, this study offers practical implications for corporate managers, the findings emphasize the importance of pursuing sustainable sales growth and improving asset utilization rather than relying primarily on increased liquidity or expansion of tangible assets. Transportation and logistics firms should focus on maximizing the productive use of fleets, warehouses, and other operating assets to generate greater revenue and profitability. Investors may also consider asset utilization and revenue-generating capability when evaluating the financial performance of firms in this sector.

5.2 Research Limitations

This study has several limitations. First, the sample is restricted to transportation and logistics companies listed on the Indonesia Stock Exchange during 2020–2024. Therefore, the findings may not be directly applicable to other industries or countries with different operational and economic characteristics.

Second, the analysis focuses on four explanatory variables: sales growth, liquidity, asset tangibility, and operating efficiency. Although the model provides substantial explanatory power, other factors that may influence financial performance, including leverage, firm size, corporate governance, ESG practices, digital transformation, and macroeconomic conditions, are not included.

Third, financial performance is measured solely using Return on Assets (ROA). Although ROA captures accounting-based profitability and the efficiency of asset utilization, it may not fully represent other dimensions of corporate performance, such as shareholder returns, market valuation, or long-term firm value.

Finally, the proposed moderating role of TATO was not statistically supported. This result may indicate that the interaction mechanism proposed in the model does not adequately capture the conditions under which operating efficiency changes the effects of other financial characteristics. The findings should therefore be interpreted within the specific institutional and economic context of the Indonesian transportation and logistics sector during the 2020–2024 observation period.

5.3 Suggestions and Directions for Future Research

Future research could extend the sample to other industries and countries to assess whether the relationships identified in this study remain consistent across different institutional and operational environments. Extending the observation period would also help capture longer-term effects beyond the post-pandemic recovery period.

Future studies may incorporate additional determinants such as leverage, firm size, corporate governance, ESG practices, digital transformation, and macroeconomic variables to provide a more comprehensive explanation of financial performance. Researchers could also employ alternative measures of performance, including ROE, Tobin's Q, or firm value, to capture market-based and shareholder-oriented outcomes.

Finally, because TATO did not significantly moderate any of the proposed relationships, future research could investigate alternative moderating or mediating mechanisms, such as financial leverage, managerial capability, digital capability, or operational resilience. Applying alternative analytical approaches may also provide further insight into the mechanisms through which internal financial characteristics influence corporate performance.

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Author Contributions

NP and AK conceptualized the study and designed the research methodology. NP collected and analyzed the panel data using EViews 13. AK and SW drafted the original manuscript, including the literature review and discussion of results. PS supervised the research process and critically revised the manuscript for important intellectual content. All authors reviewed and approved the final version of the manuscript.

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