

The Effect of Capital Structure on the Financial Performance of Healthcare Companies on the Indonesia Stock Exchange: The Moderating Role of Macroeconomics (2021–2024)

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Abstract

Keywords:

Macroeconomics, Capital Structure, Financial Performance

This research is a causal associative quantitative study that aims to analyze the causal relationship between Capital Structure and Financial Performance variables with Macroeconomic Moderation. The population is 16 Main Board Healthcare and Developer companies listed on the IDX in 2021-2024. Using the SEM-PLS 4.0 analysis tool, the research results show that Macroeconomic Variables contribute positively and significantly to the company's Financial Performance, indicated by a path coefficient of 0.349. Conversely, Capital Structure has a negative and significant effect on Financial Performance with a coefficient of -0.419, indicating that an inefficient capital structure can reduce financial performance.

INTRODUCTION

Amidst the rapid growth of the healthcare industry in Indonesia, healthcare companies are experiencing high competitive pressure, both in terms of technology investment, product innovation, and regulatory compliance. Despite this, the sector has shown significant resilience, even experiencing GDP growth during the pandemic, a contrast to the global economic contraction that occurred ([Sihombing et al., 2023](#)). In fact, the healthcare sector's GDP increased consistently from 8.69% in 2019 to 11.56% in 2020, and continued to 10.61% in 2021 ([Sihombing et al., 2023](#)). This phenomenon indicates that the healthcare sector is one of the few sectors that experienced an increase in income and productivity during the COVID-19 pandemic, even though many other sectors experienced a decline in economic activity ([Rahmawati & Sembiring, 2022](#)). This situation confirms the resilience of the healthcare sector and highlights the urgency of understanding the fundamental factors that influence its financial performance, especially capital structure, in the context of volatile macroeconomic dynamics ([Hanasa & Lubis, 2023; Heliani & Fadhillah, 2022](#)). This study aims to analyze in depth the relationship between capital structure and financial performance of healthcare sector companies on the Indonesia Stock Exchange, considering the moderating role of macroeconomic variables during the 2021–2024 period. This analysis is crucial considering that good financial performance reflects a healthy and attractive company condition for investors, while operational funding decisions through capital structure will affect profits which in turn become an important signal for investors ([Jati & Widyaningsih, 2024; Jessica & Triyani, 2022](#)). Capital structure, which refers to the mix of equity and debt financing, is a fundamental aspect of corporate strategy that affects a company's risk and return ([Sulistyo et al., 2022](#)). Myers and Majluf even call capital structure a "puzzle", considering that determining the optimal capital structure and its influence on corporate decisions is still unsolved, encouraging many researchers to explore the issue of capital structure determinants over the past

few decades without finding a specific method identified as the optimal capital structure ([Astadewi & Pramesti, 2022](#)).

This study will examine how components of capital structure, such as the debt-to-equity ratio, affect the profitability and operational efficiency of healthcare companies, especially in the face of economic uncertainty ([Baihaqi et al., 2021; Baroto et al., 2024](#)). In addition, this study will explore how macroeconomic factors, such as inflation, interest rates, and economic growth, moderate these relationships, providing a more comprehensive understanding of the resilience and adaptability of companies in this sector ([Putri & Yulfiswandi, 2022](#)).

Differences in previous research results also reveal that the effect of profitability on capital structure can vary, depending on the level of capital expenditure undertaken by the company, indicating the need for further exploration in the context of the healthcare sector which is characterized by large long-term asset investments ([Asqalany & Dewi, 2024](#)). In addition, there is also inconsistency in the findings of previous studies regarding the effect of capital structure on profitability, where some studies found a significant positive relationship, while others showed a positive but insignificant relationship, or even a significant negative relationship ([Andriyani & Dwirandra, 2023](#)). This indicates a substantial research gap, especially in the context of the Indonesian healthcare sector, which requires further analysis to identify factors that may influence these variations in results ([María & Widjaja, 2023](#)). Therefore, this study seeks to fill this gap by specifically analyzing the effect of capital structure on financial performance in healthcare sector companies on the Indonesia Stock Exchange, taking into account the moderating role of macroeconomic variables during the 2021–2024 period.

This research focuses on healthcare sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period. Because this sector requires significant capital and often relies on long-term funding (including debt), macroeconomic moderation analysis is highly relevant. Based on this background, the author can formulate the following research questions:

1. How does Macroeconomics affect Financial Performance?
2. How does a company's capital structure affect its financial performance?
3. How does the interaction between Macroeconomics and Capital Structure moderate its effect on Financial Performance?

METHODS

This research is a quantitative associative causal study that aims to analyze the cause-and-effect relationships between the variables studied. This quantitative causal study aims to test hypotheses regarding the influence of independent variables on the dependent variable, as well as the moderating role of macroeconomic variables on this relationship. The population in this study is 16 companies operating in the main healthcare and development sectors listed on the Indonesia Stock Exchange during the period 2021 to 2024.

The data used in this study are secondary data in the form of annual financial reports of companies and macroeconomic data from trusted sources such as Bank Indonesia and the Central Bureau of Statistics and IDX. Sampling was carried out using a purposive sampling method based on certain

criteria relevant to the research objectives, including the availability of complete financial report data and macroeconomic data during the observation period .

The analysis tool used is Smart PLS 4.0, a statistical software based on Partial Least Squares Structural Equation Modeling, which allows the analysis of models with complex relationships and latent variables ([Handayani & Rahyuda, 2025](#)). This approach was chosen because of its ability to model complex relationships with latent variables, overcome the limitations of small samples, and its advantages in prediction ([Nasution & Fakhri, 2024](#)). The steps include analysis of the outer model, inner model, and bootstrapping for testing.

Table 1: Names of Healthcare Companies on the Main Board and Developers

No	Code	Company name
1	DVLA	Darya-Varia Laboratoria Tbk.
2	KAEF	Kimia Farma Tbk.
3	KLBF	Kalbe Farma Tbk.
4	BRAND	Merck Tbk.
5	MICA	Karyasehat Family Partners Tbk.
6	PYFA	Pyridam Farma Tbk
7	SAME	Metropolitan Meditama Facilities T
8	SIDO	Sido Herbal Medicine and Pharmaceutical Industry
9	SILO	Siloam International Hospitals
10	SRAJ	Sejahteraraya Anugrahjaya Tbk.
11	TSPC	Tempo Scan Pacific Tbk.
12	PRDA	Prodia Widyahusada Tbk.
13	PRIM	Royal Prima Tbk.

14	HEAL	Medikaloka Hermina Tbk.
15	PEHA	Phapros Tbk.
16	IRRA	Itama Ranoraya Tbk.

Source: IDX

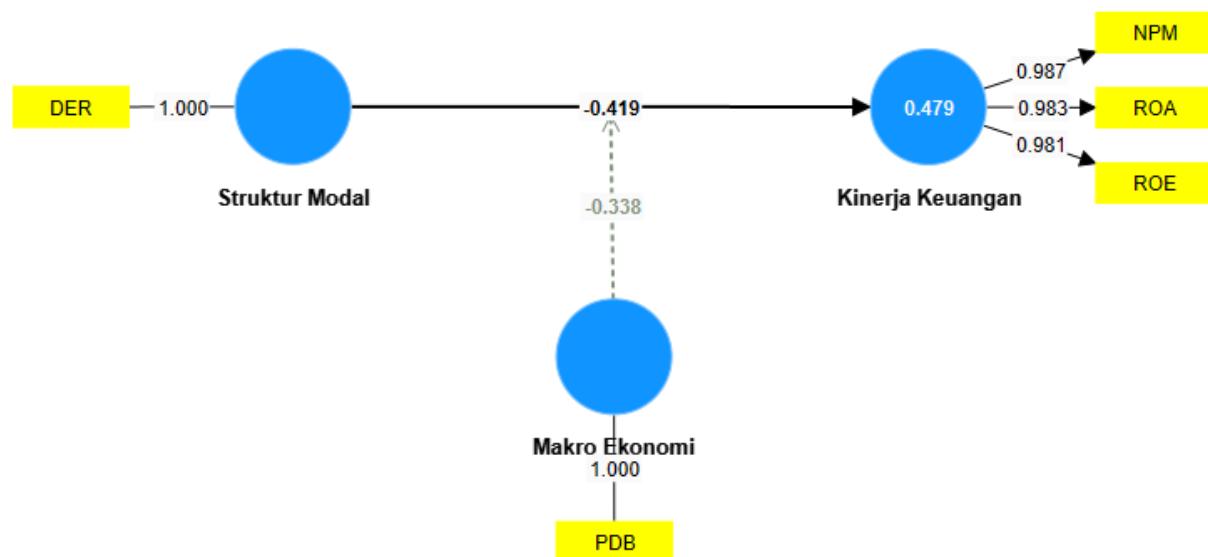
RESULTS AND DISCUSSION

The results of this analysis will provide a deep understanding of how the capital structure of healthcare sector companies in Indonesia interacts with macroeconomic conditions in determining their financial performance.

1. Evaluation of Measurement Model (Outer Model)

This evaluation involves assessing the reliability and validity of the constructs, typically through indicators such as composite reliability, Cronbach's alpha, average variance extracted, and factor loadings, to ensure that the latent variables are adequately measured by their observed indicators ([Nainggolan & Karunia, 2022](#)).

Figure 1: Outer Loading



Source: SEM-PLS 4.0 Data Processing

RESULTS AND DISCUSSION

Based on the *outer loadings* shown in the figure, all indicators show a very strong relationship with their respective latent constructs (all absolute values are above 0.900). This strongly indicates that your measurement model has excellent convergent validity and high indicator reliability. In addition, the high Average Variance Extracted value for each construct further strengthens the evidence of convergent validity, indicating that most of the indicator variance is explained by its latent construct (Kristian & Setyawan, 2024). Next, structural model testing will be conducted to assess the causal relationship between variables, including the significance of path coefficients and R-squared values, all of which will be evaluated using the bootstrapping method to ensure the reliability of the results (Alsabi et al., 2023; Pungky, 2023).

Table 2. Outer Loading Results of Convergent Validity Test

Variables	Outer loadings	Information
DER <- Capital Structure	1,000	Valid
NPM <- Financial Performance	0.987	Valid
GDP <- Macroeconomics	1,000	Valid
ROA <- Financial Performance	0.983	Valid
ROE <- Financial Performance	0.981	Valid
Macroeconomics x Capital Structure -		
> Macroeconomics x Capital Structure	1,000	Valid

Source: SEM-PLS 4.0 Data Processing

Table 3: Cronbach's alpha and Composite Reliability Values

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Information
Financial performance	0.983	0.984	0.989	Reliable

Source: SEM-PLS 4.0 Data Processing

The results of the analysis show that the Cronbach's Alpha and Composite Reliability values for the constructs of all the variables above are ≥ 0.70 so that all the variables above have good validity and reliability.

2. Structural Model Evaluation (Inner Model)

The *inner model* (or structural model) in PLS-SEM analysis shows the causal relationships between latent constructs. In other words, it is the part of the model that describes how the independent variables influence the dependent variable, and how moderating variables might regulate those relationships. The results of the *inner model* typically involve path coefficients and significance values (p-value, t-statistics). This stage involves analyzing the path coefficients to determine the direction and strength of the relationships between latent constructs, as well as testing for statistical significance through a bootstrapping procedure (Altonie et al., 2022; Mulyanah et al., 2025). After ensuring the validity and reliability of the measurement model, the next step is to interpret the path coefficient values for each hypothesized relationship in the structural model, which indicate the magnitude and direction of influence between latent variables (Badrulhuda et al., 2021).

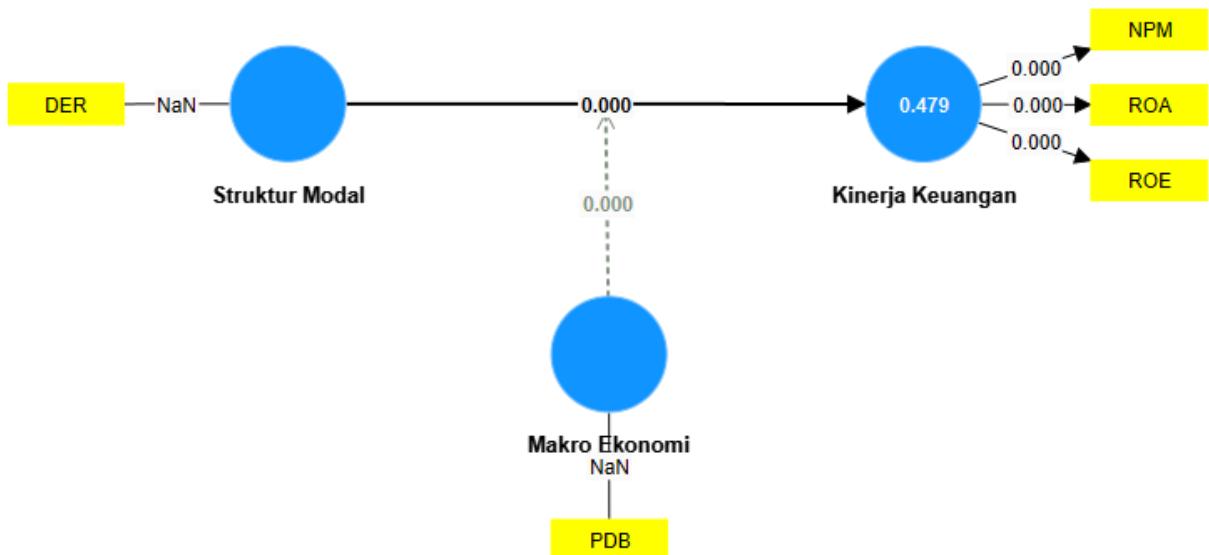
Table 4: R Square (R^2) Test Results

	R-square	R-square adjusted
Financial performance	0.479	0.471

Source: SEM-PLS 4.0 Data Processing

Based on the test results, the R-Square value of 0.479 for the Financial Performance variable indicates that 47.9% of the variation in this variable can be explained by the independent variables in the model, while the remaining 52.1% is influenced by other factors outside the model, so the relationship between the independent variables and financial performance can be considered very moderate. The following is an image of the PLS SEM Algorith output to see the R^2 of the research model.

Figure 2: Outer Model



Source: SEM-PLS 4.0 Data Processing

a. Significance (Hypothesis Testing)

A relationship is considered significant if the p-value is less than the specified significance level (in this study, a significance level of 0.05 was used). A significant path coefficient indicates that the relationship between the latent independent and dependent variables has strong statistical support, thus accepting the proposed hypothesis. The following are the bootstrapping results of the direct and indirect effect models.

Table 5: Results of Path Coefficient Bootstrapping Direct Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STD EV)	P values
Macroeconomici					
cs -> Financial					
Performance					
Capital	0.349	0.351	0.049	7,152	0,000
Structure -> Financial					
Performance	-0.419	-0.421	0.032	12,971	0,000
Macroeconomici					
cs x Capital Structure -	-	-	-	11,	0
> Financial	0.338	0.341	0.029	583	,000

Performance

Source: SEM-PLS 4.0 Data Processing

Based on the table above, it is revealed that Macroeconomic variables significantly contribute positively to Financial Performance, indicated by a path coefficient of 0.349 with a significance level of 0.000, illustrating that improvements in macroeconomic conditions are directly proportional to improvements in the company's financial performance. On the other hand, Capital Structure is recorded as having a negative and significant impact on Financial Performance, as seen from the path coefficient of -0.419 and a p-value of 0.000, implying that the selection of an inefficient capital structure can erode financial performance. In addition, an interesting finding is the negative and significant interaction effect between Macroeconomics and Capital Structure on Financial Performance, with a path coefficient of -0.338 and a p-value of 0.000. This indicates that the role of Capital Structure is to moderate, or change, the relationship between Macroeconomics and Financial Performance, where the positive impact of a supportive macroeconomic climate can be reduced or even turned negative if the company's capital structure management is less than optimal.

DISCUSSION

The Influence of Macroeconomics on Financial Performance

Based on the path analysis conducted, it was found that the macroeconomy has a positive and highly significant influence on the financial performance of healthcare companies listed on the Indonesia Stock Exchange (IDX). The positive path coefficient of 0.349 (with a p-value of 0.000) clearly indicates that improving macroeconomic conditions, such as stable economic growth, controlled inflation, or supportive fiscal and monetary policies, will tend to drive improved financial performance of companies in the healthcare sector. This is likely because increased purchasing power amidst a healthy economy will increase demand for healthcare services and products, which in turn will increase company revenue and profitability. Thus, fluctuations in macroeconomic indicators are a crucial factor that needs to be considered by the management of healthcare companies listed on the IDX in formulating their business and financial strategies. Furthermore, macroeconomic stability can also reduce operational and financial risks, thus enabling companies to make long-term investments that support sustainable growth ([Hermuningsih et al., 2024](#)). As a result, companies can take advantage of periods of economic stability to optimize their capital structure, expand, and improve operational efficiency to achieve better financial performance ([Hidayat & Moin, 2023](#)). In accordance with research conducted by Wang et al. who found that macroeconomic factors significantly affect the performance of banking and MSME financing, supporting the finding that macroeconomics is a strong predictor ([Nasution & Fakhri, 2024](#)). This is in line with research showing that macroeconomic stability is significantly correlated with the financial performance of Islamic banking, although its impact on MSME financing is not always significant ([Nasution & Fakhri, 2024](#)). Similarly, macroeconomic factors such as BI interest rates and economic growth have been shown to have a significant influence on the composite stock price index ([Silalahi & Sihombing, 2021](#)), which indirectly also reflects the performance of companies in various sectors, including healthcare. The implications of these findings underscore the importance of considering macroeconomic conditions in analyzing the financial performance of the healthcare sector, as well as its role as a strong predictor that can

influence investment decision-making and business strategy ([Kumalasari et al., 2023](#)). Companies that are able to analyze macroeconomic instruments will be better prepared to make the right investment decisions, especially in facing complex capital market dynamics ([Anita et al., 2021](#)) = .

The Influence of Capital Structure on Financial Performance

Based on the analysis, it was found that capital structure has a negative and highly significant impact on financial performance. With a negative path coefficient of -0.419 (and a p-value of 0.000), this indicates that a suboptimal capital structure composition tends to negatively impact a company's efficiency and profitability. For example, a debt ratio that is too high can increase interest expenses and financial risk, ultimately depressing net income and return on equity. Conversely, relying too much on equity can mean missing out on potential benefits from debt leverage or not taking advantage of a lower cost of capital. Therefore, it is important for company management to carefully manage their capital structure to achieve the right balance between internal and external financing sources to maintain healthy and sustainable financial performance. Other research shows that a higher debt-to-equity ratio can significantly reduce the return on assets, which has implications for financial performance ([Putri & Yulfiswandi, 2022](#)).

This finding is consistent with previous studies that identified capital structure, especially in the context of high debt levels, as a factor that partially but significantly negatively affects financial performance ([Yuliani, 2021](#)) . In addition, a continuous increase in external debt will significantly increase payment obligations, especially interest expenses, which directly negatively impacts the company's profitability and cash flow ([Muntahanah et al., 2022](#)) . Therefore, a conservative and selective debt management strategy is essential for healthcare sector companies to maintain financial stability and optimize financial performance ([Gniadkowska - Szymańska et al., 2025](#)) . These results confirm that the inappropriate use of debt in the capital structure does not have a positive impact on the company's financial performance, in line with research showing that capital structure does not significantly affect financial performance ([Agustin et al., 2022](#)).

Furthermore, this finding is in line with the view that excessive use of debt can harm a company, pushing it into the extreme leverage category, where it is difficult to escape from the high debt burden ([Putera, 2021](#)).

The Influence of Capital Structure on Financial Performance with Macroeconomics as a Moderating Variable

The analysis shows a negative and highly significant moderating effect of the interaction between Macroeconomics and Capital Structure on Financial Performance, indicated by a negative path coefficient of -0.338 with a p-value of 0.000. This means that the relationship between one of the independent variables (e.g., Macroeconomics) and Financial Performance is not direct or simple, but rather influenced and modified by the other variable (Capital Structure). As an illustration, the positive impact of favorable macroeconomic conditions on a company's financial performance can be weakened or even reversed if the company has an inefficient capital structure, such as too much debt that is burdensome when interest rates rise. Similarly, an optimal capital structure strategy amid unstable macroeconomic shocks may help mitigate their negative impact on financial performance. Therefore, managers need to consider not only external economic factors and capital structure decisions individually, but also how these two factors interact and influence each other in determining a company's financial performance.

Thus, a deep understanding of the complex interactions between macroeconomic variables and capital structure is crucial for formulating adaptive and resilient financial strategies for healthcare sector companies ([Ariansyah et al., 2023; Islami & Wulandari, 2023](#)) . This is also supported by

other studies showing that leverage cannot always moderate the relationship between profitability and firm value, especially in the healthcare sector, indicating the complexity of the interaction between internal and external factors ([Sihombing et al., 2023](#)). Alignment with previous research stating that capital structure is unable to moderate the relationship between firm size and financial performance further strengthens the argument that the interaction of these factors is multifaceted and contextual ([Ariansyah et al., 2023](#)).

This study supports the idea that although macroeconomic conditions and capital structure have individual impacts on financial performance, the complex interactions between the two can significantly alter this relationship, necessitating a more holistic approach to corporate strategic analysis ([Astadewi & Pramesti, 2022; Baghaskoro et al., 2021](#)). Future research could consider non-crisis periods or compare the effects of these variables under normal economic conditions, as well as expand the proxy variables used for profitability, firm value, or corporate ownership to gain a more in-depth perspective ([Sihombing et al., 2023](#)). This research is in accordance with research conducted by ([Missaoui & Alduraywish, 2023](#)) which shows that the impact of macroeconomic variables on capital structure differs in each developing country, highlighting the importance of considering differences in country characteristics in capital structure decision making ([Astadewi & Pramesti, 2022](#)). In addition, research states that macroeconomic variables can have diverse and even conflicting impacts on company value, depending on the industry and specific characteristics of the company ([Yurisafira et al., 2023](#)).

CONCLUSION

This study concludes that the interaction between macroeconomic variables and corporate capital structure has a complex and significant impact on the financial performance of healthcare companies in Indonesia, particularly in the 2021-2024 period. Specifically, it was found that although capital structure does not always have a significant direct effect on financial performance, the moderating role of macroeconomic conditions fundamentally changes the relationship, sometimes strengthening or weakening its effect. The implication is that healthcare company management must continuously monitor not only internal metrics but also macroeconomic trends to formulate capital structure policies that are responsive and resilient to external shocks (Surbakti, 2025). The development of a more comprehensive model, which integrates various macroeconomic indicators with more diverse dimensions of capital structure, can provide a more robust framework for predictive analysis and strategic decision-making. However, several studies show that country-specific factors in macroeconomic indicators do not always significantly influence capital structure decisions, while company-specific factors such as profitability and tangibility actually show a strong influence (Astadewi & Pramesti, 2022).

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