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The Effect of Profitability, Asset Structure, Growth, Liquidity and Debt Tax Shield on Capital Structure in Real Estate and Property Companies Listed on the Indonesia Stock Exchange

Calista¹, Yanuar Dananjaya²

^{1,2} Faculty of Economics and Business, Universitas Pelita Harapan, Surabaya, Indonesia

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ABSTRACT

This study aims to analyze the effect of profitability, asset structure, growth, liquidity, and debt tax shield on capital structure in real estate and property companies listed on the Indonesia Stock Exchange. The study is motivated by the importance of determining an optimal capital structure to meet operational needs, maximize profits, and manage financial risks. Using the Pecking Order and Trade-Off theories, this research explains how these variables influence corporate financing decisions. The population in this study consists of all real estate and property companies listed on the Indonesia Stock Exchange from 2019 to 2023. The data used are financial statements of companies selected through purposive sampling, resulting in 52 real estate and property companies as the research sample. The results show that profitability, asset structure, and liquidity have a negative effect on capital structure, while growth and debt tax shield do not have a significant effect. Simultaneously, profitability, asset structure, growth, liquidity, and debt tax shield significantly affect capital structure. This study contributes theoretically to financial management literature and provides practical implications for financial managers and investors in making funding and investment decisions

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Corresponding Author:

Calista
Faculty of Economics and Business, Universitas Pelita Harapan
Surabaya, Indonesia
Email: calistalimm@gmail.com

1. INTRODUCTION

A well-managed company must effectively handle its financing to achieve stable growth in both size and wealth. Every business must determine the necessary capital to fund its operations. [1]Capital structure serves as an indicator in financing decisions, consisting of short-term and long-term debt. Capital structure as a company's financing composition, including equity, preferred stock, and long-term debt. Financial management decisions involve balancing internal funding sources, such as retained earnings and reserves, with external financing like debt [2]. If internal funds are insufficient, companies must

choose between issuing shares or borrowing, each with its own cost implications. An optimal capital structure minimizes overall costs and ensures efficient operations while maximizing profits [1].

According to Bank Indonesia's Residential Property Price Survey (SHPR) for Q2 2024, the Residential Property Price Index (IHPR) grew by 1.76% year-on-year (yoy), slightly slowing from Q1 2024 (1.89% yoy). Despite global uncertainty and moderate inflation, demand for commercial properties remains stable due to supportive monetary policies ensuring economic stability[3].

The relationship between property demand and corporate debt strategy is crucial. When demand is high, companies tend to increase debt for expansion. Conversely, when demand slows, debt burdens rise, leading to liquidity and refinancing risks [4]. The capital-intensive nature of the property industry relies on debt to finance large projects without significantly diluting equity. Additionally, debt usage provides the benefit of a debt tax shield, where interest expenses reduce corporate tax burdens[5]. However, a high level of debt must be carefully managed to avoid bankruptcy risks, especially in unstable market conditions. Therefore, balancing debt and equity is a crucial strategy to ensure the sustainability of property companies' operations [6].

Capital structure is a strategic financial decision that determines the balance between debt and equity in a company's financing. The Pecking Order Theory states that companies prioritize internal funding before seeking external financing [7]. If internal funds are insufficient, companies tend to prefer debt over issuing equity, considering the higher cost of information asymmetry associated with equity. This theory suggests that high-growth companies rely more on debt since they are reluctant to issue equity, which could reduce managerial control and increase capital costs [8].

Meanwhile, the Trade-Off Theory, developed by Modigliani and Miller (1963), emphasizes the balance between the tax benefits of debt (tax shield) and the risk of bankruptcy due to excessive leverage[9]. Companies establish an optimal debt ratio based on the trade-off between tax benefits and financial risk. Debt financing is maintained as long as it provides advantages to the company, but it is limited when the associated costs or risks outweigh the benefits [10].

A company selects the optimal combination of debt and equity to achieve its desired profitability. [11] Capital structure is influenced by internal and external factors. Internal factors include profitability, liquidity, asset structure, growth, and debt tax shield. However, previous studies show inconsistencies in the factors affecting capital structure. For instance, profitability generally negatively affects capital structure [12]. Meanwhile other studies indicate a positive impact of profitability on capital structure [13]. Similarly, while growth and asset structure are often linked to capital structure, some studies find no significant effect [14]. These inconsistencies highlight the need for further research, particularly in sector-specific contexts like real estate and regional variations. This study aims to explore the impact between capital structure, profitability, liquidity, asset structure, growth, and debt tax shield.

2. METHOD

2.1 Operational Definition of Variables

2.1.1 Profitability

Profitability measures a company's ability to generate profit within a specific period [10]. Profitability helps compare past and present earnings, assess net profit after tax, and evaluate the company's overall financial performance[15]. A key indicator of profitability is Return on Assets (ROA), which reflects how efficiently a company utilizes its assets to generate profit[16]. A higher ROA indicates better asset utilization and a stronger financial position.

$$\text{Return on Assets (ROA)} = \text{Net Income/Total Assets}$$

2.1.2 Asset Structure

Asset structure determines the allocation of funds between current and fixed assets [17]. Companies with significant long-term fixed assets often rely on long-term debt, while those with high inventory and

receivables depend more on short-term financing. A strong asset base provides collateral for loans, increasing credit access and the likelihood of obtaining additional financing [18]. Firms with a higher proportion of fixed assets tend to be capital-intensive, but liquid assets remain crucial for operations.

$$\text{Asset Structure} = \text{Total Fixed Assets} / \text{Total Assets}$$

2.1.3 Growth

Company growth is a key indicator of success, as investors and creditors prefer firms with higher asset growth [19]. Growth refers to a business's ability to invest profitably, expand market share, diversify products, and enhance operational efficiency [20]. Investing in growth opportunities strengthens a company's market position and increases financial returns. Growth assets, such as stocks of emerging companies and high-potential bonds, are riskier but offer significant long-term value appreciation [13].

$$\text{Growth} = \text{Fixed Assets (t)} / \text{Fixed Assets (t-1)}$$

2.1.4 Liquidity

Liquidity represents a company's ability to meet short-term obligations using current assets [21]. Firms with high liquidity have more current assets than liabilities, ensuring sufficient cash to cover debts and operational needs. Strong liquidity boosts creditor confidence, as it indicates timely debt repayments [22]. Companies with high liquidity often rely on internal capital for operations.

$$\text{Current Ratio (CR)} = \text{Current Assets} / \text{Current Liabilities}$$

2.1.5 Debt Tax Shield

The Debt Tax Shield reduces taxable income by deducting interest expenses from earnings, lowering overall tax liabilities. This incentive encourages firms to use debt financing, particularly for long-term funding, due to reduced financing costs. Effective Tax Rate (ETR) measures the tax burden relative to pre-tax earnings, reflecting tax policy changes and their impact on corporate expenses. ETR includes both current and deferred taxes, providing a comprehensive view of a company's tax obligations [23].

$$\text{Effective Tax Rate (ETR)} = \text{Tax Expense} / \text{Pre-tax Income}$$

2.1.6 Capital Structure

Capital structure represents the balance between external (debt) and internal (equity) financing, playing a crucial role in corporate financial decisions. It consists of long-term debt and equity, determining the optimal funding proportion to maximize returns for both the company and shareholders. Internal funding comes from retained earnings and depreciation, while external funding relies on debt [16].

$$\text{Debt to Equity Ratio (DER)} = \text{Total Liability} / \text{Total Equity}$$

2.2 Research Model

The research model that will be examined in this study as follows.

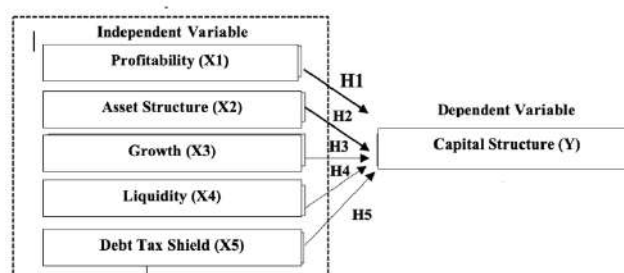


Figure 1. Research Model

H1 : Profitability have an impact towards Capital Structure

- H2: Asset Structure have an impact towards Capital Structure
- H3 : Growth have an impact towards Capital Structure
- H4: Liquidity have an impact towards Capital Structure
- H5: Debt Tax Shield have an impact towards Capital Structure

2.2.3 Research Method

This study employs a quantitative approach by analyzing statistical data to test hypotheses regarding the influence of profitability, asset structure, growth, liquidity, and debt tax shield on the capital structure of real estate and property companies listed on the Indonesia Stock Exchange from 2019 to 2023. Purposive sampling is used to select samples based on specific criteria. Secondary data is collected from company annual reports, the Indonesia Stock Exchange website, and other official sources. Data analysis is conducted using SPSS software.

3. RESULTS AND DISCUSSION

3.1 Descriptive Analysis

This study analyzes data from 272 observations of real estate and property companies in Indonesia during the period 2019–2023. The descriptive analysis results show the minimum, maximum, average, and standard deviation values for each variable:

Table 1. Descriptive Statistics

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
ROA	272	-.18	.20	.0064	.05231
SA	272	.00	.99	.6345	.23071
GRWTH	272	.00	2.21	1.0233	.13914
CR	272	.03	14.47	2.8188	2.55193
ETR	272	-3.78	6.99	.1299	.65575
DER	272	-3.75	4.99	.7688	.83554
Valid N (listwise)	272				

Profitability (ROA): The minimum value is -0.18 (PT Bliss Properti Indonesia Tbk, 2023), and the maximum value is 0.20 (PT Puradelta Lestari Tbk, 2019). The average is 0.0064, with a standard deviation of 0.05160, indicating that the data is quite varied.

Asset Structure (SA): The minimum value is 0.00 (PT Bhakti Agung Propertindo Tbk, 2019), and the maximum value is 0.99 (PT Agung Semesta Sejahtera Tbk, 2020). The average is 0.6345, with a standard deviation of 0.23071, indicating that the data is less varied.

Growth (GRWTH): The minimum value is 0.00 (PT Natura City Development, 2021), and the maximum value is 2.21 (PT Bhakti Agung Propertindo, 2019). The average is 1.0233, with a standard deviation of 0.13914, indicating that the data is less varied.

Liquidity (CR): The minimum value is 0.03 (PT Maha Properti Indonesia Tbk, 2023), and the maximum value is 14.47 (PT Bekasi Asri Pemula Tbk, 2020). The average is 2.8188, with a standard deviation of 2.55193, indicating that the data is less varied.

Debt Tax Shield (ETR): The minimum value is -3.78 (PT Modernland Realty Tbk, 2021), and the maximum value is 6.99 (PT Rockfields Properti Indonesia Tbk, 2020). The average is 0.1299, with a standard deviation of 0.65575, indicating that the data is quite varied.

Capital Structure (DER): The minimum value is -3.75 (PT Bliss Properti Indonesia Tbk, 2023), and the maximum value is 4.99 (PT Pembangunan Perumahan Properti Tbk, 2023). The average is 0.7688, with a standard deviation of 0.83554, indicating that the data is quite varied.

3.2 Classical Assumption Test

3.2.1 Normality Test

A normality test was conducted in the regression model to determine whether the independent and dependent variables were normally distributed. The Kolmogorov-Smirnov (K-S) test was used for statistical analysis, while a histogram and normal probability plot were used for graphical analysis.

Table 2. One Sample Kolmogorov Smirnov Test

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residual
N		272
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.71574844
Most Extreme Differences	Absolute	.146
	Positive	.146
	Negative	-.123
Test Statistic		.146
Asymp. Sig. (2-tailed)		.000 ^c

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.

The Kolmogorov-Smirnov test results showed an Asymp Sig (2-tailed) value of 0.000, which is below the 0.05 significance level. This indicates that the regression model data is not normally distributed.

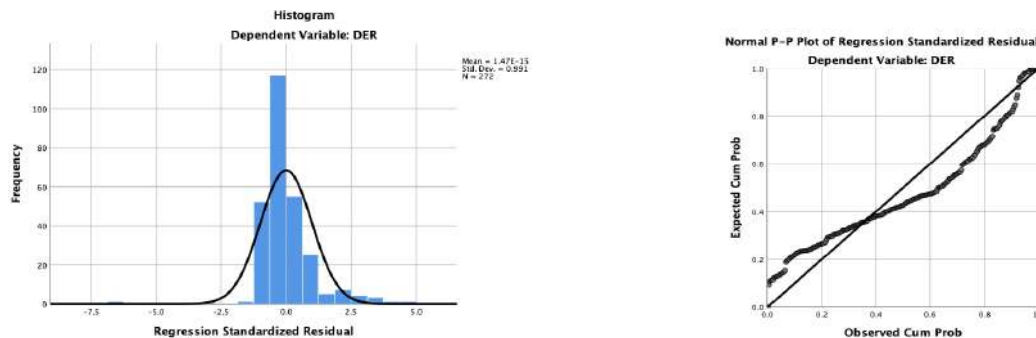


Figure 2. Histogram and Normal Probability Plot

Additionally, graphical analysis using the histogram and normal probability plot further confirmed the findings. The histogram did not follow a normal distribution pattern, as it was skewed to the right rather than forming a symmetric bell curve. Moreover, the probability plot showed data points deviating from the diagonal line, further suggesting non-normal distribution.

3.2.2 Multicollinearity Test

A multicollinearity test was conducted to determine whether the independent variables in the regression model were correlated. The regression model functions effectively when multicollinearity is absent, as multicollinearity increases the risk of incorrect hypothesis adoption and inaccurate standard estimations.

Table 3. Multicollinearity Test

Coefficients ^a		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	ROA	.939	1.065
	SA	.762	1.312
	GRWTH	.912	1.097
	CR	.770	1.299
	ETR	.973	1.027

a. Dependent Variable: DER

Multicollinearity was assessed using tolerance values and the Variance Inflation Factor (VIF). It is considered absent if the tolerance value is greater than 0.10 and the VIF is less than 10. The test results confirmed no multicollinearity in the model, as all tolerance values exceeded 0.10 and VIF values remained below 10.

3.2.3 Heteroskedasticity Test

Heteroscedasticity in the regression model can be identified using the Heteroscedasticity Test. A well-fitted regression model should be homoscedastic. This study employs the Glejser test and scatter plot analysis to determine the presence of heteroscedasticity.

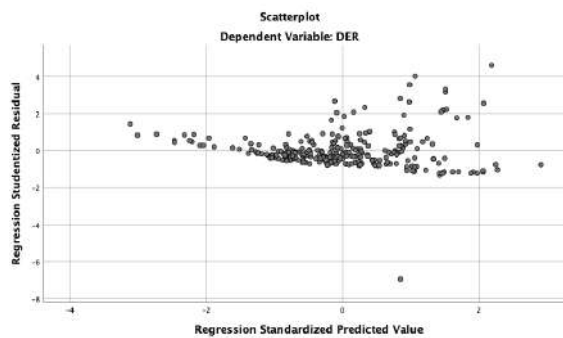


Figure 3. Scatterplot

If data points are randomly scattered above and below zero on the Y-axis without forming a specific pattern, it suggests no heteroscedasticity. The scatter plot in indicates no clear pattern, suggesting no variance imbalance among independent variables.

Table 4. Heteroskedasticity Test

Coefficients ^a		t	Sig.
1	(Constant)	4.056	.000
	ROA	-5.703	.000
	SA	-4.698	.000
	GRWTH	.097	.923
	CR	-4.332	.000
	ETR	-1.129	.260

a. Dependent Variable: ABS RES

Additionally, the Glejser test is used to observe the significance (sig) values of each independent variable. If the significance value is below 0.05, heteroscedasticity is present. The results show

significance values of 0.000 for Return on Assets (ROA), 0.000 for Asset Structure, 0.923 for Growth, 0.000 for Current Ratio (CR), and 0.260 for Tax Debt Shield. Since not all values exceed 0.05, the regression model indicates the presence of heteroscedasticity.

3.2.4 Autocorrelation Test

Autocorrelation test is conducted to determine whether there is a correlation between residual errors in period t and the previous period ($t-1$), using the Durbin-Watson (DW) test.

Table 5. Durbin Watson Test
 Model Summary^b

Model	Durbin-Watson
1	2.217

a. Predictors: (Constant), ETR, CR, ROA, GRWTH, SA

b. Dependent Variable: DER

The regression model is considered free from autocorrelation if the value satisfies $dL \leq d \leq 4 - dU$. Within 272 samples (n) and five independent variables (k), the Durbin-Watson statistic is 2.217 at a significance level of 0.05 (5%). The Durbin-Watson table indicates an upper bound (dU) of 1.748 and a lower bound (dL) of 1.667. Since the obtained Durbin-Watson value falls within the range $1.748 \leq 2.217 \leq 2.252$, the results indicate no autocorrelation in the regression model.

3.3 Multiple Linear Regression Analysis

Multiple linear regression analysis determines the effect of two or more independent variables on the dependent variable. The research findings indicate whether tax avoidance, as the dependent variable in the real estate dan property industry listed on the Indonesia Stock Exchange, is positively or negatively influenced by profitability, asset structure, growth, liquidity, and debt tax shield. The results of the multiple linear regression analysis, are:

$$\text{Capital Structure} = 2.198 - 3.015\text{Profitability} - 1.775\text{Asset Structure} + 0.131\text{Growth} - 0.147\text{Liquidity} - 0.025\text{DebtTaxShield} + \varepsilon$$

3.4 Hypothesis Test

3.4.1 Coefficient of Determination

To assess the impact of independent variables influenced by factors not included in the study, the coefficient of determination (R^2) is calculated within a range of 0 to 1. If R^2 is close to zero, the independent variables explain the dependent variable less effectively. Conversely, a value approaching one indicates strong predictive capability.

Table 6. Coefficient of Determination
 Model Summary^b

Model	R	R Square	Model Summary ^b		
			Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.516 ^a	.266	.252	.72244	2.217

a. Predictors: (Constant), ETR, CR, ROA, GRWTH, SA

b. Dependent Variable: DER

The adjusted R^2 value in this study is 0.252, This suggests that profitability, asset structure, growth, liquidity, and debt tax shield collectively influence capital structure by 25.2%, while the remaining 74.8% is attributed to other factors not considered in this study.

3.4.2 F Test

F test is conducted to determine whether the independent variables, which profitability (ROA), asset structure, growth, liquidity, and tax debt shield affect the dependent variable, capital structure

(DER). The hypothesis testing was performed using two methods: comparing the calculated F-value with the F-table value and analyzing the significance level. The hypothesis is accepted if the calculated F-value exceeds the F-table value or if the significance value is less than 0.05.

Table 7. F-Test

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.359	5	10.072	19.297	.000 ^b
	Residual	138.832	266	.522		
	Total	189.191	271			

a. Dependent Variable: DER

b. Predictors: (Constant), ETR, CR, ROA, GRWTH, SA

With an F-table value of 2.371, the degrees of freedom for the denominator (n-k) is 263 (272-5), and for the numerator (k-1) is 4 (5-1). The significance value of 0.00 is below 0.05, and the calculated F-value of 19.297 is greater than the F-table value (19.297 > 2.371). This indicates that capital structure is significantly influenced by growth, liquidity, asset structure, profitability, and tax debt shield simultaneously.

3.4.3 T Test

The T-test evaluates the impact of each independent variable on the dependent variable within the regression model. An independent variable is considered to have a significant partial effect on the dependent variable if its significance value is below 0.05.

Table 8. T-Test

Hypothesis	Sig.	Description
H1 : Profitability have an impact on Capital Structure	0.001	Hypothesis accepted
H2 : Asset Structure have an impact on Capital Structure	0.000	Hypothesis rejected
H3 : Growth have an impact on Capital Structure	0.692	Hypothesis accepted
H4 : Liquidity have an impact on Capital Structure	0.000	Hypothesis accepted
H5 : Debt Tax Shield have an impact on Capital Structure	0.716	Hypothesis rejected

3.5 Discussion

3.5.1 The Effect of Profitability on Capital Structure

The study shows that capital structure significantly affects profitability, with a t-value (-3.483) smaller than the t-table value (-1.651) and a significance level < 0.05. The regression coefficient of -1.775 indicates a negative relationship between profitability (ROA) and capital structure (DER), confirming the first hypothesis. These findings do not align with the trade-off theory but support the pecking order theory, which states that companies prioritize internal financing before turning to debt and equity. Highly profitable companies tend to reduce debt usage and rely on retained earnings. This helps avoid additional costs from borrowing or issuing new shares. High profitability also reduces bankruptcy risk, as companies can more easily meet their financial obligations.

3.5.1 The Effect of Asset Structure on Capital Structure

The study shows that capital structure has a significant impact on profitability, with a t-value (-8.150) smaller than the t-table value (-1.651) and a significance level < 0.05. The regression coefficient of -3.015 indicates a negative relationship between capital structure (DER) and asset structure (SA), confirming the second hypothesis. These findings support the pecking order theory, where companies with large fixed assets tend to rely less on debt. Real estate and property companies with substantial fixed assets are more cautious in taking on debt due to liquidity risks. High-value fixed assets are difficult to use as collateral that can be quickly liquidated, affecting creditor confidence. Companies with a high

proportion of fixed assets may struggle to obtain large loans due to the higher liquidity risk for lenders. Therefore, firms with a high asset structure tend to rely on internal financing.

3.5.3 The Effect of Growth on Capital Structure

The research results indicate that growth does not have a significant impact on capital structure. In the t-test results, the t-value (0.396) is smaller than the t-table value (1.651), and the significance level is greater than 0.05. Additionally, the regression coefficient for growth is 0.131. Thus, the third hypothesis (H3), stating that growth significantly influences capital structure in real estate and property companies listed on the Indonesia Stock Exchange (BEI), is rejected. This finding suggests that high or low asset growth does not influence management's financing decisions for expansion or investment. Some companies with large total assets may have sufficient internal funding sources, such as retained earnings or equity financing, reducing reliance on debt. Differences in financing strategies may explain why growth does not always have a significant effect on capital structure.

3.5.4 The Effect of Liquidity on Capital Structure

The research results show that capital structure significantly affects liquidity, as indicated by the t-test results. The significance value is less than 0.05, and the t-value (-7.501) is smaller than the t-table value (-1.651). Additionally, the regression coefficient for liquidity is -0.147, indicating a negative relationship between liquidity (CR) and capital structure (DER). Thus, the fourth hypothesis (H4), stating that liquidity significantly influences capital structure in real estate and property companies listed on the Indonesia Stock Exchange (BEI), is accepted. This finding supports the pecking order theory, where low liquidity forces companies to rely more on debt after exhausting internal funds. Debt is preferred over equity issuance, especially in situations of uncertainty or information asymmetry. Therefore, less liquid companies tend to have riskier capital structures with higher debt levels to sustain operations (Saif-Alyousfi et al., 2020).

3.5.5 The Effect of Debt Tax Shield on Capital Structure

The research results show that the debt tax shield does not significantly affect capital structure. The significance value is greater than 0.05, and the t-value (-0.364) is smaller than the t-table value (-1.651). Thus, the fifth hypothesis (H5), stating that the debt tax shield significantly influences the capital structure of real estate and property companies listed on the Indonesia Stock Exchange (BEI), is rejected. This insignificant result may be because real estate and property companies align more with the pecking order theory. In contrast, the trade-off theory suggests that the benefits of debt financing do not outweigh the tax expenses. The amount of tax paid is not directly affected by debt levels. Therefore, companies must carefully evaluate the advantages and risks of using debt in their capital structure. High debt levels, despite potential tax savings, can burden companies with high interest expenses, ultimately harming financial performance.

4. CONCLUSION

This study examines the impact of profitability, asset structure, growth, and debt tax shield on capital structure practices in real estate and property companies listed on the Indonesia Stock Exchange (IDX). Financial data were collected from IDX and company websites, with 59 real estate and property companies selected, resulting in 252 samples through purposive sampling. The study employs descriptive statistics, classical assumption tests, multiple linear regression, hypothesis testing, and the coefficient of determination. The findings indicate that profitability, asset structure, and liquidity have a significant negative effect on capital structure, while growth and debt tax shield have no significant effect. Simultaneously, all variables significantly influence asset structure. However, the study has limitations,

including a restricted five-year period (2019–2023), data not meeting normality and heteroscedasticity tests, and the consideration of only specific financial factors.

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