

DETERMINANTS OF CAPITAL STRUCTURE IN DEVELOPING COUNTRIES: A STUDY OF MANUFACTURING COMPANIES IN INDONESIA

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ABSTRACT

This study aims to analyze the effect of firm size, profitability, tangible assets, liquidity, and growth on the capital structure of manufacturing companies listed on the Indonesia Stock Exchange for the 2020–2024 period. The dependent variable in this study is capital structure, while the independent variables include firm size, profitability, tangible assets, liquidity, and growth, and dividend policy as a control variable.

The sample in this study was 164 companies. Using panel data regression analysis with the Fixed Effect Model (FEM) approach adjusted using Weighted Least Squares (WLS), the results obtained were that firm size, liquidity, and growth had a positive effect on capital structure, while profitability and tangible assets had a negative effect on capital structure. Overall, the results of this study indicate that capital structure decisions are influenced by the company's internal characteristics and reflect the relevance of Trade-Off Theory and Pecking Order Theory in explaining corporate financing behavior.

Keywords: *Tangible Assets, Liquidity, Pecking Order Theory, Profitability, Capital Structure, Tangibility, Trade-Off Theory, Company Size*

INTRODUCTION

The manufacturing sector contributes to Indonesia's development and economic growth. Some of its roles in the economy include contributing to Gross Domestic Product (GDP), creating jobs, improving welfare, reducing poverty, and supporting the development of other industrial sectors (Harahap et al., 2023). The manufacturing sector is also projected to be one of the pillars that will support Indonesia in becoming one of the countries with the largest economic scale in the world by 2030. Despite having good prospects, this sector faces several challenges going forward, such

as fluctuations in raw material prices, increasing levels of global competition, geopolitical dynamics, and uncertainty in global economic conditions.

To address these challenges, capital structure decisions are a crucial aspect of financial management, as they determine a company's ability to finance its operational activities. In times of uncertainty and external pressure, selecting the right funding mix is crucial for maintaining business stability and sustainability. Capital structure can be understood as the mix of debt and equity funding sources used to support a company's activities. Generally, capital

structure reflects a company's level of leverage, often measured using the debt-to-equity ratio, which indicates the extent to which a company utilizes debt in its financing structure (Booth et al., 2001).

There are two theories commonly used to explain capital structure decisions, namely Trade-Off Theory and Pecking Order Theory (Frank and Goyal, 2009). Trade-Off Theory explains that companies balance the benefits and risks of using debt in determining the optimal capital structure. Meanwhile, Pecking Order Theory states that companies tend to prioritize internal funding before using debt and equity. In some literature, there are several variables commonly used in research related to capital structure, including company size, profitability, tangible assets, liquidity, and company growth. In addition, the literature also includes control variables such as dividend policy, which are used to ensure the regression coefficients are unbiased, as done by Aggarwal and Aung (2010).

Company size is a measure that describes how big or small a company is (Astria et al., 2021). In Trade-Off Theory, company size is expected to have a positive effect because large companies have a lower risk of bankruptcy and better access to funding (Titman and Wessels, 1988). In contrast, Pecking Order Theory predicts a negative relationship because large firms have lower information asymmetry and more adequate

internal funds (Silva et al., 2020). Empirically, the research results show mixed results, namely significant positive (Susanti et al., 2023; Rehan et al., 2023), significant negative (Zuhro, 2016), or even insignificant (Nabila and Rahmawati, 2023).

Profitability measures a company's efficiency in managing its assets or equity to generate profits (Digdowiseiso and Amalia, 2025). In Trade-Off Theory, profitability is expected to have a positive effect on capital structure because profitable companies tend to use debt to obtain tax benefits (Silva et al., 2020). In contrast, Pecking Order Theory predicts a negative relationship because companies with high profitability have large internal funds and therefore do not rely on debt (Frank and Goyal, 2009). Empirically, the research results show varying results, namely significant positive (Darmawan et al., 2021), significant negative (Nursyahbani and Sukarno, 2023; Rehan et al., 2023), or even insignificant (Puspitasari, 2022).

Tangible assets are fixed assets owned by a company, such as buildings, factories, or equipment. Trade-Off Theory predicts a positive effect on capital structure because they can be used as collateral, reducing credit risk and making it easier for companies to obtain debt. Conversely, Pecking Order Theory predicts a negative relationship because companies with high levels of tangible assets tend to have lower information asymmetry and are more likely

to issue equity at a lower cost (Frank and Goyal, 2009). Empirically, the research results show varying results, namely significant positive (Saviani, 2020;Rehan et al., 2023), significant negative (Pradana et al., 2025), or even insignificant (Rismanty, 2023).

The liquidity referred to in determining capital structure refers to asset liquidity, which refers to assets that can be quickly converted into cash. In Trade-Off Theory, liquidity is expected to have a positive effect on capital structure because liquid assets can reduce the risk of financial distress, thereby increasing a company's ability to obtain debt (Sibilkov, 2009). In contrast, Pecking Order Theory predicts a negative relationship because liquidity reflects the availability of internal funds that can be used first before external funding (Said, 2022). Empirically, the research results show mixed results, namely significant positive (Dakua, 2018), significant negative (Nursyahbani and Sukarno, 2023; Rehan et al., 2023), or even insignificant (Infantri and Suwitho, 2015).

Company growth is defined as the increase in the number of products sold from one year to the next. Company growth is important information for investors (Fuadi et al., 2022). In the Trade-Off Theory, company growth is expected to negatively impact capital structure because companies with high growth opportunities tend to face greater financial distress costs and have

intangible assets that are difficult to use as collateral (Titman and Wessels, 1988). Conversely, Pecking Order Theory predicts a positive relationship because growing companies need additional funds for expansion and therefore tend to use external financing, including debt (Frank and Goyal, 2009). Empirically, the research results show mixed results, namely significant positive (Saviani, 2020), significant negative (Awaliyah et al., 2021), or even insignificant (Nursyahbani and Sukarno, 2023).

The inconsistency in prior findings may be attributed to differences in institutional environments, sample periods, and model specifications across studies. Much of the existing literature focuses on developed economies or single-country settings with limited temporal scope, leaving the applicability of capital structure theories in the Indonesian context, particularly in the post-pandemic period, insufficiently examined. This study addresses that gap by analyzing manufacturing firms listed on the IDX over the 2020–2024 period, a timeframe that encompasses significant macroeconomic disruptions and recovery dynamics. The novelty of this study lies in its simultaneous examination of five determinants alongside dividend policy as a control variable within a unified panel data framework. Furthermore, this study explicitly evaluates each determinant from the perspectives of both Trade-Off Theory

and Pecking Order Theory, offering a theoretically grounded comparison of competing predictions within the Indonesian manufacturing context.

THEORETICAL REVIEW

Capital Structure Theory

There is no single universal theory that can explain the variations in a company's capital structure (Myers, 2001). There are two theories commonly used to explain capital structure decisions, namely the Trade-Off Theory and the Pecking Order Theory (Frank and Goyal, 2009). The development of these two theories cannot be separated from the initial views Modigliani and Miller (1958) which states that under perfect market conditions, capital structure decisions do not affect firm value. The perfect market referred to by Modigliani and Miller refers to a condition in which there are no taxes, bankruptcy costs, or asymmetric information between market participants. In reality, the perfect market described by Modigliani and Miller is rare and difficult to achieve, so capital structure decisions still affect firm value.

The main concept in Trade-Off Theory is the optimal capital structure, namely the combination of funding that is able to maximize the value of the company by reducing the cost of capital to the lowest level (Wangsawinangun et al., 2014). Ai et al. (2020) explains that a company's capital

structure is determined by the balance between the benefits and costs of using debt as a source of funding. One benefit of having debt in a company's capital structure is the tax shield, as interest expenses reduce taxes. However, using debt in the capital structure carries risks such as financial distress and bankruptcy. Kraus and Litzenberger (1973), the company will continue to increase the amount of debt in its capital structure until it reaches an optimal point, namely when the benefits of debt are no greater than the risks of debt.

Another theory related to capital structure is the Pecking Order Theory. The rationale for this theory was first introduced by Gordon Donaldson in 1961 and developed by Myers in 1984. Unlike the Trade-Off Theory, which emphasizes the importance of optimal capital structure, the Pecking Order Theory emphasizes capital structure decisions related to the order of financing preferences. Pecking Order Theory provides a complementary perspective in explaining corporate capital structure decisions (Ndruru and Ananda, 2025). Pecking Order Theory explains the order in which companies finance their investments. This sequence begins with the use of internal funds in the form of retained earnings, followed by external funding in the form of debt, and finally, external funding in the form of share issuance. Furthermore, Pecking Order Theory is often associated

with the concept of information asymmetry between company management and investors (Culata and Gunarsih, 2012).

Company Size

Based on the Trade-Off Theory, firm size is expected to be positively related to the level of capital structure. Small firms face higher risks than large firms, even though both may have similar amounts of debt (Cenci and Kealhofer, 2022). Titman and Wessels (1988) explains that large companies reduce risk and strengthen their finances through diversification of their businesses. This makes it easier for large companies to gain the trust of creditors due to their greater stability and lower default risk. Consequently, large companies have an easier time obtaining funding than smaller companies.

H_{1a}: Company size has a positive effect on the company's capital structure

Another argument related to the estimated influence of company size on capital structure levels emerges from the perspective of Pecking Order Theory. In Pecking Order Theory, company size is associated with information asymmetry problems, and the estimated relationship between the two is negative. Silva et al. (2020) explains that large companies are more frequently monitored by the market and information is widely disseminated, thus having lower information asymmetry

problems. González and González (2012) explains that small companies face greater information asymmetry than large companies. Small companies are rarely monitored by analysts and are not monitored by credit rating agencies. Information asymmetry increases the cost of issuing equity, so the higher the information asymmetry, the greater the use of debt in the capital structure (Fukui et al., 2023).

H_{1b}: Company size has a negative effect on the company's capital structure

Profitability

From a Trade-Off Theory perspective, the relationship between profitability and capital structure is positive. This is because profitable companies face lower financial distress costs and benefit more from tax shields (Silva et al., 2020). Companies encourage the use of debt to take advantage of the tax shield from debt interest in an effort to generate profits. Furthermore, Said (2022) explains that profitable companies lower their expectations of bankruptcy costs so that companies use more debt.

H_{2a}: Profitability has a positive effect on the company's capital structure

The different relationship between the two arises from the perspective of Pecking Order Theory. Pecking Order Theory explains that the relationship between profitability and capital structure is negative (Frank and Goyal, 2009). Profitable

companies rarely use debt. This is because companies with high profitability have large retained earnings (Stoiljković et al., 2023). Fama and French (2002) as explained by Frank and Goyal (2003), stated that the negative relationship between profitability and capital structure is consistent with the thinking proposed by Pecking Order Theory. In addition, Steven and Lina (2011) emphasized as quoted by Wikartika and Fitriyah (2018). A profitable company will not use much debt. The company's internal cash flow is believed to be strong, so it doesn't require additional external funding, especially debt.

H_{2b}: Profitability has a negative effect on the company's capital structure

Tangible Assets

Trade-Off Theory explains the positive relationship between tangible assets (asset tangibility) and capital structure. Assets are used as collateral by companies when they take on debt. With collateral, creditors' credit risk is reduced, making it easier for companies with large tangible assets to obtain loans. Stoiljković et al. (2023), the cost of corporate bankruptcy depends on the company's asset structure. He argues that the cost of corporate bankruptcy will be higher when the company's asset structure is dominated by intangible assets.

H_{3a}: Tangible assets have a positive effect on the company's capital structure

Pecking Order Theory predicting the differential impact of tangible assets on capital structure. Companies with more tangible assets have lower information asymmetry. As a result, they can issue equity at a fair price. They also do not require debt financing for future investments (Said, 2022). This statement was later confirmed by Frank and Goyal (2009) which states that low information asymmetry associated with tangible assets results in equity issuance having lower costs for companies.

H_{3b}: Tangible assets have a negative effect on the company's capital structure

Liquidity

Trade-Off Theory explains that the relationship between liquidity and capital structure is positive. Sibilkov (2009) explains that liquid assets, or assets that can easily be converted into cash, reduce the costs borne by creditors when monitoring or liquidating assets when a company experiences distress. On the other hand, liquid assets also help companies reduce expected financial distress costs. Therefore, the higher a company's liquid assets, the more funds it can borrow from creditors, thereby increasing the use of debt in its capital structure.

H_{4a}: Liquidity has a positive effect on the company's capital structure

Pecking Order Theory predicts a different relationship, namely a negative

relationship between the two. As previously explained, Pecking Order Theory emphasizes the order of corporate funding, starting with internal funds and continuing with external funding. Said (2022) explains that liquid assets can be a company's internal funds, which are the primary source of funding. Based on this statement, companies with high liquidity tend to be less dependent on external funding, particularly debt. A company's cash reserves allow it to finance its operational needs and investment opportunities without the need for additional debt.

H_{4b}: Liquidity has a negative effect on the company's capital structure

Company Growth

Trade-Off Theory explains that companies with better growth opportunities use less debt in their financing. This is because the cost of financial distress continues to increase as the company grows. This is according to Titman and Wessels (1988). This causes companies to tend to refrain from using debt for financing. Corporate growth essentially adds value to the company, but this cannot be used as collateral due to its intangible nature. As a result, creditors tend to avoid funding growing companies. On the other hand, Frank and Goyal (2009) explain that corporate growth also reduces free cash flow issues, making debt financing unnecessary.

H_{5a}: Company growth has a negative effect on the company's capital structure.

A different thing is shown by the Pecking Order Theory which states that growing companies generally need additional funds to support their operational activities and business expansion (Frank and Goyal, 2009). Often, a company's internal funds are insufficient to meet investment needs. This then causes the company to turn to external financing in the form of debt before choosing the option of issuing shares (Stoiljković et al., 2023). A company that continues to grow also increases creditor confidence, which makes it easier for the company to obtain credit.

H_{5b}: Company growth has a positive effect on the company's capital structure.

RESEARCH METHOD

This study uses a quantitative approach by testing previously formulated hypotheses based on the theory used. This study aims to determine the effect of company size, profitability, tangible assets, liquidity, and growth on the company's capital structure. Dividend policy is also used as a control variable.

The population in this study includes all manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period, totaling 228 companies. Meanwhile, the sample selection was carried out using a purposive sampling method with

several specific criteria, including companies listed on the IDX during the 2020–2024 period and having complete financial statements or annual reports for that period. The study also included manufacturing companies experiencing losses and also having negative equity to avoid survivor bias, a bias that occurs when

only companies that are consistent throughout the study period are used. Based on these criteria, the sample size in this study was 164 samples with a study period of five years, resulting in 820 observations.

The following is the operationalization of the variables used in this study.

Table 4.1
Operationalization of Variables

Variables	Measurement	Scale	Reference
Independent Variables			
Company Size	$L_n(\text{Total Asset})$	Interval	Frank and Goyal (2009)
Profitability	$\frac{\text{Earning After Tax}}{\text{Total Asset}}$	Ratio	Digdownseiso and Amalia (2025)
Tangible Assets	$\frac{\text{Total Fixed Asset}}{\text{Total Asset}}$	Ratio	Frank and Goyal (2009)
Liquidity	$\frac{\text{Cash}}{\text{Total Asset}}$	Ratio	Kim et al. (1998)
Company Growth	$\frac{\text{Sales}_n - \text{Sales}_{n-1}}{\text{Sales}_{n-1}}$	Ratio	Nainggolan and Aisjah (2024)
Dependent Variable			
Capital Structure	$\frac{\text{Total Liability}}{\text{Total Equity}}$	Ratio	Booth et al. (2001)
Control Variables			
Dividend Policy	$\frac{\text{Dividend Paid}}{\text{Net Income}}$	Ratio	Aggarwal dan Aung (2010)

Researchers can determine the influence of independent variables on the dependent variable in a research model by using regression analysis techniques. The panel data regression method is the regression method applied in this study. This regression combines cross-sectional and time series data. Before conducting the regression, model validation tests are required, namely the Chow test, the Hausman test, and the Lagrange Multiplier test. The following is the regression equation used in this study.

$$\begin{aligned} \text{DER}_{i,t} = & \alpha + \beta_1 \text{SIZE}_{i,t} + \beta_2 \text{PROF}_{i,t} \\ & + \beta_3 \text{TAN}_{i,t} + \beta_4 \text{LIQ}_{i,t} \\ & + \beta_5 \text{GROWTH}_{i,t} + \varepsilon_{i,t} \end{aligned}$$

DER: Capital Structure; SIZE: Company Size; PROF: Profitability; TAN: Tangible Assets; LIQ: Liquidity; GROWTH: Company Growth

The basic panel data regression model equation explained previously will be developed into other panel data regression model equations to conduct further analysis, namely by adding control variables.

$$\begin{aligned} \text{DER}_{i,t} = & \alpha + \beta_1 \text{SIZE}_{i,t} + \beta_2 \text{PROF}_{i,t} \\ & + \beta_3 \text{TAN}_{i,t} + \beta_4 \text{LIQ}_{i,t} \\ & + \beta_5 \text{GROWTH}_{i,t} \\ & + \beta_6 \text{DPR}_{i,t} + \varepsilon_{i,t} \end{aligned}$$

DER: Capital Structure; SIZE: Company Size; PROF: Profitability; TAN: Tangible Assets; LIQ: Liquidity; GROWTH: Company Growth; DPR: Dividend Policy

Next, when nature performs regression, a classical assumption test will be carried out first. This is to ensure that the model used meets basic statistical requirements so that the estimated results are reliable and free from bias. The classical assumption tests used in this study include normality, multicollinearity, autocorrelation, and heteroscedasticity.

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistical analysis is an analysis conducted to provide a statistical overview of the variables used in the research. The statistical overview provided through this analysis includes the mean, median, standard deviation, maximum value, and minimum value. The following are the results of the descriptive statistical analysis of the data used in the research.

The capital structure variable, with 820 observations, has a maximum value of 10.2500 and a minimum value of -5.4100. This variable also has a mean value of 0.9816, a median of 0.6900, and a standard deviation of 1.7476.

The company size variable, with 820 observations, has a maximum value of 22.2000 and a minimum value of 10.1900. This variable also has a mean value of 16.7243, a median of 15.9550, and a standard deviation of 3.1614.

The profitability variable, with 820 observations, has a maximum value of 0.3100 and a minimum value of -0.4500. This variable also has a mean value of 0.0295, a median of 0.0300, and a standard deviation of 0.1093.

The tangible assets variable, with 820 observations, has a maximum value of 0.0200 and a minimum value of 0.0200. This variable also has a mean value of 0.4058, a median of 0.3900, and a standard deviation of 0.2060.

The liquidity variable, with 820 observations, has a maximum value of 0.5100 and a minimum value of 0.0000. This variable also has a mean value of 0.0938, a median of 0.0500, and a standard deviation of 0.1036.

The growth variable, with 820 observations, has a maximum value of 1.3700 and a minimum value of -0.8000. This variable also has a mean of 0.0441, a

median of 0.0030, and a standard deviation of 0.3177.

Model Determination Test

Model determination testing is conducted to ensure the panel data regression model used in the study is appropriate. The model used in the analysis must be appropriate to the characteristics of the data used. Widarjono (2018) explains that there are three approaches to estimating panel data regression models: the common effect model (CEM), the fixed effect model (FEM), and the random effect model (REM). The appropriate model determination test is conducted using the Chow test to determine the difference between the CEM and FEM, the Hausman test to determine the difference between the FEM and REM, and the Lagrange Multiplier test to determine the difference between the CEM and REM.

Table 5.1
Chow Test Result

Effects Test	Statistics	df	Prob.
Cross-section F	3.676132	(163,651)	0.0000
Cross-section Chi-square	535.096604	163	0.0000

(Source: EViews 13, edited by the author)

Based on the results of the Chow test, the cross-section probability F value is 0.0000, so the FEM approach is used to estimate the panel data regression model. After conducting the Chow test and obtaining the

FEM results, the Hausman test is then conducted to determine whether the FEM or REM approach is appropriate for use in data analysis.

Table 5.2
Hausman Test Result

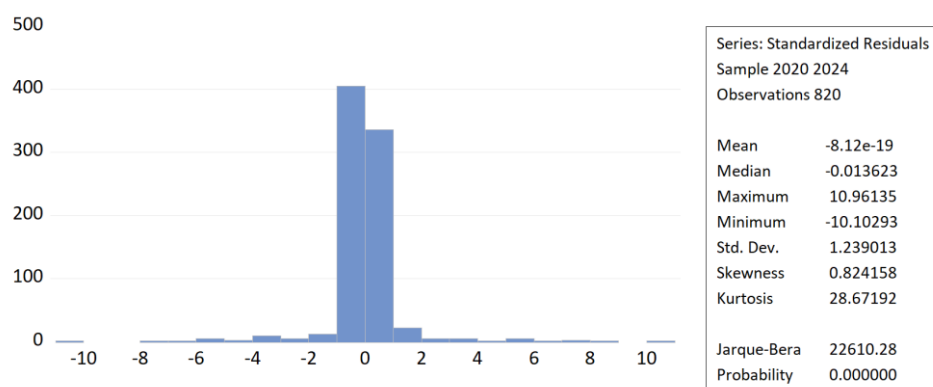
Test Summary	Chi-Sq. Statistic	Chi-Sq. df	Prob.
Random cross-section	9.078626	5	0.0000

(Source: EViews 13, edited by the author)

Based on the results of the Hausman test, it is known that the random cross-section probability value is 0.0000, so the panel data regression model estimation approach used is the FEM approach. If the results of the Chow and Hausman tests indicate that the panel data regression model estimation approach used is the FEM approach, then there is no need for the Lagrange Multiplier test. The FEM approach is the panel data regression model estimation approach that will be used in this study because it is suitable for the characteristics of the research data.

Classical Assumption Test

Classical assumption tests are performed to ensure the model meets basic statistical requirements, ensuring reliable and unbiased estimation results. Normality tests are performed to ensure the residuals are normally distributed, multicollinearity tests to detect high correlations between independent variables, autocorrelation tests to determine the relationship between residuals across time periods, and heteroscedasticity tests to determine whether the residual variance is constant within the model.



Picture 5.1.
Normality Test Results
Source: EViews 13

Based on the results of the normality test, the Jarque-Bera value is 22,610.28 with a probability value of 0.0000. The probability value obtained from the normality test is lower than 0.05. Therefore, the results of the normality test indicate that the residual data is not normally distributed. However, according to the Central Limit Theorem, data with a large number of samples, especially more than 30 samples, are

considered to have a normal distribution. Based on this, the validity of the regression model estimate is not compromised.

Based on the results of the multicollinearity test, the correlation between the independent variables used in the study was less than 0.85. Therefore, the multicollinearity test indicates that there are no multicollinearity issues in the regression model used in this study.

Table 5.3
Autocorrelation Test Result

Durbin-Watson stat	1.767707
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(Source: EViews 13, edited by the author)

The number of independent variables used in the study was five variables with a total sample of 164 companies so that the dL value was 1.6823 and the dU value was 1.8078. Thus, the results of the

autocorrelation test were in the inconclusive area ($dL\ 1.6823 < dW\ 1.7677 < dU\ 1.8078$) so that it could not be concluded whether there was an autocorrelation problem in the regression model conducted in the study.

Table 5.4
Heteroscedasticity Test Results

Variables	Prob.	Results
SIZE	0.6409	Homoscedasticity
PROF	0.0000	Heteroscedasticity
TAN	0.0641	Homoscedasticity
LIQ	0.8031	Homoscedasticity
GROWTH	0.9080	Homoscedasticity

Notes: Size is the name for the company size variable, Prof is the name for the profitability variable, Tan is the name for the tangible assets variable, Liq is the name for the liquidity variable, and Growth is the name for the company growth variable. (Source: EViews 13, edited by the author)

Based on the heteroscedasticity test conducted using the Glejser test, it was determined that the regression model used in the study contained heteroscedasticity. This is because the profitability variable has a probability value of 0.0000. This probability

value is less than 0.05, indicating that the regression model contains heteroscedasticity. This indicates that the residual variance is not constant.

Widarjono (2018) explains that if there is a heteroscedasticity problem in a regression

model, it can be resolved by using the Weighted Least Squares (WLS) method, which is another form of Generalized Least Squares (GLS). This also aligns with the statement by Gujarati and Porter (2009) written in Layyinaturobaniyah et al. (2014), where the GLS method can solve the problems of heteroscedasticity and autocorrelation experienced in the regression model. Therefore, to overcome the problem of heteroscedasticity experienced in the regression model, this study uses the FEM approach with parameter

estimation through the GLS method to obtain an efficient estimator.

Hypothesis Testing

Hypothesis testing was conducted using the t-test, F-test, and coefficient of determination. In this study, hypothesis testing was conducted on two regression models: one without control variables and one with control variables. The following are the results of the hypothesis testing conducted on the two regression models used in the study.

Table 5.5
Hypotheses Test Result

Variables	No Control	With Control
SIZE	0.538908***	0.532485***
PROF	-1.185592***	-1.203940***
TAN	-0.125191	-0.190823*
LIQ	0.105901*	0.116154**
GROWTH	0.186494***	0.193536***
DPR		-0.054327***
F-statistic	96.82426***	95.89598***
R-squared	0.961519	0.961439
Adjusted R-squared	0.951589	0.951413

Notes:

(a) Size is the name for the company size variable, Prof is the name for the profitability variable, Tan is the name for the tangible assets variable, Liq is the name for the liquidity variable, and Growth is the name for the company growth variable.

(b) *** significant at α 1%, ** significant at α 5%, and * significant at α 10%

(Source: EViews 13, edited by the author)

Based on the results of the hypothesis testing, it can be seen that company size has a positive effect on capital structure, both in models with and without control variables, at a 1% significance level. For every 1-unit increase in company size, capital structure will increase by 0.538908 in the model without control variables and by 0.532485 in

the model with control variables. This condition is in accordance with the hypothesis used in the study, namely that company size has a positive effect on capital structure. Therefore, the hypothesis is accepted (H_{1a}).

Profitability measured using ROA shows a negative effect on capital structure, both in models with and without control variables at

a significance level of 1%. For every 1-unit increase in profitability, the capital structure decreases by 1.185592 in the model without control variables and by 1.203940 in the model with control variables. This condition aligns with the hypothesis used in the study, namely that profitability negatively affects capital structure. Therefore, the hypothesis is accepted (H_{2b}).

Tangible assets have a negative effect on capital structure. However, this result is only evident in the model with control variables, at the 10% significance level. The results show that for every 1 unit increase in tangible assets, the capital structure decreases by 0.190823 in the model with control variables. Meanwhile, in the model without control variables, the results show that tangible assets have no effect at the 1%, 5%, or 10% significance levels. The test results indicate that they align with the hypothesis used in the study, namely that tangible assets have a negative effect on capital structure. Therefore, the hypothesis is accepted (H_{3b}).

Liquidity shows a positive effect, both in models with and without control variables. In the model without control variables, liquidity has an effect at the 10% significance level, and in the model with control variables, liquidity has an effect at the 5% significance level. The results indicate that for every 1-unit increase in liquidity, the capital structure will increase

by 0.105901 in the model without control variables and by 0.116154 in the model with control variables. This condition aligns with the hypothesis used in the study, namely that liquidity has a positive effect on capital structure. Therefore, the hypothesis is accepted (H_{4a}).

The last variable tested was company growth, which showed a positive influence on capital structure, both in models with and without control variables at a 1% significance level. For every 1-unit increase in company growth, the capital structure will increase by 0.186494 in the model without control variables and by 0.193536 in the model with control variables. This condition is in accordance with the hypothesis used in the study, namely that company growth has a positive effect on capital structure. Therefore, the hypothesis is accepted (H_{5b}).

The difference in results between the two regression models used in the study lies in the use of control variables. Good (2024) explains that control variables are variables used to control the influence of other undesirable variables in the study. This study uses a control variable in the form of a company's dividend policy as reflected by the Dividend Payout Ratio. The results of this study indicate that the control variable is significant at the 1% significance level and changes the significance of the tangible assets variable from previously insignificant to significant at the 10% significance level.

and liquidity from previously significant at the 10% significance level to significant at the 5% significance level. Therefore, it can be said that the control variables used in this study are relevant and contribute to improving the accuracy of the model specification.

DISCUSSION

The Effect of Company Size on Capital Structure (H1)

The research results show that firm size has a positive effect on capital structure. This is in line with the Trade-Off Theory, which states that larger firms tend to have higher debt levels. This is because larger firms are more diversified, have a lower risk of bankruptcy, and experience fewer information asymmetry issues than smaller firms (Said, 2022). In addition, larger companies are also able to utilize the benefits of tax shields more optimally because they have the ability to generate more stable profits than smaller companies (González and González, 2012).

The Effect of Profitability on Capital Structure (H2)

The research results show that profitability negatively impacts capital structure. This is in line with the Pecking Order Theory, which states that companies with high profitability tend to have lower debt levels. This is because companies with

high profitability have adequate internal funds, such as retained earnings, enabling them to finance operational and investment needs without relying on debt. Furthermore, the company's ability to generate stable cash flow also reduces the need for external financing, resulting in a lower proportion of debt in the capital structure (Said, 2022).

The Effect of Tangible Assets on Capital Structure (H3)

The results of the study indicate that tangible assets have a negative effect on capital structure. This is in line with the Pecking Order Theory, which states that companies with high tangible assets tend to have lower debt levels. This is because companies with large tangible assets have lower information asymmetry, allowing them to access equity financing more efficiently and thus less reliant on debt.

Furthermore, companies with high tangible assets generally have lower additional investment needs, thus reducing the need for external financing (Arsov and Naumoski, 2016). In the context of developing countries, limitations in the legal system and low liquidity in asset markets can also reduce the effectiveness of tangible assets as collateral, thus not always encouraging increased use of debt in the capital structure (Nivorozhkin, 2002).

The Effect of Liquidity on Capital Structure (H4)

The research results show that liquidity has a positive effect on capital structure. This aligns with the Trade-Off Theory, which states that companies with high liquidity tend to have greater debt capacity. This is because liquid assets are easier for creditors

The Effect of Company Growth on Capital Structure (H5)

The research results show that company growth has a positive effect on capital structure. This is in line with the Pecking Order Theory, which states that growing companies tend to increase their use of debt to meet their funding needs. \

Furthermore, information asymmetry encourages companies to avoid issuing equity due to the potential for

to monitor and liquidate, thus reducing the risks and costs of lending (Sibilkov, 2009). Furthermore, a high level of liquidity also reflects a company's ability to meet its debt obligations, thereby increasing creditor confidence and enabling the company to increase its use of debt.

undervaluation, making debt a more efficient alternative (Said, 2022). Empirically, this finding is also supported by Sumail and Akob (2022) which shows that a positive relationship between company growth and capital structure occurs in companies in the rapid growth phase (young and mature), whereas in the next phase or when the growth phase slows down the relationship between the two can change to negative.

CONCLUSION

This study aims to analyze the determinants of capital structure in manufacturing sector companies listed on the Indonesia Stock Exchange during the 2020–2024 period. The study was conducted by examining the influence of several determinants commonly used in the capital structure literature, namely firm size, profitability, tangible assets, liquidity, and firm growth. The study used a panel data regression method with the FEM approach for estimating the panel data regression

model. Furthermore, to address potential heteroscedasticity issues in the panel model, estimation was performed using the Weighted Least Squares (WLS) approach. This study used 164 manufacturing companies as a sample with a total of 820 observations during the study period. Furthermore, this study also included dividend policy as a control variable.

The results of the study indicate that firm size, liquidity, and growth positively influence capital structure, while profitability and tangible assets negatively

influence capital structure. These findings indicate that firms with larger scale, higher liquidity, and favorable growth prospects tend to increase their use of debt financing. Conversely, firms with higher profitability and tangible assets tend to rely more on internal funding sources or equity.

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