



The Effect of Total Asset Turnover (TATO) and Debt to Equity Ratio (DER) on Return on Assets (ROA) in Transportation and Logistics Companies Listed on the Indonesia Stock Exchange in 2022-2025

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Abstract: *This study aims to analyze the effect of Total Asset Turnover (TATO) and Debt to Equity Ratio (DER) on Return on Assets (ROA) in transportation and logistics companies listed on the Indonesia Stock Exchange for the 2022–2025 period. This study uses a quantitative method with an associative causal approach. The population consisted of seven transportation and logistics companies listed on the Indonesia Stock Exchange, with saturated sampling used to select all companies as the research sample. Secondary data were obtained from annual financial reports and analyzed using multiple linear regression, classical assumption tests, and hypothesis testing with SPSS. The results showed that TATO and DER partially had a significant effect on ROA. Simultaneously, TATO and DER had a significant effect on ROA in transportation and logistics companies during the 2022–2025 period.*

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Introduction

Technological advances have driven the development of the transportation sector to adapt to the demands of the globalization era. Transportation plays a crucial role in supporting regional growth and development, particularly in the economic and tourism sectors.(Miro, 2005)Transportation is an activity aimed at moving or transporting people or goods from one location to another so that the objects being moved can provide greater benefits and be used to fulfill specific purposes. Developments in information technology, increasing e-commerce activity, and the public's need for fast and efficient distribution services have further strengthened the transportation and logistics sector's position as a key driver of the national economy.

This strategic role requires transportation and logistics companies to improve operational efficiency and optimize resource management to maintain competitiveness amidst increasingly fierce business competition. The capital-intensive nature of the transportation and logistics sector requires companies to invest significant funds in fixed assets, such as vehicle fleets, ships, warehouses, and other distribution facilities.(Samsiah & Asepma, 2022)Therefore, effectiveness in managing assets is an important factor that can increase a company's productivity and profitability.(Sarah, 2021)On the other hand, companies are also required to establish an appropriate funding structure to be able to finance operational activities without excessively increasing financial risk.(Sirait & Anton, 2024)Thus, effective asset management and funding policies are crucial aspects in maintaining business continuity while improving a company's financial performance.(Santoso, et al 2025).

A company's success in asset management and funding policies can be measured through financial performance. One frequently used profitability indicator is Return on Assets (ROA), as it demonstrates a company's ability to generate net profit based on all its assets. A higher ROA indicates a company's ability to utilize its assets to generate profits. Conversely, a low ROA indicates that the company's assets are not being utilized optimally, resulting in low profitability.(Kasmir, 2021)For transportation and logistics companies, ROA is an important indicator because most of the company's investment is embedded in fixed assets used in operational activities.(Samsiah & Asepma 2022).

One factor thought to influence ROA is Total Asset Turnover (TATO). This ratio reflects a company's ability to utilize all assets to generate sales. The higher the TATO value, the more efficiently the company utilizes its assets, thus increasing its profit potential.(Kasmir, 2021). Research conducted by(Sarah, 2021)shows that TATO has a positive and significant effect on ROA in transportation sub-sector companies listed on the Indonesia Stock Exchange. This finding is supported by research(Samsiah & Asepma 2022)which states that companies that are able to optimize the use of their assets will generate higher revenues relative to the assets they own, thus contributing to improved company performance. However,(Fachrurrozi & Ma'sumah 2024)obtained different results, namely that TATO did not have a significant effect on profitability, according to(Saepuloh, 2025)The difference in results is caused by the increase in efficiency of asset use which is often hampered by fluctuations in operational costs (such as fuel and logistics prices) which causes the correlation between asset turnover and profitability to become weak.

In addition to asset utilization effectiveness, capital structure, which can be measured through the Debt to Equity Ratio (DER), is also estimated to influence a company's profitability. The Debt to Equity Ratio (DER) is a ratio that shows the comparison between total debt and equity in financing a company's operational activities. The purpose of the Debt to Equity Ratio (DER) is to assess the value of a company's debt utilization in securing its debts.(Kasmir, 2021). Using debt can be a source of funding to support business expansion and increase operational capacity. However, high debt levels can also increase interest expenses, ultimately depressing company profits.(Samsiah & Asepma 2022)proves that DER has a negative and significant effect on ROA. On the other hand, research(Sarah, 2021)shows that DER has no significant effect on ROA. This difference in results indicates that the relationship between leverage and profitability still requires further testing.

Inconsistent research results indicate a research gap regarding the effect of Total Asset Turnover (TATO) and Debt to Equity Ratio (DER) on Return on Assets (ROA), particularly in transportation and logistics companies. Furthermore, research using the most recent period, 2024–2025, is relatively limited. Therefore, this study was conducted to analyze the effect of Total Asset Turnover (TATO) and Debt to Equity Ratio (DER) on Return on Assets (ROA) in transportation and logistics companies listed on the Indonesia Stock Exchange for the period 2022–2025. The research results are expected to provide empirical evidence that is useful for companies in improving the effectiveness of asset management and determining optimal capital structure policies to increase company profitability.



Research methods

This study uses a quantitative method with an associative causal approach that aims to analyze the causal relationship between the independent and dependent variables. The study population includes seven transportation and logistics companies listed on the Indonesia Stock Exchange (IDX) during the study period. The sampling technique used is saturated sampling, so that all members of the population are used as research samples. The data used are secondary data in the form of the company's annual financial reports obtained from the official website of the Indonesia Stock Exchange (IDX). www.idx.co.id) as well as the official website of each company and analyzed using SPSS software version 27 with data testing including classical assumption tests, multiple linear analysis, partial tests (t-tests) and simultaneous tests (f-tests).

Results and Discussion

Classical Assumption Test

Normality Test

Table 1 Normality Test
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		26
Normal Parameters ^{a,b}	Mean	.000000
	Std. Deviation	.08883452
Most Extreme Differences	Absolute	.114
	Positive	.105
	Negative	-.114
Test Statistic		.114
Asymp. Sig. (2-tailed)		.200 ^{c,d}

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

The above shows that the results of the Kolmogorov-Smirnov test obtained an Asymp Sig. (2-tailed) value of 0.200, meaning that the data used in this study was normally distributed so that it could meet the requirements for analysis.

Multicollinearity Test

Table 2 Multicollinearity Test

		Coefficients ^a	
		Collinearity Statistics	
Model		Tolerance	VIF
1	Total Asset Turnover	.945	1.058
	Debt to Equity Ratio	.945	1.058

a. Dependent Variable: Return on Asset

It can be seen above that the tolerance value of each variable is greater than 0.10 and the VIF (Variance Inflation Factor) value is less than 10, so it can be concluded that in this study there is no multicollinearity.

Autocorrelation Test

Table 3 Multicollinearity Test

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.716 ^a	.512	.473	.09232	1.290

a. Predictors: (Constant), Debt to Equity Ratio, Total Asset Turnover

b. Dependent Variable: Return on Asset

With SPSS calculations, the DW (Durbin-Watson) value was 1.290. Based on the calculations above, it is known that the Durbin-Watson value is 1.290 with a 4 - du value of 2.745.

Heteroscedasticity Test

Table 4 Heteroscedasticity Test

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	t
1	(Constant)	.004	.066		.067
	Total Asset Turnover	.048	.085	.113	.564
	Debt to Equity Ratio	.030	.034	.176	.878

a. Dependent Variable: Abs_Res

Based on the test results presented in Table 4 above, the significance value for the TATO variable is 0.578, and the DER variable is 0.388. All significance values are above the 0.05 threshold, thus concluding that the research model does not exhibit any heteroscedasticity.

Multiple Linear Regression Analysis

Table 5 Multiple Linear Analysis Test

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	t
1	(Constant)	-.035	.101		-.343
	Total Asset Turnover	.587	.131	.644	4.482
	Debt to Equity Ratio	-.179	.052	-.497	-3.458

a. Dependent Variable: Return on Asset

Based

on the data in table 4.14 above, the regression equation is as follows:

$$Y = a + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + e$$

$$Y = -0.035 + 0.587X_1 + -0.179X_2 + e$$

From the results of the equation above, it can be explained as follows:

- The constant value of -0.035 indicates that if the variables TATO (X1), DER (X2), ROA (Y) are -0.035.
- The regression coefficient value of the TATO variable (X1) of 0.587 indicates that every 1 unit increase in digital marketing strategy will increase customer retention by 0.587, assuming other variables are constant.
- The regression coefficient value of the DER variable (X2) of -0.179 indicates that every 1 unit increase in customer experience will increase customer retention by -0.179 assuming other variables are constant.



Coefficient of Determination (R²)**Table 6 Coefficient of Determination (R²)**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.716 ^a	.512	.473	.09232

a. Predictors: (Constant), Debt to Equity Ratio, Total Asset Turnover

Table 6 shows that the Adjusted R Square value is 0.473. This indicates that the variables of digital marketing strategy, customer experience, and customer satisfaction are able to explain 47.3% of the variation in customer retention, while the remaining 52.7% is influenced by other factors outside the research model. The R Square value of 0.512 indicates that the research model has a fairly strong ability to explain the relationship between the independent variables and the dependent variable.

Partial Test (t-Test)**Table 7 Partial Test (t-Test)**

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	-.035	.101		.735
	Total Asset Turnover	.587	.131	.644	.000
	Debt to Equity Ratio	-.179	.052	-.497	.002

a. Dependent Variable: Return on Asset

From table 7 it can be concluded that:

1. In the TATO variable (X1), the Sig. value is $0.000 < 0.05$, so H₀ is rejected and H₁ is accepted, which means that the Digital Marketing Strategy variable (X1) has an effect on ROA (Y).
2. In the DER variable (X2), the Sig. value is $0.000 < 0.05$, so H₀ is rejected and H₁ is accepted, which means that the Customer Experience variable (X2) has an effect on ROA (Y).

Simultaneous Test (Test – f)**Table 8 Simultaneous Test (f-Test)**

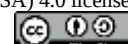
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.224	2	.112	13.117	.000 ^b
	Residual	.213	25	.009		
	Total	.437	27			

a. Dependent Variable: Return on Asset
b. Predictors: (Constant), Debt to Equity Ratio, Total Asset Turnover

Table 8 above shows a significance level of $0.000 < 0.05$. These results indicate that hypothesis H₀ is rejected and H₁ is accepted. This means that the TATO (X1) and DER (X2) variables simultaneously influence ROA (Y).

Discussion**The Effect of Total Asset Turnover (TATO) on Return on Assets (ROA)**

Based on the results of the partial test (t-test), a significance value of $0.000 < 0.05$, thus the first hypothesis is accepted. These results indicate that Total Asset Turnover (TATO) has a significant effect on Return on Assets (ROA) in transportation and logistics companies listed on the Indonesia Stock



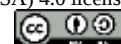
Exchange. Furthermore, a positive regression coefficient indicates that the higher the company's asset turnover rate, the higher the resulting Return on Assets. This finding indicates that a company's effectiveness in utilizing all its assets can increase sales, thus impacting profit. In the transportation and logistics sector, fixed assets such as vehicle fleets, ships, warehouses, and distribution facilities are key components in carrying out operational activities. Therefore, the more optimally these assets are utilized, the greater the company's opportunity to generate profits. This condition is in line with the theory (Kasmir, 2021) which states that Total Asset Turnover is an activity ratio used to measure the effectiveness of asset use in generating sales. The results of this study are consistent with research (Sarah, 2021) which proves that TATO has a positive and significant effect on ROA. The research (Samsiah & Asepma, 2022) also concluded that companies that optimize their asset utilization will achieve higher profitability. Therefore, transportation and logistics companies need to continuously improve asset utilization efficiency to generate optimal sales and increase Return on Assets.

The Effect of Debt to Equity Ratio (DER) on Return on Assets (ROA)

The results of the partial test show that the variable *Debt to Equity Ratio* (DER) has a significant effect on Return on Assets (ROA) with a significance value of $0.000 < 0.05$, so the second hypothesis is accepted. Based on the results of the regression analysis, the DER coefficient is negative, which means that an increase in the Debt to Equity Ratio tends to decrease the company's Return on Assets. These results indicate that the greater the proportion of debt compared to equity, the greater the interest expense and obligations that must be borne by the company. This condition can reduce net income, thus lowering the company's profitability level. According to (Kasmir, 2021) The Debt to Equity Ratio is used to measure a company's leverage level, where a higher DER value indicates a greater financial risk faced by the company. The findings of this study support research (Saepuloh, 2025) which states that DER has a negative and significant effect on ROA. However, the results of this study differ from the research (Sarah, 2021) which concluded that DER had no significant effect on ROA. These differences in results indicate that the influence of capital structure on profitability is influenced by company characteristics, funding policies, and economic conditions during the study period.

The Effect of Total Asset Turnover (TATO) and Debt to Equity Ratio (DER) on Return on Assets (ROA)

Based on the results of the simultaneous test (F test), a significance value of $0.000 < 0.05$ was obtained, thus the third hypothesis was accepted. These results indicate that Total Asset Turnover (TATO) and Debt to Equity Ratio (DER) together have a significant effect on Return on Assets (ROA) in transportation and logistics companies listed on the Indonesia Stock Exchange. Simultaneously, these two variables contribute to the company's ability to generate profits through asset management and capital structure. Effective asset utilization will increase the company's sales and profits, while proper capital structure management can reduce funding costs so that profitability can be maintained. Therefore, increasing Return on Assets is not only influenced by high sales, but also by the company's ability to manage funding efficiently. The results of this study support the theory (Kasmir, 2021) which states that the activity ratio and solvency ratio are important indicators in assessing a company's financial performance. In addition, research (Sarah, 2021) as well as (Samsiah & Asepma, 2022) The study also demonstrated that effective asset utilization and optimal capital structure can simultaneously increase company profitability. Therefore, transportation and logistics companies are expected to optimize asset utilization while maintaining a healthy debt ratio, thereby sustainably increasing Return on Assets.



Conclusion

Based on the research results, it can be concluded that Total Asset Turnover (TATO) has a positive and significant effect on Return on Assets (ROA), while Debt to Equity Ratio (DER) has a negative and significant effect on Return on Assets (ROA). Furthermore, TATO and DER simultaneously have a significant effect on ROA in transportation and logistics companies listed on the Indonesia Stock Exchange for the 2022–2025 period. These results indicate that effective asset management and capital structure are important factors in increasing company profitability.

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