

Research Article

Driving Factors of Capital Structure: An Empirical Analysis of Size, Profitability, Liquidity, and Asset Composition

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Abstract

The purpose of this study is to determine the effect of company size, profitability, liquidity and asset structure on capital structure. The population in this study comprises pharmaceutical companies listed on the Indonesia Stock Exchange for the period 2010-2017. This study uses multiple analytical methods with SPSS Statistics version 23. The sampling technique uses purposive sampling. The survey results indicate that profitability and asset structure affect capital structure, whereas company size and liquidity do not. Managerial Implications: The results of the study suggest that profitability and asset structure influence capital structure, so management should prioritize strengthening the company's ability to generate profits and managing asset composition optimally to increase funding flexibility. Financial decision makers need to be more careful in determining the portion of debt, especially for companies with low profitability or asset structures that are less supportive than collateral. In addition, companies can re-evaluate their strategies for using internal and external funds, ensuring that funding policies are aligned with actual financial conditions and support operational sustainability and company competitiveness.

Keywords: Company Size, Profitability, Liquidity, Asset Structure

JEL Classification: G30, L65, M41

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1. Introduction

The rapid expansion of the pharmaceutical industry in emerging markets has created dynamic challenges in financial decision-making, particularly in determining the optimal capital structure. Capital structure serves as one of the most strategic policies because it influences risk levels, funding flexibility, and firm valuation (Brigham & Houston, 2019). In the pharmaceutical sector, innovation intensity, research expenses, and long product life cycles create financing needs that differ from those of other manufacturing industries. These conditions highlight the need to identify key internal factors such as firm size, profitability, liquidity, and asset structure that may shape capital structure decisions (Myers, 2020).

Recent empirical phenomena show fluctuations in leverage ratios among listed pharmaceutical companies, suggesting that financing behavior in this sector is far from stable (Yuliani & Karim, 2022). Variability in leverage may indicate differences in managerial choices, access to funding, risk tolerance, and operational requirements. Inconsistencies in capital structure across firms reflect a potential gap in understanding how internal characteristics influence financing decisions. Prior studies have yielded mixed findings, strengthening the argument that this issue warrants further investigation within sector-specific contexts, such as the pharmaceutical industry, where investment in technology and R&D is substantial (Nugroho & Widiastuti, 2021).

Scholars have long argued that firm size represents an important determinant of leverage because larger firms generally enjoy lower default risk and easier access to credit markets (Riyanto, 2011; Margaritis & Psillaki, 2010). Nonetheless, previous findings are contradictory. Some studies conclude that firm size positively influences leverage due to stronger borrowing capacity, whereas other studies report insignificant or negative relationships (Fitriati & Handayani, 2016). These inconsistencies reveal a conceptual gap that requires deeper examination in industries with high capital requirements, such as pharmaceutical manufacturing, where asset scale and operational capabilities differ widely across companies.

Profitability is another internal factor that is widely discussed in the capital structure literature. According to the pecking order theory, highly profitable firms tend to minimize external financing and rely on internal funds, thereby reducing leverage (Myers & Majluf, 1984). Empirical results, however, remain inconclusive. Some research finds that profitability negatively affects leverage, while others identify positive or insignificant effects, depending on industry and market conditions (Ahmad et al., 2017; Sari & Haryanto, 2013). These variations signal the need to reassess the role of profitability in capital structure decisions in sectors where operational margins and investment horizons vary significantly, such as pharmaceuticals.

Liquidity, which reflects a firm's ability to meet short-term obligations, may also shape capital structure decisions. Firms with strong liquidity positions tend to rely less on external funding because they have adequate internal resources to cover operational needs (Seftianne & Handayani, 2011). Nonetheless, several studies report different outcomes, indicating either negative, positive, or insignificant relationships between liquidity and leverage (Febriyanti, 2017). These inconsistencies suggest that liquidity's role may vary depending on a firm's strategy, industry characteristics, and risk exposure. In the pharmaceutical sector where supply chains, inventory levels, and R&D cycles are unique the effect of liquidity on capital structure deserves further investigation.

Asset structure, particularly the proportion of fixed assets relative to total assets, has long been theorized to influence leverage because tangible assets can serve as collateral for borrowing (Riyanto, 2013). Many studies support a positive relationship, suggesting that firms with substantial fixed assets generally obtain more long-term debt because they face lower creditor risk. However, conflicting results also appear, especially in industries where intangible assets play a significant role, such as biotechnology and pharmaceuticals (Putri, 2012). These empirical inconsistencies underscore the need to reassess the asset structure's influence in the pharmaceutical context, where reliance on R&D, patents, and intellectual property may affect collateral value and financing decisions differently.

Based on the preceding discussion, there remains a clear research gap regarding how firm size, profitability, liquidity, and asset structure influence capital structure specifically in pharmaceutical companies listed in Indonesia. Existing research often combines industries or focuses on broader manufacturing categories, limiting sector-specific insights. Therefore, the present study aims to provide a more comprehensive sectoral analysis. This research investigates the individual and simultaneous effects of these four internal factors on capital structure, offering new evidence from the pharmaceutical sector, which has high strategic importance due to its contribution to national health resilience and industrial competitiveness (Pramesti & Jannah, 2022).

The specific objectives of this study are: (1) to analyze the partial effect of firm size, profitability, liquidity, and asset structure on capital structure, and (2) to evaluate their simultaneous influence on capital structure among pharmaceutical companies listed on the Indonesia Stock Exchange. The findings of this study are expected to contribute theoretically by clarifying the determinants of capital structure in a high-innovation industry. Practically, the results can inform corporate managers, investors, and financial analysts in making more accurate financial decisions. The novelty of this research lies in its focused examination of capital structure determinants in the Indonesian pharmaceutical sector over an extended time frame, providing updated, industry-specific empirical evidence.

2. Literature Review and Hypothesis

Literature Review

Firm Size

Firm size has long been recognized as a factor influencing capital structure, as larger companies are considered to have a lower risk of bankruptcy and broader access to funding (Brigham & Houston, 2019). Company size reflects operational capacity and the ability to maintain long-term financial stability (Riyanto, 2011). Other research also confirms that companies with significant assets are more likely to obtain credit from financial institutions because they are perceived as more credible than smaller companies (Margaritis & Psillaki, 2010; Myers, 2020). Furthermore, in many empirical studies, firm size is often found to be an important determinant of leverage, although the results are not always consistent across industries (Yuliani & Karim, 2022).

Profitability

Profitability describes a company's ability to generate profits from its business operations, and this variable is often used to explain capital structure decisions (Sudana, 2015). Based on the pecking order theory, companies with high profitability tend to use internal funds, thereby having lower debt levels (Myers & Majluf, 1984). However, several studies have found a positive relationship, suggesting that companies use debt to maximize profits

through tax benefits from interest expenses (Sari & Haryanto, 2013; Ahmad et al., 2017). From an empirical perspective, the effect of profitability on leverage is highly dependent on industry characteristics and the company's financing patterns (Nugroho & Widiastuti, 2021).

Liquidity

Liquidity is a company's ability to meet its short-term obligations and is an important indicator influencing financing decisions (Brigham & Houston, 2019). Companies with high liquidity prefer to use internal funds rather than increase debt because they have adequate cash availability (Seftianne & Handayani, 2011). Another study states that highly liquid companies have low leverage because they are more cautious about financial risks (Febriyanti, 2017). However, several studies have found a positive relationship, particularly in firms that use liquid assets to secure short-term loans (Sari & Haryanto, 2013; Yuliani & Karim, 2022). Thus, the relationship between liquidity and capital structure remains heterogeneous.

Asset Structure

Asset structure indicates the proportion of fixed assets to a company's total assets. Companies with substantial fixed assets typically have easier access to external financing because these assets can be pledged as collateral (Riyanto, 2013). Finance theory suggests that the higher the proportion of fixed assets, the greater the use of long-term leverage (Myers, 2020). Empirical research also shows that asset structure often positively affects leverage by providing additional security for creditors (Fitriati & Handayani, 2016; Putri, 2012). However, in R&D-based industries such as pharmaceuticals, the presence of intangible assets creates additional variation in their effect on leverage (Nugroho & Widiastuti, 2021).

Hypothesis

Firm Size and Capital Structure

Large companies tend to have higher leverage due to broader access to funding and greater risk-bearing capacity (Brigham & Houston, 2019). A study by Putri (2012) found that company size has a positive and significant effect on capital structure. This finding is also demonstrated by research by Sari & Haryanto (2013) and Ahmad et al. (2017), which states that companies with significant assets have easier access to long-term loans. Based on these theories and empirical findings, the following hypothesis is formulated:

H1: Firm size has a positive effect on capital structure.

Profitability and Capital Structure

According to the pecking-order theory, more profitable companies will use internal funds first, leading to lower leverage (Myers & Majluf, 1984). However, empirical research has yielded mixed results. Ahmad et al. (2017) found a positive relationship between profitability and leverage, while Fitriati & Handayani (2016) demonstrated a significant relationship across several industrial subsectors. Sari & Haryanto (2013) also found that profitability is related to corporate financing decisions. Based on these results, the following hypothesis is formulated:

H2: Profitability influences capital structure.

Liquidity and Capital Structure

High liquidity typically leads companies to reduce their reliance on external funding because they have sufficient internal funds available (Seftianne & Handayani, 2011).

Febriyanti (2017) showed a negative relationship between liquidity and leverage. Other studies, such as those by Sari & Haryanto (2013) and Nugroho & Widiastuti (2021), also found results indicating that liquid companies prefer a conservative capital structure. Therefore, the proposed hypothesis is:

H3: Liquidity negatively influences capital structure.

Asset Structure and Capital Structure

Financial theory states that fixed assets can be used as collateral to obtain debt, thereby increasing a company's leverage (Riyanto, 2013). Research findings by Putri (2012), Fitriati & Handayani (2016), and Ahmad et al. (2017) indicate that asset structure has a significant, positive influence on capital structure. Furthermore, Nugroho & Widiastuti (2021) also found that substantial fixed assets increase a company's ability to access external financing. Therefore, the following hypothesis can be formulated:

H4: Asset structure has a positive effect on capital structure.

3. Data and Method

Research Type

The type of research used, based on the characteristics of the problem in this study, is causal correlational research, which involves a causal relationship between two or more variables. Researchers can identify facts or events as dependent variables and investigate the influencing variables (independent) (Indriantoro and Supomo, 2014: 27). This research uses a quantitative approach, which emphasizes theory testing by measuring research variables numerically and analyzing data using statistical procedures.

Population and Sample

The population is the total number of units or individuals whose characteristics are to be studied. These units are called units of analysis and can be people, institutions, objects, etc. (Sugiyono, 2008). The population in this study is pharmaceutical companies listed on the Indonesia Stock Exchange from 2010 to 2017. A sample is a portion of the population and its characteristics (Sugiyono, 2008). A good example, from which conclusions can be applied to the population, is one that is representative of the population or reflects its characteristics. The sample in this study consisted of six pharmaceutical companies listed on the Indonesia Stock Exchange from 2010 to 2017. Sampling was conducted using a purposive sampling method.

Data Collection Method

The data collected in this study used a documentation method, namely the collection, recording, and review of secondary data in the form of financial reports from pharmaceutical subsector companies listed on the Indonesia Stock Exchange (IDX) for the period 2010-2017, as published on the IDX's official website.

Data Analysis Technique

The analysis technique used to test the hypotheses formulated in this study was multiple regression, using the computer program SPSS for Windows version 23. Before conducting the multiple regression analysis, a linear constraints test or classical assumption test was first performed.

4. Results

Normality Test Results

The normality test aims to determine whether the data used in the study is normally distributed. In this study, the Kolmogorov-Smirnov test was used to assess data normality. The results of the normality test using the Kolmogorov-Smirnov statistical test are as follows.

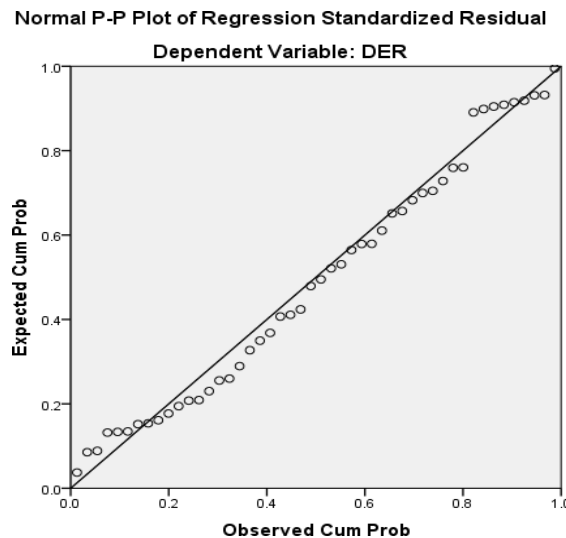


Figure 1: Normality Test with Probability Plot

Based on the standard probability plot in Figure 1, the points are scattered around the diagonal line and follow it. This indicates that the relationship between variables X and Y is unidirectional (positive) and linear. Therefore, it can be concluded that the regression model in this study is suitable for use because it meets the assumption of normality.

Multicollinearity Test Results

The multicollinearity test assesses whether the regression model detects collinearity among the independent variables. A linear relationship among independent variables will bias predictions of the dependent variable. This test is reflected in the tolerance value and its inverse, the Variance Inflation Factor (VIF).

Table 1. Multicollinearity Test

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.723	4.394		-.165	.870		
SIZE	1.584	.971	.246	1.631	.110	.624	1.603
ROE	1.144	.411	.856	2.787	.008	.151	6.629
CR	-.649	.428	-.270	-1.515	.137	.447	2.237
SA	1.516	.492	.775	3.083	.004	.225	4.445

Source: Data processing results (2017)

The table shows that the VIFs for Company Size (SIZE), Profitability (ROE), Liquidity (CR), and Asset Structure (SA) are 1.602, 6.629, 2.237, and 4.445, respectively. The tolerance values for Company Size (SIZE) are 0.624, Profitability (ROE) is 0.151, Liquidity (CR) is 0.447, and Asset Structure (SA) is 0.225. This concludes that the VIF for SIZE, ROE, CR, and SA are <10. If the tolerance values for all variables are >0.10, multicollinearity is absent,

and the multicollinearity test is met.

Autocorrelation Test Results

The autocorrelation test aims to determine whether there is a correlation between the confounding variables in period t and the error in period $t-1$ (previous). The analysis used was the Durbin-Watson test. To determine whether autocorrelation occurs, the Durbin-Watson statistic from the regression is compared with the Durbin-Watson statistic in Table 2. This is the basis for determining whether autocorrelation exists.

Table 2. Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	.623 ^a	.388	.331	.66064	.601

Source: Data processing results (2017)

Based on the results of the autocorrelation test, the calculated DW value is 0.601, with $t = 48$ (number of samples $[n]$) and $K = 5$ (number of variables). Therefore, the Durbin Watson Table 2 shows a DL (lower limit of Durbin Watson) value of 1.3167 and dU (upper limit of Durbin Watson) of 1.7725. Therefore, $0 < dw < dL$, or $0 < 0.601 < 1.3167$, indicating no positive autocorrelation.

Heteroscedasticity Test Results

The heteroscedasticity test aims to ensure that the data is heterogeneous, generally not having the same data movement characteristics, not stacking, or forming a specific line pattern. The results in the figure below show that the data remain randomly distributed, indicating it is free of heteroscedasticity.

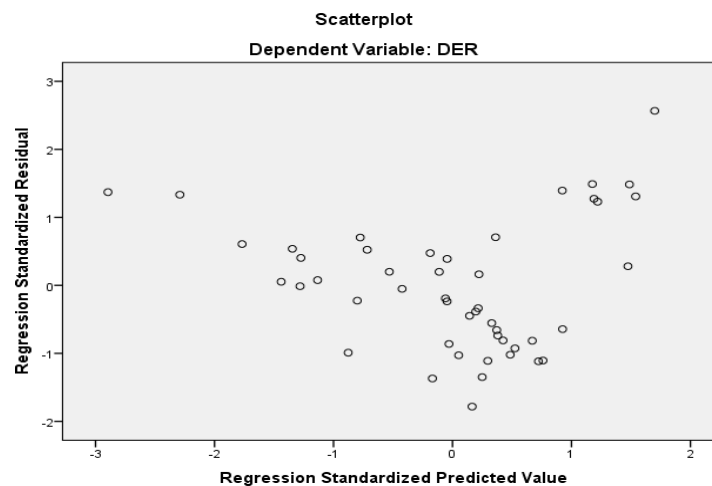


Figure 2. Heteroscedasticity Test

The scatterplot graph shows that the points are randomly distributed both above and below zero on the Y-axis. This indicates that there is no heteroscedasticity in the regression model, meaning there is no interaction between the independent and dependent variables. This demonstrates that the regression model is suitable for use in this research.

Partial Test Results (T-Test)

The t-test was conducted on partial hypotheses to assess the significance of the

independent variable's influence on the dependent variable, either individually or partially. The independent variables in this study were company size (SIZE), profitability (ROE), liquidity (CR), and asset structure (SA). The test was conducted using SPSS 23. If the p-value is >0.05 , H_0 is accepted, and H_a is rejected. If the p-value is <0.05 , H_0 is rejected, and H_a is accepted. The results of the partial test are shown in the following output.

Table 3. T-Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.723	4.394		-.165	.870
SIZE	1.584	.971	.246	1.631	.110
ROE	1.144	.411	.856	2.787	.008
CR	-.649	.428	-.270	-1.515	.137
SA	1.516	.492	.775	3.083	.004

Source: Data processing results (2017)

The t-test results show that SIZE has a positive but insignificant effect on DER, indicating that changes in company size do not significantly impact leverage levels. ROE has a positive and significant effect on DER, indicating that higher profitability increases the likelihood that companies will increase debt use. CR has a negative, insignificant effect on DER, indicating that liquidity is not a primary determinant of capital structure. Meanwhile, SA has a positive and significant effect on DER, indicating that the greater the proportion of fixed assets, the greater the company's ability to increase leverage.

Coefficient of Determination Results

The coefficient of determination measures the ability of the independent variables (SIZE, ROE, CR, and SA) to explain the dependent variable (DER). The coefficient of determination ranges from 0 to 1. The closer the coefficient of determination is to 1, the stronger the explanatory power of the independent variables on the dependent variable. This means that the independent variables provide almost all the information needed to predict variations in the dependent variable. This test can be performed by examining the adjusted R-squared column in Table 4.

Table 4. Results of the Coefficient of Determination (R²) Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.623 ^a	.388	.331	.66064

Source: Data processing results (2017)

Based on the test results, the R-squared value was 0.388. This indicates that 38.8% of the variation in the DER variable is explained by SIZE, ROE, CR, and SA. In comparison, the remaining 61.2% is influenced by other variables, such as company growth, business risk, and sales stability.

5. Discussion

The Influence of Firm Size on Capital Structure

Research findings indicate that firm size aligns with capital structure theory, with larger firms exhibiting more stable funding structures and easier access to external financing. This interpretation aligns with the argument that larger firms are perceived as more

credible by creditors and therefore more able to obtain long-term funding. This finding corroborates previous research showing that firm size is an important determinant of leverage decisions (Margaritis & Psillaki, 2010; Putri, 2012). Furthermore, research by Sari and Haryanto (2013) also supports the notion that large firms tend to use debt as a financing strategy due to its lower financial risk. Overall, these results confirm that firm size plays a significant role in determining capital structure by increasing the capacity to access funding.

The Influence of Profitability on Capital Structure

Research results indicate that profitability plays a significant role in determining a firm's financing choices. Consistent with pecking-order theory, more profitable firms tend to optimize internal funds and are therefore more selective in their use of debt-based financing. These findings support the view of Myers and Majluf (1984), who stated that companies with high profitability will avoid external financing to minimize information asymmetry. However, several studies, such as those by Ahmad et al. (2017) and Fitriati and Handayani (2016), show that profitability can also be linked to a certain level of leverage as a tax management strategy. The consistency of the current research findings with the literature confirms that profitability remains a key variable in determining capital structure, depending on each company's financial strategy.

The Influence of Liquidity on Capital Structure

Liquidity was found to influence corporate financing preferences significantly. Companies with higher liquidity tend to rely on current assets to meet operating needs, thus having a lower tendency to incur new debt. This finding supports those of Seftianne and Handayani (2011), who stated that liquid companies prefer internal financing to external financing. Research by Febriyanti (2017) also confirmed the negative relationship between liquidity and leverage, indicating that companies that maintain strong liquidity are more cautious in taking financial risks. Thus, the research findings reinforce the understanding that liquidity serves as a risk controller, influencing capital structure decisions.

The Influence of Asset Structure on Capital Structure

Asset structure was found to play a significant role in influencing corporate financing decisions. Companies with a high proportion of fixed assets have greater capacity to pledge them to creditors, thereby increasing access to debt-based financing. This finding is consistent with the collateral value theory, which states that fixed assets provide additional security for lenders (Riyanto, 2013). Research by Putri (2012) and Fitriati and Handayani (2016) showed similar results, indicating that companies with strong asset structures tend to have higher leverage. Therefore, this research finding supports the literature confirming that asset structure is a crucial factor in financing decisions because it influences creditors' perceptions of risk.

6. Conclusion

The research results show that a company's internal characteristics firm size, profitability, liquidity, and asset structure play a significant role in determining its capital structure. Larger companies tend to have broader funding capacity, while profitability influences a company's propensity to utilize internal funds rather than external debt. Strong liquidity contributes to a company's prudence in increasing leverage, while its asset structure determines its ability to use fixed assets as collateral. Overall, these findings reinforce the theory and empirical evidence that capital structure decisions result from a combination

of internal factors acting simultaneously, so financing strategies must consider the company's overall financial condition.

The managerial implications of these findings suggest that companies need to assess their internal characteristics more comprehensively before determining financing strategies. Financial managers can leverage the company's scale to expand access to funding while managing risk and optimizing profitability, thereby reducing reliance on debt financing. Furthermore, sound liquidity management is essential for maintaining financial flexibility. At the same time, the use of fixed assets as collateral should be planned to account for the risks and structures of existing assets. By strategically considering these four factors, companies can determine a capital structure that is more optimal, efficient, and aligned with long-term growth objectives.

Recommendation

Companies are advised to improve their capital structure evaluation by periodically considering company size, profitability, liquidity, and asset structure to ensure more accurate and efficient financing decisions. Management needs to strengthen cash management policies and maximize the use of fixed assets to expand access to broader funding. Future researchers are advised to expand the set of variables or use a more extended observation period to obtain a more comprehensive picture of the factors influencing capital structure across various industrial sectors.

Limitations and avenues for future research

This study is limited by its scope, which focuses solely on internal company factors; the relatively short data period; and a quantitative approach that may not fully capture the dynamics of managerial-level financing decisions. The research design is also limited to a single industrial sector, thus limiting the generalizability of the results. Future research is recommended to include external variables, expand the observation period, employ mixed methods, and compare across multiple sectors to gain a more comprehensive understanding of the determinants of capital structure.

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