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The Contribution of Regular Transportation Services, Government Subsidies, and the Optimization of Leverage and Liquidity in Enhancing Profitability for the Sustainability of Perum Damri

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ABSTRACT

Perum DAMRI, a State-Owned Enterprise (SOE) in the transportation sector, faces the challenge of balancing public service obligations (PSO) with financial sustainability. Empirical conditions indicate a high dependence on regular transportation revenue and government subsidies, alongside a relatively high leverage structure and vulnerable liquidity position. Ideally, the company is expected to achieve sustainable profitability with a sound financial structure. This discrepancy forms the basis for analyzing the determinants of profitability. This study aims to examine the simultaneous and partial effects of regular transportation revenue, government subsidies, leverage (Debt to Equity Ratio/DER), and liquidity (Current Ratio/CR) on profitability (Return on Assets/ROA). A quantitative approach with an explanatory method is employed using monthly time series data over an eight-year period (2017–2024), sourced from the audited financial and annual reports of Perum DAMRI. Data were analyzed using multiple linear regression with EViews 13, preceded by classical assumption tests and logarithmic transformation of revenue variables. The results show that all independent variables simultaneously have a significant effect on ROA (Prob(F-statistic) = 0.000000; $R^2 = 0.7979$). Partially, regular transportation revenue and government subsidies have a positive and significant effect, leverage (DER) has a significant negative effect, while liquidity (CR) has a positive and significant effect on profitability.

INTRODUCTION

The bus transportation industry in Indonesia has experienced significant dynamics in recent years, particularly following the COVID-19 pandemic, which led to a drastic decline in passenger demand of up to 80–90% during 2020–2021. Although the sector began to recover in 2022, it continues to face substantial cost pressures due to fuel price volatility, rising interest rates, and global supply chain disruptions. These challenges have placed considerable strain on the financial performance of transportation companies, especially in maintaining profitability and long-term sustainability.

In this context, Perum DAMRI, as a State-Owned Enterprise (SOE), faces a more complex challenge compared to private operators. In addition to operating as a business entity, DAMRI is mandated to fulfill public service obligations (PSO), requiring it to serve routes that

are not always financially viable. This dual role results in a high dependency on government subsidies and creates pressure on the company's financial structure, particularly in terms of leverage and liquidity.

Empirically, DAMRI's financial performance has shown improvement, as reflected in the increasing trend of Return on Assets (ROA) in recent years. However, this improvement remains constrained by structural issues, including heavy reliance on regular transportation revenue and government subsidies, a relatively high leverage structure, and liquidity levels that remain close to the minimum threshold. These conditions indicate a gap between the existing condition (das sein) and the expected ideal condition (das sollen), where the company is expected to achieve sustainable profitability supported by a sound and independent financial structure. Therefore, the urgency of this research lies in the need to comprehensively identify the determinants of profitability in order to support evidence-based policy making for SOE financial sustainability.

The novelty of this research is threefold. First, it integrates operational, fiscal, and financial variables simultaneously within a single analytical framework, unlike previous studies that examined these factors in isolation. Second, it applies the das sein–das sollen conceptual framework to financial performance analysis in the context of a transportation SOE. Third, it provides empirical evidence drawn from an eight-year monthly time series spanning the pre-pandemic, pandemic, and post-pandemic periods (2017–2024), offering a rare longitudinal perspective on profitability dynamics.

Previous studies have generally examined the effects of variables such as subsidies, leverage, or liquidity on profitability in isolation. A gap remains, however, in studies that integrate these variables simultaneously within a single analytical framework, particularly in the context of transportation SOEs operating under a dual mandate. Moreover, the application of a conceptual framework grounded in the gap between actual and ideal conditions (das sein–das sollen) remains limited in financial performance analysis.

Therefore, this study aims to analyze the effects of regular transportation revenue, government subsidies, leverage, and liquidity on the profitability of Perum DAMRI, both simultaneously and partially. This research is expected to contribute to a more comprehensive understanding of profitability determinants and provide actionable insights for improving sustainable financial performance.

METHOD

This study employs a quantitative approach with an explanatory research design to examine the causal relationships between independent variables and the profitability of Perum DAMRI. Explanatory research design is used to examine relationships between variables, identify causal effects, and explain why certain phenomena occur (Creswell, J. W., & Creswell, 2023). The data used are secondary monthly time series data from 2017 to 2024, obtained from audited financial statements and annual reports of Perum DAMRI. The sample consists of 96 observations covering pre-pandemic, pandemic, and post-pandemic periods.

The dependent variable is profitability, measured by Return on Assets (ROA). The independent variables include regular transportation revenue, government subsidies (PSO), leverage proxied by the Debt to Equity Ratio (DER), and liquidity measured by the Current Ratio (CR).

The data are analyzed using multiple linear regression to examine both simultaneous and partial effects of the independent variables on ROA. The regression model is specified as:

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

$\beta 1, \beta 2, \beta 3, \beta 4$ = Regression coefficients of X_1, X2, X3, and X4
Y = Profitability (Return on Assets/ROA)
α = Constant
X_1 = Regular transportation revenue
X_2 = Government subsidies (Public Service Obligation/PSO)
X_3 = Leverage (Debt to Equity Ratio/DER)
X_4 = Liquidity (Current Ration/CR)
ε = Error term

Where Y represents ROA, X_1 represents regular transportation revenue, X_2 represents government subsidies, X_3 represents DER, and X_4 represents CR.

Prior to regression analysis, classical assumption tests—including normality, heteroscedasticity, autocorrelation, and multicollinearity—are conducted to ensure model validity. Hypothesis testing is performed using the F-test for simultaneous effects and the t-test for partial effects at a 5% significance level. Additionally, the coefficient of determination (Adjusted R^2) is used to assess the explanatory power of the model.

RESULT AND DISCUSSION

Regression Results

The multiple linear regression analysis was conducted to examine the effect of regular transportation revenue, government subsidies, leverage (DER), and liquidity (CR) on profitability (ROA). The estimation results are presented in Table 1.

Table 1. Multiple Linear Regression

Dependent Variable: ROA
Method: Least Squares
Date: 12/25/25 Time: 14:23
Sample: 2017M01 2024M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.465444	0.026484	17.57479	0.0000
Ln_REGULER	0.038427	0.002936	13.08727	0.0000
Ln_SUBSIDI	0.041263	0.002669	15.45917	0.0000
DER	-0.003101	0.001373	-2.257710	0.0264
CR	0.009195	0.003206	2.868361	0.0051
R-squared	0.797868	Mean dependent var		0.473854

Adjusted R-squared	0.788983	S.D. dependent var	0.021441
S.E. of regression	0.009849	Akaike info criterion	-1.352142
Sum squared resid	0.008828	Schwarz criterion	-1.218582
Log likelihood	309.9028	Hannan-Quinn criter.	-1.298155
F-statistic	89.80023	Durbin-Watson stat	1.913779
Prob(F-statistic)	0.000000		

The regression model is formulated as follows: ROA = 0.465444 + 0.038427*Ln_REGULER + 0.041263*Ln_SUBSIDI - 0.003101*DER + 0.009195*CR

The model demonstrates strong explanatory power with an R^2 value of 0.7979 and an adjusted R^2 of 0.7890, indicating that approximately 79% of the variation in ROA can be explained by the independent variables. The F-statistic value of 89.80023 with a probability of 0.0000 confirms that the model is statistically significant.

Simultaneous Effect (F-test)

The F-test results indicate that all independent variables simultaneously have a significant effect on profitability (Prob(F-statistic) = 0.0000 < 0.05). This confirms that profitability in DAMRI is influenced by a combination of operational performance, fiscal support, and financial structure.

Partial Effect (t-test)

Regular transportation revenue has a positive and significant effect on ROA (β = 0.0384; $p < 0.01$). This indicates that increasing core business revenue directly enhances profitability. However, dependence on this source also increases exposure to demand fluctuations.

Government subsidies have the strongest positive and significant effect on ROA (β = 0.0413; $p < 0.01$). This highlights the critical role of subsidies in maintaining financial performance, while also indicating structural dependency that may affect long-term sustainability.

Leverage shows a negative and significant effect on ROA (β = -0.0031; $p < 0.05$). Higher debt levels increase financial burden and reduce profitability, supporting the theory that excessive leverage negatively impacts firm performance.

Liquidity has a positive and significant effect on ROA ($\beta = 0.0092$; $p < 0.01$). Adequate liquidity supports operational continuity and short-term financial stability, although its contribution is relatively smaller compared to other variables.

The results indicate that profitability is influenced by a multidimensional interaction of operational, fiscal, and financial factors. The dominant role of subsidies and the negative effect of leverage reflect a structural imbalance between public service obligations and financial sustainability. This finding aligns with the conceptual gap between das sein (existing condition) and das sollen (ideal condition), where DAMRI remains dependent on external support while aiming for sustainable profitability.

Simultaneous Effect of All Variables on Profitability

The regression results show that regular transportation revenue, government subsidies, leverage (DER), and liquidity (CR) simultaneously have a significant effect on ROA (Prob(F-statistic) = 0.0000). This finding supports the integrated financial management framework, where profitability is determined by the interaction of multiple financial variables. Damodaran (2023) emphasizes that partial analysis may lead to misleading conclusions in firms with multiple objectives such as SOEs. The mechanism can be explained through financial synergy, where combined financial factors produce greater effects than individual contributions (Brealey, Myers, & Allen, 2020). This is consistent with the World Bank, which highlights that successful public transport operators apply a holistic financial approach integrating revenue, subsidies, capital structure, and liquidity. This finding demonstrates that profitability is jointly influenced by all variables, thereby answering the firsr research question.

Effect of Regular Transportation Revenue on Profitability

Regular transportation revenue has a positive and significant effect on ROA (β = 0.0384; $p < 0.01$). This result supports the Resource-Based View (RBV), where core business activities drive sustainable competitive advantage (Barney, 2023). DAMRI's regular transport contributes approximately 62.64% of total revenue, confirming its strategic importance. This finding is consistent with (Wernerfelt, 1984), who shows that firms with strong core business contributions achieve higher ROA. Additionally, (Hensher & Mulley, 2023) explain that high-frequency routes improve efficiency through economies of scale, while (Button & Vega, 2022) quantify that a 10% increase in revenue raises ROA by 6.2%. Furthermore, stable revenue improves financial planning (Brigham & Ehrhardt, 2023) and lowers cost of capital (Damodaran, 2023). Studies by (Bodie, Z., Kane, A., & Marcus, 2023) and (Penman, 2019) also confirm that increased revenue enhances asset utilization and profitability. Thus, this finding confirms that regular transportation revenue significantly increases profitability, thereby answering the second research question.

Effect of Government Subsidies on Profitability

Government subsidies have a positive and significant effect on ROA ($\beta = 0.0413$; $p < 0.01$). This supports Public Service Obligation (PSO) theory, where subsidies compensate for non-commercial services (Nasution and Sari, 2023). DAMRI's subsidy contribution (≈56.71%) prevents operational losses and ensures profitability. This aligns with Figuerola-Ferretti and (Thomas, 2023), who show that subsidies improve financial performance. (Hensher & Mulley, 2023) highlight subsidies as financial buffers, while (Brigham & Houston, 2022) emphasize their role in maintaining margins. Subsidies also stabilize cash flow, reduce capital costs (Damodaran, 2023), and support investment (Saussier & Levasseur, 2022; Circella & Hardman, 2024). Additionally, they enhance competitiveness (Button & Vega, 202; Finger & Nikolaos, 2023). This finding confirms that government subsidies positively affect profitability while also indicating structural dependency, thereby addressing the third research question.

Effect of Leverage on Profitability

Leverage (DER) has a negative and significant effect on ROA ($\beta = -0.0031$; $p < 0.05$) . This supports financial distress theory, where excessive debt increases financial burden. (Brealey et al., 2020) confirm that rising leverage reduces profitability in volatile industries. (Damodaran, 2023) explains that when the cost of debt exceeds ROA, profitability declines. (Frank & Goyal, 2023) also find similar negative effects. Leverage limits investment, increases

refinancing risk, and reduces flexibility (Myers, 2023; Strebulaev & Yang, 2024). Agency costs further worsen performance (Jensen & Meckling, 1976). In SOEs, leverage may increase dependency on subsidies (Megginson, 2023; OECD, 2020). This findinf confirms that leverage has a negative effect on profitability, thereby addressing the fourth research question.

Effect of Liquidity on Profitability

Liquidity (CR) has a positive and significant effect on ROA ($\beta = 0.0092$; $p < 0.01$). This aligns with working capital management theory, where optimal liquidity maximizes profitability (Gitman & Zutter, 2015). DAMRI's CR (~1.40) is within the optimal range. (Brealey et al., 2022) show that liquidity improves ROA, while (Brigham & Ehrhardt, 2023) highlight cost efficiency benefits. Liquidity ensures operational continuity (Ross et al., 2019), improves supplier relations (Bodie et al., 2023), and supports investment (Myers, 2023). This finding that liquidity has a positive effect on profitability, thereby addressing the fifth research question.

CONCLUSION

This study demonstrates that the profitability of Perum DAMRI is influenced by a multidimensional interaction of operational, fiscal, and financial factors. Regular transportation revenue and government subsidies act as the main drivers of profitability, while high leverage negatively affects financial performance. Meanwhile, optimal liquidity supports operational stability and enhances profitability. Overall, these findings confirm that improving profitability requires an integrated financial management approach to achieve long-term sustainability.

Future research is recommended to expand the scope of analysis by incorporating additional variables that may influence profitability, such as operational efficiency, asset utilization, service quality, and macroeconomic factors. Furthermore, comparative studies involving other state-owned or private transportation companies could provide broader insights into the determinants of financial performance. Future studies may also consider using alternative analytical methods, such as panel data or dynamic models, to capture more complex relationships among variables. In addition, qualitative approaches could be employed to explore managerial and policy perspectives, particularly in addressing the gap between the current condition (*das sein*) and the expected ideal condition (*das sollen*) in achieving financial sustainability.

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