



Determinants of profitability in indonesia's big banks: the role of capital structure, operational efficiency (bopo), and net profit margin (npm) during the 2020–2024

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ABSTRACT

This study analyzes the effect of Capital Structure (Debt to Equity Ratio/DER), Operational Efficiency (BOPO), and Net Profit Margin (NPM) on Profitability (Return on Assets/ROA) of major Indonesian banks during 2020–2024. Using a quantitative approach with secondary data from the annual financial reports of banks listed on the Indonesia Stock Exchange (IDX), the research employed multiple linear regression analysis with SPSS version 29. Classical assumption tests, including normality and heteroskedasticity, confirmed that the regression model met all statistical requirements. The findings show that DER has a negative and significant effect on ROA, indicating that higher leverage reduces profitability due to increased financial burdens. BOPO also negatively and significantly affects profitability, suggesting that inefficient cost management lowers returns. Conversely, NPM has a positive and significant effect on ROA, meaning that higher profit margins improve banks' ability to generate returns from assets. These results are consistent with capital structure and efficiency-based profitability theories. Overall, the study highlights that maintaining an optimal capital structure, enhancing operational efficiency, and improving profit margins are crucial for sustaining profitability in Indonesia's major banking sector. Future research should include macroeconomic factors such as inflation and exchange rate fluctuations to provide a more comprehensive analysis.

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INTRODUCTION

The banking industry remains a frequently discussed topic, as most economic activities are closely tied to the role of financial institutions (Permaysinta & Sawitri, 2021). Banks function as the heart of the financial system, channeling funds from parties with excess liquidity to those in need of capital for investment or consumption (Makmur Sujarwo & Adi Inayah Sari, 2015). Moreover, the

development of digital technology has played a crucial role in driving a major transformation in banking services, shifting customer transactions from manual to digital through innovations such as mobile banking, digital banking, and fintech platforms that offer greater efficiency and accessibility (Setiawan & Pratama, 2021).

With high transaction activity and rapid technological transformation, the banking sector has achieved significant performance improvements. On a consolidated basis, PT Bank Rakyat Indonesia Tbk (BBRI) maintained its position as the top profit generator, recording a net profit of Rp45.36 trillion, followed by PT Bank Mandiri Tbk (BMRI) with Rp42.70 trillion and PT Bank Central Asia Tbk (BBCA) with Rp41.1 trillion. Meanwhile, PT Bank Negara Indonesia Tbk (BBNI) recorded the lowest profit among the big banks, amounting to Rp16.31 trillion. In terms of growth, BBCA demonstrated the fastest expansion, with a year-on-year (yoy) profit growth rate of 12.80% (Natalia, 2024).

Based on the data, Bank BRI's performance was primarily supported by net interest income amounting to Rp107.75 trillion, an increase of 4.6% year-on-year (yoy) from Rp103.01 trillion in the previous year. Meanwhile, Bank BCA and Bank Mandiri also recorded positive growth in net interest income. BCA experienced a strong increase of 9.50% yoy, while Bank Mandiri grew by 3.81% yoy. For Bank BNI, profit growth was driven by lower credit costs and strong non-interest income, which successfully offset the increase in interest expenses. This profitability growth was also inseparable from the banks' role in accelerating the domestic economy through their intermediation function, namely expansive credit or financing distribution.

Bank Mandiri recorded the fastest credit growth, rising 22.10% yoy to Rp1,316 trillion, followed by Bank BCA, which grew 14.50% yoy to Rp877 trillion. The credit growth of both banks surpassed 10.9% yoy as of September 2024. Meanwhile, Bank BRI and Bank BNI recorded annual credit growth rates of 8.20% and 9.50%, respectively (Natalia, 2024).

Bank performance is closely linked to the institution's ability to generate profits or earnings (Bastian et al., 2024). The following figure illustrates the Return on Assets (ROA) of Indonesia's Big Banks during the 2020–2024 base on data from Financial Reports, 2025. Based on the comparison chart of ratio performance among the four major banks in Indonesia – BMRI, BBNI, BBRI, and BBCA – during the 2020–2024 period, it can be observed that all banks generally exhibited an upward trend in their ratios from year to year, particularly up to 2023. BMRI showed the most remarkable performance, with a significant increase from 0.38 in 2020 to 0.76 in 2023, before slightly declining to 0.73 in 2024. BBCA also demonstrated stable and consistent growth, rising from 0.45 in 2020 to 0.63 in 2024, indicating the bank's sustained efficiency and profitability. Meanwhile, BBRI and BBNI showed steady improvements up to 2023, though both experienced slight declines in 2024. Overall, this trend illustrates that Indonesia's banking sector has been on a positive trajectory, reflecting solid performance growth over the past five years (Natalia, 2024).

Several researchers have examined corporate performance measured by Return on Assets (ROA) (Dini & Manda, 2020; Sasmita et al., 2018; Wibisono & Wahyuni, 2017). One of the key variables influencing profitability is capital structure, as it reflects how firms finance their operations and investments through a mix of debt and equity (Zamili et al., 2020). Managerial decisions regarding the optimal proportion of capital structure directly affect a firm's risk and profitability levels. A structure that relies too heavily on debt increases financial risk due to higher interest expenses but may also provide benefits such as tax savings (tax shields). Conversely, a greater reliance on equity can reduce bankruptcy risk but might lower shareholder returns. Therefore, companies must balance risk and return when formulating capital structure policies to enhance firm value and ensure sustainable performance (Bastian et al., 2024; SUMARNI et al., 2023)

Furthermore, capital structure can positively influence corporate performance. Several studies have found that higher leverage can lead to higher profitability (Bastian et al., 2024; Gunawan & Ramli, 2023; Ratna Ari Artanti, 2022; SUMARNI et al., 2023). Capital structure plays a

crucial role in determining profitability levels, as the composition of debt and equity affects the efficiency of fund utilization and potential investment returns. Debt financing can enhance profitability through the leverage effect, allowing firms to generate higher returns compared to relying solely on equity (SUMARNI et al., 2023). However, excessive debt may pose substantial financial risks if not managed effectively. Therefore, the relationship between capital structure and profitability is positive up to an optimal point, where proportional debt use improves financial performance and firm value (Gunawan & Ramli, 2023).

Another factor influencing profitability is operational cost efficiency. Several studies have shown that the BOPO ratio (Operating Expenses to Operating Income) significantly affects firm profitability (Maulana Muhammad Ferly, 2023; Rahmawati et al., 2021; Yuliana & Listari, 2021). The BOPO ratio is a key indicator of operational efficiency, especially in the banking sector. A higher BOPO ratio indicates a greater proportion of costs incurred to generate income, thereby reducing profitability. Conversely, a lower BOPO ratio reflects greater operational efficiency, ultimately increasing net profit. Previous studies have consistently found a negative relationship between BOPO and profitability, emphasizing the importance of cost efficiency in maintaining optimal financial performance.

In addition, the Net Profit Margin (NPM) also significantly influences company profitability. Prior studies (Hendrarini, 2011; Puteh, 2017; Romli et al., 2018) have shown that NPM positively affects profitability. This ratio reflects a firm's ability to generate net profit from its total revenue. A high NPM indicates efficient cost management and effective profit maximization from sales. Hence, a higher NPM represents stronger financial performance and effective managerial control over expenses and revenue generation (Bastian et al., 2024). Conversely, a low NPM may indicate inefficiencies in cost structure, operational management, or pricing strategy. Many prior studies support this view, showing that NPM has a positive and significant impact on firm profitability (Romli et al., 2018).

Based on these phenomena and prior findings, this study aims to re-examine the performance of Indonesia's "Big Banks" during the 2020–2024 period, to gain deeper insights into the factors influencing profitability and efficiency in the national banking sector. This investigation is essential given the significant transformations within the banking industry, driven by digital technology advancements, global economic dynamics, and domestic monetary policies that impact banks' financial structures and performance. Through this research, it is expected that a comprehensive understanding can be developed regarding the financial strategies employed by major banks – BMRI, BBNI, BBRI, and BBCA – and how these strategies contribute to improving financial performance and competitiveness amid the increasingly dynamic and competitive business environment.

Previous studies have extensively examined factors influencing banking profitability, such as capital structure, operational efficiency (BOPO), and Net Profit Margin (NPM). However, most of these studies were conducted prior to the massive digital transformation within Indonesia's banking sector. This has created a research gap regarding how technological advancements, the COVID-19 pandemic, and subsequent economic recovery have altered the relationship between traditional financial variables and bank profitability. Therefore, this study seeks to provide updated insights by re-examining the effects of Debt to Equity Ratio (DER), BOPO, and NPM on Return on Assets (ROA) during the 2020–2024 period—a phase characterized by digital transformation and fundamental changes in the national banking landscape.

Performance is a crucial aspect of a company as it serves as the primary indicator of success (Aisyah, 2014). The higher a company's performance, the greater the impact not only on the company itself but also on its shareholders (Amir Paisal et al., 2023). Therefore, it is essential for companies to maintain strong performance as a positive signal to investors, which can encourage them to increase funding to the company (Zamili et al., 2020). Several methods allow company performance to be measured using financial ratios as key indicators (Wu et al., 2023)

Return on Assets (ROA) is one of the main indicators used to evaluate how effectively a company utilizes its total assets to generate profit. This ratio reflects management's ability to manage available resources to create value for the company (Rianto, 2018; Sasmita et al., 2018). A higher ROA indicates more efficient use of assets in supporting operational activities and generating net income (Hendrawan Raharjo et al., 2020). A company with a stable ROA demonstrates consistent asset management capability, while a decline in ROA may indicate problems in cost control or operational efficiency (Munir, 2018)

Capital structure essentially describes how a company finances its assets and operations through a mix of debt and equity (Zamili et al., 2020). Decisions regarding capital structure are not merely numerical but reflect a strategic management decision to balance risk and return (Bastian et al., 2024). Firms that rely heavily on debt may gain short-term advantages from leverage but face higher financial risks in the long run. Therefore, determining an optimal capital structure must consider both the company's internal conditions and the prevailing economic environment (SUMARNI et al., 2023)

Operational costs are a key component reflecting the efficiency of a company's operational activities, particularly in the banking sector. These costs include all expenditures incurred in daily operations, such as labor, administrative, and system maintenance expenses (Hendrawan Raharjo et al., 2020). Efficiency in managing operational costs is essential for improving profitability – lower cost proportions relative to income lead to greater profits. The BOPO ratio (Operating Expenses to Operating Income) is commonly used to measure efficiency; a lower BOPO indicates higher operational efficiency and stronger profitability (Hendrawan Raharjo et al., 2020). Previous studies have shown that operational costs have a negative and significant effect on profitability, implying that cost efficiency improvements positively impact earnings (Hendrawan Raharjo et al., 2020; Nugraha & Haryanto, 2016; Wibisono & Wahyuni, 2017).

Net Profit Margin (NPM) is an important financial ratio used to measure a company's profitability level, representing the proportion of net profit generated from total revenue (Romli et al., 2018). This ratio indicates management's effectiveness in controlling costs and optimizing revenue. A higher NPM reflects a company's ability to manage operational and non-operational expenses efficiently, thereby increasing net income (Hendrarini, 2011). NPM serves as an indicator of a bank's ability to convert operational income into sustainable net profit. Previous studies have also found that NPM has a positive and significant influence on corporate profitability (Julianti, 2014; Susanti et al., 2015)

A conceptual framework provides an overview of the linkage between independent and dependent variables, and serves as a reference for researchers in understanding the overall research model (Rianto et al., 2021). Based on this conceptual framework, Return on Assets (ROA) is positioned as the dependent variable, while capital structure, BOPO, and Net Profit Margin (NPM) are treated as the independent variables.

The research hypotheses are formulated as follows: Debt to Equity Ratio (DER) is a measure of leverage that represents the proportion of debt to equity. In banking and finance literature, numerous studies have shown a negative relationship between leverage (DER) and profitability, as higher leverage tends to increase interest expenses and financial risk (SUMARNI et al., 2023). Many researchers have found that an increase in DER tends to decrease profitability due to the rising financial burden on the company. H1: DER has a significant effect on profitability (ROA).

Similarly, BOPO (Operating Expenses to Operating Income) measures a bank's efficiency in utilizing its assets to generate profit. A high BOPO ratio indicates low operational efficiency, meaning that the bank incurs higher operational costs relative to its income (Nugraha & Haryanto, 2016). Prior studies have shown that a higher BOPO ratio tends to reduce profitability (Dini & Manda, 2020; Hendrawan Raharjo et al., 2020). H2: BOPO has a significant effect on profitability (ROA).

In addition, Net Profit Margin (NPM) represents the portion of revenue remaining as profit after all expenses have been deducted. A higher NPM indicates that a bank is effective in managing its costs and generating profit from its revenues (Latifah & Wirman, 2021). This efficiency is reflected in better asset utilization, which in turn enhances profitability (ROA). Several studies have found that an increase in NPM leads to higher profitability (Hendrarini, 2011; Julianti, 2014; Puteh, 2017). H3: NPM has a significant effect on profitability (ROA).

RESEARCH METHOD

This study employs a quantitative research design, which utilizes numerical data that are statistically processed to produce interpretable results for drawing conclusions and testing hypotheses (Ghozali, 2016). The population in this study consists of the “Big Banks” or large commercial banks listed on the Indonesia Stock Exchange (IDX) during the period 2020–2024. These banks include Bank Mandiri (BMRI), Bank Rakyat Indonesia (BBRI), Bank Negara Indonesia (BBNI), and Bank Central Asia (BBCA). These four institutions are selected because they possess the largest total assets in Indonesia and play a significant role in maintaining the stability of the national financial system.

The sample selection was conducted using the purposive sampling method, a non-probability sampling technique based on specific criteria aligned with the research objectives (Sujarweni, 2018).

The criteria used in this study include: a). Banks that have been consistently listed on the IDX throughout the research period (2020–2024). b). Banks that publish complete and audited annual financial statements during the observation period. c). Banks that provide relevant data for analyzing the research variables, namely capital structure, operational efficiency, and profitability. The operational definitions of each variable are presented as follows:

Table 1. Operational Definitions Variables

Variables	Ratio	Formula	Reseacher
Capital Structure	Debt to Equity Ratio	$DER = \frac{\text{Total Debt}}{\text{Total Equity}}$	(Syahwildan & Sutrisno, 2020)
Profitability	Return on Asset	$ROA = \frac{\text{Net Income After Tax}}{\text{Total Assets}} \times 100\%$	(Latifah & Wirman, 2021)
Profitability	Net Profit Margin	$NPM = \frac{\text{Net Income}}{\text{Revenue}} \times 100\%$	(Supardi et al., 2018)
Operational	BOPO Ratio	$BOPO = \frac{\text{Operational Expenses}}{\text{Operational Income}} \times 100\%$	(Hendrawan Raharjo et al., 2020)

Through this approach, the study aims to present a comprehensive overview of the financial performance and operational efficiency of Indonesia’s major banks during the period 2020–2024. The research employs classical assumption tests and hypothesis testing using the SPSS version 29 statistical software package.

The use of a quantitative research approach in this study is based on the objective of obtaining measurable and empirically verifiable results regarding the factors that influence banking profitability in Indonesia. The quantitative approach enables the researcher to process numerical data statistically, thereby producing valid and reliable conclusions. This method aligns with the nature of the study, which focuses on the relationships among financial variables—namely capital structure, operational efficiency, and profitability—that are generally measured through financial ratios. Thus, the application of quantitative analysis provides a strong foundation for hypothesis testing and for identifying the significance of relationships among the examined variables.

The selection of the research population, which consists of four major banks – Bank Mandiri, Bank Rakyat Indonesia, Bank Negara Indonesia, and Bank Central Asia – is grounded in their strategic role within the national economy. These banks possess the largest total assets in Indonesia and make significant contributions to maintaining the stability of the national financial system. Moreover, they represent the most dominant structure within the Indonesian banking industry and exert substantial influence over the direction of national financial policy. By focusing on these leading banks, this study aims to present a representative overview of the overall condition and performance of the Indonesian banking sector.

The purposive sampling method was employed because this study required specific criteria aligned with its objectives. Only banks that were consistently listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period, published complete and audited annual financial statements, and provided relevant data for analyzing the research variables were selected. This sampling technique ensures that the data analyzed are valid, consistent, and comparable across time periods. Additionally, the use of purposive sampling minimizes bias and enhances the credibility of the findings, as it includes only institutions with high transparency and strong corporate governance practices.

RESULTS AND DISCUSSIONS

The first stage of this research involves testing the classical assumptions, namely normality and heteroscedasticity. Based on the results obtained from SPSS version 29, the normality test in the classical assumption analysis produced the following data:

		DER	ROA	BOPO	NPM
N		20	20	20	20
Normal Parameters ^a					
	Mean	5.5555	.0230	.4260	.3660
	Std. Deviation	.64149	.00979	.19693	.15236
Most Extreme Differences					
	Absolute	.155	.263	.100	.109
	Positive	.155	.187	.100	.072
	Negative	-.151	-.263	-.098	-.109
Kolmogorov-Smirnov Z		.693	1.175	.448	.487
Asymp. Sig. (2-tailed)		.723	.126	.988	.972

a. Test distribution is Normal.

Source: Data processed using SPSS version 29

The Kolmogorov–Smirnov (KS) table shows that the Asymp. Sig values are greater than 0.05, indicating that the data meet the normality assumption (Andra Ningsih et al., 2019). Based on the table above, DER has a value of 0.723, ROA of 0.126, BOPO of 0.988, and NPM of 0.972 – all of which meet the criteria for normally distributed data.

This study also conducted a heteroscedasticity test to ensure that the regression model satisfies the classical assumption of homoscedasticity, meaning equal variance of residuals. The test was performed using a scatterplot between the ZPRED (predicted values) and SRESID (standardized residuals). The results indicate that the data points on the scatterplot are randomly distributed above and below the zero axis without forming any specific pattern, whether expanding or narrowing. This pattern suggests that the residual variance is constant, indicating no heteroscedasticity symptoms in the regression model.

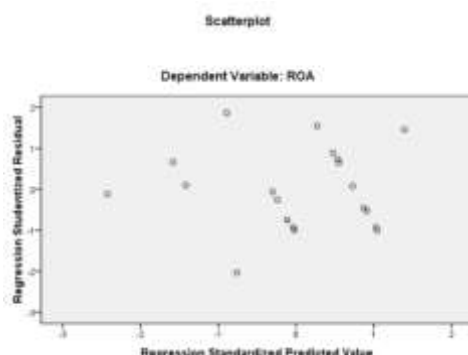


Figure 2. Heteroscedasticity Test (Scatterplot of ZPRED vs SRESID)
 Source: Data processed using SPSS version

Hypothesis Testing Results

Based on the results of the multiple regression analysis presented in the table above, this study employs Return on Assets (ROA) as the dependent variable, while BOPO, NPM, and DER serve as the independent variables. The constant value of 0.051 indicates that when all three independent variables are equal to zero, ROA will be 0.051 or 5.1%. This suggests that even without the influence of operational efficiency, net profit margin, and capital structure, banking firms still generate a positive return on assets, likely due to productive assets and ongoing business activities.

The Debt to Equity Ratio (DER) variable shows a negative coefficient of -0.008, a t-value of -6.700, and a significance level of 0.000, indicating a significant negative effect on ROA. This result implies that the higher the level of debt a bank holds, the lower its profitability becomes, as a consequence of increased interest expenses and financial risk. Overall, this finding reaffirms that cost efficiency, profitability generation capability, and capital structure play crucial roles in determining the profitability level of Indonesia’s major banks.

The BOPO (Operating Expenses to Operating Income) variable has a coefficient of -0.044, a t-value of -2.549, and a significance level of 0.021. The negative coefficient and significance level below 0.05 indicate that BOPO has a significant negative effect on ROA. This means that a higher BOPO ratio—reflecting greater operating expenses relative to operating income—reduces the profitability of banks, as measured by ROA. This finding is consistent with the theory of operational efficiency, which asserts that banks capable of minimizing operational costs tend to achieve higher profitability.

Furthermore, the Net Profit Margin (NPM) variable shows a positive coefficient of 0.095, a t-value of 4.241, and a significance level of 0.001, indicating a positive and significant effect on ROA. This suggests that the higher the net profit margin achieved by a bank, the greater the return on assets generated.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.051	.007		6.794	.000
	BOPO	-.044	.017	-.878	-2.549	.021
	NPM	.095	.022	1.478	4.241	.001
	DER	-.008	.001	-.518	-6.700	.000

a. Dependent Variable: ROA

Source: Data processed using SPSS version 29

Before presenting the R Square results, it is essential to assess the overall goodness of fit of the regression model to determine how effectively the independent variables explain variations in the dependent variable. The Model Summary table provides key statistical indicators, including the correlation coefficient (R), the coefficient of determination (R Square), the adjusted R Square, and the standard error of the estimate. These indicators collectively describe the model's explanatory power and predictive accuracy in estimating the dependent variable, Return on Assets (ROA), based on the predictors Debt to Equity Ratio (DER), BOPO, and Net Profit Margin (NPM). The interpretation of these values is crucial to understanding the strength, validity, and reliability of the model in capturing the relationship between financial performance indicators and profitability within the Indonesian banking sector. The following table presents the results of the R Square analysis.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.957 ^a	.916	.900	.00310

a. Predictors: (Constant), DER, BOPO, NPM
b. Dependent Variable: ROA

The Model Summary table shows that the regression model has a high level of explanatory power, with an R value of 0.957 indicating a very strong positive relationship between DER, BOPO, and NPM as predictors of ROA. The R Square of 0.916 reveals that 91.6% of the variation in ROA can be explained by these three independent variables, suggesting that profitability is largely influenced by a firm's capital structure, operational efficiency, and profit margin. The Adjusted R Square of 0.900 further confirms the model's robustness, indicating that the inclusion of these variables is statistically appropriate and does not lead to overfitting. Moreover, the Standard Error of 0.00310 reflects a small prediction error, implying that the estimated values are very close to the actual data. Overall, these results demonstrate that DER, BOPO, and NPM collectively have a significant and reliable impact on the profitability (ROA) of the firms studied.

Changes in bank profitability during 2020–2024 may have also been influenced by external factors, particularly policies enacted by Bank Indonesia (BI) and the Financial Services Authority (OJK). During this period, regulatory adjustments such as interest rate interventions, liquidity support, and credit restructuring programs were implemented to stabilize the economy amid post-pandemic recovery. These measures directly affected banks' lending activities, cost of funds, and capital management strategies, thereby moderating the internal relationship between capital structure, efficiency, and profitability. Thus, while the study confirms that DER, BOPO, and NPM significantly influence ROA, these relationships are also shaped by macroeconomic and regulatory dynamics unique to Indonesia's financial environment.

From a practical perspective, the findings provide valuable insights for bank financial managers and policymakers. Managers can utilize the results to enhance strategic decision-making by maintaining an optimal capital structure, controlling operational costs, and improving profit margins to sustain profitability. For regulators, the findings suggest that supportive monetary and supervisory policies can strengthen banking performance while ensuring system stability. The Indonesian context—characterized by state-dominated banks, digital transformation, and evolving post-crisis regulations—makes this study particularly relevant for developing economies seeking to balance profitability, efficiency, and resilience in their financial systems.

Discussions

In line with the findings for the Debt to Equity Ratio (DER) variable, the results show a negative and significant effect on ROA, indicating that the higher the ratio of debt to equity, the lower the bank's profitability. This result is consistent with the studies of (Bastian et al., 2024; SUMARNI et al., 2023), which state that an increase in debt usage can reduce financial performance

due to the rise in interest expenses and financial risk. These findings also support the capital structure theory, which posits that an excessive proportion of debt can suppress net income and reduce asset management effectiveness (Lasar & Jonnardi, 2024). Therefore, maintaining an optimal capital structure is essential for banks to preserve financial stability and maximize their return on assets. Overall, this study confirms that operational efficiency, profitability generation capability, and prudent capital structure management are the key determinants of profitability among Indonesia's major banks.

The results also show that the BOPO variable has a negative and significant effect on ROA, with a significance level of 0.021, thereby supporting H1. This indicates that the higher the BOPO ratio—reflecting an increase in operating expenses relative to operating income—lower the bank's profitability. These findings reinforce the results of previous studies by (Maulana Muhammad Ferly, 2023; Rahmawati et al., 2021; Yuliana & Listari, 2021) which found that BOPO has a negative relationship with the profitability of banking firms. The more efficiently a bank manages its operational costs, the higher the profit generated from its assets. Thus, operational efficiency serves as a critical factor in enhancing bank profitability, especially amid increasing competition and the growing demand for digitalized financial services.

The next finding reveals that the Net Profit Margin (NPM) variable has a positive and significant effect on ROA. This suggests that the greater the net profit margin earned by a bank, the higher its return on assets. This finding aligns with previous studies by (Hendrarini, 2011; Puteh, 2017; Romli et al., 2018) which indicate that an increase in NPM reflects a company's ability to manage revenue and control costs, thereby positively affecting profitability. A bank with a high profit margin demonstrates that management can optimize income from productive assets while maintaining strong operational efficiency. Hence, NPM serves as an important indicator reflecting the financial strength and competitive advantage of banks in the national banking industry.

CONCLUSION

Based on the findings above, the researcher draws several conclusions as follows: a). Capital structure (DER) has a significant effect on profitability (ROA) among Indonesia's big banks during the 2020–2024 period. This indicates that an increase in the debt ratio can reduce the bank's ability to generate profit. b). Operational cost efficiency (BOPO) has a negative and significant effect on profitability. A higher BOPO ratio reflects lower operational efficiency, which in turn leads to a decline in bank profitability. c). Net Profit Margin (NPM) has a positive and significant effect on profitability, meaning that the greater the net profit margin obtained, the higher the bank's return on assets. so there is compatibility. The next stage of this research may consider external factors such as inflation and exchange rates to obtain a more comprehensive understanding of profitability determinants, not only from the internal perspective of the company but also from the broader economic environment.

This research makes a new contribution to the literature and practice of banking financial management by providing empirical evidence on how internal financial indicators—capital structure (DER), operational efficiency (BOPO), and profitability ratio (NPM)—jointly influence the return on assets (ROA) of major Indonesian banks within the dynamic regulatory and economic environment of 2020–2024. Unlike prior studies that often examined these variables separately or focused on pre-pandemic periods, this research integrates them within a single model while considering the post-pandemic recovery and regulatory adjustments by Bank Indonesia (BI) and OJK.

Practically, this study contributes to banking management practices by demonstrating that profitability can be optimized through a balanced capital structure, cost efficiency, and sustainable profit margin strategies, even amid regulatory and market uncertainties. It offers actionable insights for financial managers to strengthen decision-making processes related to capital allocation, risk management, and operational optimization. Moreover, by contextualizing its

findings within Indonesia's evolving banking landscape, the study enriches the international literature on emerging market banking, emphasizing how regulatory frameworks and macroeconomic shifts shape the financial performance of large, systemically important banks.

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