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Exploring the Impact of Digital Transformation and Banking Factors on the Financial Performance of Conventional Banks Listed on the Indonesian Stock Exchange

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ABSTRACT

This research aims to examine the impact of Internet and Security, Capital Adequacy Ratio, Non-Performing Loans, Operating Expenses to Operating Income, Loan to Deposit Ratio, Bank Size, Loans, Exchange Rate, and Gross Domestic Product on the performance of conventional banks from 2017 to 2022. The sample consists of conventional banks listed on the Indonesia Stock Exchange during this period. Data is sourced from a time series covering the years from 2017 to 2022 for independent variables and bank performance as the dependent variable. The methodology employed is Ordinary Least Squares, utilizing Eviews 10 software for logistic regression analysis.

The results indicate that Internet and Security, Capital Adequacy Ratio, Loan to Deposit Ratio, Bank Size, and Gross Domestic Product significantly affect changes in the performance of conventional banks, as measured by Return on Assets (ROA). Specifically, Internet Security, Bank Size, Exchange Rate, and Gross Domestic Product show a positive impact, while Capital Adequacy Ratio, Operating Expenses, Non-Performing Loans, and Loans exhibit a negative effect.

Finance managers can leverage this research to gain insights into the key factors contributing to the performance of conventional banks in Indonesia, particularly as influenced by digital financial services and advancements in technology and information, which significantly impact the banking sector. By understanding these factors, managers can make more informed decisions to effectively manage their banks and enhance performance. Additionally, the findings provide valuable information to investors regarding the primary determinants of conventional bank performance in Indonesia, enabling them to take appropriate actions for investment and achieve high returns on their investments.

Keywords: Internet and Security, Bank Characteristics, Non-Performing Loans, Exchange Rate, Gross Domestic Product, Bank Size.

INTRODUCTION

In this era of globalization, we have witnessed a worldwide transformation triggered by technological innovations, which has significantly altered the economic landscape (Muchemwa, 2022). Specifically, computational and modeling technology facilitate the generation of predicting investment conditions (Abdelli & Mogaji 2022; Khalil, Abdelli & Mogaji, 2022). Although these solutions can be expensive and designed primarily for the biggest institutions, they have increasingly made data more accessible, allowing newcomers to enter the competitive landscape. As a result, banks are striving to adjust to these market fluctuations, requiring substantial investments in both physical and intangible infrastructure (Zhao et al., 2022).

Banks play a crucial role in collecting public funds through savings accounts, deposits, current accounts, and other instruments, subsequently redistributing those funds in the form of loans. The Bank Indonesia Annual Report for 2021 noted that Indonesia's economy recorded its first positive growth of 7.07% year-on-year in the second quarter of 2021 after the Covid-19 pandemic. Financial system stability showed promising conditions, supported by an increase in banks' intermediary functions. The Financial Stability Index (ISSK) remained in the normal zone, and the Financial System Vulnerability Index (IKSK) continued to improve, evidenced by a capital adequacy ratio of 25.18% and a net non-performing loan ratio of 1.04%, alongside a public fund ratio of 33.53%. Additionally, digital banking grew positively by 60.7% year-on-year, reflecting rapid growth in digital transactions driven by the public's increased acceptance and preference for online shopping and enhanced digital payment systems (Pratama, 2021).

As of August 2023, Indonesia has a total of 107 banks, including state-owned banks, private national banks, regional development banks, and foreign branch banks, categorized further into 94 conventional banks and 13 Islamic banks. The number of conventional banks has decreased from 111 in 2010 to 107 in 2023 due to bank closures and mergers. Numerous conventional banks in Indonesia offer a variety of banking services and products, potentially creating performance issues for these institutions, as investors tend to evaluate performance based on annual reports. This evaluation is critical, as banks serve as agents of trust.

Measuring bank performance has become increasingly crucial in the context of the Covid-19 pandemic and the current new normal. The Financial Services Authority (OJK), the regulatory body overseeing banks, modified the classification of Commercial Banks (BUKU) to Core Capital-Based Bank Groups (KBMI) in 2021, as outlined by government. KBMI 1 encompasses banks with core capital of less than Rp 6 trillion, KBMI 2 includes those with Rp 6 trillion to Rp 14 trillion, KBMI 3 comprises banks with Rp 14 trillion to Rp 70 trillion, and KBMI 4 consists of banks with over Rp 70 trillion in core capital. This change by OJK aims to facilitate its functions as a partner and supervisor of banks while enhancing its prudential regulatory measures and statistical requirements for effective supervision. Importantly, the OJK does not pressure banks to align their capital with KBMI standards.

Various factors influence the performance, health, or profitability of banks. Capital factors are represented by the ratio capital adequacy (CAR), asset aspects by nonperforming loans (NPL), management by operating expenses to operating income (BOPO), earnings by return on assets (ROA), cash by the loan-to-deposit ratio (LDR), and additional aspects such as Bank Size, Digitalization, along with economic factors viewed through the lens of exchange rates and GDP.

Rahmad and Suparno (2022) argue that internet banking and mobile banking have an adverse effect on the performance of banks. Conversely, Ginting et al. (2022) and Boerih (2023) assert that digitalization enhances bank performance. Specifically, digitalization in the banking sector has been introduced to respond to innovation and market changes, as highlighted by Feld et al. (2021). This encompasses the improvement via internet connectivity, adjustments to procedures for operation, internal organizational development, alterations in operational options and the creation of novel products and services (Theiri & Hadoussa, 2024). Furthermore, strategic transformation choices must consider the unique characteristics of the bank, including customer base, market position, culture, and current infrastructure, while

remaining consistent with overall strategic objectives. Such transformation strategies require significant IT investments, raising questions about their impact on profitability. Ultimately, these strategies can lead to increased productivity and business efficiency, as noted by Akpan, Soopramanien, and Kwak (2021). Digital transformation plays a crucial role in enhancing organizational performance (Kyllingstad & Rypestøl, 2021).

The size of the company, as defined by Lekok and Rusly (2022), is reflected in total assets. Hidayat and Abidin (2021) demonstrate that company size positively impacts performance, with a higher bank size indicating improved performance. However, this contrasts with findings by Cahyana and Suhendah (2022), who conclude that the size proxy does not significantly affect performance.

The establishment of the CAR as a variable influencing profitability is grounded in its relationship with bank risk levels. A substantial capital ratio can safeguard buyers and enhance their trust in the bank (Maulana et al., 2021). Research findings regarding the impact of variations in CAR on return on assets (ROA) show varied results. Research conducted by Latifah et al. (2022) and Abdurrohman et al. (2022) demonstrates a favorable correlation between CAR and ROA. In contrast, other research by Noviarvanty and Aminah (2022) and Latifah, Rodhiyah, and Saryadi et al. (2022) presents evidence that CAR negatively and insignificantly affects ROA.

Non-performing loans (NPL) reflect a bank's ability to recover loans it has issued until full repayment. NPL is defined as the percentage of problem loans (categorized as substandard, doubtful, and lost) relative to the total loans issued by the bank (Amallia & Suhartono, 2022). A high NPL ratio increases costs, including charges for reserve assets and other related costs. This means that the higher the NPL of a bank, the more it will disrupt the bank's performance. Latifah et al. (2022) research indicates a negative relationship between NPL and ROA. ROA serves as a metric for assessing how effectively a bank generates profit from its assets. When NPLs increase, the profit generated from assets also declines, as a significant portion of those assets is tied up in loans that are not being repaid. In other words, a higher NPL leads to a lower ROA, which in turn can affect the bank's stock value in the market. Investors tend to shy away from shares of banks with poor performance, resulting in falling stock prices and challenges in raising capital.

The operational efficiency ratio, calculated as the ratio of operating expenses to operating income (BOPO), quantitatively measures bank efficiency. This ratio assesses whether bank management effectively utilizes all production factors. Bank operational efficiency is evaluated by comparing operating expenses to operating income (Ferdiansyah & Widyarti, 2022). Research by Milda et al. (2022) suggests a positive influence of BOPO on ROA, whereas Azizah & Manda (2021) report a negative effect.

The loan to deposit ratio (LDR) is a key metric for assessing bank liquidity, indicating the extent to which bank funds are allocated to lending activities. Bank Indonesia regulations state that the LDR should range between 80% and 110% (Moorcy, 2022). A higher LDR typically leads to increased bank profits, provided that loans are successfully managed without significant defaults. Consequently, the size of the LDR can significantly affect a bank's performance. Various studies yield different outcomes regarding LDR. For instance, Latifah et al. (2022) find a positive relationship between LDR and ROA, while Setyaningsih et al. (2023) and Maulana et al. (2021) conclude that LDR does not significantly influence ROA.

Currency exchange rates also play a vital role in banking profitability, with foreign exchange (FX) activities involving several players with diverse goals. Banks earn income from foreign currency trading through the bid-ask spread and commissions. Therefore, fluctuations in exchange rates can allow banks to generate revenue from fees and currency differences (Makmur & Adisaputra, 2023). Interest income from loans can further enhance bank profitability (Ristanti & Triyonowati, 2021). However, research conducted by Makmur et al. (2023) and Milda et al. (2022) indicates that exchange rates do not significantly influence banking profitability, contrasting with findings by Supriantikasari & Utami (2022), which suggest that exchange rates do have an effect on bank profitability.

The primary objective of this study is to investigate and analyze the impact of Internet and Security on the financial performance of banks. This research aims to provide crucial information that helps financial managers understand how the CAR can influence bank profitability, as measured by ROA. It offers insights into maintaining an appropriate balance between sufficient capital to support operations and maximizing profits.

Furthermore, the study designed to deliver valuable information to investors regarding the key factors that impact the performance of conventional banks in Indonesia. This information can serve as a vital consideration for making informed investment decisions. By employing a panel data regression analysis model, the research will identify the relationship between various variables affecting the performance of conventional banks in Indonesia.

As a result, investors will be better equipped to make sound investment choices, enabling them to achieve optimal returns on their investments. This careful analysis can ultimately assist in fostering a more resilient banking sector that contributes positively to the broader economy.

RESEARCH METHODS

This research is conducted to examine the effect of digital variables, factors specific to banks, and macroeconomic indicators on the performance of banking institutions listed on the Indonesia Stock Exchange (BEI), particularly focusing on traditional banking institutions. The research seeks to verify the hypotheses regarding the impact of Internet and Security, CAR, LDR, BOPO, NPL, Bank Size, Loans, Exchange Rate, and Gross Domestic Product (GDP) on the performance of conventional banks in Indonesia.

Utilizing a quantitative research design, the data source comprises the financial statements of conventional banks that are registered on the BEI. This study adopts a comparative research approach aimed at testing the impact of independent variables on the dependent variable while also examining the differences in bank performance. This research utilizes panel data, with independent variables including the ratio of Internet and Security, CAR, LDR, BOPO, NPL, Bank Size, Loans, Exchange Rate, and GDP. The dependent variable is shown by the financial performance of banks, as proxied by ROA.

The dataset includes 41 banks that were active from 2017 to 2022, yielding a total of 246 observations. The analysis begins with descriptive statistical analysis, followed by stationarity tests, appropriate panel data model estimation tests, classical assumption testing, panel data regression analysis, and hypothesis testing. Widarjono (2015) identifies three methodologies

for estimating panel data regression models: the Common Effect Model (pooled least squares), the Fixed Effect Model (FEM), and the Random Effect Model.

1. Model Selection for Panel Data Regression: According to Y¹⁸arjono (2015), multiple testing phases are conducted to identify the best appropriate model for panel data analysis, encompassing the Chow Test, Hausman Test, and Lagrange Multiplier Test.

2. Assumption Testing for Regression Model: The data collected in a panel regression model is deemed legitimate if it satisfies the conditions of the Best Linear Unbiased Estimator (BLUE). Attaining BLUE necessitates satisfying classical assumptions for panel data. According to Tri & Nano (2016), classical assumption tests needed for panel data include heteroscedasticity testing.

3. Hypothesis Testing: Winarno (2017) distinguishes hypothesis tests into F-tests, t-tests, and R² tests (coefficient of determination).

Through these methodologies, the research aims to provide comprehensive insights into how various factors shape the financial performance of conventional banks in Indonesia, ultimately contributing valuable information for both academic and practical applications in the banking sector.

RESULT AND DISCUSSION

Utilizing data analyzed by Eviews, which includes variables such Internet and Security, CAR, LDR, BOPO, NPL, Bank Size, Loans, Exchange Rate, and ¹¹P to predict Return on Assets (ROA), we may ascertain the lowest, maximum, average, and standard deviation for each variable. The findings of the descriptive analysis are encapsulated in the first table as follows:

Table 1. Descriptive Analysis Results

Variable	Mean	Median	Maximum	Minimum	Std. dev
	%	%	%	%	%
INTERNET AND SECURITY	1.035187	0.001379	50.19472	0.006008	5.011721
CAR	29.24021	23.64000	169.9200	3.210000	19.99042
LDR	85.02958	84.40000	163.1900	12.35000	22.25640
BOPO	129.4974	87.15000	287.8600	26.50000	591.6117
NPL	3.506375	2.815000	23.15000	0.010000	2.922086
SIZE	17.26661	16.99841	21.41268	13.40705	1.837914
LOAN	78.18839	83.38737	99.20000	0.770000	16.88848
NILAI TUKAR	14346.42	14209.00	15730.50	13548.00	688.1266
GDP	-62.90043	-1.154819	43.51351	-278.7440	112.6410
ROA	0.923542	1.080000	13.58000	-15.89000	3.173292

Table 2. Selection of the best model for panel data calculations

Redundant Fixed Effects Tests
Equation: FEM
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	5.989604	(39,191)	0.0000
Cross-section Chi-square	191.726704	39	0.0000

Correlated Random Effects - Hausman Test
Equation: REM
Test cross-section random effects

Test Summary	Chi-Sq.		
	Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	9	1.0000

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	91.22070 (0.0000)	2.752814 (0.0971)	93.97351 (0.0000)

Table 3. Regression Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTERNET_AND_SECURITY	0.109557	0.054227	2.020341	0.0445
CAR	-0.023937	0.010978	-2.180477	0.0302
LDR	0.023665	0.010122	2.338081	0.0202
BOPO	-3.80E-05	0.000245	-0.154877	0.8771
NPL	-0.055877	0.059127	-0.945032	0.3456
SIZE	0.741170	0.172773	4.289838	0.0000
LOAN	-0.010196	0.017927	-0.568756	0.5701
NILAI_TUKAR	0.000144	0.000218	0.657819	0.5113
GDP	0.002690	0.001303	2.064815	0.0401
C	-14.19179	4.055544	-3.499356	0.0006
Effects Specification				
			S.D.	Rho
Cross-section random			1.843024	0.4489
Idiosyncratic random			2.042099	0.5511
Weighted Statistics				
R-squared	0.167464	Mean dependent var		0.380629
Adjusted R-squared	0.134887	S.D. dependent var		2.245483
S.E. of regression	2.088556	Sum squared resid		1003.276
F-statistic	5.140487	Durbin-Watson stat		1.842516
Prob(F-statistic)	0.000002			
Unweighted Statistics				
R-squared	0.228172	Mean dependent var		0.923542
Sum squared resid	1857.542	Durbin-Watson stat		0.995160

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Based on the table above, the regression model obtained is as follows:

$$Y = -14.1918 + 0.1095 * \text{Internet and Security} - 0.0239 * \text{CAR} + 0.0236 * \text{LDR} - 0.000038 * \text{BOPO} - 0.0558 * \text{NPL} + 0.7412 * \text{SIZE} - 0.0102 * \text{LOAN} + 0.00014 * \text{Exchange Rate} + 0.0026 * \text{GDP}$$

Table 4. T Test Results

Variable	Coefficient	Prob.	Decision
Internet And Security	0.109557	0.0445	Positive effect
CAR	-0.023937	0.0302	Negative effect
LDR	0.023665	0.0202	Positive effect
BOPO	-0.000038	0.8771	No effect
NPL	-0.055877	0.3456	No effect
Size	0.741170	0.0000	Positive effect
Loan	-0.010196	0.5701	No effect
Nilai Tukar	0.000144	0.5113	No effect
GDP	0.002690	0.0401	Positive effect
C	-14.19179	0.0006	Negative effect

In this model, Y represents the dependent variable, which in the present scenario is likely the ROA of the banks. Each coefficient signifies the anticipated alteration in ROA due to a one-unit variation in the respective independent variable, while maintaining all other variables constant. An increase in Internet and Security correlates with an enhancement in ROA, but elevated levels of NPL adversely affect ROA. This regression equation elucidates the impact of several factors on the financial performance of conventional banks in Indonesia.

(H1): Internet and Security has a significant positive impact on ROA; thus, this hypothesis is accepted. In this increasingly digital era, investment in information technology and cybersecurity is a crucial factor for enhancing operational efficiency and company competitiveness. Therefore, a comprehensive understanding of the relationship between internet, security, and ROA is essential for stakeholders in this industry. Investments in internet and security encompass various elements, including robust information technology infrastructure, security software, and human resource training. Reliable IT infrastructure enables banks to process transactions swiftly and accurately, thereby enhancing customer satisfaction. For instance, banks that offer secure and accessible online banking services tend to attract more customers, which can potentially boost their revenue. As the number of clients grows, banks can also increase their assets, contributing to a higher ROA.

Cybersecurity is another equally important aspect. Cyberattacks on financial institutions have risen significantly, potentially leading to substantial financial losses and damaging the bank's reputation among the public. For example, if a bank suffers a major data breach, customer trust in that bank may decline, leading to massive withdrawals. Thus, investing in cybersecurity is not merely about protecting assets but also about maintaining reputation and customer confidence, which ultimately has a positive impact on ROA.

Moreover, the CAR considerably affects ROA, as indicated by a significance value below 0.05. Consequently, the second hypothesis (H2): CAR influences ROA, is affirmed. The observed impact is adverse; therefore, as the CAR increases, the ROA of banking institutions in the financial sector listed on the Indonesia Stock Exchange tends to decrease. In the context of the research conducted by Sukmadewi (2022), the findings indicate that the relationship between CAR and ROA is not straightforward. The study identified a significant influence between

these two variables, highlighting the importance of effective and efficient capital management in achieving optimal financial performance. Sukmadewi also emphasizes the necessity of a balanced risk management strategy, where banks must weigh the need for maintaining a healthy CAR against the goal of maximizing ROA. In this regard, bank management must be adept at striking a balance between safety and profitability.

Additionally, the panel data regression analysis indicates that the NPL variable does not significantly affect the ROA. This is supported by t-statistic results showing a probability value greater than 0.05. Therefore, the third hypothesis (H3): Non-Performing Loan does not significantly affect Return on Assets, is rejected. The research conducted by Fietroh & Fitriyani (2022) provides a solid foundation for understanding that while NPL can be an indicator of a bank's health, their impact on ROA is not always direct or significant. This perspective is particularly interesting to explore further, especially considering the importance of ROA as a benchmark for bank performance.

One reason NPLs may not significantly affect ROA lies in the risk management policies employed by banks. Many banks have developed risk mitigation strategies to manage NPL effectively. For instance, banks may restructure loans to assist borrowers facing financial difficulties, thus preserving the chances of recovering loan payments. In this manner, even with an increase in NPL, banks can maintain the stability of their ROA. Typically, when NPL increases, banks tend to allocate funds to cover potential future losses, known as loan loss provisions. When these provisions are factored in, they can reduce net profit and subsequently impact ROA. However, in some scenarios, banks may have previously set aside sufficient provisions, so an increase in NPL does not directly lower net profit and ROA.

The results of the panel data regression analysis indicate that BOPO does not have a significant impact on ROA. This is evidenced by the t-statistic results, which show a probability value exceeding 0.05. Therefore, the fourth hypothesis (H4): Operational Expenses Total Operating Income Ratio (BOPO) does not significantly affect Return on Assets, is rejected. This finding aligns with the study by Rerung (2022), which states that BOPO does not influence ROA. This suggests that banking efficiency does not necessarily affect profitability.

The findings also coincide with the research of Sa'adah & Sri Wahyuni (2023), which affirms that BOPO does not significantly affect ROA. BOPO serves as a crucial indicator of the operational efficiency of a financial institution, reflecting how well the institution manages its operating costs to generate revenue. However, ROA primarily focuses on the institution's ability to generate profit from its asset utilization. Although operational efficiency is important, it does not always directly correlate with the financial institution's capacity to generate profits from its assets.

In this study, it is noted that the LDR has a significant impact on ROA, evidenced by a significance value less than 0.05. Thus, the fifth hypothesis (H5): LDR significantly affects ROA, is accepted. Additionally, the nature of this influence is positive; therefore, as the LDR increases, the ROA of banks in the financial sector listed on the BEI also tends to rise. In the context of Sukmadewi's (2022) research, the positive relationship between the Loan to Deposit Ratio (LDR) and Return on Assets (ROA) suggests that banks that are more aggressive in extending loans tend to achieve better profitability results. This is likely due to the fact that the loans issued by banks represent their primary source of income through the interest paid by

borrowers. Therefore, a higher LDR indicates a greater potential for earning revenue from loan interest.

However, while a high LDR can enhance ROA, it also brings along risks that cannot be overlooked. Banks with elevated LDRs may encounter greater credit risk, especially if they do not conduct thorough assessments of borrowers' creditworthiness. For instance, if a bank lends to borrowers with poor credit histories or insufficient collateral, the likelihood of default increases. This can lead to significant losses for the bank and may negatively affect their ROA.

The results of the panel data regression analysis reveal that the size of the company significantly impacts Return on Assets (ROA). This is indicated by t-statistic results showing a probability value less than 0.05. Thus, the sixth hypothesis (H6): Company Size significantly affects Return on Assets, is accepted. The positive influence suggests that as the size of the company increases. Suhardi's (2021) research indicates that company size not only contributes to an increase in Return on Assets (ROA) but also provides greater stability in financial performance. Larger companies tend to be more resilient against market fluctuations and economic crises. When the market experiences a downturn, big firms usually have better liquidity reserves and the capability to withstand tough times, whereas smaller companies may find it more challenging to maintain their financial performance.

Moreover, larger companies often have better access to capital. They can more easily tap into capital markets and secure loans at lower interest rates compared to smaller firms. This creates a significant competitive advantage, as larger companies can invest more in profitable projects, innovation, and the development of new products. Consequently, these increased investments not only enhance revenue potential but also improve asset utilization efficiency, ultimately contributing to an increase in ROA.

On the other hand, the analysis shows that the Loan variable does not significantly affect ROA, as evidenced by t-statistic results with a probability value greater than 0.05. Therefore, the seventh hypothesis (H7): Loan does not significantly affect Return Assets, is rejected. These findings correspond with research by Theiri & Hadoussa (2024), which states that Loan does not have a significant impact on ROA. One reason why loans may not significantly impact Return on Assets (ROA) is the presence of external factors that play a more dominant role in influencing a company's performance. For instance, macroeconomic conditions such as inflation, interest rates, and market competition can have a greater effect on a company's profits than the debt structure itself. In a sluggish economic environment, even if a company has high levels of debt, a lack of sufficient demand for its products or services will still result in low profits.

Furthermore, poor debt management can also affect the relationship between loans and ROA. If a company struggles to manage its debt effectively, such as paying high interest rates or experiencing difficulties in repaying the principal, this can diminish the net income generated. In this scenario, what is intended to be a tool for enhancing performance may instead turn into a burden that pressures profitability.

Additionally, this study finds that the exchange rate does not have a significant effect on ROA, indicated by a probability value greater than 0.05. Hence, the eighth hypothesis (H8): Exchange Rate does not significantly affect Return on Assets, is rejected. This analysis is consistent with

the research conducted by Milda et al. (2022), which states that the exchange rate does not significantly influence ROA.

Firms that import goods or raw materials from other countries can benefit from a depreciation of the domestic currency against foreign currencies. This depreciation leads to lower import costs, which can enhance profit margins. With reduced production costs, companies have the potential to increase their net income, and consequently, their ROA. Conversely, companies that export their products to international markets can benefit from an appreciation of the domestic currency against foreign currencies. This makes domestic products cheaper for foreign buyers, potentially boosting export demand and company revenue. With higher income, firms can also improve their ROA.

In this study, it is found that GDP significantly impacts Return on Assets (ROA), as indicated by a significance value less than 0.05. Therefore, the ninth hypothesis (H9): GDP has a significant effect on ROA, is accepted. The nature of this effect is positive, suggesting that as GDP increases, the ROA for companies, also tends to rise.

This analysis aligns with the findings of Indriwati & Purwana (2021), which demonstrate that GDP has a simultaneous effect on the financial performance of banks in Indonesia. The positive correlation indicates that higher economic growth, represented by GDP, can lead to increased profitability for banks, reflecting a healthier economic environment that enhances lending activity, increases customer deposits, and ultimately boosts ROA. However, the relationship between GDP and ROA is not solely direct. Other factors also play a mediating role in this connection. One such factor is the interest rate. When GDP rises, central banks may increase interest rates to control inflation. While higher interest rates can boost income from loans, they also make borrowing more expensive for debtors, potentially reducing demand. This highlights the importance for banks to adjust their strategies in response to changing economic conditions and monetary policies.

CONCLUSION

In conclusion, the research conducted to analyze the effects of independent variables—such as Internet and Security, CAR, NPL, BOPO, LDR, Bank Size, Loan, Exchange Rate, and GDP—on the dependent variable of bank performance, measured by ROA, yields significant insights. The study reveals that five of these factors have a notable impact on ROA, while four do not.

Specifically, Internet and Security show a significant positive correlation with ROA, indicating that increased investment in these areas leads to higher returns. Conversely, CAR demonstrates a significant negative effect; as CAR increases, ROA tends to decrease—this points to the importance of effective capital management. The LDR has a significant positive relationship with ROA, affirming that higher ratios correlate with improved return metrics. Notably, BOPO and NPL do not show significant effects on ROA, suggesting that operational efficiency and loan quality may not directly influence returns in the current context. Additionally, the size of the bank positively impacts ROA, whereas Loan and Exchange Rate do not show significant relationships. GDP has a significant effect on ROA, indicating that macroeconomic factors play a role in bank performance.

The research highlights essential implications for stakeholders, particularly in enhancing profitability through improved CAR, which signals a bank's potential for generating profit and effective capital management. However, the study acknowledges limitations, including a narrow focus on specific independent variables and the restriction to conventional banking entities. Future research suggestions include incorporating additional factors, such as Return on Equity (ROE), and broadening the study to encompass a more extensive array of financial performance ratios and banking sectors, including Islamic banking.

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