

Determinants of Profitability in Commercial Banks Listed on the Indonesian Stock Exchange

The Determinants of Profitability

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ABSTRACT

This study aims to examine the impact of Bank size, including asset size and deposit size, capital adequacy, credit quality, liquidity, inflation, and Gross Domestic Product growth on Bank profitability, as measured by Return on Assets and Return on Equity. Focusing on a sample of commercial Banks listed on the Indonesia Stock Exchange from 2019 to 2023, this study uses purposive sampling with 41 Banks over a five-year period. Data analysis was performed using descriptive statistics and random effects models through panel data regression in E-views 9.0. The results showed that asset size has a significant positive effect on Return on Assets and Return on Equity. Deposit size, capital adequacy, credit quality, and Gross Domestic Product growth do not have a significant impact on profitability, Liquidity does not have a significant effect on Return on Equity but shows a positive impact that is almost significant on Return on Assets. Inflation has a significant positive effect on Return on Equity but not on Return on Assets. Based on these findings, it is recommended that Banks focus on managing asset size and monitoring inflation trends to improve profitability. Further research is suggested to include additional variables and extend the sample period for a more comprehensive understanding of the determinants of Bank profitability.

Keywords: Bank Profitability, Bank Size, Capital Adequacy, Credit Quality, Liquidity

ABSTRAK

Penelitian ini bertujuan untuk mengkaji dampak ukuran Bank, termasuk ukuran aset dan ukuran simpanan, kecukupan modal, kualitas kredit, likuiditas, inflasi, dan pertumbuhan Produk Domestik Bruto terhadap profitabilitas Bank, yang diukur dengan Return on Assets dan Return on Equity. Dengan fokus pada sampel Bank komersial yang terdaftar di Bursa Efek Indonesia (BEI) dari tahun 2019 hingga 2023, penelitian ini menggunakan purposive sampling dengan 41 Bank selama periode lima tahun. Analisis data dilakukan menggunakan statistik deskriptif dan model efek acak melalui regresi data panel di Eviews 9.0. Hasil penelitian menunjukkan bahwa ukuran aset memiliki pengaruh positif signifikan terhadap Return on Assets dan Return on Equity. Ukuran simpanan, kecukupan modal, kualitas kredit, dan pertumbuhan Produk Domestik Bruto tidak memiliki dampak signifikan terhadap profitabilitas, Likuiditas tidak memiliki pengaruh signifikan terhadap Return on Equity tetapi menunjukkan dampak positif yang hampir signifikan terhadap Return on Assets. Inflasi memiliki pengaruh positif signifikan terhadap Return on Equity namun tidak terhadap Return on Assets. Berdasarkan temuan ini, direkomendasikan agar Bank fokus pada pengelolaan ukuran aset dan pemantauan tren inflasi untuk meningkatkan profitabilitas. Penelitian selanjutnya disarankan untuk memasukkan

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Kata kunci: Profitabilitas Bank, Ukuran Bank, Kecukupan Modal, Kualitas Kredit, Likuiditas

INTRODUCTION

The banking industry has a very important contribution in driving sustainable economic growth, by channeling funds from savers to parties who need financing for investment. Through this intermediary function, Banks ensure that funds in the financial system can be used effectively to support various economic sectors. As a key component in the financial system, Banks provide essential access to financing for the production of goods and services, job creation, increased investment, and the encouragement of innovation. Therefore, Banks have a crucial role in maintaining sustainable economic stability, which directly contributes to improving people's welfare and quality of life (Abdu, 2022). Profitability is one of the important aspects for the success and continuity of company operations. To achieve an optimal profit level, companies must pay attention to factors that influence profitability. As a company, Banks strive to achieve maximum profits, and one way to assess the health of their financial performance is through profitability measurements. Some factors that significantly affect profitability are Bank size, deposits to assets, capital adequacy, non-performing loans, gross domestic product, and inflation rate.

Bank profitability, which is influenced by internal and external factors, plays an important role in maintaining banking stability, especially during periods of economic uncertainty. In addition, research by De Leon (2020), emphasized that strong profitability enables Banks to be more resilient in the face of credit risks and fluctuating macroeconomic factors. Stable and consistent profitability also supports banking liquidity and its ability to raise funds through the capital market, as shown in the research of Kalaš et al. (2021), where an increase in profitability indicators reflects stable economic conditions and strengthens banking competitiveness in the financial market.

Research conducted by Jigeer & Koroleva (2023), states that Bank size is a measure that reflects the total assets, equity, or amount of loans owned by the Bank, which indicates its operational scale and economic capacity. In this study, Bank size has a negative effect on the profitability of commercial Banks (measured by ROA and ROE). This study is supported by Chowdhury & Salman (2021), which revealed that Bank size has a negative relationship with ROA and ROE in Bangladeshi commercial Banks, indicating the presence of scale inefficiency that can increase operating costs as Bank size increases. This study suggests that proper management of asset size is necessary to maintain profitability.

Deposits to assets measures the Bank's assets funded in the form of deposits. Deposits are essential to ensure positive profits, and a high ratio means that the Bank's assets are funded from stable sources. However, a high ratio also indicates additional operating costs to attract deposits, and liquidity problems can occur if large amounts of deposits are withdrawn in a short period of time. In this study it was found that savings against assets have a positive influence on profitability. This finding is supported by previous findings studied by Siddiq et al. (2021), conducted in Pakistan which revealed that deposits to assets have a positive impact on profitability (ROA and ROE), indicating that larger deposits can support Banks' liquidity and financial stability.

Capital adequacy refers to the amount of adequate capital a Bank needs to hold as a percentage of risk-weighted assets, which is usually determined by the regulator, this ratio measures the solvency's ability to meet obligations, the more capital a Bank has, the stronger its ability to survive adverse financial conditions (Jigeer & Koroleva, 2023). It was found that capital adequacy ratio has a positive effect on ROA but a negative effect on ROE indicating that although higher capital can improve Bank stability and

support operational performance, it can reduce returns to shareholders. While other previous studies conducted in Bangladesh found that capital adequacy ratio has a negative relationship with ROA and ROE, indicating that higher capital tends to reduce profitability, especially when Banks focus on meeting regulatory capital requirements rather than managing profitability (Al Mamun et al., 2022).

Non-performing loans (c) are loans that are not always paid by the borrower according to the payment schedule. High NPL levels indicate high credit risk, which can negatively impact a company's profitability. Companies facing high NPL levels need to take appropriate actions, such as loan restructuring or aggressive collection, to reduce risks and minimize potential losses (Rachmawati et al., 2024). In research Jigeer & Koroleva (2023), it was found that the non-performing loan (NPL) ratio had a negative effect on Bank profitability, this was supported by previous research conducted in Saudi Arabia by Al Zyood (2022), which reveals that NPL has a negative influence on ROA and ROE. Then it is further supported by research conducted by Ranabhat & Subedi (2022), which revealed that NPL has a negative relationship with ROE in Nepalese commercial Banks, indicating that increasing non-performing loans can reduce returns on equity.

Liquidity, measured by the Loan to Deposit Ratio (LDR), indicates the proportion of deposits used to fund loans. A high LDR suggests lower liquidity and higher risk, as the Bank may struggle to meet deposit obligations. Putri et al. (2021) and Sulistiawati & Amyar (2022), emphasize that LDR reflects a Bank's ability to manage funds effectively; a high LDR implies excessive lending, reducing liquidity and increasing financial risk, while a low LDR indicates idle funds and poor credit distribution. Economic conditions, such as GDP and inflation, are key external factors affecting Bank profitability. Jigeer & Koroleva (2023), found that GDP positively impacts Bank profitability, while inflation negatively affects it. This aligns with Acharya & Vyas (2022), who reported that GDP growth boosts Bank profitability (ROA, ROE), whereas rising inflation can reduce profits by increasing operational costs. These findings underline the importance of economic conditions in shaping banking performance.

LITERATURE REVIEW

Company profitability shows how well the company manages its capital and assets to generate profits (Aji & Manda, 2021). One of the main measures of Bank management success is profitability, which has a major impact on the stability of the banking financial system. According to Lestari et al. (2021), it is very important for the banking sector to monitor the profitability of each Bank. According to Hasmiana & Pintor (2022), there are several ways to calculate Bank profitability, including return on assets (ROA) and return on equity (ROE). According to Karim et al. (2024), the two most commonly used primary profitability ratios are ROA and ROE. Hasidi et al. (2024), explains that ROA shows the effectiveness of the Bank in managing its assets to generate profits, while ROE shows the level of return generated for shareholders, which reflects the profits obtained from investments. Overall company profitability is usually measured by return on assets (ROA) (Mondal & Ghosh, 2012). As a representation of operational efficiency, this ratio shows the rate of return generated from all Bank assets. ROA calculation is done by dividing the Bank's net profit by its total assets. The increase in ROA value shows that the Bank is increasingly effective in maximizing all its assets to generate profits (Prabowo & Sutanto, 2019).

Return on equity (ROE) is a ratio that compares net income to total equity. It shows how effective a business is in generating profits from each unit of shareholder equity. According to Mondal & Ghosh (2012), ROE shows the level of profit obtained from the capital used to generate returns (Chike & Ebere, 2023). Referring to previous research by Jigeer & Koroleva (2023), conducted in China mentioned several independent variables of several determinants influencing the profitability of commercial Banks in China. It mentioned the variables Bank Size, Log of Total Assets (LNA), Deposits to Assets Ratio (DTAR), Capital adequacy ratio (CAR), Non-performing Loan (NPL), Inflation Rate,

and GDP growth which have a significant influence on Bank profitability. When an industry achieves economies of scale, large institutions are considered to have an efficiency advantage in economic theory. That is, large-scale organizations are considered to have the ability to produce products or services at lower costs (Syachreza & Mais, 2020). In general, the natural logarithm of total assets is used to measure the size of an institution (Aboagye-Otchere & Boateng, 2023). Banks with significant assets have the ability to develop a more diversified portfolio, which can help reduce risk while increasing profitability.

According to Lestari et al. (2021), Bank size has a significant influence on Bank profitability. On the other hand, according to Jigeer & Koroleva (2023), Bank size can be measured by the amount of deposits, which in this case has a positive impact on Bank profitability in China, meaning that commercial Banks in China rely on deposits as the main source of funds that Banks can use to make a profit. Capital Adequacy Ratio (CAR) is a key metric of a Bank's financial strength in facing its risk profile, especially credit risk (Akomeah et al., 2020). CAR is the percentage of total Bank capital based on credit risk (Chike & Ebere, 2023). Given the high risk of banking business due to the possibility of loan default, CAR is very important to maintain the sustainability and profitability of the Bank.

According to Astutiningsih & Baskara (2019), the capital adequacy ratio has a positive and significant effect on profitability. The results show that the level of capital adequacy ratio is positively correlated with the profitability that the Bank can achieve. This is due to the fact that a higher level of capital adequacy ratio reflects a better ability of the Bank to run its operations and bear the risk of productive assets or risky credit, thus allowing the Bank to increase profitability. Conversely, if the level of capital adequacy ratio decreases, the Bank's profitability also tends to decrease. However, the findings of this study differ from the findings of previous studies. Nathanael et al. (2024), who found that the capital adequacy ratio does not affect Bank profitability. This is because Banks have large capital but cannot use it to generate profits by distributing credit, so large capital does not affect Bank profitability.

According to Ozil (2019), Non-Performing Loans (NPL) is a key measure of Bank asset quality, essential for assessing banking sector performance. Akomeah et al. (2020), state that NPL reflects credit issues and loan risk management. NPL-to-total-loan ratio shows the direct relationship between NPL and total loans. NPLs often arise from loans to financially distressed debtors. Drăgoi et al. (2024) explain that NPL risk persists despite careful lending. Nathanael et al. (2023), highlight a mismatch between short-term deposits and long-term loans. The IMF defines problematic loans as those overdue for 90 days.

According to Financial Services Authority (*Otoritas Jasa Keuangan/OJK*) Regulation Number 40/POJK.03/2019 concerning Asset Quality Assessment of Commercial Bank. The first billing, called Smooth, refers to debtors who pay principal and interest regularly and on time. The second billing, namely Special Attention, is given to debtors who are late in paying for 1-90 days. The third billing, or Below Standard, applies to debtors who are late in paying for 91-120 days. The fourth collection level, called Doubtful, is given to debtors who are 121-180 days late in paying. Finally, the fifth collection level, or Bad, applies to debtors who are more than 180 days late in paying.

According to Kingu et al. (2018), a high NPL ratio indicates poor Bank credit quality. As a result, this will reduce Bank income. This finding is consistent with research Mondal & Ghosh (2012), which shows that NPL has a statistically negative impact on ROA, ROE, and NIM. A high number of NPLs indicates poor credit quality, which can increase credit losses that must be borne by Bank income. Due to the large loss burden, Bank profitability can decline. It is known that high non-performing loans have a negative impact on costs, efficiency, and profitability, based on empirical evidence. This is in line with research Trung, & Dan (2015), who found that NPLs affect Bank performance.

Liquidity risk is when a Bank cannot meet its obligations. One important aspect in Bank competition is maintaining the level of liquidity. The ability of a Bank to meet obligations that will soon mature is known as liquidity. The ability of a Bank to generate profits can be affected by constraints in providing liquidity. Banks with a high level of liquidity will have the ability to pay off their obligations, which will reduce operational efficiency and increase profitability. Banks usually fail due to poor liquidity and asset quality (Hasmiana & Pintor, 2022).

Inflation is generally defined as an increase in the overall price level that occurs due to an imbalance between the amount of money in circulation and trade needs (Parkin & Swoboda, 2019). Historically, the term inflation referred to an increase in prices as a direct result of an increase in the money supply. However, economists today generally use the term to describe any increase in the overall price level, regardless of the cause. Inflation is defined as a significant change in the general price level, where the inflation indicator can be modified based on various measures, including quality adjustments as in the case of housing rents. Inflation can be said to be a monetary phenomenon that affects the equilibrium of the goods, money, and labor markets. The inflation rate can be analyzed by looking at the relationship between macroeconomic variables such as economic growth, interest rates, and the money supply (Damayanti & Jalunggono, 2022).

Inflation can be measured using various price indices, such as the Consumer Price Index (CPI), the Personal Consumption Expenditures Price Index (PCEPI), and the Gross Domestic Product (GDP) Deflator, which represent the general price level of goods and services in the economy. Inflation can also be measured using more specific price indices, such as the Producer Price Index, the Wholesale Price Index, the Reuters-CRB Commodity Price Index, and the Employment Cost Index, which track price changes in specific sectors. (Parkin & Swoboda, 2019). Research conducted by Jigeer & Koroleva (2023), revealed that there is a negative influence between the inflation rate and the profitability of commercial banking companies. This is supported by research conducted by Nalliboyina & Chalam (2023), on public sector banking companies in India which found a negative impact between inflation rate and profitability of banking companies.

Gross Domestic Product (GDP) Growth is a key indicator of economic development, reflecting increased output of goods and services. Guerard et al. (2007), define it as a rise in total economic output, signaling improved living standards, with population growth comparisons crucial for equitable benefits. Stress the importance of income distribution in GDP growth to prevent inequalities that can harm welfare. Calculated annually or quarterly, GDP growth informs economic policies, especially during crises like the pandemic, showing economic progress and its societal impact. Jigeer & Koroleva (2023), revealed that there is a positive influence of GDP Growth on the profitability of commercial Banks. This is in line with research conducted by Abdelmoneim & Yasser (2023).

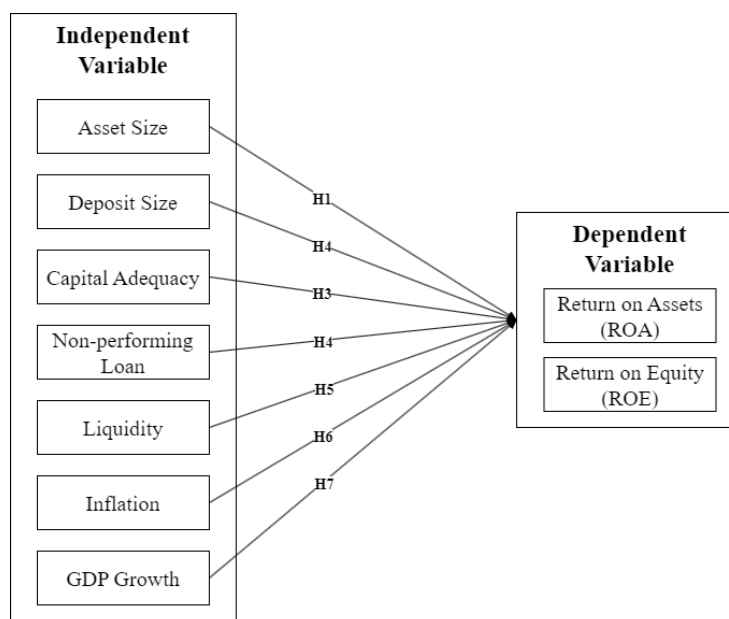


Figure 1. Conceptual Framework

- H1:** Asset size has significant effect on Bank profitability.
H2: Deposit size has significant effect on Bank profitability.
H3: Capital adequacy has significant effect on Bank profitability.
H4: Bad debt has significant effect on Bank profitability.
H5: Liquidity has significant effect on Bank profitability.
H6: Inflation has significant effect on Bank profitability.
H7: GDP growth has significant effect on Bank profitability.

METHODS

This study is quantitative research employing panel data regression analysis, which includes the Chow test and Hausman test, within an explanatory research framework (Ghozali, 2016). Explanatory research aims to explain causal relationships between variables through statistical tests, such as correlating variables or measuring their influence on each other. This research uses secondary data collected over five years, from 2019 to 2023, focusing on conventional Banks listed on the Indonesia Stock Exchange (IDX). The data is sourced from the annual financial reports of the selected Banks. The primary objective is to analyze how various factors influence banking profitability, specifically Return on Assets (ROA) and Return on Equity (ROE). Key independent variables include Bank Size, measured by Log of Total Assets (LNA) and Deposits to Assets Ratio (DTAR), Capital Adequacy Ratio (CAR), Non-performing Loan (NPL), and Loan Deposit Ratio (LDR). Two control variables, Inflation Rate (INFL) and GDP Growth (GDP_G), are also considered. This study aims to determine the effects of these variables on banking profitability, providing insights into the operational and economic factors that impact Banks' financial performance over time. The results will contribute to understanding the determinants of profitability in the banking sector in Indonesia.

RESULTS

The Chow and Hausman tests are used to determine the most appropriate panel data regression model: fixed effects, common effects, or random effects. The Chow test compares the fixed effects model with the common effects model to test the significance of differences between individuals. If the result is significant, the fixed effects model is more appropriate. The Hausman test, on the other hand, compares the fixed effects model with the random effects model to achieve consistency of estimation. If the

Hausman test is significant, the fixed effects model is more appropriate; if not, the random effects model is more appropriate. The combination of these two tests ensures the selection of the most accurate model according to the characteristics of the data.

Table 1. Chow & Hausman test results

Test	Effects Test	Model	Prob.	Conclusion
Chow Test	Cross-Section Chi-Square	Model 1 (Return on Assets)	0.0000	H ₀ rejected
	Cross-Section Chi-Square	Model 2 (Return on Equity)	0.0000	H ₀ rejected
Hausman Test	Cross-Section Random	Model 1 (Return on Assets)	1.0000	H ₀ accepted
	Cross-Section Random	Model 2 (Return on Equity)	1.0000	H ₀ accepted

The Chow Test, it shows that the value of the cross-section chi-square probability of Model 1 (Return on Assets) and Model 2 (Return on Equity) is $0.0000 \leq 0.05$, so H₀ is rejected. Thus, the conclusion that can be drawn is that the best model selected is the fixed effect model. Based on the Hausman Test, it shows that the value of the cross-section chi-square probability of Model 1 (Return on Assets) is $1.0000 > 0.05$, so H₀ is accepted. The value of the cross-section chi-square probability of Model 2 (Return on Equity) is $1.0000 > 0.05$, so H₀ is accepted. Thus, the conclusion that can be drawn is that the best model selected is the random effect model.

Table 2. F test and the goodness of fit test results

Model	F-Test			Coefficient of Determination	
	Effects Test	Prob.	Conclusion	Testing	Value
Model 1 (ROA)	Prob. (F-Statistic)	0.001829	H ₀ reject	Adjusted R-Squared	0.076431
Model 2 (ROE)	Prob. (F-Statistic)	0.003494	H ₀ reject	Adjusted R-Squared	0.068848

The results of the F Test, the Prob (F-Statistic) value for Model 1 (Return on Assets), is $0.001829 \leq 0.05$, indicating that H₀ is rejected. This suggests that at least one independent variable affects the dependent variable, making the model feasible for use. Similarly, the Prob (F-Statistic) value for Model 2 (Return on Equity) is $0.003494 \leq 0.05$, leading to the rejection of H₀. This implies that at least one independent variable impacts the dependent variable, validating the model's usability.

The ROA model yields an adjusted R-squared value of 0.076431, meaning the independent variables Asset Size (LNA), Deposit to Total Asset Ratio (DTAR), Capital Adequacy Ratio (CAR), Non-performing loans (NPL), Liquidity Ratio (LIQ), Inflation Rate (INFL), Gross Domestic Product Growth (GDP_G) explain 7.64% of the variation in ROA. The remaining 92.36% is explained by other factors not included in this model. In the same way, the ROE model's adjusted R-squared value is 0.068848, indicating that the independent variables explain 6.88% of the variation in ROE, with the remaining 93.12% attributed to other unexamined factors.

Table 3. Results of descriptive analysis test

Variable	Minimum	Maximum	Mean	Std. Deviation
ROA	-0.180600	0.183700	0.007916	0.035509
ROE	-1.239300	0.209400	0.024703	0.138708
LNA	27.58370	35.31540	31.44365	1.783146
DTAR	0.070400	0.859300	0.665324	0.140681
CAR	0.090100	2.838800	0.359618	0.328175
NPL	0.000000	0.341500	0.041419	0.047878
LIQ	0.013100	4.837000	0.898466	0.490266
INFL	0.015600	0.041400	0.028520	0.009761
GDP_G	-0.020700	0.053100	0.034020	0.027999

Descriptive analysis shows that ROA and ROE have low averages with different variations, reflecting the diverse performance of the companies. The leverage variable (DTAR) is high at an average of 0.6653, while capital adequacy (CAR) is quite healthy at 0.3596. Liquidity Ratio (LIQ) averages 0.8984, and non-performing loans (NPL) remain low at 0.0414. Inflation and economic growth are stable, reflecting supportive

macro conditions. This analysis provides an initial overview of the data before further testing.

Table 4. T Test Result

Dependent Variable: Return on Assets (ROA)				Dependent Variable: Return on Equity (ROE)		
Variables	Coefficient	Prob.	Conclusion	Coefficient	Prob.	Conclusion
Constanta	-0.255872	0.0009		-1.028042	0.0001	
LNA	0.007441	0.0021	H0 rejected	0.030468	0.0001	H0 rejected
DTAR	0.019270	0.5194	H0 Failed to be rejected	0.055948	0.6921	H0 Failed to be rejected
CAR	-6.46E-05	0.9945	H0 Failed to be rejected	0.037671	0.4180	H0 Failed to be rejected
NPL	-0.016246	0.7350	H0 Failed to be rejected	-0.176245	0.4296	H0 Failed to be rejected
LIQ	0.011083	0.0604	H0 Failed to be rejected	0.009465	0.7590	H0 Failed to be rejected
INFL	0.265449	0.1227	H0 Failed to be rejected	1.637160	0.0953	H0 Failed to be rejected
GDP_G	0.004653	0.9367	H0 Failed to be rejected	-0.116432	0.7299	H0 Failed to be rejected

The results of the T Test show that Asset Size (LNA) has a positive and significant effect on Return on Asset (ROA) ($p = 0.0021$) and Return on Equity (ROE) ($p = 0.0001$). Other variables such as Deposit to Total Asset Ratio (DTAR), Capital Adequacy Ratio (CAR), Non-performing loans (NPL), Liquidity Ratio (LIQ), Inflation Rate (INFL), Gross Domestic Product Growth (GDP_G) do not have a significant effect on the two dependent variables. However, Liquidity Ratio (LIQ) ($p = 0.0604$) on ROA and INFL ($p = 0.0953$) on Return on Equity (ROE) show the potential for a positive relationship that can be studied further.

DISCUSSION

This analysis summarizes data variation by displaying the minimum, maximum, average (mean), and standard deviation values. The minimum value reflects the smallest number of the variables analyzed, while the maximum value shows the largest number. The average represents the central value of each variable, and the standard deviation describes the level of variation in the research data, allowing researchers to assess whether the data distribution is consistent or fluctuating. The results of the analysis in Table 5 show that Return on Asset (ROA) has an average of 0.007916 with a standard deviation of 0.035509, where the maximum value of 0.183700 was achieved by PT Bank MayBank Indonesia Tbk in 2022, while the minimum value of -0.180600 came from PT Bank Raya Indonesia Tbk in 2021. Furthermore, Return on Equity (ROE) shows an average of 0.024703 and a standard deviation of 0.138708, with a maximum value of 0.209400 from PT Bank Mega Tbk in 2021 and a minimum value of -1.239300 from PT Bank Raya Indonesia Tbk in 2021.

For LNA, the average value is recorded at 31.44365 with a standard deviation of 1.783146, where the maximum value of 35.31540 is owned by PT Bank Mandiri (Persero) Tbk in 2023 and the minimum value of 27.58370 by PT Krom Bank Indonesia Tbk in 2019. DTAR has an average of 0.665324 and a standard deviation of 0.140681, with a maximum value of 0.859300 obtained from PT Bank CIMB Niaga Tbk in 2023 and a minimum value of 0.070400 from PT Krom Bank Indonesia Tbk in 2022. Capital Adequacy Ratio (CAR) shows an average of 0.359618 and a standard deviation of 0.328175, where the maximum value reaches 2.838800 from PT Krom Bank Indonesia Tbk in 2022 and a minimum value of 0.090100 from PT Bank Pembangunan Daerah Banten Tbk in 2019. Non-performing loans (NPL) have an average of 0.041419 and a standard deviation of 0.047878, with a maximum value of 0.341500 recorded by PT Bank Permata Tbk in 2023 and a minimum value of 0.000000 from PT Bank Capital Indonesia Tbk in 2021. Liquidity Ratio (LIQ) shows an average of 0.898466 and a

standard deviation of 0.490266, with a maximum value of 4.837000 from PT Krom Bank Indonesia Tbk in 2023 and a minimum value of 0.013100 from PT Bank Mestika Dharma Tbk in 2019. Inflation Rate (INFL) has an average of 0.028520 and a standard deviation of 0.009761, with a maximum value of 0.041440 and a minimum value of 0. Lastly, Gross Domestic Product Growth (GDP_G) has an average of 0.034020 and a standard deviation of 0.027999, with a maximum value of 0.053100 and a minimum value of -0.020700.

The analysis uses a random effect model to assess the relationship between independent variables and the dependent variables, Return on Assets (ROA) and Return on Equity (ROE). The T-test was applied to test the significance of each independent variable. The results reveal that Asset Size (LNA) has a p-value of 0.0021, below the 5% significance level, indicating a significant positive effect on ROA. Deposit to Total Asset Ratio (DTAR) and Capital Adequacy Ratio (CAR) have p-values of 0.5194 and 0.9945, respectively, indicating no significant effect on ROA. Non-Performing Loans (NPL) shows a p-value of 0.7350, implying no impact on ROA. Liquidity Ratio (LIQ) has a p-value of 0.0604, slightly above the 5% threshold, so H_0 is not rejected, indicating no significant effect on ROA. Inflation (INFL) and GDP Growth (GDP_G) with p-values of 0.1227 and 0.9367 also fail to show a significant impact on ROA.

In this model, Asset Size (LNA) has a p-value of 0.0001, indicating a significant positive effect on ROE, meaning larger asset size is associated with higher ROE. Deposit to Total Asset Ratio (DTAR) has a p-value of 0.6921, above the 0.05 threshold, showing no significant impact on ROE. Capital Adequacy Ratio (CAR) with a p-value of 0.4180 also fails to show significance, indicating no effect on ROE. Non-Performing Loans (NPL) with a p-value of 0.4296 shows no significant effect on ROE. Liquidity Ratio (LIQ) has a p-value of 0.7590, suggesting no significant impact on ROE. Inflation Rate (INFL), with a p-value of 0.0001, is significantly positively associated with ROE, implying higher inflation leads to higher ROE. Finally, GDP Growth (GDP_G) with a p-value of 0.7299 fails to show significance, suggesting no impact on ROE. These results discuss the financial ratios and macroeconomic indicators' influence on Bank profitability, particularly ROA and ROE.

The T-test results for H_1 show that Log of Total Assets (LNA) positively influences profitability. The coefficient for LNA on ROA is 0.007441 (p-value = 0.0011), indicating that increased asset size boosts ROA. Similarly, the coefficient for LNA on ROE is 0.030468 (p-value = 0.0001), suggesting a positive effect on ROE. These findings are consistent with Budhathoki et al. (2020), who also found that Bank size positively impacts profitability measures, including ROA and ROE.

For H_2 , which hypothesizes a positive effect of the Deposit to Total Asset Ratio (DTAR) on profitability, the T-test results show a positive, yet statistically insignificant, effect of DTAR on both ROA and ROE. The coefficient for DTAR on ROA is 0.019270 (p = 0.2597), and for ROE, it is 0.055948 (p = 0.3461). These findings align with Chowdhury et al. (2017), who also found a positive association between Bank size and profitability, including ROA and ROE.

The T-test results for H_3 indicate a negative, non-significant relationship between CAR and ROA, with a coefficient of -0.000065 and a probability of 0.4973, suggesting CAR does not significantly impact ROA. This aligns with Yusril (2019), who found CAR did not significantly affect ROA for Indonesian national Banks. For ROE, CAR has a positive but non-significant coefficient of 0.037671 (probability = 0.2090), consistent with Karmila (2022), who found no significant effect of CAR on ROE in Indonesian Islamic Banks.

H_4 , which hypothesizes a negative effect of Non-Performing Loans (NPL) on profitability, shows that NPL has a negative but non-significant coefficient of -0.016246 for ROA (p = 0.3675), indicating no significant effect. This aligns with Rusli & Fitriana (2023), who found NPL did not affect ROA in Indonesian Banks during the COVID-19 pandemic. Similarly, for ROE, NPL has a negative coefficient of -0.176245 (p =

0.2148), consistent with Diakomihalis & Economakou (2023), who found NPL did not impact ROE in Greek Banks.

H5 suggests a positive influence of Loan Deposit Ratio (LDR) on profitability. The T-test results show a positive coefficient of 0.011083 with a probability of 0.0302 for ROA, indicating a significant positive effect, consistent with Patni & Darma (2017), who found LDR positively affects ROA for Banks on the IDX. For ROE, LDR has a coefficient of 0.009465 and a probability of 0.3795, indicating no significant effect, aligning with Mahesta (2023), who reported no impact of LDR on ROE at PT Bank Rakyat Indonesia (2012-2021).

For H6, which posits a positive influence of inflation (INFL) on profitability, the T-test results show that INFL has a positive coefficient of 0.265449 with a probability of 0.0614 for ROA, indicating no significant effect. This is consistent with Rahman et al. (2015), who found that inflation did not significantly affect ROA in Bangladeshi commercial Banks. For ROE, INFL has a positive and significant coefficient of 1.637160 with a probability of 0.0477, aligning with De Leon (2020), who reported inflation positively affecting ROE in ASEAN Banks.

For H7, which hypothesizes a positive effect of GDP Growth (GDP_G) on profitability, the T-test results show no significant effect. For ROA, GDP_G has a positive coefficient of 0.004653 and a probability of 0.4684, consistent with Brahmaiah & Ranajee (2018), who found no impact of GDP growth on ROA in Indian Banks. For ROE, GDP_G has a negative coefficient of -0.116432 and a probability of 0.3650, aligning with Indriastuti & Muharam (2020), who observed no impact on ROE in Indonesian Banks.

CONCLUSION

This study examines the effect of financial ratios and macroeconomic indicators on Bank profitability, measured by Return on Assets (ROA) and Return on Equity (ROE). The analysis shows that asset size, Log of Total Asset (LNA) has a significant positive effect on both ROA and ROE, indicating that larger Banks are generally more profitable. Conversely, the ratio of Deposits to Total Assets Ratio (DTAR) shows a positive but insignificant relationship with profitability. The Capital Adequacy Ratio (CAR) has an insignificant negative effect on ROA and an insignificant positive effect on ROE, suggesting that capital adequacy doesn't always influence Bank profitability directly. Non-Performing Loans (NPL) show a negative but insignificant relationship with ROA and ROE, implying credit quality doesn't significantly affect profitability in this study's context. Liquidity, measured by the Loan to Deposit Ratio (LDR), positively affects ROA but not ROE. Inflation Rate (INFL) positively affects ROE, while its impact on ROA is insignificant. GDP growth (GDP_G) shows an insignificant relationship with both ROA and ROE, indicating that macroeconomic factors don't always closely relate to Bank performance. The study's limitations include a small sample size of Indonesian commercial Banks and specific independent variables. Future research should expand the sample, include additional variables like operational efficiency and digitalization, and use advanced methodologies like time series or SEM to explore deeper relationships.

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