

The Influence of Financial Ratios on The Profitability of Conventional Commercial Banks Listed on The Indonesia Stock Exchange

Jessen¹, Purnama Yanti Purba², Davin Kendrew³, Jhon Raphael Saragih⁴

^{1,2,3}Universitas Prima Indonesia

⁴Politeknik Kesejahteraan Sosial Bandung

Email: purnamayantipurba@unprimdn.ac.id

Abstract

This paper aims to determine the effect of CAR, NPL, BOPO, and LDR on the ROA of conventional commercial banks listed on the IDX in the period 2019–2023. This type of research is a descriptive analysis, using 27 banks that passed the criteria test and producing a total sample of 135 samples. The tests used in this paper include multiple linear regression analysis, a normality test, a multicollinearity test, an autocorrelation test, a heteroscedasticity test, a coefficient of determination, an F test along with a t test. The results show that CAR does not affect ROA, NPL does not affect ROA, BOPO does affect ROA, and LDR does not affect ROA. At the same time, CAR, NPL, BOPO, and LDR all affect ROA.

Keywords: CAR, NPL, BOPO, LDR, ROA

INTRODUCTION

The COVID-19 pandemic that commenced in Indonesia in 2019 profoundly affected the nation's economic conditions (Tantorio et al., 2023). Multiple industrial sectors encountered disruptions, consumer purchasing power diminished, and economic uncertainty escalated (Gulo & Purba, 2023). The 2023 report from the Ministry of Finance of the Republic of Indonesia indicates a deceleration in the nation's economic growth rate, decreasing from 5.02% in 2019 to 2.97% in 2020. This fall illustrates the direct consequences of the social restriction regulations enacted to mitigate the virus's spread, which impair commercial and trade activity (Sakuntala et al., 2024).

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Moreover, some organizations encounter financial difficulties stemming from reduced market demand, compelling them to use various efficiency strategies, such as salary reductions and layoffs (Nathasa et al., 2024). This state heightens economic uncertainty and prompts individuals to exercise greater caution in financial management (Tampubolon et al., 2024). Consequently, individuals exhibit greater discernment in their expenditures, prioritizing fundamental necessities while bracing for a potentially worsening economic climate (Jahit et al., 2025).

The rising trend of savings in banks is a notable alteration in financial behavior observed throughout the pandemic (Munthe et al., 2024). Individuals like depositing their capital in banks as a safeguard against unpredictability, rather than investing in high-risk ventures (Salsabillah, 2022). Government policies and financial regulators contribute to the stability of the banking sector by adjusting interest rates and implementing various incentives to alleviate the burden of credit (Khoirunisa & Karnasi, 2022). While the rise in savings positively influences banks liquidity, diminished consumption and investment may impede overall economic recovery (Widati et al., 2023). Consequently, a balanced strategic approach is required to guarantee sustainable economic growth post-pandemic (Chun & Ardaaragchaa, 2024).

Minister of State-Owned Enterprises (BUMN) Erick Thohir disclosed that the BUMN banking sector suffered a substantial reduction in performance as a result of the COVID-19 pandemic. For instance, PT Bank Rakyat Indonesia (BBRI) experienced a 43% reduction in earnings in 2020 vs to the prior year. PT Bank Negara Indonesia (BNI) Tbk similarly encountered a 63.9% reduction in profit compared to the prior year. This deterioration in performance signifies the substantial strain encountered by the banking industry in managing the economic downturn, the growing risk of non-performing loans, and the credit restructuring measures enacted to preserve financial stability throughout the crisis.

The decrease in profitability of state-owned banks was further attributed to diminished demand for loans from both the business sector and individuals, stemming from economic instability. A multitude of commercial entities opted to defer expansion or new investments, while individuals generally curtailed consumption and prioritized saving in anticipation of potential financial hardships. Conversely, banks must persist in fulfilling their intermediary role by offering financial assistance to industries impacted by the pandemic, to further diminishing their profit margins.

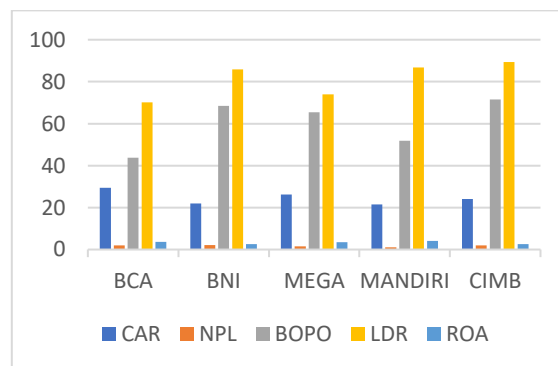
Nonetheless, the government, in conjunction with the state-owned banking sector, persists in enhancing the resilience of the banking industry via diverse stimulus policies



and economic recovery initiatives. Multiple strategic measures, including the allocation of people business credit (KUR), loan restructuring initiatives, and enhancement of operational efficiency are implemented to achieve the long-term stability and profitability of state-owned banks. The rehabilitation of the banking sector relies not just on internal bank policies but also on enhancing broader economic conditions and augmenting individuals' purchasing power post-pandemic.

As stated in (Wulandari et al., 2022), financial performance measurement is a systematic endeavor to assess a company's capacity to earn profits. This assessment is crucial for evaluating a company's growth potential and financial advancement through the effective utilization of its assets (Juliani et al., 2023).

In Indonesia, conventional commercial banks listed on the Indonesia Stock Exchange (IDX) attract investor interest due to the transparency of their financial reporting and their impact on the stability of the national financial system. However, in practice, banks financial performance is not always stable because it is influenced by various internal and external factors, including monetary policy, macroeconomic conditions, and the efficiency of bank management in managing its resources. Figure 1 indicates that Bank Central Asia (BBCA) possesses a more robust financial ratio than other banks, including Bank Mandiri and Bank Mega; yet, BBCA's return on assets (ROA) is inferior to that of Bank Mandiri and Bank Mega.



Source: Annual Report, processed data (2024)

Figure 1. Financial Ratios of Financial Reports for 2023 of Banking Companies listed on the IDX

Profitability is a primary metric for evaluating a bank's effectiveness in making profits from its assets (Nazah et al., 2024). Return on Assets (ROA) serves as a

profitability metric, since it indicates a bank's efficiency in utilizing its assets to generate profits. Multiple factors influence banking profitability, including financial ratios such as the Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL) ratio, Operating Expenses to Operating Income (BOPO), and Loan to Deposit Ratio (LDR). CAR indicates a bank's capital adequacy to absorb financial risk, NPL signifies the quality of credit assets and the extent of negative credit risk, BOPO assesses the bank's operational efficiency, and LDR measures the liquidity level in credit distribution.

Presently, profitability is a critical consideration for investors, regulators, and other stakeholders regarding conventional commercial banks listed on the Indonesia Stock Exchange (IDX). This study seeks to examine the impact of financial parameters, including CAR, NPL, BOPO, and LDR, on the ROA of conventional commercial banks listed on the IDX. This study's conclusions are anticipated to offer insights for banks management to optimize financial management, enhance profitability, and advise investors in their investment decisions within the banking industry.

The aforementioned description provides the context for the researcher's intent to investigate conventional commercial banks listed on the IDX, utilizing ROA as the dependent variable and CAR, NPL, BOPO, and LDR as independent variables throughout a five-year period from 2019 to 2023.

METODE

This research is categorized as quantitative due to its utilization of actual statistics derived from the financial accounts of banking institutions, as shown in their annual reports. The selection criteria for this research sample comprise banking sub-sector organizations listed on the IDX from 2019 to 2023, possessing comprehensive financial report data for utilization. The study occurred from March 2024 until March 2025. The official website of the Indonesia Stock Exchange (IDX) supplied the annual reports utilized by the researchers. This study employed a purposive sampling technique, resulting in 27 banks selected as samples, totaling 135. The research utilized quantitative data sourced from both primary and secondary sources pertaining to banking organizations listed on the IDX website from 2019 to 2023.



RESULTS AND DISCUSSION**Normality Test Results****Table 1. Normality Test Results**

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		108
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.16198661
Most Extreme Differences	Absolute	.068
	Positive	.068
	Negative	-.041
Test Statistic		.068
Asymp. Sig. (2-tailed) ^c		.200 ^d

The table above presents the results of the data outlier treatment and transformation utilizing the square root (SQRT) approach. The initial data comprised 135 samples reduced to 108 samples, leading to the conclusion that the data was normally distributed; the Kolmogorov-Smirnov test yielded a significance level of 0.200, which is greater than 0.05.

Multicollinearity Test Results**Table 2. Multicollinearity Test Results**

Coefficients^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	Collinearity Statistics
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	6.166	.349		17.674	.000		
CAR	.034	.025	.050	1.369	.174	.928	1.078
NPL	-.071	.040	-.066	-1.767	.080	.881	1.135
BOPO	-.612	.025	-.898	-24.375	.000	.896	1.116
LDR	.054	.020	.101	2.706	.008	.872	1.146

The table indicates that each variable's Tolerance is valued above 0.01, and their



VIF value is below 10, signifying the absence of multicollinearity among the variables.

Autocorrelation Test Results

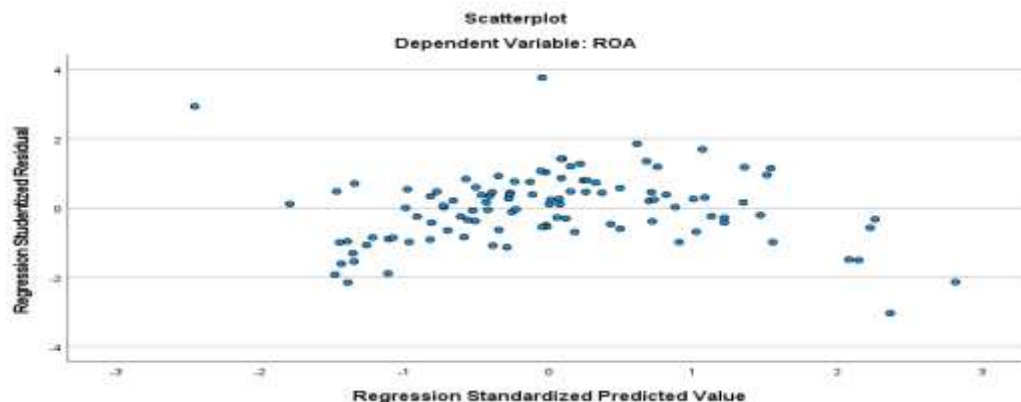


Figure 3. Heteroscedasticity Test Results

The SPSS application result, presented as a scatterplot, indicated an absence of discernible patterns among the dispersed dots. The scatterplot points are randomly distributed around the zero axis, indicating the absence of a heteroscedasticity issue.

Multiple Linear Regression

Table 4. Multiple Linear Regression Analysis

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.510	.388		21.925	.000
	CAR	-.005	.005	-.031	-.918	.361
	NPL	-.012	.031	-.013	-.366	.715
	BOPO	-.083	.003	-.938	-26.052	.000
	LDR	.000	.003	.004	.128	.898

The formulation of multiple linear regression analysis analysis is:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

$$Y = 8.510 - 0.005(X_1) - 0.012(X_2) - 0.083(X_3) + 0(X_4) + e$$



Coefficient of Determination (R^2)

According to Table 3, the Adjusted R Square value is 0.818, indicating that 81.8% of the dependent variable is concurrently affected by the independent variables (CAR, NPL, BOPO, and LDR), while the remaining 18.2% is influenced by extraneous factors not incorporated in the model.

F Test**Table 5. F Test Results**

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	105.556	4	26.389	204.254	.000 ^b
	Residual	13.307	103	.129		
	Total	118.864	107			

Table 5 indicates a significance value of $\alpha < 5\%$ (0.05), yielding a value of 0% (0.000), with a consistent significance value of $0.000 < 0.05$. The comparison of the F_count value resulted in 204.254, which exceeds 2.46 for both $df_1 = 4$ and $df_2 = 104$. Consequently, it is determined that all independent variables concurrently influence ROA (hypothesis accepted).

t Test**Table 6. t-Test Results**

Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	8.510	.388		21.925	.000
	CAR	-.005	.005	-.031	-.918	.361
	NPL	-.012	.031	-.013	-.366	.715
	BOPO	-.083	.003	-.938	-26.052	.000
	LDR	.000	.003	.004	.128	.898

The table indicates that the significance value of the CAR variable is 0.361, which exceeds 0.05; the significance value of the NPL variable is 0.715, also beyond 0.05; and the significance value of the LDR variable is 0.898, again surpassing 0.05. It can be inferred



that the three variables do not influence financial performance. The BOPO variable, with a p-value of 0.000 (<0.05), demonstrates a negative and substantial impact on financial performance.

DISCUSSION

The Influence of Capital Adequacy Ratio on Return on Assets

The α value, derived from data processing, is 0.361, exceeding the significance level of 0.05 ($0.361 > 0.05$). Furthermore, the t count value of -0.918 is less than the t table value of 1.983 ($-0.918 < 1.983$). Consequently, H_0 is accepted and H_1 is denied, indicating that the Capital Adequacy Ratio (CAR) does not significantly affect the Return on Assets (ROA) of traditional commercial banks listed on the Indonesia Stock Exchange (IDX) during the 2019-2023 period. The results reveal that the capital adequacy ratio (CAR) does not significantly correlate with bank profitability (ROA). This may result from various variables, including capital management efficiency, credit risk levels, and macroeconomic conditions influencing banks performance over the research period.

The results of this study align with the research conducted by (Sapitri & Irawan, 2023), which indicated that CAR did not significantly impact ROA in Indonesia's banking sector. They contended that, while the Capital Adequacy Ratio (CAR) serves as a measure of banking stability, factors such as asset quality, operational efficiency, and the composition of non-interest income are more significant in influencing bank profitability (Wahyu et al., 2024). Conversely, these findings contradict the study by (Hutasoit et al., 2022), which demonstrated that CAR positively and significantly influences ROA in large Indonesian banks. The study elucidated that robust capital enables banks to exhibit greater flexibility in credit and investment allocation, hence enhancing profitability (Rifansa et al., 2022).

The Impact of Non-Performing Loans on Return on Assets

The analysis results indicate that the acquired significance value is above the established significance level, while the test statistic is less than its critical value. Consequently, H_0 is accepted and H_1 is denied. This indicates that Non-Performing Loans (NPL) exert minimal influence on Return on Assets (ROA) in Indonesian commercial banks listed on the Indonesia Stock Exchange during the study period. The findings of this study align with previous research by (Hastuti et al., 2024), indicating that the level of non-performing loans in banking does not directly influence profitability, as assessed by ROA. Factors elucidating this phenomena encompass proficient credit risk management

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measures, enough credit loss reserves, and income diversification within banking, enabling profitability despite the presence of non-performing loans in their portfolios (Awaluddin et al., 2023). The findings of this study align with prior research indicating that non-performing loans (NPLs) do not significantly impact return on assets (ROA) in the banking sector. Notwithstanding the rise in the non-performing loan ratio, banks continue to sustain profitability through adept credit management practices and diversification of income streams, encompassing revenue from ancillary banking services (Awaluddin et al., 2023).

Additional studies corroborate this conclusion, indicating that NPL does not influence ROA in national private banks (Chun & Ardaaragchaa, 2024). This indicates that, despite the existence of unpaid loans, they need not significantly impact profitability (Nasib, 2021). This can be achieved by enhancing operational efficiency, exercising discretion in credit issuance, and implementing credit restructuring regulations by financial regulators (Beni et al., 2023). Nonetheless, the findings of this study contrast with earlier research indicating that NPL exerts a substantial detrimental influence on ROA (Sasongko & Nancy Yusnita, 2023). The study determined that an increased level of non-performing loans significantly diminishes banks profitability (Sabri, 2023). The disparity in outcomes may stem from variances in research subjects, the duration of the study, and the differing credit risk management methods adopted by each bank (Khoirunisa & Karnasi, 2022).

The Effect of Operating Expenses to Operating Income on Return on Assets

The analysis findings indicate that the significant value (α) is 0.000, which is less than 0.05, and the t count value (-26.052) exceeds t table (1.983). Consequently, H_0 is rejected and H_1 is allowed, indicating that the ratio of Operating Expenses to Operating Income (BOPO) significantly adversely impacts Return on Assets (ROA) in conventional commercial banks listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023. This conclusion suggests that an increase in BOPO correlates with a heightened operational load for the bank, thereby diminishing efficiency in profit acquisition and adversely affecting ROA.

This outcome aligns with the study conducted by (Hasibuan et al., 2023), indicating that BOPO exerts a negative and significant influence on ROA. A higher BOPO ratio correlates with a diminished degree of profitability (ROA). This reinforces the notion that operational efficiency is a critical determinant of banking profitability, as elevated operational costs can diminish earned income (Nasib et al., 2024). This conclusion is

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further substantiated by research conducted by (Purnama & Yani, 2023), which revealed that BOPO exerts a significant negative impact on ROA. This outcome verifies that banks management must effectively control operating costs to enhance profitability. Furthermore, research conducted by (Murwaningsari, 2024) revealed a significant negative link between BOPO and ROA. Their research indicates that banks with an elevated BOPO ratio encounter a decline in profitability attributable to the substantial operational load incurred (Aldy Syafrizal et al., 2023). The primary elements contributing to this issue include inefficiencies in credit administration, elevated staff expenses, and suboptimal management of administrative and operational costs (Putri et al., 2023).

Nonetheless, the findings of this study contrast with those of (Mega et al., 2024), which indicated that BOPO does not consistently exert a substantial influence on ROA under specific circumstances. They contend that despite elevated BOPO levels, certain banks can sustain profitability through income diversification techniques, including the augmentation of non-interest income from digital financial services, investments, and various banking transactions (Syafitri et al., 2023). This disparity indicates that, whereas BOPO often exerts a detrimental influence on ROA, additional elements, including banking service innovation and risk management methods, may also temper this link (Silvan, 2024).

The Influence of Loan to Deposit Ratio on Return on Assets

The analysis yielded a significant value (α) of 0.898, exceeding 0.05 ($0.898 > 0.05$), however the computed t value (0.128) is less than the t table value (1.983) ($0.128 < 1.983$). Thus, the null hypothesis H_0 is accepted whereas the alternative hypothesis H_1 is rejected. The Loan to Deposit Ratio (LDR) has a negligible effect on the Return on Assets (ROA) of Indonesian commercial banks listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023. This research suggests that the extent of credit distribution relative to third-party funds acquired by banks does not directly enhance bank profitability. This suggests that additional factors, like credit quality, interest rates, and asset management methods, significantly influence bank profitability.

This outcome aligns with research (Siswanto et al., 2022), which determined that LDR does not significantly impact ROA. The research demonstrated that a bank's profitability is not directly influenced by whether it had a high or low loan-to-deposit ratio (LDR) (Nasib et al., 2023). This may be attributed to various reasons, including the efficacy of credit distribution, risk management measures, and economic conditions influencing loan demand. Research by (Beni et al., 2023) indicated that LDR does not

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significantly impact ROA. The relationship between LDR and ROA may fluctuate depending on the bank's management of credit risk, operational efficiency, and the overall economic conditions, which influence consumer purchasing power and loan demand (Hutasoit et al., 2022).

Research (Rifansa et al., 2022) corroborates these findings by analyzing the influence of financial parameters on the profitability of traditional banks. The study revealed that LDR lacks a substantial correlation with ROA, as bank profitability is influenced not solely by credit distribution but also by additional income sources, including non-interest income, investments, and various banking services (Suroso, 2022). This indicates that, while the Loan-to-Deposit Ratio (LDR) signifies the function of bank intermediation, the efficacy of credit management and revenue diversification exerts a more substantial impact on profitability (Dutahatmaja, 2022). This finding contrasts with the results of research (Darmawan, et al., 2023), which indicated that LDR positively and significantly influences ROA in various commercial banks. They contend that a higher Loan-to-Deposit Ratio (LDR) enhances the bank's capacity to augment interest income from extended credit, so eventually boosting profitability (Sari et al., 2022). The disparity in outcomes may stem from variations in research durations, banking rules, and economic circumstances that influence the correlation between LDR and ROA (Siregar, 2022)(Khairani, 2023).

CONCLUSION

Analysis indicates that the Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), and Loan to Deposit Ratio (LDR) exert minimal influence on Return on Assets (ROA) in Indonesian commercial banks listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023. Simultaneously, the ratio of Operating Expenses to Operating Income (BOPO) demonstrates a substantial negative impact on Return on Assets (ROA), indicating that increased operating expenses correlate with diminished profitability for the bank.

While CAR, NPL, and LDR do not independently alter ROA, the study's results indicate that their collective examination influences ROA in traditional commercial banks. This suggests that, while certain financial ratios may not directly influence profitability, an amalgamation of diverse financial aspects continues to affect bank performance.

It is advisable to incorporate other financial variables in future study to achieve a more thorough comprehension of the correlation between financial measures and banking performance. Moreover, additional research may incorporate external variables such as macroeconomic conditions, monetary policy, or market risk concerns that could also

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influence bank profitability. This study's findings serve as a crucial impetus for banking institutions to enhance innovation aimed at enhancing operational efficiency, hence reducing costs and augmenting profitability. Banks must enhance cost management techniques, improve efficiency in loan allocation, and cultivate non-interest income sources to sustain steady performance amid economic fluctuations and competition within the banking sector.

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