

Financial Performance and Banking Stock Prices: The Effects of CAR, NPL, ROA, and LDR on Indonesian Listed Banks, 2018–2022

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ABSTRACT

This causal study examines the effects of the Capital Adequacy Ratio (CAR), Nonperforming Loan ratio (NPL), Return on Assets (ROA), and Loan-to-Deposit Ratio (LDR) on the stock prices of banking companies listed on the Indonesia Stock Exchange from 2018 to 2022. The sample comprises 200 firm-year financial statements from 40 companies selected through purposive sampling over a five-year period. Data were analyzed using statistical software through classical assumption testing, the simultaneous F-test, partial t-tests, the coefficient of determination, and multiple linear regression. The results show that CAR, NPL, ROA, and LDR jointly have a significant effect on banking stock prices. Partially, NPL has a significant negative effect, indicating that higher nonperforming loans reflect deteriorating asset quality and greater credit risk, which may weaken bank profitability, reduce investor confidence, and depress stock prices. ROA has a significant positive effect, indicating that stronger earnings generated from total assets provide a favorable signal to investors. By contrast, CAR and LDR do not have significant partial effects on stock prices. Nevertheless, both ratios remain important in the broader context of capital resilience, liquidity management, cash flow, and bank sustainability.

Keywords: CAR, NPL, ROA, LDR, Stock Prices.

I. Introduction

Stocks are among the investment instruments most widely selected by investors because they offer attractive potential returns. Indonesian investors increasingly prefer stocks to other financial instruments because stocks may generate higher returns, although they are accompanied by substantial risk (Carissa & Brata, 2022). Stocks are often considered an appropriate investment instrument because they can generate substantial income while helping protect capital from inflation. A stock is a financial instrument representing partial ownership of a company and serves as evidence of an equity contribution to a limited liability company; because it has economic value, it can be traded (Natalia et al., 2023). Stocks are generally classified as common stock and preferred stock. Common stock grants voting rights at shareholders' meetings and a residual right to dividends after distributions to preferred shareholders. Preferred stock grants special rights, such as priority in dividend distributions and claims on corporate assets in liquidation, but generally does not provide voting rights at shareholders' meetings (Laila et al., 2021). Shareholders are entitled to dividends and other benefits in proportion to their invested capital. Stocks also represent a component of corporate equity and provide evidence of ownership. Consequently, stocks tend to offer higher potential returns than bonds, which

generally involve lower risk but also lower returns. Interest in Indonesian capital-market investment has continued to grow, with total stock transactions across 34 provinces reaching Rp237.935 trillion in March 2024 (OJK Department of Data Management and Statistics, 2024). Data from the Indonesian Central Securities Depository (KSEI) indicate that the number of Indonesian capital-market investors reached 12.63 million in March 2024, an increase of 1.26%, or 156,894 investors, from 12.47 million in February 2024 (Indonesian Central Securities Depository, 2024).

Investors derive several benefits from the capital market, including capital gains, stock dividends, bond interest, voting rights at General Meetings of Shareholders, the ability to shift readily among investment instruments, and opportunities to reduce risk through diversification (Burhanudin et al., 2021). The accessibility of stock-trading applications and unrestricted access to information—including lists of available securities, stock prices, price charts, and educational guidance—have made stock investing increasingly accessible to the public. Indonesian investors therefore choose stocks because they offer potentially higher returns, provide dividend rights, and may help protect wealth from inflation. Nevertheless, greed can encourage investors to assume progressively greater risks, causing them to follow the majority and disregard rational analysis, a pattern known as herding behavior (Carissa et al., 2022). The Indonesian stock market recorded substantial growth from 2017 through 2023, and this trend continued until the Jakarta Composite Index reached an all-time high in early 2024 (Indonesia Stock Exchange, 2024). The financial sector played a dominant role in this increase, accounting for 35.3% of Indonesia's total capital-market capitalization of Rp9,790 trillion in April 2023 (Puspadini, 2023). Within the financial sector, PT Bank Central Asia Tbk (BBCA) led the market with capitalization of Rp1,177.28 trillion and 123.28 billion outstanding shares (Setiawati, 2024). In early April 2024, however, Indonesian banking stocks declined after the Financial Services Authority (OJK) announced the termination of the bank-loan restructuring stimulus introduced in response to the COVID-19 pandemic (Setiawati, 2024). The decline in banking shares was also associated with substantial foreign capital outflows from the sector. Foreign investors began selling banking shares after receiving dividends and after banking stock prices had reached all-time highs. The termination of the COVID-19 loan-restructuring stimulus on March 31, 2024, was consistent with the government's revocation of pandemic status in June 2023 and reflected the recovery of the Indonesian economy, including the real sector, from the effects of the pandemic.

Despite the strengthening of the stock market, several issues require careful attention, including slower growth in third-party funds, decelerating credit growth, and a decline in COVID-19-related loan restructuring (OJK Department of Financial Literacy, Inclusion, and Communication, 2023). Changes in third-party funds may affect bank financial performance, particularly asset growth and interest income. Slower credit growth may indicate tighter credit conditions, while declining COVID-19 loan restructuring may signal an improvement in loan portfolios. Nevertheless, credit-loss reserves must be updated to account for potential future losses. Adequate capital reflects financial stability and attracts investors because it demonstrates an institution's ability to absorb risk and maintain financial balance. Sufficient capital also enables banks to expand operations, introduce new products, broaden branch networks, and enter new markets. Strong growth and rising revenue and profit indicate favorable performance and may increase stock prices (Sari & Septiano, 2023). In addition to third-party funds, sources of capital for Indonesian banks include share capital, retained earnings, certain classes of shares, subordinated debt instruments, and gains from asset sales. These sources contribute to bank capital structures, support operations, and help institutions satisfy regulatory capital requirements. Share capital, as a principal source of capital, is contributed by shareholders through the issuance of common or preferred stock (OJK Department of Capital-Market Regulation and Development, 2023).

Publicly listed companies offer shares to the public primarily to obtain financing and increase shareholder wealth by enhancing firm value, which reflects the company's current condition (Dewi & Abundanti, 2019). Stock price is an important consideration for investors because it reflects the performance of the issuing company (Ardiyanto et al., 2020). A rising stock price is one indication of favorable corporate performance and may attract additional investors (Isnaini et al., 2023). Stock prices in the capital market are determined through the interaction of supply and demand (Primasatya & Arliana, 2024). To understand stock-price dynamics, prospective investors require accurate information regarding price movements. Investors commonly use corporate financial statements as a basis for investment decisions, although uncertainty regarding stock-price changes remains a major challenge (Putra et al., 2021).

From a liquidity perspective, the Loan-to-Deposit Ratio (LDR) is a useful indicator of potential liquidity problems that may raise concerns about a bank's ability to meet short-term obligations. LDR is an important banking indicator that measures how efficiently a bank uses deposited funds to extend loans. An optimal LDR reflects an appropriate balance between loans and deposits and effective liquidity management. Under the bank soundness assessment criteria issued by the Central Bank Research and Education Center (2012), a sound bank has an LDR between 80% and 100%. An LDR outside this range may indicate potential managerial or liquidity risk.

Table 1. LDR and Stock-Price Developments for Five Banks, 2018–2022

Variable	Year	Code				
		BBCA	BNGA	NOBU	BSWD	BVIC
LDR	2018	81.60%	97.18%	75.35%	99.48%	73.61%
	2019	80.50%	97.64%	79.10%	81.69%	74.46%
	2020	65.80%	82.91%	76.31%	79.89%	75.64%
	2021	62.00%	74.35%	61.28%	87.88%	81.25%
	2022	65.20%	85.63%	82.52%	105.59%	81.69%
Stock Price (Rp thousand)	May 2019	Rp5,820	Rp955	Rp892	Rp1,188	Rp173
	May 2020	Rp5,190	Rp650	Rp590	Rp1,188	Rp69
	May 2021	Rp6,375	Rp975	Rp892	Rp1,188	Rp161
	May 2022	Rp7,750	Rp1,040	Rp511	Rp1,188	Rp153
	May 2023	Rp9,050	Rp1,440	Rp433	Rp1,188	Rp94

Bank Central Asia (BBCA) maintained an LDR below Bank Indonesia's reference range, averaging approximately 69% from 2018 to 2022. This relatively low LDR reflects larger liquidity reserves and a more conservative lending strategy. Although BBCA's LDR was below the reference range, its stock price increased substantially from Rp5,820 in May 2019 to Rp9,050 in May 2023, suggesting that investors may value its prudent risk and liquidity management. By contrast, Bank CIMB Niaga (BNGA) recorded a variable LDR that approached or exceeded the upper reference limit, ranging from approximately 74% to 105% during 2018–2022. The fluctuation, which peaked at 105% in 2022, indicates challenges in maintaining an appropriate balance between loans and deposits. BNGA's stock price nevertheless increased from Rp955 in May 2019 to Rp1,440 in May 2023, possibly reflecting improvements in liquidity management.

Bank Nationalnobu (NOBU) maintained a relatively stable LDR, although it generally remained below Bank Indonesia's reference range, ranging from 61% to 82% during the period examined. A low LDR may indicate that deposit funds are not being used optimally for lending, potentially resulting in lower profitability. This pattern is reflected in NOBU's stock-price decline from Rp892 in May 2019 to Rp433 in May 2023, which may indicate investor concern regarding lending efficiency and bank growth. Bank of India Indonesia (BSWD) recorded a fluctuating LDR, ranging from 73.61% in 2018 to 105.59% in 2022. The particularly high ratio in 2022 indicates heavy reliance on lending activity and elevated liquidity risk. Although BSWD's stock price remained unchanged at Rp1,188 during the period examined, the fluctuating LDR suggests instability in liquidity management that may concern investors. Bank Victoria International (BVIC), meanwhile, reported an LDR that increased from 73.61% in 2018 to 81.69% in 2022 and remained within the reference range. A relatively high LDR indicates that a substantial proportion of deposits is allocated to loans, which may increase liquidity risk if not properly managed. The decrease in BVIC's stock price from Rp173 in May 2019 to Rp94 in May 2023 may reflect the adverse effect of higher perceived liquidity risk.

Overall, the average LDR of the Indonesian banking sector remained within a generally sound range, although substantial variation existed among individual banks. Banks with relatively low LDRs, such as BBCA, tended to have higher stock prices, reflecting strong risk and liquidity management. Banks with high or fluctuating LDRs, such as BNGA and BSWD, faced greater challenges in maintaining stable stock prices because of liquidity and managerial risks. An excessively high LDR may indicate overextension in lending, whereas an excessively low LDR may indicate inefficient use of funds. This study therefore examines how variations in LDR affect the stock prices of Indonesian banking companies and seeks to provide insight into optimal risk-management and liquidity-management strategies. A balanced LDR generally signals effective liquidity management, is likely to be viewed favorably by investors, and may increase stock prices. Septiari et al. (2023)

found that LDR had a positive and significant effect on stock prices, whereas Wijaya (2021) reported that LDR had no significant effect on the stock prices of banking companies included in the Infobank15 Index during 2019–2021.

Given the differing findings regarding the effects of CAR, NPL, ROA, and LDR on stock prices, this study investigates the partial and simultaneous effects of these four banking ratios. Unlike some previous studies that included only positive values, the present study does not exclude negative CAR, NPL, ROA, or LDR observations, thereby enabling a more comprehensive assessment of their effects on stock prices. The study is entitled “The Effect of the Capital Adequacy Ratio (CAR), Asset Quality Ratio (NPL), Profitability Ratio (ROA), and Liquidity Ratio (LDR) on the Stock Prices of Banking Companies Listed on the Indonesia Stock Exchange, 2018–2022.” It aims to analyze the effects of capital adequacy, asset quality, profitability, and liquidity on the stock prices of banking companies listed on the Indonesia Stock Exchange from 2018 through 2022. The findings are expected to contribute to the development of banking financial-management theory and practice in Indonesia and assist banks in making effective strategic decisions when responding to global economic pressures.

The study is subject to the following delimitations:

- a. Although various factors may cause stock prices to rise or fall, the study is limited, because of time constraints, to the capital adequacy, asset quality, profitability, and liquidity ratios.
- b. The financial ratios examined are the Capital Adequacy Ratio (CAR), which measures capital adequacy; the Nonperforming Loan ratio (NPL), which measures asset quality; Return on Assets (ROA), which measures profitability; and the Loan-to-Deposit Ratio (LDR), which measures liquidity.
- c. The research objects are banking companies listed on the Indonesia Stock Exchange (IDX) during 2018–2022.

II. Literature Review

2.1. Signaling Theory

Spence (1973) developed signaling theory to explain the importance of signals in communicating information in the labor market, particularly through the use of economic indicators as a framework for understanding the role of signals. To reduce information uncertainty, managers are viewed as signal providers. Signals communicated by management to investors regarding firm quality can help reduce information asymmetry. The theory assumes that such signals are credible because informed investors can interpret them more effectively than less experienced investors. Signaling theory explains that companies use financial statements to communicate positive or negative signals to users of information. Strong financial statements indicate that a company has operated effectively. Information disclosed through financial statements is viewed as a signal through which market responses to corporate performance can be evaluated. The greater the benefits a company derives from the information, the higher its firm value and attractiveness to investors. Management's financing choices may also reflect the value of the company's shares. Each financing decision functions as a signal to investors: debt financing may be viewed as a positive signal, whereas equity financing may be interpreted as a negative signal (Ratnasari & Tahwin, 2017). Signals communicated by management may therefore influence future investor decisions. According to Natanael and Mayangsari (2022), signaling theory holds that an entity can communicate favorable signals through the publication of sound financial statements. Positive financial results indicate that the entity performed well in the past and provide important information for investment decisions. The theory emphasizes the information imbalance between corporate management and stakeholders who rely on that information (Alfian & Putra, 2019).

2.2. Going-Concern Theory

According to Section 341, paragraph 2, of the Indonesian Standards on Auditing, the going-concern concept refers to the assumption that a business will continue operating for a reasonable period. The theory

holds that a company must maintain its performance and financial health to ensure continuity (Ridwan et al., 2022). In banking, strong capital adequacy supports continuity by strengthening capital and asset quality. High profitability supports continuity by increasing revenue and controlling costs, while sound liquidity ensures that a bank can withstand financial distress. The theory assumes that an entity's financial reporting is prepared on the basis of continued operations unless evidence indicates otherwise.

Financial ratios such as CAR, NPL, ROA, and LDR are important for assessing a company's ability to survive and grow. A high CAR indicates long-term capacity supported by sufficient capital; a high ROA indicates the ability to generate sustainable earnings; a low NPL indicates sound asset quality; and a balanced LDR indicates adequate liquidity. The OJK soundness standards for Indonesian banks include a minimum CAR of 8%, a minimum ROA of 0.5%, gross NPL below 8%, and LDR between 80% and 100% (Central Bank Research and Education Center, 2012). Ratios that meet these standards provide favorable signals regarding a bank's condition and prospects, reduce information asymmetry between management and shareholders, and support operational continuity. Failure to meet these standards increases the risk of financial distress. A bank with weak capital may be unable to absorb losses, while a high NPL indicates deficiencies in credit management that may disrupt cash flow and liquidity. Low or negative profitability may prevent a bank from covering operating costs, and an imbalanced LDR may indicate inadequate liquidity. Depreciation of the rupiah may materially affect these ratios. Increased foreign-currency debt burdens may raise NPL, weaken asset quality, and reduce bank stock prices (Hasbi, 2019). A low CAR during exchange-rate volatility may reduce investor confidence because investors may question the bank's capacity to absorb losses. A low ROA caused by rising operating expenses may weaken profitability and stock prices. An imbalanced LDR may likewise signal liquidity problems that adversely affect stock prices. Banks must therefore monitor and manage these ratios carefully to maintain going-concern status, investor confidence, and stock-price stability amid exchange-rate fluctuations.

2.3. Stocks

Stocks are capital-market instruments that attract substantial investor interest because they offer potentially attractive returns. A share certificate identifies its par value, the issuing company, and the rights and obligations of its holder (Seventeen & Shinta, 2021). A stock price is the market value of a share and reflects the wealth of the issuing company; its movement or fluctuation is strongly influenced by supply and demand on the exchange (Agustin & Wijaya, 2023). A stock therefore constitutes evidence of ownership and represents the investor's rights in the issuing company. As with other investments, stock investment offers benefits and disadvantages consistent with the principle of high risk, high return and low risk, low return. The greater the potential return, the greater the risk of loss, and vice versa. According to Gunadi and Widyatama (2021), stock investment offers the following potential returns:

- a. Capital gain is the profit arising from the difference between the purchase price and the selling price of a stock. An investor earns a gain when the selling price exceeds the purchase price and incurs a capital loss when the opposite occurs. If an issuer experiences losses, shareholders may not receive dividends. The greatest risk is liquidation risk, under which shareholders receive distributions only after the company's other obligations have been satisfied.
- b. Dividends are distributions to shareholders from an issuer's after-tax net income. Dividend distributions are determined at the General Meeting of Shareholders and may take the form of cash dividends or stock dividends.

2.4. Banking Financial Performance

Assessing corporate performance through financial statements is one means by which management can fulfill its obligations to shareholders and achieve established corporate objectives (Rahayu, 2020). Such assessment can be conducted through financial-ratio analysis. This study uses four banking ratios: CAR as a measure of capital adequacy, NPL as a measure of asset quality, ROA as a measure of profitability, and LDR as a measure of liquidity. These ratios were selected for several reasons. First, they facilitate periodic or time-series analysis of changes in a bank's financial condition. Second, they simplify the complex and detailed

information presented in bank financial statements. Third, collectively measuring capital adequacy, asset quality, profitability, and liquidity provides a strong basis for evaluating bank financial performance. Bank financial performance reflects the adequacy of capital for absorbing risk, the optimization of assets, the capacity to meet long- and short-term obligations, and the ability to generate earnings. Relationships Among Variables:

a. Relationship of CAR, NPL, ROA, and LDR to Stock Prices

Taken together, CAR, NPL, ROA, and LDR reflect a bank's financial health and influence investor perceptions of its performance and stability. A high CAR indicates sufficient capital to absorb risk, while a low NPL indicates effective credit management. A high ROA reflects strong profitability, and a balanced LDR reflects sound liquidity. When all four ratios are favorable, stock prices tend to increase because investors view the bank as stable and profitable. Aryanti et al. (2022) reported that CAR, NPL, ROA, ROE, and LDR jointly had a significant effect on the stock prices of state-owned banks listed on the IDX during 2008–2021. Fatma (2021) likewise found that ROA, ROE, LDR, CAR, and NPL jointly had a significant effect on the stock prices of banking companies included in the LQ45 Index during 2015–2019.

b. Relationship Between CAR and Stock Prices

The Capital Adequacy Ratio (CAR) measures a bank's capital capacity to absorb existing risks. The higher the ratio, the stronger the bank's capital position. Investors generally view a high CAR favorably because it indicates that the bank has an adequate buffer against potential losses. CAR is therefore generally expected to have a positive relationship with stock price because it reflects stronger financial stability and security. Niswah and Widodo (2024) found that although capital adequacy was not the principal determinant of stock price, it still contributed to stock-price variation. Septiari et al. (2023) reported a positive and significant effect of CAR, indicating that an increase in capital adequacy was associated with an increase in stock price.

c. Relationship Between NPL and Stock Prices

The Nonperforming Loan ratio (NPL) represents the proportion of problem loans to total loans extended by a bank. A high NPL indicates a large volume of nonperforming credit, which may reflect elevated credit risk and weak risk management. Investors generally interpret this condition negatively because it signals potentially high losses and may reduce confidence in the bank, causing its stock price to decline. Conversely, a low NPL is expected to have a favorable effect on stock price. Taslim and Manda (2021) reported that NPL had a negative effect on stock prices.

d. Relationship Between ROA and Stock Prices

Return on Assets (ROA) measures a bank's ability to generate earnings from its assets and reflects management efficiency in using assets to produce profit. A high ROA indicates strong performance and profitability, which generally attracts investor interest and increases stock prices. ROA is therefore expected to have a positive relationship with stock price, such that an increase in ROA is followed by an increase in stock price. Purnamasari and Sitorus (2023) concluded that ROA had a positive effect on the stock prices of banking companies.

e. Relationship Between LDR and Stock Prices

The Loan-to-Deposit Ratio (LDR) measures bank liquidity by comparing total loans with total third-party funds or deposits. An excessively high LDR may indicate liquidity risk because the bank may lack sufficient funds to meet short-term obligations. Conversely, an excessively low ratio may indicate that the bank is not using available funds optimally to generate earnings. A balanced LDR reflects effective liquidity management, is generally viewed favorably by investors, and may increase stock prices. Such balance signals that the bank has sufficient liquidity to support credit growth without sacrificing financial stability. Septiari et al. (2023) concluded that LDR had a positive and significant effect on the stock prices of banking companies included in the Infobank15 Index during 2019–2021.

2.5. Hypothesis Development

Based on the relationships among the variables, the following hypotheses are proposed:

H1: CAR, NPL, ROA, and LDR jointly have a significant effect on stock prices.

H2: CAR has a positive partial effect on stock prices.

H3: NPL has a negative partial effect on stock prices.

H4: ROA has a positive partial effect on stock prices.

H5: LDR has a positive partial effect on stock prices.

The proposed research model based on the variables to be tested is presented in the following figure:

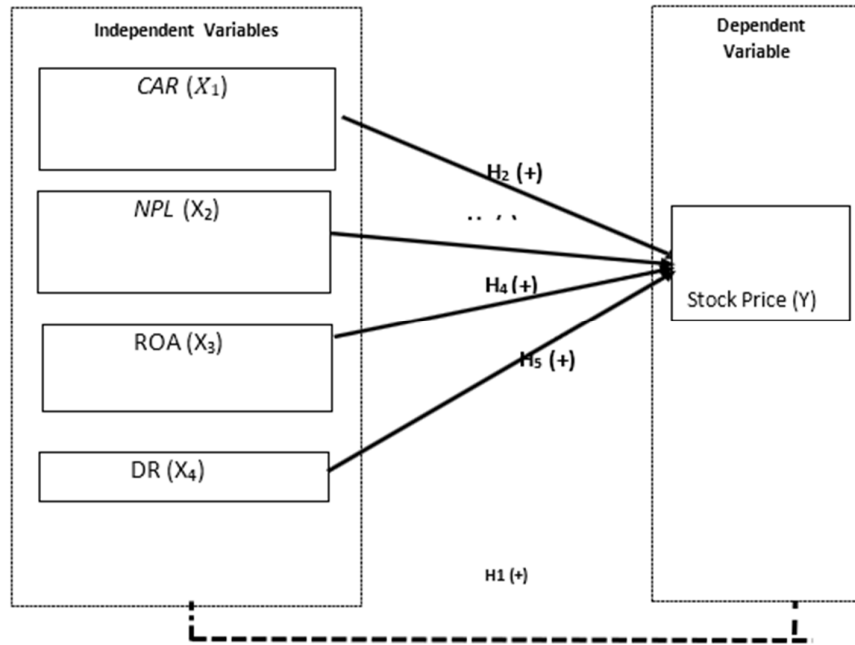


Figure 1. Research Model

III. Research Method

3.1. Research Design

This study uses a quantitative design with a causal approach. Causal research explains the relationship between two or more variables by identifying cause-and-effect relationships, in which one variable acts as the cause and another is affected (Yuliani, 2023). The purpose of this study is to identify the causal effects of the Capital Adequacy Ratio, Nonperforming Loan ratio, Return on Assets, and Loan-to-Deposit Ratio as independent variables on stock price as the dependent variable.

3.2. Types and Sources of Data

a. Type of Data

This study uses quantitative data, defined as numerical data processed through statistical methods (Yuliani & Supriatna, 2023). The data consist of corporate financial information obtained from annual financial-ratio reports published by banking companies registered with the Financial Services Authority for the 2018–2022 period.

b. Data Source

The study uses secondary data from the published annual financial-ratio reports of banking-sector companies for 2018–2022. The reports were obtained from and accessed through the official website of the Financial Services Authority.

3.3. Population, Sample, and Sampling Technique

a. Population

The population consists of all banking companies listed on the Indonesia Stock Exchange (IDX). A population is the complete set of objects or subjects under study, whereas a sample is a subset or representative group whose characteristics reflect those of the population (Amin & Garancang, 2023). The population comprised 222 company-year observations, consisting of:

- 1) Forty-two banking companies listed on the Indonesia Stock Exchange in 2018.
- 2) Forty-four banking companies listed on the Indonesia Stock Exchange in 2019.
- 3) Forty-four banking companies listed on the Indonesia Stock Exchange in 2020.
- 4) Forty-five banking companies listed on the Indonesia Stock Exchange in 2021.
- 5) Forty-seven banking companies listed on the Indonesia Stock Exchange in 2022.

b. Sample

The sample is an important determinant of research data collection (Amin et al., 2023). A population may contain such a large volume of data that examining every observation is impractical or impossible. Research is therefore conducted using a sample that adequately represents the population (Mayanti, 2022).

Table 1. Sample-Selection Criteria

No.	Sample Criterion	N
1	Banking companies listed on the IDX during 2018–2022	47
2	Nonconventional (Islamic) banking companies	(4)
3	Conventional banks that completed an IPO during 2018–2022	(3)
	Companies selected as the annual sample	40
	Total firm-year observations, 2018–2022	200

The table shows that the study selected 40 companies and used their financial statements for the five-year period from 2018 through 2022. The final sample therefore comprised 200 firm-year financial statements.

c. Sampling Technique

The sample was selected through purposive sampling based on predetermined criteria. The selection process resulted in 40 companies observed for five years, yielding 200 firm-year observations.

3.4. Data-Collection Method

Data were collected through a literature review of sources relevant to the research topic and through documentation. The documentation method involved collecting, recording, and analyzing secondary data from published financial-ratio reports of banking subsector companies listed on the IDX during 2018–2022. The reports were obtained from the official Indonesia Stock Exchange website.

3.5. Independent Variables

The independent variables in this study are as follows:

a. Capital Adequacy, measured by the Capital Adequacy Ratio (CAR)

The Capital Adequacy Ratio (CAR) measures the proportion of a bank's capital relative to its risk exposure. Banks must maintain capital in accordance with the minimum requirements established by Bank Indonesia Regulation No. 6/23/DPNP, under which the minimum CAR is 8% (Alamsyah & Meylida, 2020). A higher CAR indicates a stronger capacity to withstand risks arising from credit or other risk-weighted productive assets. A high CAR also indicates that a bank can support its operations, which may affect profitability and overall financial soundness. CAR is calculated using the following formula:

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

b. Asset Quality, measured by the Nonperforming Loan Ratio (NPL)

The Nonperforming Loan ratio (NPL) compares total problem loans with total loans extended to borrowers. An NPL is generally considered sound when it does not exceed 8% of the bank's total loans. Banks must manage credit effectively by extending loans prudently and ensuring repayment in accordance with contractual terms to prevent problem loans. A high NPL reduces interest income from loans that are not repaid (Salim & Rianto, 2020). Banks with high NPLs may be viewed as less stable, raising concerns regarding risk management and financial soundness. NPL is calculated using the following formula:

$$\text{NPL} = (\text{Total Nonperforming Loans} / \text{Total Loans}) \times 100\%$$

c. Profitability, measured by Return on Assets (ROA)

Return on Assets (ROA) measures a bank's ability to generate earnings relative to its total assets. The ratio evaluates a company's capacity to produce net income from a given asset base (Noviana et al., 2023). A higher ROA indicates that the bank manages its assets more efficiently and generates stronger earnings. An ineffective ROA may reflect declining banking performance. A deterioration in bank financial performance may be accompanied by increased credit risk arising from the failure of borrowers or other parties to meet their obligations to the bank (Sante et al., 2021). ROA also facilitates comparisons of financial performance among companies in the same industry. ROA is calculated using the following formula:

$$\text{ROA} = (\text{Profit Before Tax} / \text{Total Assets}) \times 100\%$$

d. Liquidity, measured by the Loan-to-Deposit Ratio (LDR)

The Loan-to-Deposit Ratio (LDR) measures the liquidity risk arising when a bank cannot meet obligations as they become due using cash-flow funding sources or high-quality liquid assets that can be pledged without disrupting its operations and financial condition (Aji & Manda, 2021). LDR may affect bank profitability. A high LDR may generate greater interest income from lending and thereby increase revenue and profit. An excessively high LDR, however, may also produce higher funding costs, reduce the interest margin, and weaken net income. Banks must therefore understand the implications of LDR for performance and risk. LDR is calculated using the following formula:

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

3.6. Dependent Variable

A dependent variable is influenced by one or more other variables and is also referred to as an outcome variable. Stock price is the dependent variable in this study. Stock price is the current value expected to be received and is determined by market demand and supply. According to Labiba et al. (2021), stock prices are strongly influenced by the law of supply and demand. When demand for a stock exceeds supply, its price rises; when supply exceeds demand, its price falls. Yuriska and Lukman (2020) likewise define stock price as

the current value expected to be received. This study uses the closing stock price at the end of the first quarter following each annual-reporting period. This timing was selected to assess the relevance of the annual financial statements and their effect on stock prices after publication.

3.7. Data-Analysis Techniques

Descriptive statistics were used to summarize the research variables through the mean, minimum, maximum, and standard deviation. Before multiple linear regression analysis, classical assumption tests were conducted, including normality, multicollinearity, heteroskedasticity, and autocorrelation tests. Normality was assessed using the Kolmogorov–Smirnov test, multicollinearity through tolerance and variance inflation factor values, heteroskedasticity using the Glejser test, and autocorrelation through the Durbin–Watson statistic. Multiple linear regression analysis was then employed to examine the effects of CAR, NPL, ROA, and LDR on banking stock prices. The simultaneous effect of the independent variables was evaluated using the F-test, while their individual effects were examined using the t-test at a 5% significance level. The adjusted coefficient of determination was used to measure the proportion of variation in stock prices explained by the independent variables.

IV. Result and Discussion

4.1. Analysis Results

a. Descriptive Statistical Analysis

Table 2. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Capital Adequacy Ratio (CAR)	200	0.0901	1.6992	0.293394	0.2092025
Non-Performing Loan (NPL)	200	0.0000	0.5140	0.040250	0.0516236
Return on Assets (ROA)	200	-0.1958	0.4160	0.006342	0.0391100
Loan to Deposit Ratio (LDR)	200	0.0137	1.8293	0.848948	0.2459623
Stock Price	200	14	12,150	1,311.75	1,778.546

The Capital Adequacy Ratio (CAR) had a minimum value of 9.01%, a maximum of 169.92%, a mean of 29.34%, and a standard deviation of 20.92%. The mean CAR was substantially above Bank Indonesia's minimum requirement of 8%, indicating generally strong capital adequacy among the sampled banks. Nevertheless, the large standard deviation and wide range reveal substantial differences in capital strength across banks. The coefficient of variation of approximately 71% indicates considerable dispersion in CAR observations.

b. Classical Assumption Tests

Classical assumption tests were conducted before the data were analyzed using multiple regression. The tests included normality, multicollinearity, heteroskedasticity, and autocorrelation.

1) Normality-Test Results

The normality test was conducted to determine whether the analyzed residuals followed a normal distribution. The study used the nonparametric Kolmogorov–Smirnov test and a normal probability plot. The residuals were considered normally distributed when the Kolmogorov–Smirnov significance value exceeded .05 and the plotted points followed the diagonal line. The normality-test results for the sample are presented below.

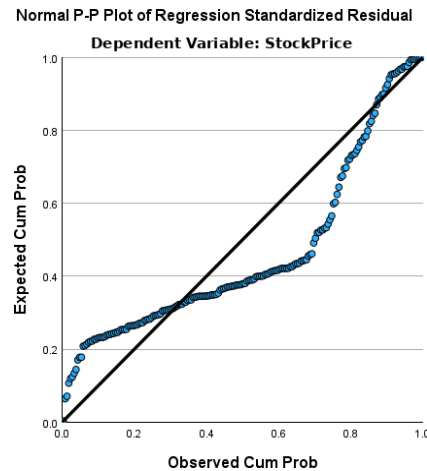


Figure 3. Normal Probability Plot Before Data Transformation

The probability plot shows that the data points deviate from the diagonal line, indicating that the residuals were not normally distributed. A one-sample Kolmogorov–Smirnov test was subsequently conducted, with the following results

Table 4.2. Kolmogorov–Smirnov Normality Test Before Data Transformation

Test Item	Value
N	200
Mean of Residuals	0.0000000
Standard Deviation	1659.6917101
Most Extreme Differences (Absolute)	0.235
Most Extreme Differences (Positive)	0.235
Most Extreme Differences (Negative)	-0.151
Kolmogorov–Smirnov Test Statistic	0.235
Asymp. Sig. (2-tailed)	< 0.001
Monte Carlo Sig. (2-tailed)	< 0.001
99% Confidence Interval (Lower Bound)	0.000
99% Confidence Interval (Upper Bound)	0.000

The one-sample Kolmogorov–Smirnov test produced an asymptotic two-tailed significance value below .001, indicating that the residuals were not normally distributed. This value was substantially below the conventional .05 threshold and therefore indicated a significant departure from normality. A logarithmic transformation was applied to address this nonnormality, and the resulting distribution is shown in the following graph:

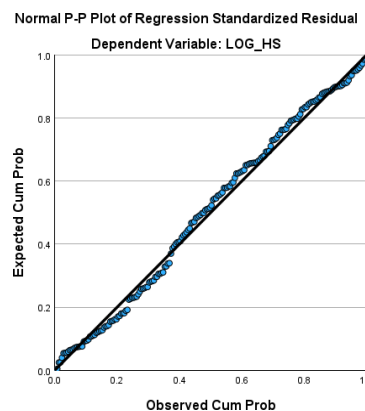


Figure 2. Formal Probability Plot After Data Transformation

The figure shows that the plotted points closely approach and follow the diagonal line, indicating a normal distribution. A subsequent one-sample Kolmogorov–Smirnov test after transformation produced an asymptotic two-tailed significance value of .200, which exceeded .05 and confirmed that the residuals were normally distributed. The results are presented in the following table.

Table 3. Kolmogorov–Smirnov Normality Test After Data Transformation

Test Item	Value
N	200
Mean of Residuals	0.0000000
Standard Deviation	0.54373283
Most Extreme Differences (Absolute)	0.046
Most Extreme Differences (Positive)	0.046
Most Extreme Differences (Negative)	-0.045
Kolmogorov–Smirnov Test Statistic	0.046
Asymp. Sig. (2-tailed)	0.200
Monte Carlo Sig. (2-tailed)	0.375
99% Confidence Interval (Lower Bound)	0.362
99% Confidence Interval (Upper Bound)	0.387

2) Multicollinearity-Test Results

The multicollinearity test was conducted to determine whether the independent variables were correlated. A regression model with substantial correlations among the independent variables is not considered optimal. The commonly applied cutoff criteria are as follows:

- VIF > 10 or tolerance < .10 indicates multicollinearity.
- VIF < 10 or tolerance > .10 indicates no multicollinearity.

Table 4. Multicollinearity-Test Results

Variable	Tolerance	VIF	Decision
LOG_CAR	0.952	1.050	No Multicollinearity
LOG_NPL	0.907	1.102	No Multicollinearity
LOG_ROA	0.956	1.046	No Multicollinearity
LOG_LDR	0.979	1.021	No Multicollinearity

The results in the table indicate that CAR, NPL, ROA, and LDR did not exhibit multicollinearity, as explained below:

- CAR did not exhibit multicollinearity because its VIF was 1.050, below 10, and its tolerance was .952, above .10.
- NPL did not exhibit multicollinearity because its VIF was 1.102, below 10, and its tolerance was .907, above .10.
- ROA did not exhibit multicollinearity because its VIF was 1.046, below 10, and its tolerance was .956, above .10.
- LDR did not exhibit multicollinearity because its VIF was 1.021, below 10, and its tolerance was .979, above .10.

3) Heteroskedasticity-Test Results

The Glejser test was used to detect heteroskedasticity in the regression model. Under this procedure, the absolute residuals from the initial regression model are used as the dependent variable in an auxiliary

regression on the original independent variables. Statistically significant coefficients in the auxiliary regression indicate heteroskedasticity. The Glejser-test results are presented below.

Table 5. Glejser-Test Results

Variable	B	Std. Error	Beta	t	Sig.	Decision
Constant	-0.783	0.795	–	-0.985	0.326	–
LOG_CAR	0.211	0.110	0.138	1.918	0.057	No Heteroskedasticity
LOG_NPL	0.092	0.086	0.079	1.071	0.286	No Heteroskedasticity
LOG_ROA	4.923	2.675	0.132	1.841	0.067	No Heteroskedasticity
LOG_LDR	0.069	0.122	0.040	0.569	0.570	No Heteroskedasticity

The table supports the following conclusions:

- CAR had a significance value of .057, which exceeded .05. The coefficient was therefore not significant at the 5% level, indicating no strong evidence of heteroskedasticity associated with CAR.
- NPL had a significance value of .286, which also exceeded .05. Accordingly, there was no indication of heteroskedasticity associated with NPL.
- ROA had a significance value of .067. Although this value slightly exceeded .05 and was not significant at the 5% level, its proximity to the threshold suggests a weak possibility of heteroskedasticity that warrants attention.
- LDR had a significance value of .570, substantially above .05, indicating no evidence of heteroskedasticity associated with LDR.
- Overall, the results provide no strong evidence of heteroskedasticity in the regression model. This conclusion is consistent with the Glejser-test criterion that nonsignificant coefficients in the auxiliary regression indicate homoskedastic residuals.

4) Autocorrelation-Test Results

The autocorrelation test assesses whether the residual in period t is correlated with the residual in period $t - 1$. If such correlation is present, the model has an autocorrelation problem. An appropriate regression model should be free from autocorrelation. In this study, autocorrelation was assessed using the Durbin–Watson statistic. With four independent variables and 200 observations, the lower bound (DL) was 1.7279 and the upper bound (DU) was 1.8094. Under the Durbin–Watson decision rule, $4 - DU$ was 2.1906.

Table 6. Autocorrelation-Test Results Before the Cochrane–Orcutt Procedure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin–Watson
1	0.444	0.197	0.180	0.54928	0.826

To satisfy the no-autocorrelation criterion, the Durbin–Watson value should fall between DL and $4 - DU$, or $1.7279 < DW < 2.1906$. The initial DW value was .826, below DL. The Cochrane–Orcutt procedure was therefore applied. The coefficient used in that procedure is presented in the following table.

Table 7. Cochrane–Orcutt Coefficient

Variable	B	Std. Error	Beta	t	Sig.
Constant	0.000	0.031	–	0.005	0.996
LAG_RES	0.587	0.058	0.586	10.157	< 0.001

The estimated Cochrane–Orcutt coefficient was .587. This coefficient was then used in the adjusted autocorrelation test, which produced a DW value of 1.823, as presented below.

Table 8. Autocorrelation-Test Results After the Cochrane–Orcutt Procedure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin–Watson
1	0.377	0.142	0.125	0.43082	1.823

The adjusted Durbin–Watson value was 1.823, which was greater than DU (1.8094) and less than 4 – DU (2.1906). The model was therefore considered free from autocorrelation and suitable for multiple linear regression analysis.

c. Multiple Linear Regression Equation

Multiple linear regression was used to evaluate the extent to which CAR, NPL, ROA, and LDR affected stock prices in the banking sector. The results are presented below:

Table 9. Multiple Linear Regression Coefficient Results

Variable	Unstandardized Coefficient (B)	Std. Error	Standardized Coefficient (Beta)	t	Sig.	Decision
Constant	-4.216	1.451	–	-2.906	0.004	Significant
LOG_CAR	0.077	0.201	0.025	0.382	0.703	Not Significant
LOG_NPL	-0.672	0.156	-0.290	-4.298	< 0.001	Significant
LOG_ROA	20.219	4.884	0.272	4.140	< 0.001	Significant
LOG_LDR	0.362	0.222	0.106	1.629	0.105	Not Significant

Based on the multiple linear regression results, the functional relationship between the independent variables and the dependent variable can be expressed as follows:

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

$$Y = -4.216 + 0.077\text{CAR} - 0.672\text{NPL} + 20.219\text{ROA} + 0.362\text{LDR} + \varepsilon$$

The multiple regression equation can be interpreted as follows:

- 1) Constant (α). The constant of -4.216 indicates that when CAR (X_1), NPL (X_2), ROA (X_3), and LDR (X_4) are held at zero, the predicted stock price is -4.216 .
- 2) CAR coefficient (0.077). A one-percentage-point increase in CAR is associated with an increase of 0.077 in the predicted stock price, holding the other variables constant.
- 3) NPL coefficient (-0.672). A one-percentage-point increase in NPL is associated with a decrease of 0.672 in the predicted stock price, holding the other variables constant.
- 4) ROA coefficient (20.219). A one-percentage-point increase in ROA is associated with an increase of 20.219 in the predicted stock price, holding the other variables constant.
- 5) LDR coefficient (0.362). A one-percentage-point increase in LDR is associated with an increase of 0.362 in the predicted stock price, holding the other variables constant.

d. Hypothesis Testing

1) Simultaneous Test (F-Test)

The simultaneous F-test evaluates the joint effect of the independent variables on the dependent variable. Overall model significance is assessed using the significance probability. The decision criteria are as follows:

- a) A significance value below α (.05) supports the hypothesis and indicates that the independent variables jointly affect the dependent variable.

- b) A significance value above α (.05) rejects the hypothesis and indicates no joint effect of the independent variables on the dependent variable.

The regression model is considered statistically significant when the significance value is below .05. The simultaneous test evaluated H1, which proposed that CAR, NPL, ROA, and LDR jointly have a significant effect on stock prices.

Table 10. Simultaneous-Test Results (F-Test)

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	14.415	4	3.604	11.944	< 0.001
Residual	58.833	195	0.302		
Total	73.248	199			

The test produced a significance value below .001 and an F-statistic of 11.944. The model was therefore statistically significant, and CAR, NPL, ROA, and LDR jointly had a significant effect on banking stock prices. H1 was supported.

2) Partial Test (t-Test)

The t-test evaluates the extent to which each independent variable affects the dependent variable. At the 5% significance level used in this study, a probability below .05 indicates a significant partial effect; a value above .05 indicates no significant partial effect. The test evaluated the following hypotheses:

H2: CAR has a positive partial effect on stock prices. H3: NPL has a negative partial effect on stock prices. H4: ROA has a positive partial effect on stock prices. H5: LDR has a positive partial effect on stock prices.

Table 11. Partial-Test Results (t-Test)

Variable	B	Std. Error	Beta	t	Sig.	Hypothesis
Constant	-4.216	1.451	–	-2.906	0.004	–
LOG_CAR	0.077	0.201	0.025	0.382	0.703	Rejected
LOG_NPL	-0.672	0.156	-0.290	-4.298	< 0.001	Accepted
LOG_ROA	20.219	4.884	0.272	4.140	< 0.001	Accepted
LOG_LDR	0.362	0.222	0.106	1.629	0.105	Rejected

The results support the following interpretations:

H2: CAR did not have a significant partial effect on stock prices. The significance value for LOG_CAR was .703, which exceeded .05; therefore, H2 was not supported.

H3: NPL had a significant negative partial effect on stock prices. The significance value for LOG_NPL was below .001, and the negative standardized coefficient (–.290) was consistent with the hypothesized direction. H3 was supported.

H4: ROA had a significant positive partial effect on stock prices. The significance value for LOG_ROA was below .001, and the positive standardized coefficient (.272) was consistent with the hypothesized direction. H4 was supported.

H5: LDR did not have a significant partial effect on stock prices. The significance value for LOG_LDR was .105, which exceeded .05; therefore, H5 was not supported.

3) Coefficient of Determination (R^2)

The coefficient of determination (R^2), or R-squared, measures the proportion of variation in the dependent variable explained by the independent variables; the remaining variation is attributable to factors

excluded from the model. According to Susanti (2020), R^2 ranges from 0 to 1 ($0 \leq R^2 \leq 1$). An R^2 of 0 indicates that the independent variables explain none of the variation in the dependent variable. As adjusted R^2 approaches 1, the explanatory power of the independent variables increases; as it approaches 0, their explanatory power weakens.

Table 12. Coefficient of Determination Results (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.444	0.197	0.180	0.54928

The adjusted R-squared value was .180. Thus, CAR, NPL, ROA, and LDR jointly explained 18% of the variation in banking stock prices, while the remaining 82% was attributable to other factors not included in the study.

4.2. Discussion

a. Simultaneous Effects of CAR, NPL, ROA, and LDR on Stock Prices

The results show that the Capital Adequacy Ratio (CAR), Nonperforming Loan ratio (NPL), Return on Assets (ROA), and Loan-to-Deposit Ratio (LDR) jointly had a significant effect on the stock prices of banking companies. This conclusion is supported by an F-statistic of 11.944 and an ANOVA significance value below .001. The four variables collectively represent earnings capacity and the stability of bank financial performance, which ultimately shape investor perceptions and stock prices. This result is consistent with Aryanti et al. (2022), who found that ROA, ROE, LDR, CAR, and NPL jointly had a significant effect on the stock prices of state-owned banks listed on the IDX during 2008–2021. From an empirical perspective, the results are consistent with financial theory, which identifies major financial ratios such as CAR, NPL, ROA, and LDR as important indicators of banking performance. Investors evaluate corporate prospects partly on the basis of the financial health reflected in these ratios, thereby linking ratio performance to stock prices.

A higher CAR indicates that a bank has a sufficient capital buffer to absorb potential losses arising from banking activities. A bank with a high CAR is viewed as more stable and better able to withstand unexpected risks, thereby strengthening investor confidence. Greater investor confidence is generally reflected in higher demand for the bank's shares and upward pressure on its stock price. A lower NPL indicates a higher-quality loan portfolio with limited default risk. When NPL is low, a bank has fewer problem assets and faces lower potential losses from bad loans. This condition provides a favorable signal to investors because it indicates effective risk management, contributes to stability, and supports potential stock-price growth.

A high ROA reflects management's ability to use bank assets to generate earnings. It indicates greater asset-management efficiency and stronger profitability. Profitability is a central investor consideration because it signals the company's growth potential and tends to increase stock value. LDR, which measures the extent to which a bank channels third-party funds into loans, also has an important role in stock-price formation. A balanced LDR enables the bank to extend credit without assuming excessive liquidity risk, thereby supporting earnings growth and potentially increasing stock prices. An excessively high or low LDR may indicate an imbalance in bank management and adversely affect stock prices. Overall, the ANOVA results demonstrate that the four independent variables jointly made a significant contribution to movements in banking stock prices. The findings provide a basis for investors and market analysts to consider these ratios when making investment decisions in the banking sector. They also emphasize the importance of risk management and operating efficiency because strong financial performance can attract investors and enhance shareholder value. The managerial implication is that bank management should continuously monitor and optimize these ratios to maintain and strengthen the attractiveness of bank shares to investors. Regulators and policymakers should likewise consider the effects of these ratios when formulating policies designed to preserve the stability and soundness of the banking sector.

b. Partial Effect of CAR on Stock Prices

The partial t-test showed that the Capital Adequacy Ratio (CAR) did not have a significant individual effect on bank stock prices. Its significance value was .703, which exceeded the .05 threshold; therefore, H2, which proposed a positive partial effect of CAR on stock prices, was not supported. This finding is consistent with Latif et al. (2021), who reported that CAR did not have a significant partial effect on the stock prices of banking companies listed on the IDX during 2015–2019. It differs, however, from Fatma (2021), who found a significant positive effect of CAR on the stock prices of banking companies included in the LQ45 Index during 2015–2019. CAR may not have affected stock prices because the average CAR of Indonesian banks was 29.24%, far above Bank Indonesia's minimum requirement of 8%. This level indicates that Indonesian banks were generally well capitalized, reducing investor concern regarding capital sufficiency. Although a high CAR provides assurance of stability, other factors, including operating performance and perceived risk, may have a stronger direct influence on stock prices. OJK data support this interpretation by showing that most Indonesian banks maintain CAR well above the regulatory minimum, reflecting financial strength and resilience to economic shocks. Because strong capitalization is common across the sector, CAR disclosures may provide limited differentiation for investors and therefore may not independently affect bank stock prices. Nevertheless, CAR remains important in the broader model. Together with NPL, ROA, and LDR, it had a significant simultaneous effect on stock prices, indicating that its contribution to financial stability and investor confidence becomes more meaningful when considered alongside other performance indicators.

The result is consistent with the study's overarching theories—signaling theory and going-concern theory. Signaling theory holds that companies use financial information to communicate their performance and future prospects to the market. Although CAR did not independently have a significant effect on stock prices, a high CAR signals that a bank has sufficient capital to withstand risk and economic shocks. Because nearly all sampled banks reported high CAR, however, the signal may no longer have provided meaningful differentiation. Going-concern theory, by contrast, emphasizes an entity's long-term viability and financial health. A high CAR indicates a strong financial foundation and limited immediate capital pressure, supporting investor confidence that the bank can continue operating. Although CAR was not independently significant, strong capitalization reinforces long-term continuity and contributes to overall stock-price stability when considered together with other factors. A high CAR therefore supports confidence that a bank can operate stably over the long term, even though its isolated effect on stock price is not statistically significant.

4) Partial Effect of NPL on Stock Prices

The partial analysis showed that NPL had a significant negative effect on stock prices. Its significance value was below .001, and its standardized coefficient was negative (–.290). H3, which proposed a negative partial effect of NPL on stock prices, was therefore supported. This result confirms that NPL is a major indicator of banking risk. It is consistent with Taslim and Manda (2021), who reported a significant negative effect of NPL on banking stock prices, but differs from Ziliwu and Wibowo (2020), who reported a significant positive effect. A high NPL not only reflects deteriorating asset quality and increased credit risk but may also disrupt bank cash flow. As delinquent loans increase, banks face greater difficulty collecting scheduled payments. This condition may produce the following adverse effects:

- a) Higher Provisioning Expense. Banks must allocate additional reserves to cover potential losses from nonperforming loans. Increased provisioning reduces net income and profitability, directly affecting stock prices.
- b) Cash-Flow Disruption. Missed loan payments weaken operating cash flow and may impair the bank's ability to meet short-term financial obligations or finance necessary operations and expansion.
- c) Reduced Liquidity. Rising NPL may weaken liquidity because the bank must wait longer to recover loaned funds. Reduced liquidity may constrain investment and new lending, ultimately weakening growth and financial stability.

The adverse effects of a high NPL communicate an unfavorable signal to the market, reduce investor confidence, and place downward pressure on stock prices. A rising NPL indicates deteriorating asset quality and increasing credit risk, which may weaken profitability and cause investors to reassess the bank's prospects. This interpretation is consistent with both signaling theory and going-concern theory. Under signaling theory, NPL information functions as a negative signal regarding a bank's financial health. An increase in NPL indicates greater risk and the possibility of larger losses, thereby reducing investor confidence and stock prices. Going-concern theory emphasizes long-term operational continuity. A high NPL may indicate serious problems that threaten the bank's ability to maintain operations. Deteriorating asset quality and cash-flow disruption may impair the bank's ability to meet financial obligations, raising market concern regarding future operational capacity or failure risk. The significant negative effect of NPL on banking stock prices is therefore consistent with both theoretical perspectives.

5) Partial Effect of ROA on Stock Prices

Return on Assets (ROA) had a significant positive effect on banking stock prices. Its significance value was below .001, and its standardized coefficient was positive (.272), indicating that banks that use their assets efficiently to generate earnings tend to have higher stock prices. H4, which proposed a positive partial effect of ROA on stock prices, was therefore supported. This finding is consistent with signaling theory, which suggests that profitability measured by ROA attracts investor interest. A high ROA indicates that the company generates substantial earnings from its total assets and therefore communicates a favorable signal. In banking analysis, ROA is a central measure of financial performance because it reflects the effectiveness and efficiency with which assets are managed. ROA is consequently an important indicator of bank financial performance and has meaningful implications for stock prices. Effective asset management and strong earnings foster investor confidence and contribute to higher stock prices.

An increase in profit before tax generally leads to higher after-tax net income and may encourage a company to distribute larger dividends. Higher dividends provide an additional incentive to investors because they indicate both financial strength and a commitment to shareholder returns. Investors are more likely to commit capital over the long term when returns are stable and attractive. Higher earnings may also strengthen the bank's financial position, enable greater investment in growth and expansion, and thereby increase firm value and future stock prices. The result supports Khasanah and Suwarti (2022), who reported a significant positive effect of ROA on banking stock prices, but differs from Rahmani (2020), who found no significant effect.

6) Partial Effect of LDR on Stock Prices

The mean Loan-to-Deposit Ratio (LDR) of the sampled Indonesian banks was 84.89%, indicating that the banks extended nearly 85% of collected funds as loans. The standard deviation of .2459623 reflects substantial variation among banks in lending intensity, liquidity strategy, and risk management. Although LDR theoretically reflects lending efficiency, the partial analysis showed no significant effect of LDR on banking stock prices. The significance value was .105, above the .05 threshold, and therefore the relationship was not statistically significant. Although the standardized coefficient was positive (.106), the evidence did not support H5, which proposed a positive partial effect. This result is consistent with Novita (2022), who likewise found no effect of LDR on banking stock prices. Even without a significant direct effect, LDR remains relevant to liquidity and cash-flow management because it measures the extent to which deposits are used to finance lending. A higher LDR indicates more aggressive lending and may theoretically increase interest income and stock prices. If the ratio becomes excessive, however, the bank faces greater liquidity risk because a larger proportion of funds is committed to loans, reducing its ability to meet short-term obligations.

Bank Indonesia identifies an LDR range of 80%–100% as generally sound. An excessively low LDR suggests that funds are not being used optimally, whereas an excessively high LDR increases potential liquidity risk. Prudent LDR management is therefore essential to balance profitability and liquidity. From a signaling perspective, a high LDR may communicate management's confidence that borrowers will repay

their loans. The market may nevertheless interpret the liquidity risk associated with an excessively high ratio as an adverse signal regarding risk management. LDR may therefore affect stock prices indirectly when investors interpret an excessively high or low value as evidence of risk. Going-concern theory further emphasizes the importance of a bank's long-term viability. Investors seek assurance that the companies in which they invest can continue operating and generating earnings. In banking, going concern is closely associated with risk management, liquidity, and operating stability. Investors evaluating banking shares may therefore consider LDR an important indicator of operating stability and the capacity to remain financially sound. An LDR maintained within an appropriate range indicates sufficient liquidity to meet short-term obligations while continuing to extend credit that supports business growth.

An excessively high LDR may cause investors to fear that liquidity risk will disrupt cash flow and daily operations and ultimately threaten the bank's going-concern status. Conversely, an excessively low LDR may indicate inefficient use of funds, which can weaken profitability and future sustainability. Investors therefore consider how effectively a bank balances liquidity and profitability to ensure long-term operations and meet expected returns. Going-concern theory helps investors evaluate whether a bank can withstand changes in economic conditions, interest rates, and credit risk. Confidence in the bank's ability to maintain stable cash flow and manage liquidity risk may encourage investors to maintain or increase their holdings, supporting the bank's stock price. Overall, although LDR did not have a significant individual effect on stock prices, its role in liquidity, cash-flow, and liquidity-risk management remains essential to financial stability. When considered together with the other ratios, these factors may influence stock prices and the overall sustainability of banking operations.

7) Research Findings

The study found that the principal financial variables—Capital Adequacy Ratio (CAR), Nonperforming Loan ratio (NPL), Return on Assets (ROA), and Loan-to-Deposit Ratio (LDR)—jointly had a significant effect on the stock prices of banking companies listed on the Indonesia Stock Exchange during 2018–2022. When considered together, the four variables made a significant contribution to market perceptions and investment decisions regarding banking stock prices.

The partial effects varied across variables. First, CAR, which reflects a bank's capacity to absorb credit risk through its capital buffer, did not have a significant individual effect on stock prices, although its coefficient was positive. This result indicates that investors may view CAR primarily as a measure of long-term stability rather than a short-term determinant of stock price, consistent with going-concern theory's emphasis on financial resilience and operational continuity. Second, NPL had a significant negative effect on stock prices. An increase in NPL reflects deteriorating asset quality and elevated credit risk, which can weaken investor confidence and depress stock prices. From a signaling perspective, a high NPL communicates unfavorable information regarding a bank's financial condition, consistent with the negative partial effect identified in the analysis. Third, ROA had a significant positive effect on stock prices. This finding demonstrates that the market values the efficient use of assets to generate earnings. It is consistent with signaling theory because a high ROA communicates effective management and strong profitability, thereby supporting higher stock prices. A strong ROA also reinforces going-concern principles because sustained operating efficiency is essential to the bank's long-term viability. Fourth, LDR did not have a significant partial effect on stock prices, although its coefficient was positive. Although LDR is important for evaluating lending efficiency, its effect on stock price may be indirect or may become significant only under particular conditions. From a going-concern perspective, maintaining an appropriate balance between liquidity and lending remains crucial to long-term bank stability even when the effect is not immediately reflected in stock prices. Overall, the findings indicate that the four financial ratios, despite differing partial effects, jointly contribute significantly to stock-price performance. The study also supports the relevance of signaling theory and going-concern theory in explaining how these variables influence investment decisions and corporate stability in the banking sector.

V. Conclusion



This study analyzed the effects of the Capital Adequacy Ratio (CAR), Nonperforming Loan ratio (NPL), Return on Assets (ROA), and Loan-to-Deposit Ratio (LDR) on the stock prices of banking companies listed on the Indonesia Stock Exchange during 2018–2022. The following conclusions were drawn:

1. CAR, NPL, ROA, and LDR jointly had a significant effect on the stock prices of banks listed on the Indonesia Stock Exchange during 2018–2022. The F-test result indicated that the four variables collectively explained meaningful variation in banking stock prices.
2. CAR did not have a significant partial effect on stock prices ($p = .703$), although its coefficient was positive. CAR appears to be more relevant to long-term stability than to immediate stock-price movements.
3. NPL had a significant negative partial effect on stock prices ($p < .001$). An increase in NPL adversely affected investor confidence and banking stock prices.
4. ROA had a significant positive partial effect ($p < .001$). Banks with higher ROA tended to have higher stock prices because ROA reflects operating efficiency and profitability.
5. LDR did not have a significant partial effect on stock prices ($p = .105$). Although LDR remains important for liquidity management, its direct relationship with stock price was not statistically significant.

The findings make theoretical and practical contributions by supporting signaling theory and going-concern theory and demonstrating the importance of financial ratios in evaluating bank soundness, stability, and stock-price performance.

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