

Profitability, Asset Tangibility, and Liquidity on Capital Structure: The Moderating Role of Sales Growth

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ABSTRACT

This study examines the influence of profitability, asset tangibility, and liquidity on capital structure in energy sector firms listed on the Indonesia Stock Exchange from 2020 to 2024, with sales growth functioning as a moderating variable. This research is motivated by inconsistent findings in previous studies regarding the determinants of capital structure and the limited discussion on the moderating role of sales growth, particularly in the Indonesian energy sector. The sample consists of 280 firm-year observations selected using purposive sampling based on data availability criteria. This study employs panel data regression analysis to test the proposed hypotheses. The results show that profitability and liquidity have a negative and significant effect on capital structure, suggesting that organisations with a higher level of financial performance and stronger liquidity tend to rely less on debt financing. Asset tangibility is also found to have a negative and significant effect, suggesting that tangible assets are not used as the main consideration in determining leverage. Furthermore, the moderating analysis reveals that sales growth does not significantly moderate the relationship between profitability and capital structure nor between asset tangibility and capital structure. However, sales growth strengthens the negative effect of liquidity on capital structure. These findings provide stronger support for the Pecking Order Theory, emphasizing the importance of internal financing, while providing limited support for the Trade-Off Theory. This investigation contributes to the existing tissue of literature by emphasising the conditional role of sales growth and providing empirical evidence from the energy sector.

Keywords: asset tangibility, capital structure, liquidity, profitability, sales growth.

INTRODUCTION

Capital structure considerations remain a primary concern in corporate finance, particularly in environments where firms must balance internal resources with external financing under conditions of uncertainty. In emerging markets, this challenge becomes more pronounced due to limited availability to capital markets, reliance on bank financing, and institutional constraints (Li et al., 2023). Consequently, firms are required to continuously adjust their financing strategies to sustain operations and support long-term investment activities.

The energy sector provides a compelling context for examining these decisions. Firms operating in this sector are typically characterized by high capital intensity, substantial fixed asset investments, and long project horizons. These characteristics increase dependence on external financing and expose firms to higher financial risk. In addition, fluctuations in commodity prices and regulatory policies further complicate financing decisions, making capital structure choices more dynamic.

Capital structure decisions are commonly explained by the Trade-Off Theory and the Pecking Order Theory. The Trade-Off Theory asserts that companies establish an ideal debt level by weighing the tax advantages of debt against the expenses associated with financial hardship

(Yakubu et al., 2021). Meanwhile, The Pecking Order theory asserts that corporations prioritise internal funding, then debt, and consider equity as a final option due to information asymmetry (Pandey, 2026). These two theories offer contrasting predictions regarding firms' financing behavior. While the Trade-Off Theory suggests that firms may increase debt to achieve an optimal capital structure and obtain tax benefits, the Pecking Order Theory argues that firms tend to avoid external financing and prioritize internally generated funds. This theoretical conflict makes capital structure decisions particularly relevant to examine in capital-intensive industries such as the energy sector.

Several critical determinants of capital structure, such as profitability, asset tangibility, and liquidity, have been identified through empirical studies. Profitability is typically associated with a reduced reliance on debt, as firms prefer to utilize internally generated funds. In contrast, asset tangibility tends to increase leverage, since tangible assets can serve as collateral. However, prior studies have reported mixed findings regarding the relationship between asset tangibility and leverage, particularly across different industries and economic conditions. Liquidity also plays a significant role, as firms with higher liquidity levels are less dependent on external financing. These findings are widely documented in prior literature (Bilgin & Dinc, 2019; Chatterjee & Eyigungor, 2023; Alaali, 2025).

Despite the extensive literature on capital structure, several gaps remain. Most studies focus only on the direct effects of firm characteristics and pay little attention to interaction effects. In addition, growth opportunities are usually treated as independent variables, even though firms with high sales growth may behave differently in their financing decisions (Rathogwa & Galawe, 2023; Cheratian et al., 2024). Furthermore, research focusing on specific sectors, especially capital-intensive industries like the energy sector, is still limited because many studies use cross-industry data. Lastly, evidence from emerging markets, including Indonesia, is still limited, even though these markets have different institutional and financial conditions.

This study addresses these gaps by incorporating sales growth as a moderating variable in the relationship between profitability, asset tangibility, liquidity, and capital structure. By focusing on the energy sector in an emerging market context, this study provides a more nuanced and context-specific understanding of financing decisions in the Indonesian energy sector.

LITERATURE REVIEW

The capital structure has historically been a fundamental subject in corporate finance, with early theories emphasizing the irrelevance of financing decisions under perfect market assumptions. Several theoretical frameworks have emerged to explain how firms determine their ideal capital structure. The Trade-Off Theory suggests that firms balance the benefits and costs of debt to achieve an optimal leverage level (Haddad & Lotfaliei, 2019; Voutsinas & Werner, 2025; Wijaya & Lubis, 2026). The primary benefit of debt arises from tax shields, while the main cost is the risk of financial distress. Firms are therefore expected to increase their leverage up to the point where the marginal benefit equals the marginal cost. In contrast, the Pecking Order Theory argues that internal funds are preferred first, followed by debt, and equity is considered the least favorable option (Wang et al., 2023; Milenia & Halim, 2026). These theories establish the basis for comprehension how firm-specific characteristics influence capital structure decisions.

A higher level of profitability signifies that the firm is more efficient in utilizing its resources to produce income (Halim, 2024). According to Trade-Off Theory, profitability is expected to have a positive relationship with capital structure. Firms with higher profitability tend to use more debt because they can benefit from the tax shield provided by interest payments (ElDomiaty et al., 2026). Therefore, increasing profitability is often associated with an increase in leverage, as firms attempt to optimize their capital structure by balancing the benefits and costs of debt.

Companies with a greater proportion of tangible assets typically experience improved access to external financing, particularly loans, as these assets can function as collateral (Mazumder, 2025). This reduces the risk faced by creditors and lowers borrowing costs, allowing firms to increase their use of debt in their capital structure. This reasoning aligns with the Trade-Off Theory, which posits that corporations weigh the advantages of debt, including tax benefits, against the

possible costs of financial difficulty. Rehan et al. (2023) contended that tangible assets mitigate these risks, thereby motivating companies to utilise additional debt.

Financing decisions are also significantly influenced by liquidity. Firms that have higher liquidity levels have a larger number of internal resources, which reduces their reliance on external financing (Patel et al., 2022). Firms with improved liquidity tend to rely less on external financing, particularly debt, because they have a sufficient amount of internal capital to support their operations. This behavior is supported by the Pecking Order Theory, which suggests that companies prefer internal financing over external sources. As a result, firms with stronger liquidity positions are less likely to increase their debt levels (Qerimi et al., 2024).

In addition to these traditional determinants, firms with high growth prospects often require substantial funding to support expansion, which may increase their reliance on external financing (Šarlija et al., 2023). While prior studies primarily examine growth as a direct determinant, its role as a moderating factor has received limited attention. In practice, firms experiencing high sales growth may exhibit different financing behavior compared to low-growth firms. High-growth firms may rely more on debt despite having strong internal performance due to increasing financing needs (Effendi, 2024; Anokhin et al., 2026). This suggests that sales growth may influence how profitability, tangibility, and liquidity affect capital structure decisions.

Furthermore, industry characteristics play an important role in shaping financing behavior. Capital-intensive industries, such as the energy sector, require large investments in fixed assets and infrastructure, leading to higher leverage levels. These firms also face greater exposure to market volatility and regulatory changes, which may influence their financing strategies. However, many empirical studies rely on cross-industry samples, potentially overlooking these sector-specific dynamics. Therefore, further research is needed to examine how firm-specific factors interact with growth dynamics, particularly in capital-intensive industries and emerging market settings.

Profitability and Capital Structure

Profitability is one of the most widely discussed determinants of capital structure. The pecking order theory asserts that organisations favour the use of internally generated capital over external finance due to lower information costs. As a result, more profitable firms are less dependent on debt financing. In contrast, the Trade-Off Theory suggests that profitable firms may benefit from the tax advantages of debt, potentially increasing leverage. However, empirical evidence generally supports the pecking order view, indicating a negative relationship between profitability and leverage. Previous studies such as Yakubu et al. (2021) and Bueno et al. (2026) demonstrate that profitability relates negatively to capital structure. Based on this argument, the following hypothesis is proposed:

H1: Profitability has a negative effect on capital structure.

Asset Tangibility and Capital Structure

Asset tangibility reflects the proportion of fixed assets that can be used as collateral in borrowing (Boasiako et al., 2022). Under the Trade-Off Theory, firms with higher tangible assets are more likely to use debt because these assets reduce the risk for creditors. Similarly, agency theory suggests that collateralizable assets mitigate conflicts between lenders and borrowers. Therefore, firms with increased asset tangibility are expected to have elevated leverage. The study by Mazumder (2025) and Bueno et al. (2026) noted that asset tangibility has a positive impact on capital structure. Therefore, the hypothesis is presented as follows:

H2: Asset tangibility has a positive effect on capital structure.

Liquidity and Capital Structure

Liquidity denotes a company's ability to meet its short-term obligations using current assets (Qerimi et al., 2024). According to the Pecking Order Theory, firms with higher liquidity tend to rely more on internal funds, thereby reducing their need for external financing. Consequently, highly liquid firms are less likely to use debt. This condition also signals lower financial risk, which reduces the urgency for firms to increase leverage in their capital structure decisions. Numerous

empirical research indicate an inverse correlation between liquidity and leverage (Al-Nimer et al., 2024; Alaali, 2025). Accordingly, the following hypothesis is proposed:

H3: Liquidity has a negative effect on capital structure.

Profitability, Sales Growth, and Capital Structure

Sales growth may alter the relationship between profitability and capital structure. Under high-growth conditions, firms require substantial funding, which may lead them to use debt even when they are profitable (Halim, 2024). This weakens the negative effect predicted by the Pecking Order Theory. From the perspective of the Pecking Order Theory, firms experiencing high sales growth often face financing needs that exceed internally generated funds. As a result, even profitable firms may rely on external financing to support expansion activities. Therefore, sales growth may alter the relationship between profitability and capital structure by reducing firms' dependence on internal financing.

Under these conditions, companies that still want to capitalize on growth opportunities will turn to external financing, including debt, even if they have high profitability. Šarlija et al. (2023) showed that high-growth companies tend to have greater leverage. Thus, sales growth can weaken the negative relationship between profitability and capital structure, as the need for external financing increases with company expansion.

H4: Sales growth weakens the negative effect of profitability on capital structure.

Assets Tangibility, Sales Growth, and Capital Structure

The relationship between asset tangibility and capital structure is generally explained within the framework of Trade-Off Theory, which states that companies with a high proportion of tangible assets tend to obtain debt more easily because these assets can be used as collateral. This situation can change in companies with high sales growth. Under high-growth conditions, firms tend to prioritize financing flexibility and future investment opportunities rather than relying solely on collateral-based financing. In growing companies, the asset structure tends to be more dynamic and shifts toward intangible assets, thus reducing the role of fixed assets as collateral (Bilgin & Dinc, 2019).

Furthermore, high-growth companies focus more on investment and expansion opportunities than on asset stability, so financing decisions are no longer solely dependent on the availability of tangible assets. Boasiako et al. (2022) emphasize that the characteristics of growing companies can influence financing policies. Consequently, even with high asset tangibility, companies can still flexibly utilize other funding sources. Thus, sales growth can weaken the positive effect of asset tangibility on capital structure.

H5: Sales growth weakens the positive effect of asset tangibility on capital structure.

Liquidity, Sales Growth, and Capital Structure

High-growth firms often face increasing working capital needs, which may reduce the effectiveness of internal liquidity in limiting external financing. The Pecking Order Theory asserts that enterprises with significant liquidity favour utilising internal resources for funding (Abdalla et al., 2025). However, in companies with high sales growth, working capital requirements increase significantly to support operational activities and expansion, resulting in relatively limited internal liquidity.

When companies have good liquidity, internal funds are often insufficient to meet growth needs, forcing them to resort to external financing, including debt. This finding is in line with the study of Alaali (2025), which shows that financing decisions are influenced by limitations in internal funds when firms respond to investment opportunities. Consequently, the negative relationship between liquidity and capital structure weakens in companies with high sales growth.

H6: Sales growth weakens the negative effect of liquidity on capital structure.

Based on the theoretical review and proposed hypotheses, this study develops a conceptual framework to describe the relationships between profitability, asset tangibility, liquidity, sales growth, and capital structure. This framework highlights the direct influence of firm characteristics

on capital structure, as well as the moderating role of sales growth in influencing these relationships. The conceptual framework of this study is presented in Figure 1.

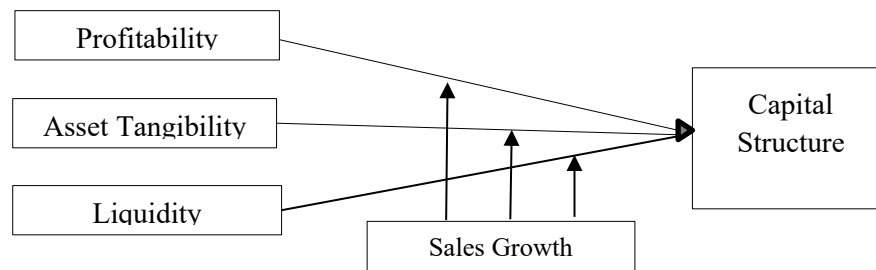


Figure 1. Conceptual Framework

METHOD

This study focuses on energy sector firms listed on the Indonesia Stock Exchange (IDX). The data were collected from the annual reports and financial statements of energy sector companies over the period 2020 to 2024. The population consists of 56 energy companies. However, only firms with complete data during the observation period were included in the final sample. Based on this criterion, the study obtained 280 firm-year observations, while companies with incomplete data were excluded from the analysis. The detailed sample selection process used in this study is presented in Table 1.

Table 1. Research Sample Selection Results

No	Description	Number of Companies
1.	Energy sector companies listed on the Indonesia Stock Exchange during 2020 to 2024	91
2.	Companies conducting IPO during 2020 to 2024	(25)
3.	Companies with incomplete annual reports or financial data during the observation period	(10)
Total sample of selected companies		56
Total research sample in 5 years		280

Source: Data Processed, 2026

In this study, capital structure is treated as the dependent variable. The independent variables include profitability, asset tangibility, and liquidity. Sales growth is used as a moderating variable. The detailed measurements of all variables used in this study are presented in Table 2.

Table 2. The Measurements of Variables

Variable	Measurements	Acronym	Source
Capital Structure	Total Debt / Total Assets	DAR	(Li et al., 2023)
Profitability	Net Income / Total Assets	ROA	(Bueno et al., 2026)
Assets Tangibility	Fixed Assets / Total Assets	TANG	(Mazumder, 2025)
Liquidity	Current Assets / Current Liabilities	CR	(Al-Nimer et al., 2024)
Sales Growth	$(Sales_t - Sales_{t-1}) / Sales_{t-1}$	GROWTH	(Mabandla & Marozva, 2025)

This study employs panel data regression analysis using Stata to examine the proposed hypotheses. The model is outlined as follows:

$$\text{DAR} = \beta_0 + \beta_1\text{ROA} + \beta_2\text{TANG} + \beta_3\text{CR} + \beta_4\text{SG} + \beta_5(\text{ROA} \times \text{SG}) + \beta_6(\text{TANG} \times \text{SG}) + \beta_7(\text{CR} \times \text{SG}) + \varepsilon$$

Where DAR represents capital structure measured by the debt-to-asset ratio, ROA refers to profitability, TANG denotes asset tangibility, and CR indicates liquidity. SG represents sales growth as the moderating variable, while ROA×SG, TANG×SG, and CR×SG denote the interaction terms used to capture moderating effects. This study uses multiple regression analysis to examine both direct and moderating effects. Interaction terms are included to test whether sales growth strengthens or weakens the relationship between firm characteristics and capital structure.

RESULT

Before the regression analysis, various classical assumption tests were performed to verify the validity and reliability of the study model, encompassing assessments for normality, multicollinearity, heteroscedasticity, and autocorrelation. The results of these tests indicate that the regression model meets the required statistical assumptions and is suitable for further analysis. Furthermore, the use of interaction terms between sales growth and the independent variables allows this study to test both direct and moderating effects on capital structure decisions.

Table 3. Descriptive Statistics

Variables	N	Mean	Std. Dev	Min	Max
DAR	280	0.5530	0.3631	0.0480	2.4184
ROA	280	0.0519	0.1650	-1.1222	0.6163
TANG	280	0.3707	0.2658	0.0001	0.8717
CR	280	2.0308	2.0613	0.0019	14.1984
GROWTH	280	0.2815	1.2377	-0.8224	13.5924

Source: Data Processed, 2026

This study uses 280 firm-year observations from energy sector firms during the period 2020–2024. The descriptive statistics provide information on the distribution of each variable. The descriptive statistics are based on 280 firm-year observations of energy sector companies during the period 2020–2024. The average capital structure is 0.5530, indicating that firms generally rely on debt to finance more than half of their assets. However, the wide range between the minimum value of 0.048 and the maximum value of 2.4184, along with a relatively high standard deviation, shows substantial variation in leverage across firms. Profitability has an average value of 0.0519, but the presence of a minimum value of -1.1222 and a maximum of 0.6163 indicates that firm performance varies significantly, with some firms experiencing losses while others generate high profits.

Asset tangibility has an average value of 0.3707, suggesting that a considerable portion of firm assets consists of fixed assets, although the variation across firms remains high. Liquidity shows a mean of 2.0308, indicating that firms generally have sufficient short-term assets to cover their liabilities, but the wide dispersion suggests that some firms face liquidity constraints while others hold excess liquidity. Sales growth has an average of 0.2815, with values ranging from -0.8224 to 13.5924, indicating that growth conditions differ greatly across firms. Overall, the data exhibit high variability, supporting the use of regression analysis for further investigation.

Table 4. Correlation Matrix

Variables	DAR	ROA	TANG	CR	GROWTH
DAR	1.000				
ROA	-0.422***	1.000			

TANG	-0.140**	-0.177***	1.000		
CR	-0.430***	0.178***	0.147**	1.000	
GROWTH	0.070	0.047	-0.031	-0.115*	1.000

Source: Data Processed, 2026

Table 4 presents the correlation matrix among the variables used in this study. The results indicate that profitability and liquidity have a negative relationship with capital structure, with correlation coefficients of -0.422 and -0.430, respectively. This suggests that firms with stronger financial performance and higher liquidity tend to rely less on debt financing. Asset tangibility also shows a negative correlation with capital structure (-0.140), indicating that firms with higher tangible assets may use lower levels of leverage. Meanwhile, sales growth does not show a significant relationship with most variables, suggesting that growth conditions may not directly influence financing decisions. Furthermore, all correlation coefficients are below 0.80, indicating that multicollinearity is unlikely to be a serious concern in this study.

Table 5. Model Selection Tests

Test	Statistic	Probability	Decision
Chow Test	27.34	0.0000	Fixed Effect
LM Test	302.60	0.0000	Random Effect
Hausman Test	128.54	0.0000	Fixed Effect

Source: Data Processed, 2026

Table 5 presents the results of the panel model selection process. The Chow test produced a probability value of 0.0000, indicating that the Fixed Effect Model is more appropriate than the Common Effect Model. The Lagrange Multiplier (LM) test also shows a probability value of 0.0000, suggesting that the Random Effect Model is preferred over the Common Effect Model. Furthermore, the Hausman test generated a probability value of 0.0000, indicating that the Fixed Effect Model is more appropriate than the Random Effect Model. Therefore, based on the model selection procedure, the Fixed Effect Model was selected as the final model for hypothesis testing in this study.

Table 6. Fixed Effect Regression Results

Variable	Coefficient	Std. Error	t-statistic	Sig
Constant	0.5864	0.0231	25.36	0.000***
ROA	-0.1981	0.0707	-2.80	0.006***
TANG	-0.0265	0.0124	-2.14	0.034**
CR	-0.0309	0.0064	-4.83	0.000***
GROWTH	0.0027	0.0172	0.15	0.877
ROA_GROWTH	-0.0726	0.0485	-1.50	0.136
TANG_GROWTH	-0.0106	0.0097	-1.10	0.274
CR_GROWTH	-0.0163	0.0078	-2.09	0.038**
R ²		0.3007		
F Statistic		7.45 (P value 0.000)		

Source: Data Processed, 2026

Table 6 presents the results of the Fixed Effect regression analysis. The model is statistically significant, as indicated by an F-statistic value of 7.45 with a probability value of 0.000, suggesting that the independent variables jointly influence capital structure. The R² value of 0.3007 indicates that approximately 30.07 percent of the variation in capital structure can be explained by the variables included in the model, while the remaining variation is explained by other factors outside the model.

Profitability considerably and negatively influences capital structure, indicating that more profitable enterprises generally utilise less debt funding. Furthermore, asset tangibility exerts a significant negative influence on capital structure, suggesting that firms with a greater proportion of tangible assets generally engage in less borrowing. The capital structure is adversely affected by liquidity, indicating that firms with robust liquidity are more inclined to utilise internal funds rather than external finance.

Sales growth does not significantly alter the association between profitability and capital structure, nor the relationship between asset tangibility and capital structure. The interaction between liquidity and sales growth has a strong negative effect, suggesting that sales growth exacerbates the adverse impact of liquidity on capital structure.

DISCUSSION

The Effect of Profitability on Capital Structure

Table 6 demonstrate that profitability, as shown by ROA, exerts a negative and considerable influence on capital structure. This is indicated by a coefficient value of -0.1981 with a significance level of 0.006. The negative coefficient suggests that firms with higher profitability tend to reduce their reliance on debt financing. This finding implies that companies with stronger financial performance are more likely to utilize internally generated funds rather than depending on external financing sources.

This result is consistent with the Pecking Order Theory, which suggests that firms prioritize internal financing before seeking external funds. Companies with higher profitability generally possess greater retained earnings and cash resources, reducing the need for debt financing. In the context of energy sector firms, this may reflect the tendency of companies to maintain financial flexibility and rely on internal funds when making financing decisions, particularly under uncertain market conditions and fluctuations in commodity prices.

Furthermore, the interaction between profitability and sales growth does not show a significant effect on capital structure. This indicates that sales growth does not alter the relationship between profitability and leverage decisions. Therefore, regardless of whether firms experience high or low sales growth, profitable firms still tend to prioritize internal financing over external borrowing.

This finding is in line with the Pecking Order Theory, which states that companies with high profitability tend to use internal funding sources, thereby reducing the use of debt in their capital structure. This may reflect the tendency of Indonesian energy firms to rely on retained earnings in response to uncertainty in commodity prices and financing conditions. This finding is also supported by previous studies that found a negative relationship between profitability and leverage (Yakubu et al., 2021; Bueno et al., 2026).

The Effect of Asset Tangibility on Capital Structure

The regression results in Table 6 indicate that asset tangibility has a negative and significant effect on capital structure, with a coefficient value of -0.0265 and a significance level of 0.034. This finding suggests that firms with a larger proportion of tangible assets tend to use lower levels of debt financing. Therefore, the direction of the relationship does not support the proposed hypothesis, which expected a positive relationship between asset tangibility and capital structure.

The negative relationship found in this study indicates that tangible assets are not utilized as the primary basis for increasing leverage among firms in the energy sector. Instead, companies may use these assets mainly to support operational activities and long-term investments rather than as collateral for obtaining additional debt financing. In capital-intensive industries such as energy, substantial investments in fixed assets are often required to sustain production activities and maintain operational continuity.

Furthermore, the interaction between asset tangibility and sales growth does not show a significant effect on capital structure. This finding indicates that sales growth does not change the relationship between asset tangibility and leverage decisions. In other words, regardless of the level of growth experienced by firms, the role of tangible assets in influencing debt usage remains relatively unchanged.

This result does not support prior studies that documented a positive relationship between asset tangibility and leverage, which argue that tangible assets enhance a firm's borrowing capacity due to their collateral value (Mazumder, 2025; Bueno et al., 2026). However, the results of this study are consistent with the findings of Boateng et al. (2022) who report a negative association between asset tangibility and leverage, suggesting that firms with higher tangible assets may rely less on external debt financing.

The Effect of Liquidity on Capital Structure

The regression results in Table 6 indicate that liquidity has a negative and significant effect on capital structure, with a coefficient value of -0.0309 and a significance level of 0.000. This finding suggests that firms with higher liquidity tend to use lower levels of debt financing. The availability of sufficient current assets enables firms to finance their operational and investment activities through internal resources rather than relying on external funding. Consequently, firms with stronger liquidity positions are likely to maintain lower leverage levels.

Furthermore, the interaction between liquidity and sales growth shows a negative and significant effect, with a coefficient value of -0.0163 and a significance level of 0.038. This finding indicates that sales growth strengthens the negative relationship between liquidity and capital structure. In other words, firms with high liquidity and strong sales growth tend to rely even less on debt financing, as internal resources become more sufficient to support business expansion and operational activities. Therefore, hypothesis H6 is supported.

This finding aligns with the Pecking Order Theory, which emphasizes that companies will utilize internal resources first before seeking external funding. High levels of liquidity reflect the availability of sufficient internal funds, preventing the company from increasing debt. This finding is also consistent with previous studies that found liquidity to be negatively related to leverage (Al-Nimer et al., 2024; Alaali, 2025).

The Moderating Role of Sales Growth on the Relationship between Profitability and Capital Structure

The regression results presented in Table 6 indicate that the interaction between profitability and sales growth does not have a statistically significant effect on capital structure, with a coefficient value of -0.0726 and a significance level of 0.136. This finding suggests that sales growth does not significantly influence the relationship between profitability and leverage decisions. Therefore, hypothesis H4 is not supported.

The result indicates that the tendency of profitable firms to reduce debt usage remains relatively stable regardless of whether firms experience high or low levels of sales growth. Although firms with stronger growth are generally expected to require additional financing to support expansion activities, the findings suggest that profitability continues to play a dominant role in determining financing preferences.

This finding can be explained through the Pecking Order Theory, which suggests that firms prioritize internal funds before seeking external financing sources. Firms with higher profitability generally possess sufficient internal resources that reduce the need for debt financing, even during periods of business expansion. Therefore, sales growth does not appear to substantially alter firms' financing behavior.

The evidence in this study suggests that growth conditions do not significantly alter financing preferences. Rather, these findings reinforce the view that firms maintain a consistent reliance on internal funds regardless of their growth, as also documented in prior literature (Orlova et al., 2020). This implies that sales growth does not act as a critical factor in shaping how profitability influences leverage decisions.

The Moderating Role of Sales Growth on the Relationship between Asset Tangibility and Capital Structure

The regression results presented in Table 6 indicate that the interaction between asset tangibility and sales growth does not have a significant effect on capital structure, with a coefficient

value of -0.0106 and a significance level of 0.274. This finding suggests that sales growth does not significantly moderate the relationship between asset tangibility and capital structure. Therefore, hypothesis H5 is not supported.

The insignificant result indicates that variations in sales growth do not strengthen or weaken the influence of tangible assets on firms' leverage decisions. Regardless of whether firms experience high or low levels of sales growth, tangible assets appear to maintain a relatively stable role in determining financing policies. Firms in the energy sector tend to utilize tangible assets primarily to support operational activities and long-term investments rather than as a basis for obtaining additional debt financing. Under such conditions, growth opportunities may not substantially alter the role of tangible assets in shaping capital structure decisions.

These results may reflect that companies rely more on financial flexibility or internal sources than on assets as collateral during growth periods. This finding is not in line with prior studies that suggest firm growth strengthens the relationship between firm characteristics and capital structure, particularly through increased financing needs during expansion periods. However, the results of this study are consistent with the study of Bilgin & Dinc (2019) who pointed out that sales growth does not always play a significant moderating role in financing.

The Moderating Role of Sales Growth on the Relationship between Liquidity and Capital Structure

The regression results presented in Table 6 indicate that the interaction between liquidity and sales growth has a negative and statistically significant effect on capital structure, with a coefficient value of -0.0163 and a significance level of 0.038. This finding suggests that sales growth strengthens the negative relationship between liquidity and capital structure. Therefore, hypothesis H6 is supported.

The empirical findings indicate that firms with higher liquidity tend to rely less on debt financing, and this tendency becomes stronger when firms experience higher sales growth. In other words, the combination of strong liquidity and increasing sales further reduces firms' dependence on external financing sources. Firms with sufficient internal resources and favorable growth conditions appear more capable of financing operational activities and business expansion without increasing leverage levels.

This finding is consistent with the Pecking Order Theory, which suggests that firms prioritize internal financing before seeking external funding. Higher liquidity reflects the availability of internal resources, while stronger sales growth may generate additional cash inflows that further support financing needs. Consequently, firms are less likely to increase debt levels when internal funding sources remain sufficient. This result aligns with prior studies suggesting that firms with strong internal resources and growth opportunities tend to minimize reliance on debt financing (Alaali, 2025). These results highlight that sales growth can play a reinforcing role in shaping the relationship between liquidity and the capital structure.

CONCLUSION

This study examines the determinants of capital structure among energy sector firms listed on the Indonesia Stock Exchange during the period 2020–2024, with particular attention to the moderating role of sales growth. The findings reveal that profitability and liquidity have a negative and significant effect on capital structure, indicating that firms with stronger financial performance and greater short-term financial capacity tend to rely less on debt financing. In addition, asset tangibility also shows a negative and significant relationship with capital structure, suggesting that tangible assets are not primarily utilized as collateral in financing decisions within the sampled firms.

The moderating analysis provides mixed findings. Sales growth does not significantly moderate the relationship between profitability and capital structure or the relationship between asset tangibility and capital structure. However, sales growth strengthens the negative relationship between liquidity and capital structure, indicating that firms with stronger liquidity and higher growth tend to rely more heavily on internal financing sources rather than increasing leverage levels.

These findings contribute to the literature on capital structure by providing evidence from the Indonesian energy sector and highlighting the conditional role of sales growth in financing decisions. The results support the Pecking Order Theory, suggesting that firms tend to prioritize internal funds over external financing sources. The findings also imply that financing decisions are influenced not only by firm characteristics but also by the interaction between financial conditions and growth opportunities.

Limitations

This study is subject to several limitations. First, the analysis is limited to firms in the energy sector listed on the Indonesia Stock Exchange, which may restrict the generalizability of the findings to other industries. Second, the study only considers profitability, asset tangibility, liquidity, and sales growth as determinants of capital structure. Future studies are encouraged to include additional variables, such as firm size, ownership structure, corporate governance, or macroeconomic factors, and to expand the sample to different sectors or countries for broader comparative insights.

Suggestions

Based on the findings and limitations of this study, future research is encouraged to extend the observation period and include firms from various industrial sectors to improve the generalizability of the findings. Future studies may also incorporate additional variables that potentially influence capital structure, such as firm size, ownership structure, corporate governance, and macroeconomic factors. Furthermore, researchers are encouraged to employ alternative analytical approaches and more advanced estimation techniques to provide broader and more robust empirical evidence regarding capital structure decisions.

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