



The Effect of Thin Capitalization and Tax Planning on Firm Value in Transportation and Logistics Sector Companies Listed on the Indonesia Stock Exchange 2020–2024

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ABSTRACT

This study aims to analyze the effect of thin capitalization proxied by the Debt to Equity Ratio (DER) and tax planning proxied by the Effective Tax Rate (ETR) on firm value measured by Tobin's Q in transportation and logistics sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2020–2024. The population consists of all transportation and logistics companies listed on the IDX, with a sample of 11 companies selected using purposive sampling, yielding 55 units of analysis. Secondary data from annual financial reports were employed. Multiple linear regression was used as the analytical method. The results indicate that: (1) thin capitalization (DER) has a positive and significant effect on firm value ($t = 6.184$; $p < 0.05$); (2) tax planning (ETR) has a negative and significant effect on firm value ($t = -6.748$; $p < 0.05$); (3) simultaneously, DER and ETR significantly influence firm value ($F = 32.962$; $p < 0.05$) with a coefficient of determination (R^2) of 55.9%. These findings suggest that higher leverage generates a tax shield that enhances market value, while effective tax planning that reduces ETR signals managerial efficiency and raises firm value.

INTRODUCTION

The transportation and logistics sector in Indonesia has experienced significant growth, driven by increasing national economic activity and expanding international trade. This sector serves as the backbone of the goods and services distribution network across the archipelago, making firm value a critical concern for investors and other stakeholders. Indonesia's logistics sector accounted for approximately 23% of GDP in recent years, reflecting its strategic role in the national economy (World Bank, 2023).

Investors' opinions of a company's performance and prospects are reflected in its firm value. A company's ability to provide wealth for shareholders is indicated by a high firm value (Brigham & Houston, 2019). Tobin's Q, a ratio that contrasts a company's market value with the book value of its assets, is one frequently employed indicator to gauge business worth. When a Tobin's Q is more than 1, it means that the market values the company's assets more than their book value, indicating potential for growth and a competitive edge.

Thin capitalization refers to a condition in which a company's financing is predominantly sourced from debt rather than equity. In taxation contexts, thin capitalization is often employed as a strategy to shift profits to lower-tax jurisdictions through deductible interest payments to affiliated parties. In Indonesia, thin capitalization practices are regulated under The debt-to-equity ratio is limited to 4:1 by Minister of Finance Regulation No. 169/PMK.010/2015. The Debt to Equity Ratio (DER) is the most widely used proxy to quantify the degree of thin capitalization (Fuest & Riedel, 2012).

Tax planning, or tax planning, refers to actions taken by companies to legally minimize their tax burden by leveraging applicable tax provisions. The primary objective of tax planning is to maximize after-tax profit and improve corporate cash flow. The Effective Tax Rate (ETR) is the most prevalent proxy in the tax accounting literature for measuring a company's tax planning effectiveness. A lower ETR indicates successful tax burden minimization relative to the statutory tax rate.

Prior studies have produced inconsistent findings regarding the effects of thin capitalization and tax planning on firm value. Dewi and Noviari (2017) found that tax planning positively affects firm value, whereas Praditasari and Setiawan (2017) reported contrasting results. Such inconsistencies underscore the need for further research, particularly in the transportation and logistics sector, which exhibits distinctive financing and taxation characteristics. The research gap motivates this study, which focuses on the 2020–2024 period—spanning the post-pandemic recovery era.

THEORETICAL FRAMEWORK

Signaling Theory

Signaling theory was first proposed by Spence (1973), who argued that company management possesses more complete information than external parties (investors). Management conveys signals to investors through various financial policies—including capital structure and taxation decisions—to demonstrate company quality and future prospects.

In the context of this study, positive signals sent by the company, such as the ability to optimize tax obligations and manage debt efficiently, are expected to increase investor confidence and thereby enhance firm value.

Agency Theory

The relationship between principals (shareholders) and agents (management) is explained by agency theory, which was developed by Jensen and Meckling (1976). Conflicts of interest inherent in this relationship can influence corporate financing and taxation decisions. High debt utilization in thin capitalization can function as a monitoring mechanism over management while simultaneously providing tax shield benefits through interest deductions from taxable income, aligning the interests of both principals and agents.

Thin Capitalization and Firm Value

Thin capitalization refers to excessive reliance on debt financing relative to equity. In accordance with trade-off theory, moderate debt increases firm value by generating tax shield benefits, as interest expenses are tax-deductible. However, beyond an optimal threshold, excessive debt raises financial distress costs, potentially eroding firm value. DER serves as the measurement proxy, calculated as follows:

$$DER = \text{Total Liabilities} / \text{Total Equity} \dots \dots \dots (1)$$

Tax Planning and Firm Value

Tax planning refers to legal strategies employed by taxpayers to minimize tax liabilities. The primary goal is to maximize after-tax profit and enhance corporate cash flow, which directly increases the wealth available to shareholders. ETR, the most widely used proxy in the tax accounting literature, is calculated as follows:

$$ETR = \text{Tax Expense} / \text{Pre-Tax Income} \dots \dots \dots (2)$$

A lower ETR indicates more effective tax planning, resulting in a lower tax burden than the applicable statutory tax rate, and therefore higher net income available to shareholders.

Firm Value

Firm value reflects investors' perceptions of a company's level of success, often associated with stock price performance. Tobin's Q, developed by James Tobin (1969), compares the company's market value with the cost of replacing its assets. A market value that is higher than book value is indicated by a Tobin's Q greater than 1, suggesting competitive advantage and strong growth prospects. The formula is:

$$\text{Tobin's } Q = (\text{MV Equity} + \text{Total Liabilities}) / \text{Total Assets} \dots \dots (3)$$

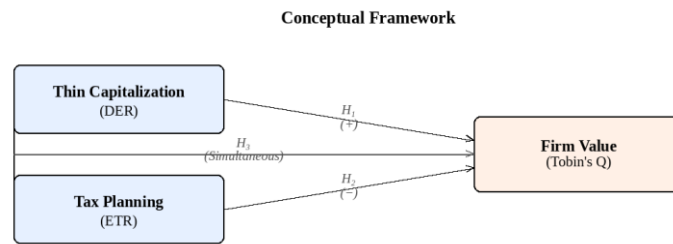
Hypothesis Development

Based on the theoretical framework and prior empirical evidence, the following hypotheses are proposed:

H₁: Thin capitalization (DER) has a positive and significant effect on firm value (Tobin's Q).

H₂: Tax planning (ETR) has a negative and significant effect on firm value (Tobin's Q).

H₃: Thin capitalization (DER) and tax planning (ETR) simultaneously have a significant effect on firm value (Tobin's Q).



Theoretical Basis: Signaling Theory (Spence, 1973) & Agency Theory (Jensen & Meckling, 1976)

Figure 1. Conceptual Framework

METHODS

Using secondary data from the annual financial reports of transportation and logistics sector companies listed on the Indonesia Stock Exchange (IDX) for the years 2020–2024, this study takes a quantitative approach. Information was gathered from each company's official website as well as the official IDX website (www.idx.co.id).

The population comprises all transportation and logistics companies listed on the IDX. Purposive sampling was employed with the following criteria: (1) transportation and logistics companies continuously listed on the IDX throughout the 2020–2024 period; (2) consistent publication of complete annual financial reports during the study period; and (3) availability of data relevant to all research variables. Based on these criteria, 11 sample companies were selected, yielding a total of 55 observational units.

Table 1. List of Sample Companies

No.	Stock Code	Company Name	Period
1	ASSA	PT Adi Sarana Armada Tbk	2020–2024
2	BLTA	PT Berlian Laju Tanker Tbk	2020–2024
3	IMJS	PT Indomobil Multi Jasa Tbk	2020–2024
4	SAFE	PT Steady Safe Tbk	2020–2024
5	SDMU	PT Sidomulyo Selaras Tbk	2020–2024
6	TMAS	PT Pelayaran Tempuran Emas Tbk	2020–2024
7	TAXI	PT Express Transindo Utama Tbk	2020–2024
8	BPTR	PT Batavia Prosperindo Trans Tbk	2020–2024
9	SAPX	PT Satria Antaran Prima Tbk	2020–2024
10	KJEN	PT Krakatau Jasa Industri Tbk	2020–2024
11	PPGL	PT Porto Indonesia Sejahtera Tbk	2020–2024

Source: Indonesia Stock Exchange, 2024 (processed)

Table 2 presents the operational definitions of all research variables.

Table 2. Operational Definition of Variables

Variable	Proxy	Formula	Scale
Firm Value (Y)	Tobin's Q	$(MV \text{ Equity} + \text{Total Liabilities}) / \text{Total Assets}$	Ratio
Thin Capitalization (X ₁)	DER	$\text{Total Liabilities} / \text{Total Equity}$	Ratio
Tax Planning (X ₂)	ETR	$\text{Tax Expense} / \text{Pre-Tax Income}$	Ratio

Source: Processed by researcher, 2025

Data were analyzed using SPSS version 26. The analytical procedures comprised: (1) descriptive statistics; (2) traditional assumption checks, such as the autocorrelation test (Durbin-Watson), multicollinearity test (Variance Inflation Factor/VIF), heteroscedasticity test (Spearman's Rho), and normality test (Kolmogorov-Smirnov); and (3) multiple linear regression analysis. The regression model is specified as:

$$TQ = \alpha + \beta_1 DER + \beta_2 ETR + \varepsilon \dots \dots \dots (4)$$

Where TQ = Tobin's Q (firm value); α = constant; β_1, β_2 = regression coefficients; DER = Debt to Equity Ratio; ETR = Effective Tax Rate; ε = error term.

RESULTS

Descriptive Statistics

Table 3 presents the descriptive statistics for all research variables across 55 observations.

Table 3. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
DER (X ₁)	55	0.3857	1.7701	1.1916	0.2507
ETR (X ₂)	55	0.0196	1.0826	0.5010	0.2358
Tobin's Q (Y)	55	0.6956	10.2241	2.0062	1.8739

Source: SPSS 26 Output, processed (2025)

The mean DER of 1.1916 indicates that, on average, the sample companies carry more debt than equity, consistent with the capital-intensive nature of the transportation and logistics sector. The mean ETR of 0.5010 suggests that companies pay tax at approximately 50.1% of pre-tax income on average, which is above the statutory corporate tax rate of 22%, implying heterogeneity in tax management practices. The mean Tobin's Q of 2.0062 indicates that, on average,

the market values sample companies at more than twice their net asset value, reflecting positive investor sentiment toward the sector.

Classical Assumption Tests

Table 4. Normality Test Results (Kolmogorov-Smirnov)

Description	Unstandardized Residual
N	55
Kolmogorov-Smirnov Z	0.090
<u>Asymp. Sig. (2-tailed)</u>	0.200
Conclusion	Normally Distributed

Source: SPSS 26 Output, processed (2025)

The Kolmogorov-Smirnov test yields a significance value of $0.200 > 0.05$, confirming that the residuals are normally distributed and the normality assumption is satisfied.

Table 5. Multicollinearity Test Results

Variable	Tolerance	VIF	Conclusion
DER (X_1)	0.926	1.080	No Multicollinearity
ETR (X_2)	0.926	1.080	No Multicollinearity

Source: SPSS 26 Output, processed (2025)

VIF values for both variables equal 1.080, well below the threshold of 10, with Tolerance values of $0.926 > 0.10$, confirming the absence of multicollinearity.

Table 6. Heteroscedasticity Test Results (Spearman's Rho)

Variable	Correlation Coefficient	Sig. (2-tailed)	Conclusion
DER (X_1)	0.124	0.368	No Heteroscedasticity
ETR (X_2)	-0.098	0.477	No Heteroscedasticity

Source: SPSS 26 Output, processed (2025)

Table 7. Autocorrelation Test Results (Durbin-Watson)

Model	Durbin-Watson	Conclusion
1	2.185	No Autocorrelation

Source: SPSS 26 Output, processed (2025)

The Durbin-Watson statistic of 2.185 lies within the acceptable range between dU and 4-dU, confirming the absence of autocorrelation in the model.

Multiple Linear Regression Analysis

Table 8. Multiple Linear Regression Results

Model	B	Std. Error	Beta (β)	t	Sig.
(Constant)	-0.693	0.851	—	-0.814	0.419
DER (X_1)	4.423	0.715	0.591	6.184	0.000
ETR (X_2)	-5.133	0.761	-0.646	-6.748	0.000

Source: SPSS 26 Output, processed (2025)

The estimated regression equation is:

$$TQ = -0.693 + 4.423 \text{ DER} - 5.133 \text{ ETR} + \varepsilon \dots \dots \dots (5)$$

The constant of -0.693 indicates the predicted Tobin's Q when both DER and ETR equal zero. The coefficient for DER (4.423) indicates that a one-unit increase in DER raises Tobin's Q by 4.423, ceteris paribus. The coefficient for ETR (-5.133) indicates that a one-unit increase in ETR reduces Tobin's Q by 5.133, ceteris paribus.

Table 9. Coefficient of Determination

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	0.748	0.559	0.542	1.2698

Source: SPSS 26 Output, processed (2025)

The Adjusted R² of 0.542 indicates that DER and ETR jointly explain 54.2% of the variation in firm value, while the remaining 45.8% is attributable to other variables not included in this model.

Table 10. Simultaneous Test Results (F-Test / ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	106.201	2	53.101	32.962	0.000 ^b
Residual	83.838	52	1.612	—	—
Total	190.039	54	—	—	—

Source: SPSS 26 Output, processed (2025)

The F-test yields $F = 32.962$ with significance $0.000 < 0.05$, confirming that DER and ETR jointly and significantly influence firm value. H_3 is therefore accepted.

DISCUSSION

Effect of Thin Capitalization (DER) on Firm Value

The DER variable produces a t-value of 6.184 with significance $0.000 < 0.05$ and a positive regression coefficient of 4.423, indicating that thin capitalization exerts a positive and significant effect on firm value. H_1 is therefore accepted.

This finding is consistent with signaling theory (Spence, 1973), which posits that debt utilization serves as a positive signal to investors, conveying that management is confident in the company's future cash flows and ability to

service obligations. The result also aligns with trade-off theory, whereby moderate debt usage generates tax shield benefits that increase the net present value of the firm. In the transportation and logistics context, capital-intensive operations often necessitate substantial debt financing, and investors appear to interpret higher DER positively when debt remains within regulatory limits. These findings corroborate Indriyani (2017) and Chandra et al. (2019), who documented a positive relationship between capital structure and firm value.

The positive relationship between DER and Tobin's Q may also reflect Indonesia's regulatory framework under PMK No. 169/PMK.010/2015, which limits the debt-to-equity ratio to 4:1.

Companies operating within this regulatory threshold are perceived by investors as disciplined in leveraging debt for growth without incurring excessive financial distress risk.

Effect of Tax Planning (ETR) on Firm Value

The ETR variable produces a t-value of -6.748 with significance $0.000 < 0.05$ and a negative regression coefficient of -5.133 , indicating that tax planning exerts a negative and significant effect on firm value. A lower ETR corresponds to higher firm value, confirming H_2 .

The negative relationship between ETR and Tobin's Q is consistent with signaling theory: a company's ability to minimize its tax burden legally signals to investors that management possesses the competence to optimize corporate resources efficiently. This efficiency translates into higher net income, greater dividend-paying capacity, and stronger reinvestment potential, all of which drive increases in market-based firm value. The result supports findings by Dewi and Noviori (2017) and Praditasari and Setiawan (2017), both of whom documented a significant relationship between tax management and firm value.

From an agency theory perspective, effective tax planning reduces the amount of corporate resources transferred to the government, reallocating them to shareholders and productive investments. This alignment of managerial decisions with shareholder interests reduces agency conflicts, further bolstering investor confidence and firm value.

CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis and discussion, the following conclusions are drawn. First, thin capitalization proxied by DER has a positive and significant effect on firm value (Tobin's Q) in transportation and logistics sector companies listed on the IDX for the period 2020–2024 ($t = 6.184$; $\text{sig.} = 0.000$). Higher debt usage within regulatory limits increases firm value through tax shield benefits and positive signaling to investors.

Second, tax planning proxied by ETR has a negative and significant effect on firm value ($t = -6.748$; $\text{sig.} = 0.000$). A lower ETR reflects effective tax planning, which results in higher net income and enhanced firm value.

Third, DER and ETR simultaneously exert a significant effect on firm value ($F = 32.962$; $\text{sig.} = 0.000$), explaining 54.2% of its variation (Adjusted $R^2 = 0.542$).

Based on these results, management is recommended to optimize the capital structure by maintaining debt proportions that generate tax shield

benefits without breaching the government-mandated debt-to-equity ceiling of 4:1. Investors should consider ETR and DER levels as proxies of tax efficiency and debt management when making investment decisions. Future researchers are encouraged to incorporate additional variables such as firm size, profitability, and institutional ownership, and to extend the sample scope to other sectors for broader generalizability.

FURTHER STUDY

This study is subject to several limitations. The sample is confined to 11 transportation and logistics companies listed on the IDX, which restricts the generalizability of findings to other sectors or market contexts. Future studies should consider broader samples incorporating multiple sectors. Additionally, the model's explanatory power of 54.2% indicates that approximately 45.8% of firm value variation is driven by factors outside this model. Future research should integrate moderating or mediating variables—such as corporate governance quality, ownership structure, managerial ability, and macroeconomic conditions—to enhance explanatory power. Longitudinal designs spanning longer time horizons, and the use of panel data estimation techniques such as fixed-effects or random-effects models, would also strengthen causal inference.

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