

## THE EFFECTS OF CAPITAL ADEQUACY, LOAN-TO-DEPOSIT, AND NON-PERFORMING LOAN RATIOS ON RETURN ON ASSETS: EVIDENCE FROM INDONESIAN STATE-OWNED BANKS, 2020–2025

Sabda Adam<sup>1</sup>, Nina Shabrina<sup>2</sup>, Dina Novita<sup>3</sup>

<sup>1,2</sup> Program Studi Manajemen Program Sarjana, Fakultas Ekonomi dan Bisnis,  
Universitas Pamulang, Tangerang Selatan, Banten, Indonesia

Email: <sup>1</sup>[sabdaadam3@gmail.com](mailto:sabdaadam3@gmail.com), <sup>2</sup>[dosen01567@unpam.ac.id](mailto:dosen01567@unpam.ac.id)

\*) Corresponding Author

---

### Abstract

Received: 03 June 2026

Revised: 16 July 2026

Accepted: 10 August 2026

Published online:

*This study aims to examine the effect of Capital Adequacy Ratio, Loan to Deposit Ratio and Non- Performing Loan on Financial Performance of State Owned Commercial Banks listed on the Indonesia Stock Exchange for the period 2020–2025. The sample consists of 4 State-Owned Commercial Banks listed on the Indonesia Stock Exchange. This study employs a quantitative associative method with panel data, Data analysis techniques include descriptive statistical tests, analysed through multiple linear regression, t-test, F-test, and coefficient of determination. The multiple linear regression analysis yields the equation  $Y = -5.706484 + 0.002154X_1 + 0.000330X_2 + 0.000174X_3$ . Partially, Capital Adequacy Ratio has a significant effect on financial performance with t-sig.  $0.0058 < 0.05$ . Loan to Deposit Ratio also has a significant effect on financial performance with t-sig.  $0.0322 < 0.05$ . Conversely, Non-Performing Loan does not have a significant effect with t-sig.  $0.9989 > 0.05$ . However, simultaneously, Capital Adequacy Ratio, Loan to Deposit Ratio, and Non-Performing Loan have a significant effect on financial performance with an F-sig. value of  $0.000011 < 0.05$ . The coefficient of determination of 76.86% indicates that the independent variables are able to explain the variation in financial performance, while the remaining 23.14% is influenced by other factors outside this research model.*

### Keywords:

*Capital Adequacy Ratio, Loan to Deposit Ratio, Non-Performing Loan, Financial Performance*

---

## INTRODUCTION

The banking sector plays a crucial role in driving and developing a country's economy (Sutisnawati and Muzaini, 2021). Banks, as financial institutions, function as financial intermediaries that mobilize and channel public funds, thereby contributing directly to the stability of the financial system and national economic growth. In Indonesia, state-owned commercial banks (BUMN) hold a strategic position because the four state-owned banks PT Bank Mandiri (Persero) Tbk, PT Bank Rakyat Indonesia (Persero) Tbk, PT Bank Negara Indonesia (Persero) Tbk, and PT Bank Tabungan Negara (PerIndonesia are the four largest banks out of a total of 118 banks operating in Indonesia.

A bank's financial health which reflects its ability to conduct normal operations and meet all of its obligations is a fundamental indicator of economic stability. Bank soundness is assessed through an evaluation of various factors, including capital adequacy (Capital Adequacy Ratio/CAR), asset quality (Non-Performing Loans/NPL), and liquidity (Loan-to-Deposit Ratio/LDR), which are components of the CAMELS assessment framework.

However, since the announcement of the first COVID-19 case in Indonesia in 2020, the national economy has faced significant shocks. The Large-Scale Social Restrictions (PSBB) policy drastically altered public activities, leading to a decline in purchasing power, a rise in unemployment, and a contraction in banking sector performance. OJK Board of Commissioners Chair Wimboh Santoso stated that the banking sector's financial performance in 2020 contracted by -33.08% compared to the previous year, which directly impacted the decline in Return on Assets (ROA).

This phenomenon creates an urgent need to reexamine the determinants of state-owned banks' financial performance, given their strategic role as agents of trust and key drivers of the national economy. The public trust that has been built through the government's ownership of state-owned banks must continue to be maintained through sound and sustainable financial performance.

There are inconsistencies in the results of previous studies. Some studies found that NPLs have a significant negative effect on ROA (studies covering the 2004–2022 period), while other studies on state-owned banks during the 2010–2014 period found that NPL do not have a significant effect on ROA. These differing results indicate that the impact of NPLs on financial performance is contextual and highly dependent on the time period and the underlying macroeconomic conditions. Most previous studies were conducted before or during the COVID-19 pandemic, so few have examined the post-pandemic period spanning 2020–2025. This period is particularly unique due to various extraordinary policy interventions, such as mass credit restructuring, the relaxation of macroprudential policies, and a state capital injection (PMN) of Rp 9 trillion for BNI and BTN. These policies have the potential to alter the transmission mechanisms of CAR, LDR, and NPL on bank profitability.

The phenomenon of a decline in the Loan to Deposit Ratio resulting from the transfer of a Budget Surplus (SAL) of Rp 200 trillion to state-owned banks in 2025, as well as the downward trend in BNI's Capital Adequacy Ratio (CAR) from 19.4% (2016) to 16.7% (2020), has not been extensively analyzed in the academic literature. This phenomenon creates new dynamics in the relationship between financial variables and bank performance. Previous studies have tended to analyze banks on an aggregate basis (all commercial banks), while research specifically focusing on state-owned banks as a homogeneous group characterized by state ownership remains limited. In

fact, state owned banks possess unique characteristics in terms of access to government policies and higher public expectations.

This study covers the current research period (2020–2025), which spans the critical post-COVID-19 pandemic phase through the economic recovery period. This period has not been extensively studied because it is still ongoing and is rich in unique macroprudential policy phenomena, such as credit restructuring policies, liquidity easing, and government interventions in the form of capital injections and the transfer of the Special Allocation Fund (SAL). And specifically focuses on State-Owned Commercial Banks (BUMN) as the research subjects. With a limited and homogeneous population (4 BUMN banks), this study provides a more in-depth analysis compared to studies that use an aggregate sample of banks. State-owned commercial banks have specific characteristics as state-owned enterprises that serve as agents of economic development and agents of trust; consequently, the determinants of their financial performance have policy implications that differ from those of private banks.

This study uses panel data that combines cross-sectional (4 state-owned banks) and time-series (6 years, 2020–2025) dimensions, resulting in more efficient and robust estimates compared to standard cross-sectional analysis. The use of panel data allows for the control of unobserved heterogeneity among banks. This study integrates actual phenomena that occurred during the study period, such as the decline in BNI and BTN's CAR, which triggered a capital injection of Rp 9 trillion, the decline in the LDR resulting from a Rp 200 trillion capital injection into Himbara, fluctuations in NPLs during the pandemic and recovery period, and disparities in ROA among state-owned banks (Bank Mandiri 2.76% vs. BTN 0.85%). And employs a signaling theory framework to explain the mechanisms through which CAR, LDR, and NPL influence financial performance. This theoretical approach is still rarely used in research on banking performance in Indonesia, thereby offering a new perspective on understanding how financial ratios function as signals for the market and stakeholders.

The following table presents the complete tabulation of the research data analyzed by the researcher, specifically regarding the effect of the Capital Adequacy Ratio, Loan-to-Deposit Ratio, and Non-Performing Loans on the financial performance of state-owned commercial banks listed on the Indonesia Stock Exchange for the period 2020–2025:

**Table 1.**  
**CAR, LDR, and NPL on ROA of BUMN on the BEI, Period 2020-2025**

| Emiten | Year | CAR   | LDR    | NPL  | ROA  |
|--------|------|-------|--------|------|------|
| BMRI   | 2020 | 19,90 | 83,84  | 2,65 | 1,24 |
|        | 2021 | 19,60 | 85,87  | 2,48 | 1,77 |
|        | 2022 | 19,46 | 85,52  | 1,66 | 2,26 |
|        | 2023 | 21,48 | 96,69  | 0,79 | 2,76 |
|        | 2024 | 20,10 | 108,82 | 0,62 | 2,52 |
|        | 2025 | 19,36 | 99,18  | 0,51 | 2,17 |
| BBRI   | 2020 | 20,61 | 77,83  | 1,38 | 1,23 |
|        | 2021 | 25,28 | 79,88  | 1,89 | 1,83 |
|        | 2022 | 23,30 | 75,77  | 2,08 | 2,76 |
|        | 2023 | 25,23 | 82,29  | 2,47 | 3,08 |
|        | 2024 | 24,42 | 89,45  | 3,09 | 3,03 |

|      |      |       |       |      |      |
|------|------|-------|-------|------|------|
|      | 2025 | 21,07 | 94,18 | 3,38 | 2,68 |
| BBNI | 2020 | 16,78 | 83,69 | 4,54 | 0,37 |
|      | 2021 | 19,74 | 72,98 | 4,05 | 1,14 |
|      | 2022 | 19,27 | 77,46 | 3,05 | 1,79 |
|      | 2023 | 21,95 | 79,92 | 2,29 | 1,94 |
|      | 2024 | 21,40 | 91,52 | 2,07 | 1,92 |
|      | 2025 | 20,66 | 82,98 | 2,01 | 1,48 |
| BBTN | 2020 | 19,34 | 95,33 | 4,60 | 0,44 |
|      | 2021 | 19,14 | 95,32 | 3,91 | 0,64 |
|      | 2022 | 20,17 | 95,12 | 3,56 | 0,76 |
|      | 2023 | 20,07 | 98,64 | 3,16 | 0,80 |
|      | 2024 | 18,50 | 97,87 | 3,28 | 0,64 |
|      | 2025 | 19,02 | 95,01 | 3,21 | 0,66 |

Source: Processed Data, 2026

Based on Table 1 above, it can be seen that the bank with the highest ROA in 2023 was PT. Bank Rakyat Indonesia (Persero) Tbk, with an ROA of 3.08%, while the bank with the lowest ROA was PT. Bank Negara Indonesia (Persero) Tbk in 2020, with an ROA of only 0.37%. Furthermore, the bank with the highest CAR was PT. Bank Rakyat Indonesia (Persero) Tbk in 2021, with a CAR of 25.28%, while the bank with the lowest CAR was PT. Bank Negara Indonesia (Persero) Tbk in 2020, with a CAR of only 16.78%. Meanwhile, the bank with the highest LDR was PT. Bank Mandiri (Persero) Tbk in 2024, with an LDR of 108.82%, and the bank with the lowest LDR was PT. Bank Negara Indonesia (Persero) Tbk in 2021, with an LDR of just 72.98%. The bank with the highest NPL ratio is PT. Bank Tabungan Negara (Persero) Tbk, at 4.60%. The bank with the lowest NPL ratio is PT. Mandiri (Persero) Tbk, at 0.51%.

Figure 2 summarizes the annual mean trajectories across the four banks. These descriptive trends contextualize the panel estimates but do not identify causal effects.

## LITERATURE REVIEW

### Signaling Theory

Signaling Theory, developed by Ros in 1997, states that corporate executives who possess better information about their company will be motivated to convey that information to potential investors in order to increase the company's stock price.

According to Gama et al. (2024:87), Signaling Theory is one of the cornerstone theories in understanding financial management. Signaling Theory relates to the understanding of how certain signals are highly valuable or useful, while others are not. In general, Signaling Theory can be defined as actions taken by a company (managers) toward external parties (investors).

Financial performance itself is a key indicator for investors regarding the effectiveness of a bank's management in managing assets to generate profits. Strong financial performance is a positive sign that the bank has managed its assets effectively. The financial information published by a company serves as a guide for investors in assessing the company's performance and prospects.

The higher the Capital Adequacy Ratio, the stronger the indication of a bank's capital capacity to absorb risks. This enables the bank to conduct its operations more safely and boosts public and investor confidence. Effective credit disbursement can increase interest income and

ultimately drive higher corporate profits. Therefore, an optimally managed Loan-to-Deposit Ratio can serve as a positive indicator of a bank's financial performance, as it reflects the company's ability to utilize funds productively and efficiently. The higher the quality of a bank's loans, the better—as this indicates that the majority of borrowers are able to meet their obligations in accordance with applicable regulations. Conversely, a high Non-Performing Loan ratio indicates an increased risk of default, which can reduce the bank's revenue and increase provisions for loan losses.

### Financial Performance

According to Hutabarat (2020:2), financial performance is an analysis conducted to determine the extent to which a company has implemented financial management practices properly and correctly or has maximized its objectives. According to Rahayu (2021:6), financial performance is the result of numerous individual decisions made continuously by company management. These decisions include investment, operational, and financing decisions.

The Objectives of Corporate Financial Performance Evaluation: According to Hutabarat (2020:4), the measurement of financial performance has several objectives, including:

1. To determine the level of liquidity, that is, a company's ability to meet its financial obligations when they become due.
2. To determine the level of solvency, which indicates a company's ability to meet its financial obligations in the event of liquidation.
3. To determine the level of profitability, which reflects a company's ability to generate profits over a specific period, as compared to the productive use of its assets or equity.
4. To determine the level of business activity, which is the company's ability to operate and maintain its business so that it remains stable, as measured by the company's ability to pay principal and interest on time, as well as to make regular dividend payments to shareholders without experiencing financial difficulties or crises.

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}} \times 100\%$$

### Capital Adequacy Ratio

According to Budianto, H.W.E., et al. (2025:20), the Capital Adequacy Ratio (CAR) is a fundamental pillar in assessing the health and resilience of an Islamic bank, serving as the primary measure of the bank's ability to absorb potential losses arising from various business risks using its core capital and supplementary capital.

According to Gina I. F. et al. (2025:42), the Capital Adequacy Ratio (CAR) is a ratio used to measure the sufficiency of a bank's capital to cover its risk-weighted assets. This ratio indicates the extent to which the bank's capital can protect against the risks it faces. According to Imansyah (2020:54), the higher the Capital Adequacy Ratio, the better the bank's performance in extending credit. Based on Bank Indonesia regulations, the minimum Capital Adequacy Ratio for commercial banks is 8% of Risk-Weighted Assets (RWA). The following formula can be used to calculate the Capital Adequacy Ratio (CAR):

$$CAR = \frac{\text{Total Capital}}{\text{Risk Weighted Assets (ATMR)}} \times 100\%$$

### **Loan to Deposit Ratio**

According to Gina I. F. et al. (2025:41), the Loan-to-Deposit Ratio (LDR) is a liquidity ratio that reflects a bank's ability to extend loans using third-party funds. The LDR is used to measure the extent to which a bank relies on the amount of credit extended to borrowers as a source of liquidity.

According to Darmawan (2020:122), the Loan-to-Deposit Ratio (LDR) is a ratio used to measure the composition of the total loans granted relative to the total public funds and the bank's own capital. The LDR indicates the extent to which a bank is capable of repaying fund withdrawals made by depositors by relying on credit derived from its liquidity. According to Budiman (2020:56), an excessively high Loan-to-Deposit Ratio indicates that a bank is at risk of facing liquidity difficulties, whereas a low Loan-to-Deposit Ratio suggests the bank has excess liquidity. The Financial Services Authority (OJK) notes that the ideal Loan-to-Deposit Ratio for banks falls within the range of 78%–92%. The following formula can be used to calculate the Loan-to-Deposit Ratio (LDR):

$$\text{LDR} = \frac{\text{Total Loans}}{\text{Total Third Party Funds (DPK)}} \times 100\%$$

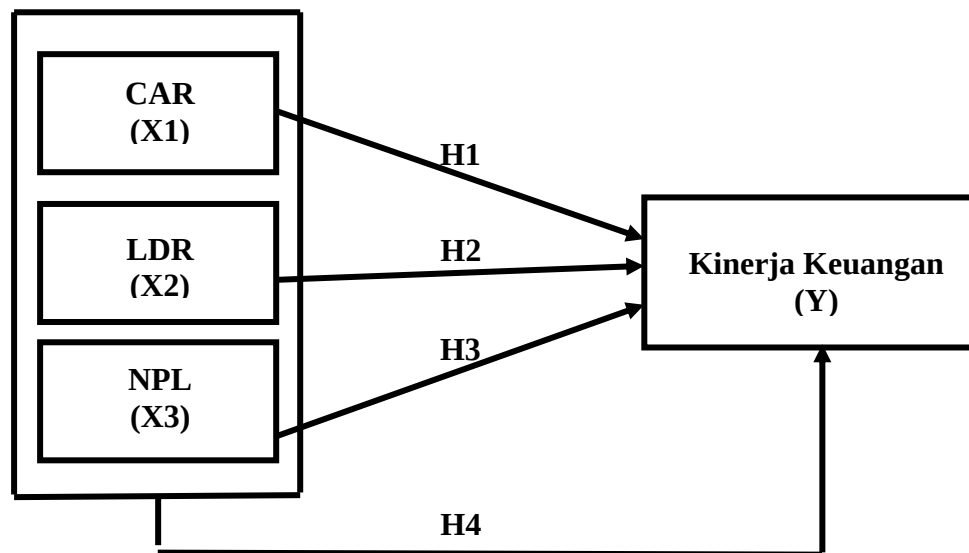
### **Non-Performing Loan**

According to Afdhal.N.M.A et al. (2025:240), a Non-Performing Loan (NPL) is the ratio of non-performing loans to total loans and disbursements or loans of questionable quality, those that are less liquid, and those that are in default. Simply put, the NPL is an indicator of the asset health of a non-bank financial institution. The calculation here relates to the number of borrowers who have failed to repay their loans in accordance with the agreement.

According to Budianto, H.W.A. (2025:190), Non-Performing Loans (NPLs) are a fundamental indicator for assessing the asset quality and financial health of conventional banks, reflecting the proportion of non-performing loans relative to total loans disbursed. A loan is categorized as non-performing when a borrower fails to meet their obligation to pay the principal and/or interest according to the agreed schedule, generally after a delinquency period of more than 90 days. According to Budiman (2024:55), the lower the Non-Performing Loan ratio, the better the credit quality and the bank's financial condition; conversely, a higher Non-Performing Loan ratio indicates high credit risk and can reduce the bank's profits due to increased provisioning costs and potential loan losses. Bank Indonesia (BI) defines healthy Non-Performing Loan (NPL) standards as follows: a very healthy NPL is less than 2%, a healthy NPL is between 2% and 5%, a moderately healthy NPL is between 5% and 8%, and an unhealthy NPL is greater than 8%. The following formula can be used to calculate the Non-Performing Loan (NPL) ratio:

$$\text{NPL} = \frac{\text{Total NPL}}{\text{Total Credit}} \times 100\%$$

Based on the background and theoretical framework, the conceptual framework underlying this study can be described as follows:



**Figure 1.**  
**Framework**

Based on the results of the development of the above hypothesis, the hypothesis for this study can be formulated as follows:

H1: The Capital Adequacy Ratio has a positive effect on financial performance

The Capital Adequacy Ratio is a ratio that indicates a bank's capital capacity to absorb the risk of losses from risk bearing assets. A higher CAR value indicates a stronger ability of the bank to bear risk, thereby giving the bank greater flexibility in conducting its operations and increasing its profits. As profits increase, the bank's Return on Assets will also increase. Based on research conducted by Harahap & Efendi (2020), the Capital Adequacy Ratio has a significant effect on financial performance. Based on research conducted by Mulyanti, S et al. (2023), the Capital Adequacy Ratio affects financial performance.

H2: The Loan-to-Deposit Ratio has a positive effect on financial performance

The expected relationship between LDR and ROA reflects a balance between intermediation income and liquidity risk. A higher share of deposits allocated to lending can support interest income and asset utilization, provided credit demand and pricing are favorable. However, an excessively high LDR may constrain liquidity and increase funding costs, whereas a very low LDR may indicate underutilized deposits. Consequently, a positive linear association is a contextual empirical hypothesis rather than an unconditional claim.

The Loan-to-Deposit Ratio (LDR) is a liquidity ratio used to measure the proportion of public deposits that a bank channels into loans. An ideal LDR allows a bank to extend loans effectively while maintaining adequate liquidity; a low LDR indicates that the bank is less productive, thereby limiting its profit potential. The more optimally loans are extended, the greater the profit earned by the bank, which automatically increases its ROA. Research conducted by Ningsih & Ilhami (2023) found that the LDR has a significant effect on financial performance. Based on research conducted by Amirudin, A. (2022), the LDR has a significant effect on financial performance.

H3: The Non-Performing Loan ratio is negatively associated with return on assets.

The Non-Performing Loan (NPL) ratio indicates the ability of bank management to manage problem loans issued by the bank. A higher NPL ratio indicates poorer credit quality, leading to an increase in the number of problem loans and a greater risk that the bank will face financial difficulties. A high NPL ratio leads to an increase in overdue loan interest, which has the potential to reduce the bank's revenue and profits, causing the Return on Assets (ROA) to decline and negatively impacting the bank's financial performance. According to research conducted by Fasihah, D. U., et al. (2024), Non-Performing Loans have a significant impact on financial performance. Based on research conducted by Silitonga, R., & Mandar, G. S. (2022), non-performing loans have a significant effect on financial performance.

H4: The Capital Adequacy Ratio, Loan-to-Deposit Ratio, and Non-Performing Loans have a simultaneous effect on financial performance.

Based on research conducted by Hadi, S. M. (2022), the Capital Adequacy Ratio, Loan-to-Deposit Ratio, and Non-Performing Loans have a simultaneous effect on financial performance. Based on research conducted by Sinaga, J., and Matta, Y. D. (2026), the Capital Adequacy Ratio, Loan-to-Deposit Ratio, and Non-Performing Loans have a simultaneous effect on financial performance.

## **METHODS**

This study employs a quantitative associative approach with a causal relationship, as it aims to examine the effect of independent variables (CAR, LDR, and NPL) on the dependent variable (financial performance) at state-owned banks listed on the Indonesia Stock Exchange for the period 2020–2025. Sugiyono (2022:121) states that an associative method is a research approach designed to identify the cause-and-effect relationship between an independent variable and a dependent variable. This method involves at least two variables that have a cause-and-effect (causal) relationship. The data collection techniques used in this study were the documentation method and the literature review method.

The design identifies conditional statistical associations rather than causal effects. With only four banks observed annually for six years (24 bank-year observations), coefficient estimates and diagnostic tests may be sensitive to individual observations. Findings are specific to the sampled state-owned conventional banks and should not be generalized automatically to private or Islamic banks.

In this study, the author focused on state-owned commercial banks (BUMN), namely PT. Bank Mandiri (Persero) Tbk, PT. Bank Rakyat Indonesia (Persero) Tbk, PT. Bank Negara Indonesia (Persero) Tbk, and PT. Bank Tabungan Negara (Persero) Tbk. For this thesis proposal, the author obtained data from the research locations mentioned above, sourced from the website [www.idx.co.id.com](http://www.idx.co.id.com), as well as from the companies' official websites. And The research period covered July 2025 through July 2026. Financial data from state-owned commercial banks for the 2020–2025 period was used.

According to Leon et al. (2023:88), a population is a group of people, events, or things that share certain characteristics; the members of a population are called population elements. According to Astra and Prasetya, as cited in Leon et al. (2023:88), a population is the collection of all observation units that are the subject of a survey study. In this study, the population consisted

of state-owned commercial banks (BUMN) listed on the Indonesia Stock Exchange (IDX), comprising a total of 5 banks, as identified from secondary data sources:

**Table 2.**  
**Corporate Population**

| NO | EMITEN | COMPANY NAME                         | DATE JOINED     |
|----|--------|--------------------------------------|-----------------|
| 1  | BMRI   | Bank Mandiri (Persero) Tbk           | 2 October 1998  |
| 2  | BBRI   | Bank Rakyat Indonesia (Persero) Tbk. | 1 August 1992   |
| 3  | BBNI   | Bank Negara Indonesia (Persero) Tbk. | 31 July 1992    |
| 4  | BBTN   | Bank Tabungan Negara (Persero) Tbk.  | 29 April 1989   |
| 5  | BRIS   | Bank Syariah Indonesia Tbk.          | 1 February 2021 |

Source : [www.idx.co.id](http://www.idx.co.id)

According to Arikunto in the book by Leon et al. (2023:88), a sample is a portion or representative of the population under study; if we are only going to study a portion of the population, then the study is called a sample study. The sampling technique used in this study is purposive sampling (judgmental sampling), which is a technique for determining a sample based on specific considerations or criteria deliberately established by the researcher according to the researcher's objectives and needs.

This technique falls under non-probability sampling methods, in which not all elements of the population have an equal chance of being selected, but only those elements that meet specific, predetermined characteristics. In this study, the criteria used are as follows:

1. State Owned Commercial Banks with complete financial statements
2. State Owned Commercial Banks in the form of a Limited Liability Company
3. State Owned Commercial Banks that are not part of Islamic banks

In this study, the data used are secondary data, specifically the annual financial reports of State-Owned Commercial Banks (BUMN) obtained from the official website [www.idx.co.id](http://www.idx.co.id) and the websites of companies listed on the Indonesia Stock Exchange (BEI) for the years 2020–2025. In this study, sampling was conducted using the purposive sampling method (non-probability sampling). From the data collected, a total of 5 bank datasets were identified, and the sample was then selected according to predetermined criteria, resulting in a total of 6 years of research observations from 4 companies, or 24 data observations. Data management in this study utilized the electronic software E-Views 12.

Operationalization of Variables the following table summarizes the operational definitions and measurement indicators for each variable used in this study:

**Table 3.**  
**Operationalization Of Variables**

| Variable               | Type      | Operational Definition                     | Formula                                                            | Scale |
|------------------------|-----------|--------------------------------------------|--------------------------------------------------------------------|-------|
| Kinerja Keuangan (ROA) | Dependent | A company's success over a specific period | $ROA = \frac{\text{Net income}}{\text{Total Assets}} \times 100\%$ | Ratio |

|                              |             |                                                    |                                                                    |       |
|------------------------------|-------------|----------------------------------------------------|--------------------------------------------------------------------|-------|
| Capital Adequacy Ratio (CAR) | Independent | Sufficient capital to cover potential losses       | $CAR = \frac{\text{Total capital}}{\text{ATMR}} \times 100\%$      | Ratio |
| Loan to Deposit Ratio (LDR)  | Independent | To measure a bank's liquidity and financial health | $LDR = \frac{\text{Total loans}}{\text{DPK}} \times 100\%$         | Ratio |
| Non Performing Loan (NPL)    | Independent | To assess credit risk and financial health         | $NPL = \frac{\text{Total NPL}}{\text{Total credits}} \times 100\%$ | Ratio |

Source: Processed Data, 2026

### Data Analysis Method

Analysis Method Data in this study were processed and analyzed using Eviews 12. The analytical procedures are as follows:

### Descriptive Statistical Tests

According to Sugiyono in the book by Elvera et al. (2019:114), descriptive statistics is a statistical analysis used to analyze data by describing or depicting the collected data as it is, without intending to draw conclusions that apply universally or to make generalizations. Descriptive statistics is the stage at which research data is transformed.

### Classical Assumptions Tests

Classical Assumption Tests Prior to regression estimation, the following diagnostic tests were conducted to ensure the validity of the Ordinary Least Squares (OLS) assumptions:

1. Normality Test, The Jarque-Bera test was used to assess whether the residuals of the regression model are normally distributed. Given the limited sample size (24 bank-year observations), normality of residuals is particularly important for the validity of t-test and F-test inferences. It is acknowledged that with 24 observations, the power of normality tests is inherently limited, and results should be interpreted with caution.
2. Multicollinearity Test, The Variance Inflation Factor (VIF) was used to detect the presence of multicollinearity among independent variables. A VIF value exceeding 10 indicates problematic multicollinearity. In small samples, even moderate multicollinearity can substantially inflate standard errors, reducing the precision of coefficient estimates.
3. Heteroscedasticity Test, The Glejser test or White test was employed to detect non-constant variance in the residuals. Heteroscedasticity can lead to inefficient OLS estimates and invalid hypothesis tests. Its presence is particularly concerning in time series data spanning periods of economic volatility.
4. Autocorrelation Test, The Durbin-Watson statistic was used to detect first-order serial autocorrelation in the residuals a common issue in time series regression. The presence of autocorrelation violates the OLS assumption of independent errors and may lead to underestimated standard errors and inflated t-statistics.

### Multiple Linear Regression Analysis

According to Priyatno (2023:3), multiple linear regression is an analysis used to determine whether there is a significant partial or simultaneous effect of two or more independent variables on a single dependent variable, to identify the nature of the effect (positive or negative) and its magnitude, and to predict the value of the dependent variable using the independent variables.

### Hypothesis Testing

1. Partial Test (t-test) tests H1 and H2 individually at  $\alpha = 0.05$ .
2. Simultaneous Test (f-test) tests H3, examining the joint significance of CAR, LDR dan NPL on Financial Performance (ROA).
3. Coefficient of Determination ( $R^2$ ) measures the proportion of variance in Financial Performance (ROA) explained by CAR, LDR and NPL.

## RESULT AND DISCUSSION

### Descriptive Statistical Tests

**Table 4.**  
**Descriptive Statistical Tests**

Date: 06/29/26 Time: 12:01  
Sample: 2020 2025

|              | Y        | X1       | X2       | X3        |
|--------------|----------|----------|----------|-----------|
| Mean         | 1.662917 | 2066.042 | 8854.833 | 2.613750  |
| Median       | 1.780000 | 2008.500 | 8766.000 | 2.565000  |
| Maximum      | 3.080000 | 2528.000 | 10882.00 | 4.600000  |
| Minimum      | 0.370000 | 1678.000 | 7298.000 | 0.510000  |
| Std. Dev.    | 0.868885 | 209.9328 | 914.2615 | 1.145281  |
| Skewness     | 0.087242 | 0.866119 | 0.166165 | -0.139416 |
| Kurtosis     | 1.737770 | 3.313839 | 2.217280 | 2.326873  |
| Jarque-Bera  | 1.623671 | 3.099140 | 0.723095 | 0.530847  |
| Probability  | 0.444042 | 0.212339 | 0.696598 | 0.766881  |
| Sum          | 39.91000 | 49585.00 | 212516.0 | 62.73000  |
| Sum Sq. Dev. | 17.36410 | 1013651. | 19225105 | 30.16836  |
| Observations | 24       | 24       | 24       | 24        |

Source: Processed Data E-Views, 2026

Based on Table 4. Using descriptive statistics for the independent variables—namely, the Capital Adequacy Ratio, the Loan-to-Deposit Ratio, and Non-Performing Loans—and the dependent variable, Financial Performance.

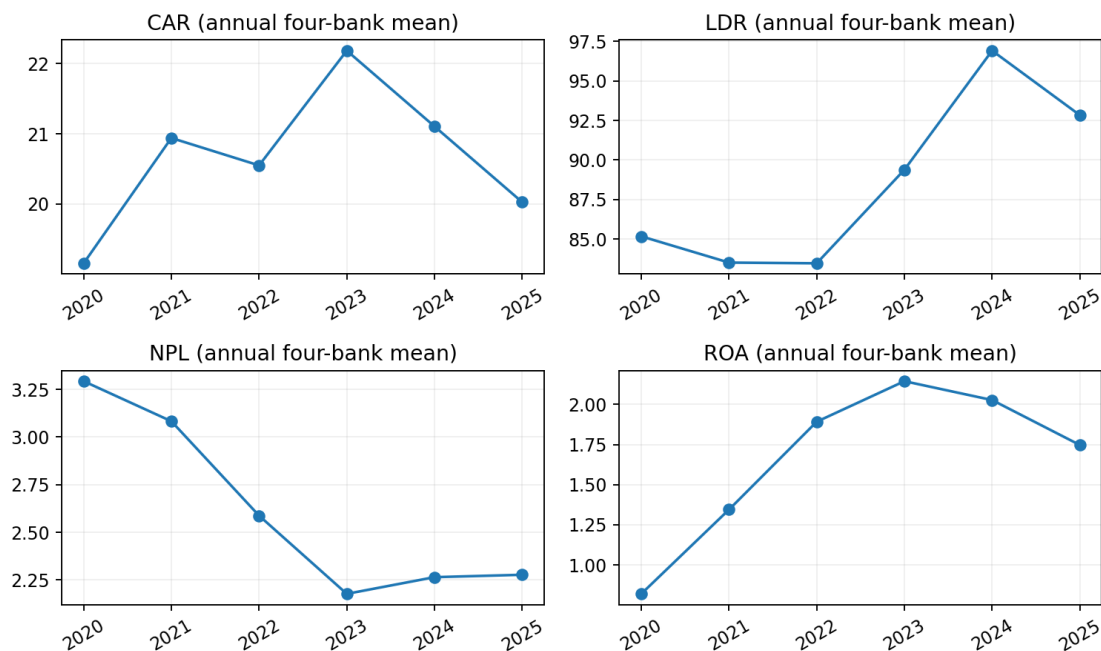
1. The descriptive statistics for the Financial Performance (Y) variable show a mean of 1.662917, with one of the highest values recorded by PT. Bank Rakyat Indonesia (Persero) Tbk in 2023 at 3.080000. One of the lowest values was recorded by PT. Bank Negara Indonesia (Persero) Tbk in 2020 at 0.370000, with a standard deviation of 0.868885.
2. The Capital Adequacy Ratio (X1) variable shows an average value of 2066.042, with one of the highest values recorded by PT. Bank Rakyat Indonesia (Persero) Tbk in 2021 at 2528.000. One

of the lowest values was recorded by PT. Bank Negara Indonesia (Persero) Tbk in 2020 at 1678,000, with a standard deviation of 209.9328.

3. The Loan to Deposit Ratio (X2) variable shows an average value of 8854.833, with one of the highest values recorded by PT. Bank Mandiri (Persero) Tbk in 2024 at 10882.00. One of the lowest values was recorded by PT. Bank Negara Indonesia (Persero) Tbk in 2021 at 7298.000, with a standard deviation of 914.2615.
4. The Non-Performing Loan (X3) variable shows an average value of 2.613750, with one of the highest values recorded at PT. Bank Tabungan Negara (Persero) Tbk in 2020 at 4.600000. One of the lowest values was recorded by PT. Bank Mandiri (Persero) Tbk in 2025 at 0.510000, with a standard deviation of 1.145281.

### Panel Data Regression Model Testing

Figure 2. Annual mean trends in CAR, LDR, NPL, and ROA, 2020–2025 (calculated from the manuscript's Table 1).



**Table 5.**

### Panel Data Regression Model Testing

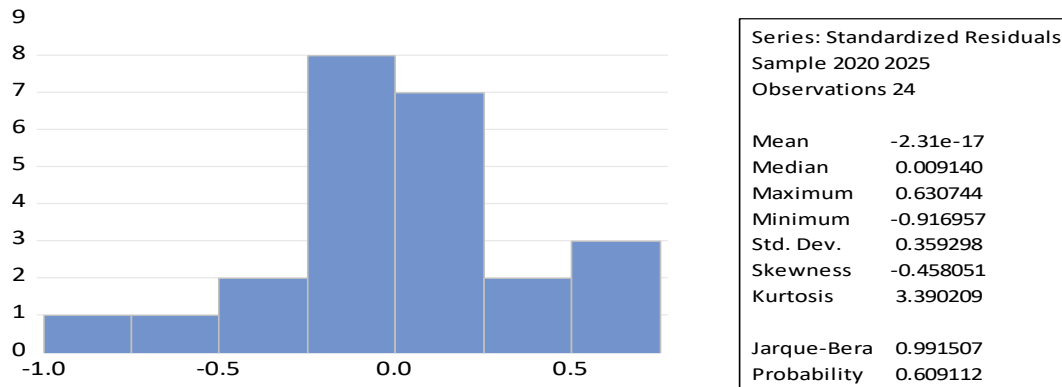
| Ket   | <i>Uji Chow</i>                                                                                     | <i>Uji Hausman</i>                                                                                  |
|-------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Prob. | 0.0050                                                                                              | 0.0004                                                                                              |
| Hasil | Nilai prob 0.0050 < 0.05, maka model estimasi yang digunakan adalah <i>Fixed Effect Model (FEM)</i> | Nilai prob 0.0004 < 0.05, maka model estimasi yang digunakan adalah <i>Fixed Effect Model (FEM)</i> |

Source: Processed Data E-Views, 2026

In conclusion, after testing the regression models for panel data, the results indicate that the model to be used in this study is the Fixed Effects Model (FEM).

## Test of Classical Assumptions

### Normality Test



**Figure 2.**  
**Normality Test**

The normality test is used to determine whether the data in the regression model are normally distributed and suitable for analysis. In this study, the normality test used the Jarque-Bera (J-B) test, with a significance level of 0.05. The basis for decision making is to consider the probability value of the J-B statistic. Based on the results above, the J-B statistic is 0.991507, and since the probability value, 0.609112, is greater than 0.05, it can be concluded that the residuals are normally distributed.

### *Multicollinearity Test*

**Table 6.**  
**Multicollinearity Test**

Variance Inflation Factors  
Date: 06/29/26 Time: 12:00  
Sample: 2020 2025  
Included observations: 24

| Variable | Coefficient<br>Variance | Uncentered<br>VIF | Centered<br>VIF |
|----------|-------------------------|-------------------|-----------------|
| C        | 4.467541                | 613.8907          | NA              |
| X1       | 4.67E-07                | 275.0501          | 1.160318        |
| X2       | 2.00E-08                | 216.0929          | 1.095993        |
| X3       | 0.014945                | 15.29276          | 1.263333        |

Source: Processed Data E-Views, 2026

In the multicollinearity test, the Variance Inflation Factor (VIF) must be less than 10, as can be seen in the centered VIF results. The results of the multicollinearity test are shown in the table below: The results of this multicollinearity test show that the centered VIF values for the independent variables Capital Adequacy Ratio (X1)—are 1.160318, Loan to Deposit Ratio (X2) are 1.095993, and Non-Performing Loans (X3) are 1.263333. From this analysis, the Centered VIF values are all less than 10 (Centered VIF < 10), meaning that there is no multicollinearity and the data is suitable for analysis.

### ***Heteroscedasticity Test***

**Table 7.**  
**Heteroscedasticity Test**

| Heteroskedasticity Test: ARCH |          |                     |        |
|-------------------------------|----------|---------------------|--------|
| F-statistic                   | 0.281398 | Prob. F(1,21)       | 0.6014 |
| Obs*R-squared                 | 0.304122 | Prob. Chi-Square(1) | 0.5813 |

Source: Processed Data E-Views, 2026

In the heteroscedasticity test using the ARCH test, the chi-square probability value must be greater than the 5% significance level for heteroscedasticity to be ruled out. In the ARCH test for heteroscedasticity, a chi-square probability value of  $0.5813 > 0.05$  was obtained, indicating the absence of heteroscedasticity and that the data are suitable for use.

### ***Autocorrelation Test***

**Table 8.**  
**Autocorrelation Test**

| Breusch-Godfrey Serial Correlation LM Test:<br>Null hypothesis: No serial correlation at up to 2 lags |          |                     |        |
|-------------------------------------------------------------------------------------------------------|----------|---------------------|--------|
| F-statistic                                                                                           | 0.283187 | Prob. F(2,17)       | 0.7569 |
| Obs*R-squared                                                                                         | 0.741566 | Prob. Chi-Square(2) | 0.6902 |

Source: Processed Data E-Views, 2026

In the autocorrelation test, the null hypothesis is rejected if the chi-square value is less than the significance level of 0.05. Based on the data analyzed by the author using E-Views 12, the results can be seen in Table 8 below. The results of the autocorrelation test yielded an obs-R-squared value of 0.741566 and a chi-squared probability value of 0.6902; thus, since the chi-squared probability value of  $0.6902 > 0.05$ , the autocorrelation test is met. In other words, since there are no signs of autocorrelation, the data is suitable for analysis.

### **Panel data Regression Analysis**

Diagnostic summary (reported EViews output): Jarque–Bera residual normality  $p = 0.609112$ ; centered VIFs: CAR = 1.160318, LDR = 1.095993, NPL = 1.263333; ARCH heteroskedasticity test  $p = 0.5813$ ; Breusch–Godfrey serial-correlation LM test  $p = 0.6902$ . All reported  $p$ -values exceed 0.05 where applicable. These results indicate no rejection in the specified diagnostics, not proof that all model assumptions hold. Applicability of pooled diagnostic routines to the selected fixed-effects specification should be verified against the original EViews workfile.

**Table 9.**  
**Multiple Regression Analysis**

Dependent Variable: Y  
Method: Panel Least Squares  
Date: 06/29/26 Time: 12:04  
Sample: 2020 2025  
Periods included: 6  
Cross-sections included: 4  
Total panel (balanced) observations: 24

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| C        | -5.706484   | 2.113656   | -2.699817   | 0.0152 |
| X1       | 0.002154    | 0.000683   | 3.152324    | 0.0058 |
| X2       | 0.000330    | 0.000141   | 2.333184    | 0.0322 |
| X3       | 0.000174    | 0.122249   | 0.001419    | 0.9989 |

Source: Processed Data E-Views, 2026

Based on the equation above, the following interpretations can be made:

1. The constant ( $\alpha$ ) of -5.706484 indicates that if all independent variables are equal to zero (0), the value of the Financial Performance is -5.706484.
2. The regression coefficient for the Capital Adequacy Ratio variable is 0.002154; for every 1-unit increase in the Capital Adequacy Ratio variable, the Financial Performance level will increase by 0.002154, assuming all other variables remain constant, and vice versa.
3. The regression coefficient for the Loan-to-Deposit Ratio variable is 0.000330; for every 1-unit increase in the Loan-to-Deposit Ratio variable, the level of financial performance will increase by 0.000330, assuming all other variables remain constant, and vice versa.
4. The regression coefficient for the Non-Performing Loan variable is 0.000174; for every 1-unit increase in the Non-Performing Loan variable, the level of financial performance will increase by 0.000174, assuming all other variables remain constant, and vice versa.

## Hypothesis Testing

### Partial Test (T-Test)

**Table 10.**  
**Partial Test (T-Test)**

Dependent Variable: Y  
Method: Panel Least Squares  
Date: 06/29/26 Time: 12:04  
Sample: 2020 2025  
Periods included: 6  
Cross-sections included: 4  
Total panel (balanced) observations: 24

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| C        | -5.706484   | 2.113656   | -2.699817   | 0.0152 |
| X1       | 0.002154    | 0.000683   | 3.152324    | 0.0058 |
| X2       | 0.000330    | 0.000141   | 2.333184    | 0.0322 |
| X3       | 0.000174    | 0.122249   | 0.001419    | 0.9989 |

Source: Processed Data E-Views, 2026

Based on the t-table, it can be seen that the t-table value is 1.72074 at a significance level of  $\alpha = 5\%$  with  $(df = \alpha - 2)$ , so  $(df = 24 - 3 = 21)$ .

1. Results of the Capital Adequacy Ratio on Financial Performance The calculated t-value of 3.152324 is greater than the critical t-value of 1.72074, and the probability value for the Capital Adequacy Ratio variable is 0.0058, which is less than 0.05. Therefore, the Capital Adequacy Ratio variable has a significant effect on financial performance.
2. Results of the Loan-to-Deposit Ratio on Financial Performance The calculated t-value of 2.333184 is greater than the critical t-value of 1.72074, and the probability value for the Loan-to-Deposit Ratio variable is 0.0322, which is less than 0.05. Therefore, the Loan-to-Deposit Ratio variable has a significant effect on financial performance.
3. Results of the Non-Performing Loan Variable on Financial Performance The calculated t-value of 0.001419 is less than the critical t-value of 1.72074, and the probability value for the Non-Performing Loan variable is 0.9989, which is greater than 0.05. Therefore, the Non-Performing Loan variable has no effect on financial performance.

### Simultaneous Test (F-Test)

**Table 11.**  
**Simultaneous Test (F-Test)**

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.829004  | Mean dependent var    | 1.662917 |
| Adjusted R-squared | 0.768653  | S.D. dependent var    | 0.868885 |
| S.E. of regression | 0.417921  | Akaike info criterion | 1.331445 |
| Sum squared resid  | 2.969188  | Schwarz criterion     | 1.675044 |
| Log likelihood     | -8.977341 | Hannan-Quinn criter.  | 1.422602 |
| F-statistic        | 13.73627  | Durbin-Watson stat    | 1.710630 |
| Prob(F-statistic)  | 0.000011  |                       |          |

Source: Processed Data E-Views, 2026

Based on the F-table, it can be seen that the tabulated F-value is 3.47 at a significance level of  $\alpha = 5\%$ , with  $df1 = k - 1 = 3 - 1 = 2$  and  $df2 = n - k = 24 - 3 = 21$ . Based on the table, the calculated result shows that the calculated f-value is 13.73627. When compared to the table f-value at a significance level of  $\alpha = 5\%$ , which is 3.47, the calculated f-value is greater than the table f-value, i.e.,  $13.73627 > 3.47$ . The probability value of the F-test (Prob(F-Statistic)) is 0.000011. Since the probability value, 0.000011, is less than 0.05, then  $H_{a3}: \rho_3 =$  is accepted; therefore, it can be concluded that the Capital Adequacy Ratio, Loan-to-Deposit Ratio, and Non-Performing Loans simultaneously have a significant effect on financial performance.

## Test of the Coefficient of Determination

**Table 12.**  
**Test of the Coefficient of Determination**

|                    |           |
|--------------------|-----------|
| R-squared          | 0.829004  |
| Adjusted R-squared | 0.768653  |
| S.E. of regression | 0.417921  |
| Sum squared resid  | 2.969188  |
| Log likelihood     | -8.977341 |
| F-statistic        | 13.73627  |
| Prob(F-statistic)  | 0.000011  |

Source: Processed Data E-Views, 2026

From the table above, it can be seen that the coefficient of determination, or Adjusted R-Square, is 0.768653, which means that 76.86% of the variation in financial performance is influenced by capital adequacy, the loan-to-deposit ratio, and non-performing loans, while the remaining 23.14% is influenced by other variables not included in the study.

## CONCLUSION

The results should be interpreted as conditional associations within a small balanced panel, rather than causal effects or evidence of policy effectiveness. The statistically insignificant NPL coefficient does not demonstrate that credit risk is irrelevant. Future work should test alternative specifications, include bank-level controls and macroeconomic factors, and assess robustness with a larger panel.

Based on the discussion in the previous chapter, the results of the analysis and discussion regarding the effects of the Capital Adequacy Ratio, Loan-to-Deposit Ratio, and Non-Performing Loans on the financial performance of state-owned commercial banks listed on the Indonesia Stock Exchange for the 2020–2025 period are as follows:

1. The Capital Adequacy Ratio has a significant effect on financial performance with the regression equation  $Y = -5.706484 + 0.002154 X_1$ . The hypothesis test yielded a t-value greater than the critical value, i.e.,  $3.152324 > 1.72074$ , and a significance level of  $0.0058 < 0.05$ . Thus,  $H_1: \rho_1 \neq 0$  is accepted and  $H_{01}: \rho_1 = 0$  is rejected, meaning there is a significant effect of the Capital Adequacy Ratio on Financial Performance at State-Owned Commercial Banks listed on the Indonesia Stock Exchange for the period 2020–2025.
2. The Loan-to-Deposit Ratio has a significant effect on Financial Performance with the regression equation  $Y = -5.706484 + 0.000330 X_2$ . The hypothesis test yielded a calculated t-value < critical t-value, or  $2.333184 > 1.72074$ , and a significance value  $0.0322 < 0.05$ . Thus,  $H_{a2}: \rho_2 \neq 0$  is accepted and  $H_{02}: \rho_2 = 0$  is rejected, meaning that the Loan-to-Deposit Ratio has a significant effect on financial performance at state-owned commercial banks listed on the Indonesia Stock Exchange for the period 2020–2025.
3. Non-performing loans do not have a significant effect on financial performance, with the regression equation  $Y = -5.70484 + 0.000174 X_3$ . The hypothesis test yielded a t-value of < t-table, or  $0.001419 < 1.72074$ , with a significance level of  $0.9989 > 0.05$ . Thus,  $H_3: \rho_3 \neq 0$  is rejected and  $H_{03}: \rho_3 = 0$  is accepted, meaning that non-performing loans do not have a significant effect on the financial performance of state-owned commercial banks listed on the Indonesia Stock Exchange for the 2020–2025 period.

4. The Capital Adequacy Ratio, Loan-to-Deposit Ratio, and Non-Performing Loans have a significant effect on financial performance, as indicated by the regression equation. Based on the research results, it was shown that the Capital Adequacy Ratio (X1), the Loan-to-Deposit Ratio (X2), and Non-Performing Loans (X3) have a significant effect on financial performance, with the regression equation being  $Y = -5.706484 + 0.002154 X1 + 0.000330 X2 + 0.000174 X3$ . The coefficient of determination, or the simultaneous contribution of these factors, is 76.86%, while the remaining 23.14% is influenced by other factors. The hypothesis test shows that the calculated F-value is greater than the critical F-value, or  $13.73627 > 3.47$ . Thus,  $H_{a4}: \rho_4 \neq 0$  is accepted and  $H_{04}: \rho_4 = 0$  is rejected. This means there is a significant simultaneous effect of the variables Capital Adequacy Ratio, Loan-to Deposit Ratio, and Non-Performing Loans on the financial performance of state owned commercial banks listed on the Indonesia Stock Exchange for the period 2020–2025.

## REFERENCES

- Abbas, Y. E., Nur, B., & Jaelani, A. (2025). *Keuangan Perusahaan*. Sleman: CV Budi Utama.
- Achjar, K. H., Primasari, D., Putra, R. W., Sartono, S., Rays, L., Febriani, A., Prastyadewi, M. 1. (2024). *Buku Ajar Metodologi Penulisan Karya Ilmiah* Jambi: PT. Sonpedia Publishing Indonesia.
- Afdhal, A. M., Permana, G. P., Citrayani, I., Tantra, I. W., & Setiawati, L. (2025). *Manajemen Lembaga Keuangan Non Bank*. Badung: CV. Intelektual Manifes Media.
- Astaginy N. (2023). *Buku Ajar Manajemen Keuangan*. Malang : PT. Lestari Nusantara Abadi Group.
- Bahtiar, A., Saptadi, Safitri, I., Azizah, W., Subhan, M., Sutarjo, Suruan, T. (2024). *Memahami Metodologi Penelitian*. Batam Yayasan Cendikia Mulia Mandiri.
- Budianto, E. W. (2025). *Kinerja Keuangan Bank Syariah: Rasio Keuangan, Transaksi Spot, dan Forward*. Malang: PT. Afanin Media Utama.
- Budiman, R. (2024). *Siklus Pasar Saham*. Jakarta: PT Elex Media Komputindo.
- Darmawan. (2020). *Dasar-dasar Memahami Rasio dan Laporan Keuangan*. Yogyakarta: UNY Press.
- Darmalaksana, W. (2020). *Metode Penelitian Kualitatif Studi Pustaka dan Studi Lapangan*. Bandung : Pre-Print Digital Library UIN Sunan Gunung Djati.
- Dewianawati, D., Harinie, L. T., Hina, H. B., Setiawan, E., Aulia, Y., Sastradinata, B. N., Darsana, I. (2024). *Kajian Ilmu Ekonomi: Praktik dan Aplikasi*. Badung: Intelektual Manifes Media.
- Gina, F. I., Nopiyanti, A., Cahyani, I. D., Fadila, A., Fajrin, I. A., Marlina, . . . Tristiarto, Y. (2025). *Dinamika Kinerja Keuangan Bank*. Yogyakarta: CV Budi Utama.
- Hasbi H. (2023). *Manajemen Keuangan*. Kabupaten Banjar: Ruang Karya Bersama.
- Hutabarat, F. (2020). *Analisis Kinerja Keuangan Perusahaan*. Banten: Desanta Muliavisitama.
- Imansyah, M. H. (2020). *Krisis Keuangan Indonesia*. Jakarta: PT Elex Media Komputindo.
- Irawan, D., & Gunawan, A. (2025). *Metode Penelitian Ekonomi dan Bisnis*. Medan: UMSU Press.
- Judijanto, L., Wibowo, G. A., Hakpantria, Nuryanneti, L., Apriyanto, Firdaus, A., Puspitasari, C. E. (2024). *Karya Tulis Ilmiah (Panduan Praktis Menyusun Karya Tulis Ilmiah)*, Jambi: PT. Sonpedia Publishing Indonesia.
- Juliani, & Syahbudin (2025). *Prinsip dan Aplikasi Metode Penelitian Kualitatif Kajian Teori dan Praktik*. Medan: CV. Merdeka Kreasi Group.

- Lasiyono, U, & Alam, W, Y. (2024). *Metode Penelitian Kualitatif*. Jawa Barat : Mega Press Nusantara.
- Latifah, A. (2023). *Metodologi Penelitian Kesehatan*. Yogyakarta: Rizmedia Pustaka Indonesia.
- Leon, M. F., Rosshe, Suryaputri, & Purnamaningrum, K. T. (2023). *Metode Penelitian Kualitatif: Manajemen, Keuangan, dan Akuntansi*. Jakarta: Salemba Empat.
- Nasihin, I., Judijanto, L., Abriani, A., Sudyantara, S. C., & Rahmawati, E. (2025). *Standar Akuntansi Keuangan*. Jambi: PT. Sonpedia Publishing Indonesia.
- Nugraha, Billy. (2022). *Pengembangan Uji Statistik: Implementasi Metode Regresi Linier Berganda dengan Pertimbangan Uji Asumsi Klasik*. Sukaharjo: Pradina Pustaka.
- Priyatno, Duwi. (2023). *Olah Data Sendiri Analisis Regresi Linier Dengan SPSS Dan Analisis Regresi Data Panel Dengan Eviews*. Yogyakarta: Cahaya Harapan.
- Rahayu. (2021). *Kinerja Keuangan Perusahaan*. Jakarta: Nas Media Pustaka.
- Ratnaningtyas, H., & Gantina, D. (2025). *Pengantar Manajemen Keuangan*. Jakarta Selatan: Damara Press.
- Rifkhan.(2023). *Membaca hasil regresi data panel*. Surabaya: Cipta media nusantara.
- Sahroni, & Zulfitra (2024). *Konsep dan Teori Manajemen Keuangan*. Sleman: KBM Indonesia.
- Sarmiento, A. d. (2025). *Metodologi Penelitian Ilmiah Panduan Teoritis dan Praktis*. Indonesia: CV. Green Publisher.
- Sugiyono, (2020). *Metode Penelitian Kualitatif*. Bandung: Alfabeta.
- Sujarweni. (2021). *Manajemen Keuangan Teori Aplikasi dan Hasil Penelitian*. Yogyakarta: Pustaka Buku Prss.
- Thian, A. (2022). *Analisis Laporan Keuangan*. Yogyakarta: ANDI.
- Warae, Y., Hartono, P. G., Suade, Y. K., Widiastuti, M., Rahayu, H., & Tinungki G. M. (2024). *Buku Ajar Manajemen Keuangan*. Jambi: PT. Sonpedia Pubishing Indonesia.
- Wijaya, E., Suprayitno, D., Ladini, U., Nengsih, T. A., Sumiyarti, Sudrimo, S. N., Kusumastuti, S. Y., Nurhayati, & Hulu, D. (2024). *Buku Ajar Ekonometrika*. Jambi: PT.Sonpedia Publishing Indonesia.
- Yanti, N., Ryketeng, M., Aulia, A., Tarinih, Meliana, Jalih, J. H., Annas, M. (2024). Analisis Laporan Keuangan. Serang: PT. Sada Kurnia Pustaka.
- Amirudin, A. (2022). Pengaruh Non Performing Loan (Npl), Capital Adequacy Ratio (Car) dan Bank Size terhadap Kinerja Keuangan Perbankan pada PT Bank Rakyat Indonesia (Bri) Tbk. Periode 2011–2020. *Jurnal Ilmiah Swara Manajemen*, 2(2), 215-232.
- Fasihah, D. U., Irwansyah, I., & Nurhidayati, N. (2024). Pengaruh Loan to Deposit Ratio dan Non-Performing Loan terhadap Kinerja Keuangan pada Perusahaan Perbankan yang Terdaftar di BEI Tahun 2017-2021. *Lensa Ilmiah: Jurnal Manajemen dan Sumberdaya*, 3(2), 67-72.
- Hadi, S. M. (2023). Pengaruh CAR, LDR, dan NPL Terhadap Kinerja Keuangan Pada Sektor Perbankan yang Terdaftar di BEI. *Jurnal Mahasiswa Akuntansi Samudra*, 4(6), 362-372.
- Harahap, B., & Effendi, S. (2020). Pengaruh Capital Adequacy Ratio Dan Non Performing Loan Terhadap Kinerja Keuangan Perbankan Yang Terdaftar Di Bei. *Journal of Applied Managerial Accounting*, 4(2), 168-175.
- Iqbal, M., & Anwar, S. (2022). Pengaruh Capital Adequacy Ratio, Non Performing Financing, Financing To Deposit Ratio, Operational Efficiency Ratio, Dan Profit Sharing Ratio Terhadap Kinerja Keuangan Bank Umum Syariah. *Jurnal Revenue: Jurnal Ilmiah Akuntansi*, 2(2), 259-270.
- Korompis, R. R., Murni, S., & Untu, V. N. (2020). Pengaruh Risiko Pasar (NIM), Risiko Kredit (NPL), dan Risiko Likuiditas (LDR) terhadap Kinerja Keuangan Perbankan (ROA) pada

- Bank yang Terdaftar di LQ 45 Periode 2012-2018. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, 8(1).
- Masyita, S. (2024). Analisis Pengaruh Loan To Deposit Ratio (LDR), Capital Adequacy Ratio (CAR) dan Efisiensi Operasi (BOPO) terhadap Kinerja Keuangan Pasca Pandemi Covid-19 pada Beberapa Bank yang Tercatat di Bursa Efek Indonesia. *Insan Cita Bongaya Research Journal*, 3(3), 152.
- Muliyanti, S., Agusti, R., & Azhari, A. (2023). Pengaruh Good Corporate Governance, Capital Adequacy Ratio, Non Performing Financing, Kualitas Aktiva Produktif, dan Dana Pihak Ketiga Terhadap Kinerja Keuangan Perbankan Syariah. *Jurna Karya Ilmiah Multidisiplin (JURKIM)*, 3(1), 38
- Munandar, S. A. Pengaruh Rasio Capital Adequacy Ratio (Car), Biaya Operasi Dibanding Pendapatan Operasi (Bopo) dan Non Performing Loan (Npl) terhadap Kinerja Keuangan dan Dampaknya Kepada Harga Saham (Studi Bank Umum yang Beroperasi di Bursa Efek Indonesia Periode 2011-2017). *Jurnal Ilmiah Suara Manajemen*, 1(2), 563838.
- Ningsih, S. D., & Ilhami, S. (2023). Analisis Pengaruh Kecukupan Modal (CAR) dan Likuiditas (LDR) terhadap Kinerja Keuangan (ROA) Keuangan Bank Swasta Nasional Tahun 2014-2018 (Studi pada Bei Bank Swasta Nasional). *JAMIN: Jurnal Aplikasi Manajemen dan Inovasi Bisnis*, 5(2), 190-204.
- Ningsih, S., & Dewi, M. W. (2020). Analisis Pengaruh Rasio NPL, BOPO Dan CAR Terhadap Kinerja Keuangan Pada Bank Umum Konvensional Yang Terdaftar Di BEI. *Jurnal Akuntansi Dan Pajak*, 21(01), 71-78.
- Rahmani, N. A. B. (2022). Analisis Pengaruh Non Performing Loan, Loan To Deposit Ratio, Biaya Operasional Terhadap Pendapatan Operasional Terhadap Kinerja Keuangan Pada Bank Umum Syariah. *Dinamika Akuntansi Keuangan dan Perbankan*, 11(1), 22-30.
- Salsabila, N., Rinofah, R., & Sari, P. P. (2023). Pengaruh Manajemen Risiko Perusahaan, Ukuran Perusahaan, dan Leverage terhadap Kinerja Keuangan di Masa Pandemi Covid-19. *Ekonomis: Journal of Economics and Business*, 7(1), 307-314.
- Silitonga, R. N., & Manda, G. S. (2022). Pengaruh Risiko Kredit dan Risiko Likuiditas terhadap Kinerja Keuangan pada Bank BUMN Periode 2015-2020. *Jurnal Maksipreneur: Manajemen, Koperasi, Dan Entrepreneurship*, 12(1), 22-32.
- Sinaga, J., & Matta, Y. D. (2026). PENGARUH NON-PERFORMING LOAN DAN LOAN TO DEPOSIT RATIO TERHADAP RETURN ON ASSET PADA PT BANK MANDIRI TBK PERIODE 2015-2024. *JURNAL ILMIAH EKONOMI DAN MANAJEMEN*, 4(6), 11-21.