

The Role of Return on Equity in Moderating the Effect of Current Ratio on Debt-to-Equity Ratio in Pharmaceutical and Healthcare Companies

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ABSTRACT

The pharmaceutical and healthcare industry in Indonesia is facing increasing demand for healthcare services, the need for digital transformation, and high dependence on imported pharmaceutical raw materials, all of which increase corporate financing requirements. This study aims to analyse the effects of liquidity and profitability on capital structure and to examine the role of profitability as a moderating variable in the relationship between liquidity and capital structure among Pharmaceutical and Healthcare Resources companies in Indonesia. This research employed a quantitative approach with a causal research design. The study population consisted of 13 companies, of which 10 were selected using purposive sampling during the 2021-2024 period. Data were analysed using panel data regression with the Moderated Regression Analysis (MRA) approach. The results indicate that the Current Ratio (CR) and Return on Equity (ROE) partially have negative and significant effects on the Debt-to-Equity Ratio (DER). Furthermore, ROE is shown to positively and significantly moderate the effect of CR on DER. These findings theoretically extend the perspective of the Pecking Order Theory and provide practical implications for corporate management in making optimal financing decisions, while also serving as a consideration for investors in making investment decisions.

Keywords:

Current Ratio, Debt-to-Equity Ratio, Return on Equity, Capital Structure, Moderated Regression Analysis (MRA)

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INTRODUCTION

The pharmaceutical industry is a strategic sector that plays a vital role in supporting public health and the national economy. Its existence not only improves public health outcomes but also serves as an important pillar of economic development. Nevertheless, the pharmaceutical industry continues to face major challenges, particularly its high dependence on imported raw materials, which account for approximately 85% of total raw material requirements and are mostly sourced from India and China. This condition makes the pharmaceutical industry highly vulnerable to the depreciation of the Indonesian rupiah. As of June 9, 2026, the exchange rate reached IDR 18,261 per US dollar, leading to increased production costs and higher expenses for imported raw materials. In 2022, the pharmaceutical industry also experienced pressure from rising drug prices, which were estimated to increase by 15-20% due to higher raw material costs as well as increasing production and distribution expenses. Although the supply of raw materials from major producing countries, such as China and India, remained relatively stable, rising costs throughout the supply chain directly affected pharmaceutical product prices in Indonesia. The national pharmaceutical market also experienced a slowdown, with industry revenue amounting to approximately IDR 80 trillion. In 2021, the pharmaceutical industry declined compared with both 2020 and the pre-pandemic period in 2019. Although sales of vitamins and supplements increased during the pandemic, their contribution

to the national pharmaceutical market was only around 5%. Even though vitamin sales increased by 100%, their impact on overall market growth remained limited due to their relatively small share of the national drug market. Changes in public behaviour regarding access to healthcare services also contributed to reduced demand for prescription drugs, which have traditionally dominated the national pharmaceutical market. Approximately 60-65% of the pharmaceutical market consists of prescription drugs, while the remainder comprises over-the-counter medicines and vitamins. In addition, the closure of several pharmacies and drugstores in various regions due to declining medicine purchases further reflected the challenges faced by the industry. These conditions indicate that the pharmaceutical industry has faced a dual challenge in the post-pandemic period: rising production costs and declining market demand (Emeria, 2022).

In 2025, Indonesia's healthcare sector continued to face complex dynamics amid global and domestic economic challenges. Healthcare sector inflation was projected to rise to 13.6%, up from 10.1% in the previous year. This condition has encouraged the government and industry stakeholders to strengthen the self-reliance of the national pharmaceutical industry, reduce dependence on imported pharmaceutical raw materials, and enhance innovation in healthcare services. Healthcare sector transformation has become a strategic initiative to improve service quality while supporting national economic growth. Transformation efforts have been pursued through service efficiency, improved industrial competitiveness, and the use of technologies such as telemedicine, big data, and artificial intelligence (AI). However, implementation continues to face several challenges, including multiple insurance claims in health insurance systems, underscoring the need for adaptive regulations and stronger cross-sector collaboration through the Triple Helix approach. Furthermore, Indonesia's healthcare sector faces several key obstacles, including relatively low per capita healthcare expenditure compared with neighbouring countries, high dependence on imported medical equipment and healthcare products, and a limited contribution to Gross Domestic Product (GDP), which remains at approximately 2.1%-2.5%. Although the healthcare sector has grown by around 10%, its contribution to national economic growth remains limited and has not been sufficient to support the government's target of achieving 8% economic growth (Setiawati, 2025). In this industry, the Indonesian Food and Drug Authority (BPOM) also plays a crucial role. BPOM is expected to transform its role from primarily functioning as a regulator to becoming an investment facilitator, particularly in the pharmaceutical and drug manufacturing industries. This transformation is considered essential to support the achievement of the national economic growth target of 8%. In addition, the healthcare sector has a strategic role in meeting national investment needs and contributing to the realization of the country's economic growth objectives (Untung, 2026).

The pharmaceutical industry and healthcare sector face challenges arising from increasing demand for healthcare services, which requires companies to make larger investments to support digital transformation and strengthen national pharmaceutical self-sufficiency. In addition, the industry's high dependence on imported pharmaceutical raw materials and medical equipment has further intensified financing needs. These conditions require pharmaceutical companies to obtain greater funding sources to support expansion and innovation activities. However, it remains uncertain

whether current financial performance indicators, such as liquidity and profitability, can influence capital structure in response to these financing requirements. Rahman et al. (2023), in their empirical findings, reported that liquidity has a negative and significant effect on capital structure. This finding indicates that the higher a company's liquidity level, the lower the proportion of its capital structure financed through debt. Companies with high liquidity generally have a stronger ability to meet short-term obligations and possess sufficient internal funds. Consequently, such companies tend to prioritize internal financing sources to support operational and investment activities before relying on external financing sources, such as debt. Furthermore, other empirical findings suggest that profitability also has a negative and significant effect on capital structure. Companies with high profitability tend to use relatively lower levels of debt because their strong earnings-generating capacity enables them to meet financing needs independently. Therefore, the higher the rate of return earned by a company, the greater its ability to fulfil capital requirements through internal sources, thereby reducing dependence on external financing.

Oppier et al. (2024) stated that profitability has a positive and significant effect on debt policy in pharmaceutical companies. This finding indicates that profitability reflects a company's ability to generate earnings from its operational activities. When a company's profitability increases, its financial condition can be considered favourable because it has sufficient retained earnings to support operational activities. High profitability demonstrates a greater capacity to meet and repay debt obligations, thereby enabling the company to access debt-based financing more easily. Conversely, companies with lower profitability tend to have a more limited capacity to use debt as a source of financing. On the other hand, other empirical findings suggest that liquidity has a negative and significant effect on debt policy. This result indicates that the higher a company's liquidity level, the lower its tendency to rely on debt financing. Liquidity reflects a company's ability to meet short-term obligations using its current assets. Companies with high liquidity can finance operational needs and fulfil debt obligations without increasing their reliance on debt. Therefore, to maintain business continuity and operational stability, companies need to preserve adequate liquidity levels to ensure that maturing debt obligations can be settled promptly.

Wulandari and Yahya (2025) stated that profitability has a negative and significant effect on the capital structure of pharmaceutical companies listed on the Indonesia Stock Exchange (IDX). This finding indicates that an increase in profitability, as measured by Return on Assets (ROA), tends to be followed by a decrease in capital structure, particularly in the portion financed through debt. The negative effect suggests that pharmaceutical companies with high profitability prefer to use internal sources of funds to finance their operational and investment activities. The availability of profits generated by the company enables financing needs to be met without relying on external funding sources, either in the form of debt or equity issuance. Consequently, companies that can generate substantial profits tend to have lower debt usage because their business activities can be financed through retained earnings. Furthermore, profitability is one of the key factors influencing capital structure decisions. Effective profit management can strengthen a company's financial condition, reduce dependence on debt-based financing, and minimize the risk of financial distress and bankruptcy. Therefore, the higher a company's profitability, the greater its ability to support financing needs through internal sources and maintain a

healthier capital structure.

This study analyses the Pharmaceutical and Healthcare Resources industry based on several important considerations. First, this sector is strategic and has become a national priority due to its close relationship with public health. This priority is reflected in various forms of government support, such as the implementation of the National Health Insurance (JKN) program and efforts to strengthen the domestic healthcare industry. Furthermore, this sector faces various complex challenges, including high dependence on imported raw materials and substantial investment requirements. These conditions affect the dynamics of corporate capital structure in maintaining operational sustainability while improving competitiveness amid increasingly intense industry competition. Capital structure is an important aspect in assessing the ability of pharmaceutical companies to maintain a balance among funding sources amid high dependence on imported raw materials and price fluctuations. One indicator used to measure capital structure is the Debt-to-Equity Ratio (DER), where a high DER value indicates greater reliance on debt financing and a higher level of financial risk (Febrianti et al., 2024). Excessive debt usage does not reflect a healthy capital structure because it may increase the potential for financial distress, particularly when the company's equity position weakens (Brigham & Houston, 2019).

Based on these phenomena and the empirical gap regarding the financial performance of Indonesian pharmaceutical companies listed on the Indonesia Stock Exchange (IDX), where previous studies have produced inconsistent findings, this study is important for examining the partial effects of liquidity and profitability on capital structure. Furthermore, this study aims to determine whether profitability strengthens or weakens the effect of liquidity on the capital structure of pharmaceutical companies in Indonesia, particularly in the context of ongoing transformation in the pharmaceutical and healthcare industry and increasing investment needs.

Literature Review

1. Debt-to-Equity Ratio

The Debt-to-Equity Ratio (DER) measures the extent to which a company's assets are financed through external sources by describing the proportion of total debt to equity. A high DER may provide benefits in the form of additional capital that has the potential to increase profits. However, it also increases financial risk due to the obligation to pay interest and repay debt principal. This ratio reflects the extent to which a company balances debt financing and its own capital within its funding structure (Brigham & Houston, 2019).

2. Current Ratio

The Current Ratio (CR) measures a company's ability to meet short-term obligations by using its available current assets. A high CR value reflects a strong liquidity position, allowing the company to conduct its operations without significant dependence on debt. This condition generally results in a lower level of debt in the capital structure, as measured by the Debt-to-Equity Ratio (DER). Conversely, if the CR is low, the company may need to seek external sources of financing, which can increase the DER value (Brigham & Houston, 2019).

3. Return on Equity

Return on Equity (ROE) measures the effectiveness of a company in generating profits by using the equity invested by shareholders. This ratio not only reflects the

level of profitability but also indicates the extent to which management is able to utilize equity to support company operations. The more effectively a company uses shareholders' capital to generate profits, the stronger the indication of effective resource management (Brigham & Houston, 2019). The benefits obtained by shareholders are strongly influenced by how the company manages its business financing. If debt is used appropriately, it can increase the profits generated. However, excessive debt usage may create higher interest expenses that reduce returns. Therefore, companies need to maintain an appropriate balance between equity and debt to ensure sustainable returns while avoiding excessive financial risks (Efendi & Dewianawati, 2021).

4. Hypothesis Development

A high level of liquidity indicates that a company has sufficient capacity to meet its short-term obligations. Such a sound financial condition can increase the confidence of external parties, including creditors, because the company is considered capable of managing its obligations effectively. This confidence provides opportunities for the company to obtain additional external funding, allowing greater flexibility in managing its capital structure (Harmono, 2020). The higher the Current Ratio (CR), the greater the company's effectiveness in covering its short-term obligations. This condition signals that the company's liquidity is in a healthy position, thereby reducing dependence on debt and resulting in a lower Debt-to-Equity Ratio (DER) (Widyanto et al., 2024). Therefore, the first hypothesis (H1) is formulated as follows: H1: CR affects DER

Companies with excellent investment returns tend to rely less on external financing. This condition is consistent with Return on Equity (ROE), which reflects a business's ability to generate profits from its own equity. When the ROE value is high, companies can fulfil their financing needs through retained earnings, thereby reducing the need to increase external borrowing. This condition results in a lower proportion of debt usage within the company's capital structure (Brigham & Houston, 2019). Leverage plays an important role in influencing ROE because the use of debt can either increase or decrease company profits. Through leverage, companies can expand their operations without increasing their own capital, although it also increases financial risk. The Debt-to-Equity Ratio (DER) is a primary measure used to assess the level of leverage employed by a company within its financing structure. Companies with high ROE tend to reduce their dependence on debt, resulting in a lower DER level (Widyanto et al., 2024). Therefore, the second hypothesis (H2) is formulated as follows: H2: ROE affects DER

According to the Pecking Order Theory, companies tend to prioritize internal sources of financing before using external financing in the form of debt. A high Return on Equity (ROE) indicates a company's ability to generate profits effectively from its own equity. When ROE is high, companies can fulfil their financing needs through retained earnings, thereby reducing the need for external borrowing. This condition results in a lower proportion of debt in the company's capital structure (Brigham & Houston, 2019). ROE can serve as a moderating variable that weakens the effect of the Current Ratio (CR) on the Debt-to-Equity Ratio (DER). Companies with high profitability generally reduce their reliance on external financing because they depend more on internal funding sources to increase firm value and maximize shareholder returns. In practice, companies with high profitability accompanied by strong liquidity

are generally less dependent on debt to meet their financing needs. CR has a direct negative effect on DER, meaning that an increase in CR leads to a decrease in DER. This financial condition indicates that high profitability combined with improved liquidity reflects a healthy financial position and encourages lower debt utilization within the company's capital structure. The interaction coefficient suggests that ROE changes the relationship between CR and DER, thereby weakening the effect of CR on DER. This implies that the higher the ROE, the weaker the impact of an increase in CR on reducing DER. In other words, an increase in ROE reduces the strength of the relationship between CR and DER. Therefore, the third hypothesis (H3) is formulated as follows: H3: ROE moderates the effect of CR on DER

METHOD

This study employs a quantitative approach that focuses on the collection and analysis of numerical data. The data were processed and analysed using statistical techniques to produce measurable and accountable findings, namely panel data regression analysis using the EViews program. This research adopts a causal research design and utilizes secondary data obtained from audited annual financial reports of companies at the end of each year. The object of analysis is the Debt-to-Equity Ratio (DER) as the dependent variable, while the other variables include the Current Ratio (CR) and Return on Equity (ROE). The research population consists of 13 companies in the Pharmaceutical and Healthcare Resources industry that were listed at the end of the research period in 2024. Based on the sample selection criteria using the purposive sampling method, 10 companies were selected as research samples with an observation period from 2021 to 2024. The collected data were subsequently analysed using panel data regression analysis, which combines time-series and cross-sectional data, along with the Moderated Regression Analysis (MRA) approach. To determine the most appropriate panel data regression model, an initial model selection process was conducted through the following tests:

1. The Chow test was conducted to determine the most appropriate model between the Common Effect Model (CEM) and the Fixed Effect Model (FEM).
2. The Hausman test was conducted to determine the most appropriate model between the Fixed Effect Model (FEM) and the Random Effect Model (REM).
3. The Lagrange Multiplier (LM) test developed by Breusch-Pagan was conducted to determine the most appropriate model between the Random Effect Model (REM) and the Common Effect Model (CEM).

Furthermore, the next stage involved classical assumption testing for panel data, which included only multicollinearity and heteroscedasticity tests without conducting linearity, normality, and autocorrelation tests (Basuki, 2021). The panel data regression analysis approach consists of several models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). These models were further analysed through model selection tests and classical assumption tests. The final stage involved conducting the coefficient of determination test and hypothesis testing. Hypothesis testing in this study employed the F-test (ANOVA) and the coefficient test (partial t-test) using a two-tailed hypothesis testing approach to determine whether the independent variables have a significant effect on the dependent variable, either positively or negatively.

RESULTS AND DISCUSSION

1. Model Selection Test

The Chow test is one method used in panel data regression analysis to examine whether there are significant differences in intercepts among cross-sectional units. This test aims to determine the most appropriate model between the Common Effect Model (CEM) and the Fixed Effect Model (FEM), as follows:

Table 1. Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	29.167317	(9,27)	0.0000
Cross-section Chi-square	94.893546	9	0.0000

Source: Processed Data, 2026

Table 1 presents the results of the Chow test, which show that the p-value of the cross-sectional F-statistic is 0.0000, below the significance level of 0.05. These results indicate that the null hypothesis (H₀) is rejected, meaning that the Fixed Effect Model (FEM) is considered more appropriate than the Common Effect Model (CEM).

Furthermore, the Hausman test was conducted to determine the appropriate model between the Fixed Effect Model (FEM) and the Random Effect Model (REM). The results of the Hausman test are presented in Table 2 as follows:

Table 2. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.786087	3	0.6180

Source: Processed Data, 2026

Table 2 presents the results of the Hausman test, which show that the chi-square probability value is 0.6180, greater than the significance level of 0.05. These results indicate that the null hypothesis (H₀) is accepted, suggesting that the Random Effect Model (REM) is more appropriate than the Fixed Effect Model (FEM). After the Chow and Hausman tests were conducted, the Lagrange Multiplier (LM) test was used to determine the final model selection. Greene (2003) in Basuki (2021) stated that model selection in panel data regression analysis is performed through the Chow test, Hausman test, and LM test. However, if the Chow and Hausman tests provide consistent decisions in determining the best model, the LM test is not required. After the appropriate model (CEM, FEM, or REM) has been selected, classical assumption testing is conducted to ensure that the selected model meets the required statistical criteria. The results of the LM test are presented in Table 3 as follows:

Table 3. Lagrange Multiplier

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	40.77562 (0.0000)	1.416735 (0.2339)	42.19235 (0.0000)

Source: Processed Data, 2026

Table 3 presents the results of the Lagrange Multiplier (LM) test, which show that the Breusch-Pagan probability value is 0.0000, lower than the significance level of 0.05. These results indicate that the null hypothesis (H₀) is rejected, meaning that the Random Effect Model (REM) is more appropriate than the Common Effect Model (CEM). Therefore, the REM model was further analysed in this study for hypothesis testing.

2. Classical Assumption Test

Before hypothesis testing was conducted to verify the validity of the research hypotheses, classical assumption testing was performed to ensure that the model met the BLUE (Best Linear Unbiased Estimator) criteria, namely being linear, unbiased, and efficient. In this study, the classical assumption tests consisted of the multicollinearity test and heteroscedasticity test. The results of these tests are presented in Tables 4 and 5 as the basis for assessing the feasibility of the regression model:

Table 4. Multicollinearity Test

Variable	CR	ROE	ROE*CR
CR	1.000	0.5348	0.8047
ROE	0.5348	1.0000	0.8182
ROE*CR	0.8047	0.8182	1.0000

Source: Processed Data, 2026

Table 4 presents the results of the multicollinearity test, which show that all correlation coefficients among the independent variables, namely CR and ROE at 0.5348, CR and (ROEXCR) at 0.8047, and ROE and (ROEXCR) at 0.8182, are below the critical value of 0.85. Therefore, the research model can be concluded to be free from multicollinearity problems and to satisfy the assumptions of panel data regression. Furthermore, the heteroscedasticity test was conducted, and the results are presented in Table 5 as follows:

Table 5. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	1.257622	Prob. F (3,36)	0.3034
Obs*R-squared	3.794411	Prob. Chi-Square (3)	0.2845
Scaled explained SS	7.977671	Prob. Chi-Square (3)	0.0465

Source: Processed Data, 2026

Table 5 presents the results of the Breusch-Pagan-Godfrey heteroscedasticity test, which show that the chi-square probability value is 0.2845. This value exceeds the significance level of 0.05, indicating that the regression model is free from heteroscedasticity problems. This result indicates that the residual variance is constant (homoscedastic), meaning that the basic assumptions of the regression model have been properly fulfilled.

3. Hypothesis Testing

Hypothesis testing examines the research assumptions regarding the effect of the independent variables on the dependent variable. In panel data regression analysis, this testing includes the coefficient of determination test, which indicates the percentage of changes in the dependent variable that can be explained by the independent variables included in the research model; the F-test (ANOVA), which assesses the simultaneous effect of the independent variables on the dependent variable; and the t-test, which examines the individual or partial effect of each independent variable. Hypothesis testing in this study was conducted in two stages. First, the first substructural hypothesis test was conducted without a moderating variable. Second, the second substructural hypothesis test was conducted by incorporating the moderating variable. The results of the hypothesis testing are presented in Tables 6 and 7 as follows:

Table 6. First Substructural Hypothesis Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.707254	0.322418	5.295166	0.0000
CR	-0.189258	0.071157	-2.659740	0.0115
ROE	-1.775344	0.272340	-6.518838	0.0000
R-squared				0.602499
Adjusted R-squared				0.581012
S.E. of regression				0.288860
F-statistic				28.04071
Prob(F-statistic)				0.000000

Source: Processed Data, 2026

a. Effect of CR on DER

Table 6 presents the results of hypothesis testing, showing that the Current Ratio variable has a regression coefficient (β_1) of -0.189258, indicating a negative effect on the Debt-to-Equity Ratio. The Current Ratio has a significant effect at the 95% confidence level, as indicated by the t-statistic probability value of 0.0115, which is lower than the significance level of 0.05. Therefore, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_0) is rejected. The regression coefficient value (β_1) of -0.189258 indicates that every one-unit increase in the Current Ratio causes the Debt-to-Equity Ratio to decrease by 0.189258 units.

b. Effect of ROE on DER

Table 6 presents the results of hypothesis testing, showing that the Return on Equity variable has a regression coefficient (β_2) of -1.775344, reflecting a negative effect on the Debt-to-Equity Ratio. Return on Equity has a significant effect at the 95% confidence level, as indicated by the t-statistic probability value of 0.0000, which is lower than the significance level of 0.05. Therefore, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_0) is rejected. The regression coefficient value (β_2) of -1.775344 indicates that every one-unit increase in Return on Equity is followed by a decrease in the Debt-to-Equity Ratio of 1.775344 units.

The next stage involved estimating the effects of CR, ROE, and the interaction variable (ROEXCR) on DER in Pharmaceutical and Healthcare Resources companies listed on the Indonesia Stock Exchange (IDX) during the 2021-2024 period. The estimation results were used to test the hypotheses in the second substructural model, with ROE as the moderating variable, as presented in Table 7:

Table 7. Second Substructural Hypothesis Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.800927	0.337534	5.335548	0.0000
CR	-0.318888	0.094915	-3.359723	0.0019
ROE	-2.779740	0.553473	-5.022359	0.0000
(ROE×CR)	0.814138	0.395564	2.058171	0.0469
R-squared				0.650561
Adjusted R-squared				0.621441
S.E. of regression				0.269097
F-statistic				22.34073
Prob(F-statistic)				0.000000

Source: Processed Data, 2026

a. Effect of CR on DER

Table 7 presents the results of hypothesis testing, showing that the Current Ratio variable has a regression coefficient (β_1) of -0.318888, indicating a negative effect on the Debt-to-Equity Ratio. The Current Ratio has a significant effect at the 95% confidence level, as indicated by the t-statistic probability value of 0.0019, which is lower than the significance level of 0.05. Therefore, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_0) is rejected. The regression coefficient value (β_1) of -0.318888 indicates that every one-unit increase in the Current Ratio causes the Debt-to-Equity Ratio to decrease by 0.318888 units.

b. Effect of ROE on DER

Table 7 presents the results of hypothesis testing, showing that the Return on Equity variable has a regression coefficient (β_2) of -2.779740, reflecting a negative effect on the Debt-to-Equity Ratio. Return on Equity has a significant effect at the 95% confidence level, as indicated by the t-statistic probability value of 0.0000, which is lower than the significance level of 0.05. Therefore, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_0) is rejected. The regression coefficient value (β_2) of -2.779740 indicates that every one-unit increase in Return on Equity is followed by a decrease in the Debt-to-Equity Ratio of 2.779740 units.

c. Moderating Role of ROE in the Effect of CR on DER

Table 7 presents the results of hypothesis testing, showing that the interaction between Return on Equity (ROE) and Current Ratio (CR) has a regression coefficient (β_3) of 0.814138, indicating a positive effect on the Debt-to-Equity Ratio (DER). The moderating effect of ROE on the relationship between CR and DER is statistically significant at the 95% confidence level, as indicated by the t-statistic probability value of 0.0469, which is lower than the 0.05 significance level. Therefore, the alternative hypothesis (H_a) is accepted, while the null hypothesis (H_0) is rejected. The regression coefficient (β_3) of 0.814138 indicates that ROE positively moderates the relationship between CR and DER. This positive coefficient indicates that an increase in ROE mitigates the negative effect of CR on DER. Therefore, the higher the ROE, the smaller the decrease in DER caused by an increase in CR. A one-unit increase in the interaction between ROE and CR is associated with an increase in DER of 0.814138 units.

The results of the coefficient of determination test show an adjusted R-squared value of 0.621441. This value indicates that CR, ROE, and the interaction term (ROEXCR) simultaneously explain 62.14% of the variation in DER, while the remaining 37.86% is explained by other factors not included in the research model. Furthermore, the results of the F-test (ANOVA) show a probability value of 0.000000, which is lower than the significance level of 0.05. Therefore, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_0) is rejected. The results of this study indicate that CR, ROE, and the interaction term (ROEXCR) simultaneously have a significant effect on DER. Therefore, the research model can be considered appropriate for this study. This means that both the independent variables and the moderating variable are able to explain the dependent variable.

Discussion

1. Effect of CR on DER

CR has a negative and significant effect on DER, indicating that an increase in CR leads to a decrease in DER. The results of this study are consistent with the first research hypothesis. During the research period, the Pharmaceutical and Healthcare Resources industry experienced an increase in CR, indicating that companies had a better ability to fulfil short-term obligations using available current assets. The increase in current assets, whether derived from cash, collected receivables, or inventories that can be easily converted into cash, reflects an increasingly sound liquidity condition. A high level of liquidity enables companies to reduce their dependence on short-term debt in financing operational activities. This condition is consistent with the Pecking Order Theory, which states that companies tend to prioritize internal financing sources before using external financing, including debt (Brigham & Houston, 2019). High liquidity indicates that companies have sufficient capacity to meet short-term obligations through available current assets. This condition reduces the company's need to obtain additional debt financing for operational activities; therefore, an increase in CR tends to be followed by a decrease in DER. Conversely, low liquidity indicates limitations in fulfilling short-term obligations, causing companies to become more dependent on debt-based financing, which ultimately increases DER (Chantikaruby & Oktaviani, 2025).

2. Effect of ROE on DER

ROE has a negative and significant effect on DER, indicating that an increase in ROE leads to a decrease in DER. The results of this study are consistent with the second research hypothesis. An increase in ROE indicates that the company is becoming more effective in generating profits from its own equity. With a greater ability to generate profits, companies tend to fulfil their financing needs through internal sources, namely retained earnings, thereby reducing dependence on external financing in the form of debt. As a result, an increase in equity can lead to a decrease in the DER ratio. Therefore, the company's profitability level is one of the important factors influencing capital structure decisions, particularly in determining the proportion of debt usage as a source of financing (Brigham & Houston, 2019). ROE has a negative and significant effect on capital structure. This indicates that the higher the company's profitability level, the lower the level of capital structure measured through debt usage. Conversely, when the company's profitability is low, the company tends to increase the use of debt in its capital structure. Thus, high profitability encourages companies to rely more on internal financing sources than on external financing (Astuti & Purnamasari, 2024). The Pharmaceutical and Healthcare Resources industry experienced an increase in equity during the research period, enabling several companies to generate maximum profits while maintaining their return levels. The increase in profits was driven by higher sales, foreign exchange gains, and other income sources, which increased the company's internal financing capacity and could be used to fulfil obligations, including debt repayment. With this capability, companies do not need to add new debt burdens, resulting in a decrease in DER.

3. Moderating Role of ROE in the Effect of CR on DER

ROE positively and significantly moderates the effect of CR on DER, indicating that the interaction term weakens the effect of CR on DER. The higher the ROE, the weaker the effect of increasing CR on DER. This finding is consistent with the third

research hypothesis. The interaction coefficient indicates that ROE modifies the relationship between CR and DER, meaning that higher profitability is associated with lower debt usage. Meanwhile, CR has a direct and significant negative effect on DER, indicating that higher liquidity results in lower debt usage. However, the interaction term (ROEXCR) has a positive and significant effect, indicating that ROE weakens the negative effect of CR on DER. A high ROE indicates the company's ability to generate optimal profits, thus providing greater flexibility in managing funding sources. Under these conditions, high liquidity can be used to support expansion, investment, and increased operational activities. To achieve optimal growth, companies with high profitability may still use debt as an additional funding source because they have a stronger ability to meet financial obligations. High liquidity reflects a company's adequate ability to meet short-term obligations. This sound financial condition can increase the confidence of external parties, particularly creditors, because the company is perceived as capable of managing its obligations effectively. Increased confidence creates opportunities for the company to obtain additional external financing, thereby providing greater flexibility in determining its capital structure (Harmono, 2020). The results of this study are consistent with Solimun (2021), who explained the concept of quasi-moderation, in which the moderating variable not only moderates, either strengthens or weakens, the relationship between the independent and dependent variables but also acts as an independent variable that directly influences the dependent variable.

CONCLUSION

Based on the research findings in the Pharmaceutical and Healthcare Resources industry, it can be concluded that CR and ROE have partial negative effects on DER, indicating that companies with high liquidity and profitability tend to rely more on internal funds than on external financing. In addition, the interaction between ROE and CR has a positive and significant effect on DER. This indicates that higher profitability accompanied by good liquidity is associated with lower debt usage in the company's capital structure. The positive interaction coefficient indicates that profitability moderates the relationship between liquidity and leverage. Therefore, the interaction between profitability and liquidity can influence a company's capital structure decisions. This finding has theoretical implications by providing additional empirical support for the Pecking Order Theory, which states that companies tend to prioritize internal financing sources before using debt. These findings support the Pecking Order Theory because firms with stronger internal financial resources, reflected in higher profitability and liquidity, tend to reduce dependence on external debt financing. However, the moderating effect of ROE on the relationship between CR and DER also demonstrates the limitations of the Pecking Order Theory because capital structure decisions are not only determined by the hierarchy of financing preferences but are also influenced by the interaction between liquidity and profitability. This finding is consistent with the concept of quasi-moderation because ROE not only interacts with CR in explaining DER but also exerts a direct significant effect on DER. The managerial implications for companies in the pharmaceutical and healthcare industries indicate that effective liquidity and profitability management is crucial in determining an optimal capital structure. Companies with high profitability and liquidity generally rely more on internal financing, resulting in lower leverage.

Nevertheless, a strong financial position provides greater capacity to access external debt when strategic expansion opportunities arise. Under conditions of high profitability, companies still have the flexibility to use debt as an additional source of financing when needed for expansion without significantly increasing financial risk. For investors and creditors, these findings can serve as a consideration that companies with high liquidity and profitability generally have lower financial risk, although the relationship between these factors and leverage may vary depending on the company's profitability level.

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