THE IMPACT OF KEY FINANCIAL FACTORS AND MACRO-ECONOMIC VARIABLES ON THE FINANCIAL PERFORMANCE AND STOCK RETURN OF INDONESIAN BANKS FROM Q4 2013 TO Q1 2024

THESIS

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We hereby declare that this Thesis is from the student's own work, has been read and presented to Sekolah Tinggi Manajemen IPMI Board of Examiners, has been accepted as part of the requirements needed to obtain a Master of Business Administration Degree, and has been found to be satisfactory.

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This Thesis is a presentation of our original research work. Wherever the contribution of others is involved, every effort is made to indicate this clearly, with due reference to the literature and acknowledgment of collaborative research and discussions.

Also, this work is being submitted in partial fulfillment of the requirements for the Master of Business Administration degree and has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Jakarta, 12 August 2024

_____

Lindawati Octaviani

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Title : The Impact of Key Financial Factors and Macro-Economic Variables On The Financial Performance And Stock Return Of Indonesian Banks from Q4 2013 to Q1 2024

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This paper has been revised in accordance with the reviewer(s) recommendations, and this paper I approve to publish in any reputable journals.

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Abstract

Indonesia's banking sector has become a cornerstone of the national economy, significantly evolving over the past decade. This evolution has been shaped by strategic oversight and regulatory measures from Bank Indonesia (BI), the Financial Services Authority (OJK), and the Indonesia Deposit Insurance Corporation (LPS). Notably, between 2013 and 2024, the sector experienced robust asset growth and digital transformation, making substantial strides in financial inclusion and supporting national economic development.

This study examines the impact of key financial metrics—Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Loan-to-Deposit Ratio (LDR), CASA ratio, Cost to Income Ratio, Non-Performing Loans (NPL), and Provision Coverage Ratio—on the financial performance and stock returns of Indonesian banks over the period from Q4 2013 to Q1 2024. Additionally, it considers macroeconomic variables, including Market Return (JKSE), GDP Growth Rate, Exchange Rate (IDR/USD), BI Interest Rate, and Inflation (Consumer Price Index). The study utilizes a purposive sampling method, focusing on data from the top 12 Indonesian commercial banks.

From 2013 to 2024, the sector's assets surged to IDR 10,317 trillion in 2022, with increasing profitability and stock returns in 2023. The adoption of digital banking is projected to expand services to 202 million mobile wallet users by 2025, further enhancing financial inclusion. Regulatory reforms, such as the Financial Sector Development and Strengthening Reform Bill (P2SK), have played a crucial role in stabilizing and increasing the efficiency of the banking sector. Increased lending activities have fueled infrastructure and industrial development, bolstering national economic growth. The strong performance of major banks has also positively influenced the Jakarta Composite Index (JKSE), reflecting investor confidence.

Moreover, Indonesian banks have played a vital role in the capital market by facilitating corporate fundraising and participating in government securities, with corporate fundraising reaching IDR 35.8 trillion by early 2023. These findings provide a comprehensive understanding of the factors driving Indonesian banks'

financial performance and stock returns, contributing valuable insights to academia and industry practitioners.

Keywords: Indonesian banks' financial performance, Indonesian banks' stock return, Indonesian banking industry

Chapter 1.
Introduction

1.1. Research Background

As of 2023, Indonesia boasts 106 commercial banks and over 27,920 bank offices (source: Statista). The banking industry is regulated by three key institutions: Bank Indonesia, which oversees payment systems and foreign exchange supervision; the Financial Services Authority (Otoritas Jasa Keuangan), which regulates and manages essential banking and financial system aspects; and the Deposit Insurance Corporation (Lembaga Penjamin Simpanan), which guarantees bank deposits.

Evolution of Indonesia's Banking Sector

Indonesia's banking sector has evolved significantly, transforming from modest beginnings into a crucial financial pillar in Southeast Asia. Bank Indonesia, the nation's central bank, has played a pivotal role in guiding monetary policy and ensuring sector stability amidst global economic challenges. Its regulatory functions and policy measures have been vital to the sector's resilience and growth. The development of Indonesia’s banking system highlights the country’s economic resilience and adaptability. The sector has successfully navigated international financial crises, implemented strategic reforms, and leveraged technological advancements to enhance efficiency and customer service. Bank Indonesia’s oversight and strategic initiatives are essential in maintaining growth and innovation within the banking industry.

Comprehensive Directory of Banks in Indonesia

Indonesia's banking landscape is diverse, comprising state-owned, private, Islamic, foreign, and regional development banks, each contributing uniquely to the nation's economy. The Indonesian banking sector has shown remarkable resilience and growth in recent years. According to the Financial Services Authority (OJK), the total assets of Indonesian banks reached IDR 9,477 trillion in 2023, reflecting a

year-on-year growth of 7.4%. Sound financial management practices and favorable macroeconomic conditions support this growth.

Recent studies by Wijaya (2022) in Financial Performance of Indonesian Banks: Analysis and Outlook and Santoso (2021) Macroeconomic influences on Bank Profitability in Indonesia highlight the significant impact of internal financial metrics and external economic factors on bank performance. Additionally, some analysis of Strategic Financial Management in Indonesian Banks underscores the critical role of strategic risk management in maintaining bank stability and growth.

In May 2024, Fitch Ratings upgraded the Indonesian banking sector's operating environment (OE) score from 'bb+' to 'bbb-,' reflecting consistent economic performance, improved revenue generation while controlling risks, and receding credit risks following the end of loan forbearance in March 2024. Fitch's analysis suggests the sector's potential for sustained asset quality and high profitability in the medium term.

The Impact of Key Financial Factors and Macro-Economic Variables on the Financial Performance and Stock Return of Indonesian Banks

Operating within a dynamic and complex financial environment, Indonesia's banking sector benefits from recent trends that suggest a favorable operating environment. Major banks are expected to maintain steady asset quality and high profitability in the medium term, supported by Fitch Ratings' recent upgrade of the sector's operating environment score.

This study investigates the influence of key financial metrics—such as Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Loan-to-Deposit Ratio (LDR), CASA ratio, Cost to Income Ratio, Non-Performing Loans (NPL), and Provision Coverage Ratio—on the financial performance and stock returns of Indonesian banks. These internal financial metrics are analyzed alongside macroeconomic variables, including Market Return (JKSE), GDP Growth Rate, Exchange Rate (IDR/USD), BI Interest Rate, and Inflation (Consumer Price Index).

Understanding these relationships is crucial for stakeholders, as it provides insights into how internal and external factors affect bank profitability and market performance. By analyzing data from the top 12 publicly listed Indonesian banks, this study aims to offer a comprehensive understanding of the determinants of bank

performance, thereby contributing to the literature and aiding in informed decision-making.

1.2. Research Problems

The Indonesian banking sector is undergoing significant changes driven by various financial metrics and macroeconomic variables. Understanding the impact of these factors on financial performance and stock returns is crucial for stakeholders, including investors, policymakers, and bank managers. Given the background and recent developments in the Indonesian banking sector, the research problems of this study are defined as follows:

1.2.1. Impact of Financial Metrics and Macroeconomic Variables on Financial Performance:

Problem Statement: How do key financial metrics (such as Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Loan-to-Deposit Ratio (LDR), CASA ratio, Cost to Income Ratio, Non-Performing Loans (NPL), and Provision Coverage Ratio) and macroeconomic variables (including Market Return (JKSE), GDP Growth Rate, Exchange Rate (IDR/USD), BI Interest Rate, and Inflation (Consumer Price Index)) influence the financial performance of Indonesian banks?

1.2.2. Impact of Financial Metrics and Macroeconomic Variables on Stock Return:

Problem Statement: How do key financial metrics (such as Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Loan-to-Deposit Ratio (LDR), CASA ratio, Cost to Income Ratio, Non-Performing Loans (NPL), and Provision Coverage Ratio) and macroeconomic variables (including Market Return (JKSE), GDP Growth Rate, Exchange Rate (IDR/USD), BI Interest Rate, and Inflation (Consumer Price Index)) influence the stock return of Indonesian banks?

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By addressing these research problems, this study aims to comprehensively understand how internal financial management and external macroeconomic conditions influence the banking sector's performance. This research contributes to the existing literature by offering insights that can aid stakeholders in making informed financial decisions and formulating effective management and policy strategies.

1.3. Research Questions

Based on the background and the identified problem statements as previously explained, this study developed the following research questions as the main focus of this research:

PRQ (Principal Research Question): How do the key financial factors and macroeconomic variables impact the Indonesian banks' financial performance and stock return? This principal research question is broken down into two research questions:

RQ1a: How do key financial factors and macroeconomic variables impact the Indonesian bank's financial performance?

RQ1b: How do macroeconomic variables impact the Indonesian bank's financial performance?

RQ2a: How do key financial factors impact the Indonesian bank's stock return?

RQ2b: How do macroeconomic variables impact the Indonesian bank's stock return?

1.4. Research Objectives

The objectives of this research are:

O1a: To analyze the impact of key financial factors on the financial performance of Indonesian banks.

O1b: To analyze the impact of macroeconomic variables on the financial performance of Indonesian banks.

O2a: To analyze the impact of key financial factors on the stock return of Indonesian banks.

O2b: To analyze the impact of macroeconomic variables on the stock return of Indonesian banks.

1.5. Scope of Study

The information on financial factors is measured through the information published in the annual report, quarterly published financials, or any published materials from the selected Indonesian banks from Q4 2013 to Q1 2024 (42 data points). Hence, the information between banks might be varied and involve some judgments/ assumptions. The sampling method in this study is purposive sampling; please refer to Chapter 3 for further explanation.

1.6. Benefits of the Studies

This research aims to benefit users of financial information, whether as academics, business/banking practitioners, market analysts, regulators, or investors. By analyzing the correlation between key financial metrics, macro-economic variables, and the financial performance and stock returns of Indonesian banks, it was expected that this research would benefit the corresponding stakeholders as follows:

1. Theoretical Benefits:
    - Holistic Framework: Develop a comprehensive framework for understanding the impact of key financial factors and macroeconomic variables on banks' financial performance and stock returns.
    - Moderating roles: Explores how financial metrics and macroeconomic factors influence banks' financial performance and stock returns.
2. Practical Benefits
    - Actionable Insights: Offers actionable insights for optimizing financial strategies to enhance banks' financial performance and stock returns.
    - Evidence-based research: Facilitates strategic decision-making processes regarding financial management and investment strategies to improve bank performance and investor outcomes.
3. Managerial Benefits

- Insight and understanding: Provides managers with insights and a deeper understanding of how key financial metrics and macroeconomic variables affect banks' financial performance and stock returns.
- Practical recommendation: Offers practical recommendations to assist managers in making informed financial strategy and performance management decisions.

4. Policy Benefits:
    - Investment policies: Assists banks and government agencies in making effective decisions regarding financial management and investment policies.
    - Sustainability Integration: This allows policymakers, including regulators and government bodies, to incorporate sustainability principles, such as industry innovation, infrastructure development, and economic growth, into their regulatory frameworks.

1.7. Organization of Thesis

The study entitled "The Impact of Key Financial Factors and Macro-Economic Variables on the Financial Performance and Stock Return of Indonesian Banks." This study consisted of five chapters:

- Chapter 1 – Introduction

  The first chapter explained the background of the selected main topic of this research/ study, leading to the formulation of the research problems, research questions, and the research objectives this study attempts to achieve. It also discussed the main benefits of the study, the scope and limitations, and the organization of the thesis.
- Chapter 2 – Literature Review

  The second chapter explained the relevant theoretical concepts underlying the research to deepen understanding of this study. Sources of the theory include textbooks, articles, and journals. This chapter also includes an overview of previous research as one of the references for the study, the hypothesis development, and the research framework.
- Chapter 3- Methodology

The third chapter detailed the research design, measurement of variables, data collection, data collection procedures, data analysis techniques, hypothesis, and research processes.

- Chapter 4- Findings, Analysis, and Discussions.

  The fourth chapter provides an overview of the companies included in the study. This chapter comprises the research findings and results from the hypotheses tested. The highlights of this chapter were the analysis and discussion of the results as to whether they supported the proposed hypotheses.

- Chapter 5- Conclusion and Recommendations

  The final chapter concludes with the findings and analysis of the research conducted. The chapter presented the key takeaways and recommendations based on the conclusions drawn from the study that would benefit investors and users of financial information in the market, as well as academics for future study.

Chapter 2.
Literature Review

2.1. Theoretical Framework

2.1.1. Efficient Market Hypothesis

The Efficient Market Hypothesis (EMH), articulated by Fama (1970) in his seminal work Efficient Capital Markets: A Review of Theory and Empirical Work, posits that financial markets are informationally efficient, meaning that asset prices reflect all available information at any given time. According to EMH, it is impossible to consistently achieve higher returns than the overall market through stock selection or market timing because any new information that could affect a stock's price is already incorporated into its current price.

In the context of Indonesian banks, the EMH suggests that key financial metrics and macro-economic variables should be reflected in banks' stock prices. Investors rely on available information to make investment decisions, including financial performance indicators like Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), and macro-economic factors such as GDP growth and exchange rates. As a result, the banks' stock returns should mirror their underlying financial health and economic conditions, aligning with the principles of EMH (Fama, 1970).

2.1.2. Capital Asset Pricing Model

The Capital Asset Pricing Model (CAPM), developed by Sharpe (1964), provides a theoretical framework for understanding the relationship between an asset's expected return and risk. CAPM asserts that the expected return on an asset is a function of the risk-free rate, the asset's beta (which measures its sensitivity to market movements), and the market risk premium. This model is foundational for assessing the risk-return trade-off and is widely used in financial analysis (Sharpe, 1964).

For Indonesian banks, CAPM can be applied to analyze how their financial metrics and macroeconomic variables influence their stock returns. By considering factors such as market volatility and individual bank performance, CAPM helps in understanding how different financial and economic variables affect the risk and

expected returns of bank stocks. This model provides a basis for investors to evaluate the attractiveness of investing in bank stocks relative to other investment opportunities (Sharpe, 1964).

2.1.3. Resource-Based View Theory

The Resource-Based View (RBV) Theory, originating from Penrose (1959) work The Theory of the Growth of the Firm, offers valuable insights into how internal resources and capabilities contribute to a firm's competitive advantage. RBV posits that firms can achieve sustainable competitive advantage by effectively leveraging their unique resources and capabilities, which are valuable, rare, inimitable, and non-substitutable.

In the banking sector, key financial metrics such as CAR, NIM, and LDR can be seen as internal resources that contribute to a bank's performance. By managing these metrics effectively, banks can enhance their financial stability and profitability, positively impacting their stock returns. Additionally, macro-economic variables like GDP growth and exchange rates can influence a bank's external environment, affecting its resource utilization and overall performance. The RBV framework helps in understanding how banks can leverage their financial resources and navigate macro-economic conditions to achieve superior performance (Penrose, 1959).

2.1.4. The Banks' Financial Ratios based on RBBR

Based on OJK Regulation No.4/POJK.03/2016 (OJK, 2016) and OJK Circular Letter No. 14/SEOJK.03/2017 (OJK, 2017) regarding the Assessment of RBBR for Commercial Banks, there are four critical factors:

1. Risk Profile
2. Good Corporate Governance
3. Earnings
4. Capital

Table 2.1 Summary of The Banks' Key Financial Ratio

No	Description	Formula	Regulatory Threshold
1	***RISK PROFILE***		
1.1.	**Risk Profile – credit risk**		
	Gross NPL (Nonperforming loans)	NPL / total gross loans	Not specified, the lower, the better
	Net NPL (Net Nonperforming loans)	(NPL-provision)/ total gross loans	Max 5%
	Provision coverage	Total Provision / total productive assets	Generally, the higher, the better (in line with conservative banking principles based on banking Law); nevertheless, it depends on the business model and credit risk mitigation strategy.
	NPL coverage	Loan Provision/ NPL	
	Cost of Credit	Provision for impairment losses charged in Profit and Loss / average loans	
1.2.	**Risk Profile – liquidity risk**		
	Loan to Deposits Ratio	Total Loans / Total Deposits	The optimum level depends on capital structure and other liquidity measures, e.g., LCR and NSFR under Basel 3
1.3	**Risk Profile – strategic risk**		
	Business plan vs. actual	Approved business plan vs. actual financial performance	Meet the business plan. Due to data limitations, this will not be covered in this research.
3	***EARNINGS***		
	NIM	Net Interest Income/ Average Productive Assets	Not specified; depends on the business model
	Cost to Income Ratio	Operating Cost/ Operating Income	Not specified, the lower, the better
	BOPO	Operational Expense/ Operational Revenue	Not specified, the lower, the better
	Return on Assets	Profit Before Tax/ Average Total Assets	Not specified, the higher, the better
	Return on Equity	Profit After Tax/ Average Total Equity	Not specified, the higher, the better
4	***CAPITAL***		
	CAR	(Tier 1 Capital + Tier 2 Capital)/ Risk Weighted Assets	It depends on the bank's soundness level and as determined by OJK

Source: summarized by Author from OJK Regulation No.4/POJK.03/206 and OJK Circular Letter No. 14/SEOJK.03/2017

2.1.5. DuPont Analysis

The DuPont analysis, originating from the DuPont Corporation in the 1920s, provides a structured approach for evaluating a company's fundamental performance. This methodology is beneficial in dissecting the components of return on equity (ROE) to examine the primary factors influencing a company's profitability. As Anthony, Hawkins, and Merchant (2016) described, the DuPont

model is a valuable tool for financial analysis. It facilitates the visualization of financial information and offers insights into how a company's operational, financial, and investment decisions contribute to its overall financial performance (Basel Committee on Banking Supervision, 2018; Beck & Levine, 2004; Black & Scholes, 1973; Boot et al., 2021; Campbell et al., 1997; Claessens & Laeven, 2005; De Bondt & Thaler, 1985; Demirgüç-Kunt & Levine, 2008; European Central Bank, 2021; Fama, 1970; Fama & French, 1993; Financial Stability Board, 2019b, 2019a; Frost et al., 2019; He et al., 2020; IMF, 2020; Jagtiani & Lemieux, 2018; Jegadeesh & Titman, 1993; Jensen & Meckling, 1976; Laeven et al., 2014; Levine, 1997; Lintner, 1965; Markowitz, 1952; Merton, 1973; Modigliani & Miller, 1958; Muhammad & Ali, 2018; Myers & Majluf, 1984; OECD, 2021; Penrose, 1959; Rajan & Zingales, 1998; Richard et al., 2007; Roll, 1977; Ross, 1976; Schumpeter, 1942; Sharpe, 1964, 1990; Shiller, 1981; Stulz, 2019; Tandelilin, 2010; Tirole, 2014; Tobin, 1958; Winter, 2000; Zikmund et al., 2013).

The underlying theory supporting “The Impact of Key Financial Factors and Macro-Economic Variables on the Financial Performance and Stock Return” of Indonesian Banks can be explained through the DuPont framework. This analytical tool highlights three crucial financial aspects influencing ROE:

- Operating Efficiency: This aspect is evaluated by the net profit margin, calculated as income divided by total sales or revenue. In the context of Indonesian banks, improving operating efficiency involves streamlining processes, reducing costs, and enhancing overall profitability.
- Asset Use Efficiency DuPont framework assesses asset use efficiency through the asset turnover ratio. For banks, optimizing the utilization of assets leads to increased efficiency in generating revenue from these assets.
- Financial Leverage: Financial leverage, quantified by the equity multiplier (average assets divided by average equity) or the debt-to-equity ratio, represents how much a company utilizes debt to fund its operations. Financial leverage impacts capital structure decisions and the bank's overall risk profile.

The DuPont analysis provides a comprehensive perspective on how key financial factors and macro-economic variables influence Indonesian banks' fundamental

performance. By examining operating efficiency, asset use efficiency, and financial leverage, this analytical framework helps elucidate the interplay between financial management practices and the financial metrics contributing to banks' overall financial performance and stock returns (Anthony et al., 2016).

2.1.6. Arbitrage Pricing Theory

The Impact of Key Financial Factors and Macro-Economic Variables on the Financial Performance and Stock Return of Indonesian Banks is substantiated by the Arbitrage Pricing Theory (APT), developed by economist Stephen A. Ross in the early 1970s. APT is a versatile financial model that allows for the consideration of numerous factors influencing asset returns. In the context of financial factors in banks, various factors like market conditions, interest rates, and industry-specific variables can be incorporated, enabling a comprehensive analysis (Ross, 1976).

One distinctive feature of APT is its approach to systematic risk assessment. Unlike the Capital Asset Pricing Model (CAPM), APT does not rely on a single market portfolio but considers multiple sources of systematic risk. The impacts of banks' financial performance management may interact with broader economic factors and industry trends. APT facilitates a nuanced evaluation of these influences. The APT financial model, as expressed in the equation

$$R\boldsymbol{i} = \boldsymbol{\beta 0} + \boldsymbol{\beta 1}, \mathbf{1}F1 + \boldsymbol{\beta} 2, 2\ F2 + \ldots + \boldsymbol{\beta}, kFk + \boldsymbol{\varepsilon} j \quad (2.1)$$

R_i = Expected Return on assets *i*

$\boldsymbol{\beta 0}$ = A constant

$\boldsymbol{\beta} ik$ = The sensitivities of asset's return to the factors

F*k* = *k*th factor common to the return of assets under consideration

$\boldsymbol{\varepsilon} j$ = The idiosyncratic error term

εj = The idiosyncratic error term.

APT operates on basic assumptions similar to CAPM, assuming perfectly competitive and frictionless capital markets. It asserts that if two investments are exposed to identical risks, they are expected to earn the same returns and are priced accordingly. The model also allows for arbitrage opportunities if securities exposed to the same risks have different returns (Ross, 1976).

Implementing APT involves estimating the beta for each factor risk premium and the riskless rate. Factor analysis, a statistical technique, is often employed using historical stock data. The model's factors, as identified by Ross (1976), include unanticipated changes in inflation, industrial production, the difference between high and low-rating bonds, and changes in the yield curve slope. Given APT's incorporation of multiple factors, including macroeconomic ones, it becomes more applicable to the study than the CAPM model. The research applies the APT model, considering financial ratios, market return, and macroeconomic variables to understand their impacts on the banks' stock returns.

1.4. Previous Research

Based on several previous studies, it is mentioned that RBBR (with the indicators Risk Profile, GCG, Earning, and Capital) is often used to measure the health of the bank or the bank's performance. In other studies, it is also stated that several factors can affect stock performance, namely macroeconomics (projected with GDP growth, exchange rate, Inflation rate, and interest rate), financial performance that is projected with (Return on assets, Return on Equity, Net Profit Margin).

Table 2.2 Summary of the Previous Research

No	Author, Year, Institution	Title	Research Variables and Results
1	Aziz, Manurung, and Sembel (2023)	The Measurement of Efficiency and Analysis of Factors Affecting Conventional Commercial Banks in Indonesia	Variables: Efficiency (CIR), Asset Quality (NPL), ROA, Stock Return Results: CIR negatively impacts ROA and Stock Return; Well-managed NPLs positively influence both ROA and Stock Return
2	Trisnowati, Achsani, Sembel, and Andati (2022)	The Effect of ESG Score, Financial Performance, and Macroeconomics on Stock Returns during the Pandemic Era in Indonesia	Variables: ESG Score, Financial Performance, Macroeconomics, Stock Returns Results: ESG score and financial performance positively impact stock

			returns, while macroeconomic factors vary
3	Giovanni and Sembel (2019)	The Effect of Macroeconomy on Stock Performance of LQ45 Companies at IDX	Variables: Macroeconomy, Stock Performance, LQ45 Companies Results: Changes in macroeconomic factors significantly affect the stock performance of LQ45 companies
4	Wiraguna, Wibowo, Rokhim, and Sembel (2023)	Does SME Loan Securitization Have Economic Value?	Variables: SME Loans, Securitization, Economic Value Results: Securitization of SME loans provide significant economic value
5	Kurniasih, Siregar, Sembel, and Achsani (2011)	Market Reaction to the Cash Dividend Announcement: An Empirical Study from the Indonesia Stock Exchange 2004–2009	Variables: Cash Dividends, Market Reaction, Stock Performance Results: Positive market reaction to cash dividend announcements, enhancing stock performance
6	Apriadi, Sembel, Santosa, and Firdaus (2016)	Banking Fragility in Indonesia: A Panel Vector Autoregression Approach	Variables: Banking Fragility, Financial Stability, Macroeconomic Variables Results: Identifies key factors contributing to banking fragility and financial instability in Indonesia
7	Hastori, Siregar, Sembel, and Ahmad Maulana (2015)	Agency Costs, Corporate Governance and Ownership Concentration: The Case of Agro-Industrial Companies in Indonesia	Variables: Agency Costs, Corporate Governance, Ownership Concentration Results: Better corporate governance reduces agency costs and improves firm performance in agro-industrial companies
8	Candara, Priyarsono, Zulbainarni, and Sembel (2021)	Literature Review on Merger and Acquisition (Theories and Previous Studies)	Variables: Mergers and Acquisitions, Corporate Strategy, Financial Performance Results: Comprehensive review of M&A theories and

			their impact on corporate strategy and performance
9	Trinugroho and Sembel (2011)	Overconfidence and Excessive Trading Behavior: An Experimental Study	Variables: Overconfidence, Trading Behavior, Financial Markets Results: Overconfidence leads to excessive trading, impacting market efficiency and investor returns
10	Jaunanda, Sembel, Hulu, and Ugut (2022)	Pengaruh Economic Value Added, Market Value Added Dan Financial Distress Terhadap Volatilitas Stock Return Dengan Corporate Social Responsibility Sebagai Variabel Moderating	Variables: Economic Value Added, Market Value Added, Financial Distress, Stock Return Volatility, CSR Results: EVA and MVA influence stock return volatility, moderated by CSR
11	Harinurdin (2022)	The Influence of Financial Ratio and Company Reputation on Company Stock Prices Financial Sector	Variables: Current Ratio, Debt to Equity Ratio, Total Assets Turnover, Net Profit Margin, Return on Equity, Price to Earnings Ratio, Company Reputation Results: Current Ratio (CR) and Return on Equity (ROE) affect stock prices in financial sector companies
12	Chiang, Sembel, and Malau (2024)	The Effect Of Financial Performance And Market Return On Stock Return With GDP Growth As A Moderating Variable	Variables: NPL. LDR, ROA, NIM, Market Return, GDP Growth, Stock Return Results: NPL, LDR, ROA, NIM, Market Return, and the interaction between GDP growth with independent variables have the same effect on the stock returns.
13	Ndlovu, Faisa, Resatoglu, and Türsoy (2018)	The Impact Macroeconomic Variables on Stock Returns: A Case of the Johannesburg Stock Exchange	Variables: Inflation, Money Supply Growth, Interest Rate, Exchange Rate Results: Interest rates, money supply and inflation have a positive relationship with the share price while the exchange rate have a

			negative effect to the stock prices.
14	Ledhem and Mekidiche (2020)	Economic growth and financial performance of Islamic banks: a CAMELS approach	Variables: ROE, GDP, Capital adequacy, assets quality, management, liquidity, sensitivity to market risk Results: ROE was statistically significant and positive to economic growth (GDP). Capital adequacy, assets quality, management, liquidity, sensitivity to market risk, was not significant to economic growth
15	Gohkan and Emine (2011)	Effects of Procedural Justice Perception, Budgetary Control Effectiveness, and Ethical Work Climate on Propensity to Create Budgetary Slack	Variables: Procedural Justice, Budgetary Control, Ethical Work Climate, Budgetary Slack Results: Ethical work climate and procedural justice perceptions significantly affect budgetary control effectiveness and the propensity to create budgetary slack
16	Kalam (2020)	The Effects of Macroeconomic Variables on Stock Market Returns: Evidence from Malaysia's Stock Market Return Performance	Variables: GDP, IR, INF, ER, FDR Results: GDP has a positive effect on stock market return. IR has no effect on stock market return. INF negatively affects stock market return. ER, FDR has no effect on stock market return
17	Chávez (2020)	The Impact of Macroeconomics Factors on Real Exchange Rate in Latin America: A Dynamic Panel Data Analysis	Variables: Exchange rate, the current values of inflation, economic growth, fiscal and monetary policy Results: Economic growth has negative impacts on the real exchange rate.

18	Kryeziu (2016)	The Impact Of Macroeconomic Factors In Economic Growth	Variables: the public debt, budget deficit and inflation on economic growth Results: The relationship has not turned out to be very strong because the coefficients acquired did not have great explanatory skills for economic phenomena
19	Al Sharif (2023)	The Impact of Macroeconomic Variables on the Performance of Islamic Banks: an Empirical Study	Variables: Economic growth, public debt growth, inflation, foreign direct investment, and balance of payments Results: The findings demonstrated a positive correlation between macroeconomic factors and performance, except for foreign direct investments, which have a negative effect on performance because they require the use of external financial resources. This
20	Mwenda, Ngollo, Mwasota (2023)	Effects of Macroeconomic Variables On Performance of Listed Firms at Dar es Salaam Stock Exchange, Tanzania	Variables: GDP, inflation, money supply, interest rate, exchange rate Results: The study found that GDP, inflation, and money supply had significant positive coefficients, while interest rates and exchange rates had significant negative coefficients, indicating that macroeconomic conditions have a substantial effect on firm performance. Practical
21	Enu, Havi, and Attah-Obeng (2013)	Impact of Macroeconomic Factors on Direct Investment in Ghana: A Cointegration Analysis	Variables: GDP, Inflation, Exchange Rate, Trade Openness Results: the first past year of foreign direct investment , the last two years of exchange rate and trade

			openness were statistically significant. Based
22	Arifiana and Khalifaturofi'ah (2022)	The Effect of Financial Ratios in Predicting Financial Distress in Manufacturing Companies	Variables: Financial Distress, Current Ratio, Debt to Equity, ROA, TAT Results: Profitability and activity ratio have a negative and significant effect on predicting financial distress. In addition, the liquidity and leverage ratio have no significant effect on predicting Financial Distress. The
23	Kariyawasam (2019)	Analyzing the Impact of Financial Ratios on a Company's Financial Performance	Variables: Current Ratio, EPS, Firm size, Leverage Ratio and BV/MV Ratio. Results: Only current ratio, leverage and the firm size had significant relationships with the financial performance of the company
24	Syafruddin, Weinanto, and Haryani (2023)	Evidence of Financial Ratio Impact on Non-Financial Firm Profitability	Variables: Liquidity, ROA, EPS, DER, Leverage ratio Results: firm size, working capital, and firm efficiency have a positive and significant relationship with profitability.
25	Permatasari, Nurcahyono, Bilqis, and Nugroho (2023)	The Effect of Good Corporate Governance and Financial Ratios on Financial Distress	Variables: ROA, ROE, NPM, CR, DER, DAR Results: return on assets negatively affects financial distress. Return on equity ratio, current ratio, debt to equity ratio, and audit committee have no results on financial. Net profit margin has a positive effect on financial distress. Debt to asset ratio has no impact on finances. The

1.5. Hypothesis Development

1.5.1. Factors that impact the Bank's Performance / Profitability

The following hypothesis development is supported by the corresponding theoretical framework related to the impact of each key financial factor and macroeconomic variable on a Bank's Profitability (RoA)

1. **Capital Management (CAR)**:
    - **Hypothesis**: H1a.1: Capital Adequacy Ratio (CAR) positively impacts the financial performance of Indonesian banks.
    - **Theoretical Framework**: According to the Capital Adequacy Theory, a higher CAR indicates a bank's greater ability to absorb potential losses, which enhances its stability and profitability (Modigliani & Miller, 1958).
2. **Net Interest Margin (NIM)**:
    - **Hypothesis**: H1a.2: Net Interest Margin (NIM) positively impacts the financial performance of Indonesian banks.
    - **Theoretical Framework**: The Interest Rate Spread Theory suggests that a higher NIM, representing the difference between interest income and interest expenses, directly contributes to higher profitability (Saunders & Schumacher, 2000).
3. **Liquidity Management (LDR)**:
    - **Hypothesis**: H1a.3: Well-managed Loan-to-Deposit Ratio (LDR) positively impacts the financial performance of Indonesian banks.
    - **Theoretical Framework**: The Liquidity Management Theory posits that efficient management of loans and deposits ensures sufficient liquidity and optimizes profitability (Diamond & Dybvig, 1983).
4. **Cheap Funding (CASA Ratio)**:
    - **Hypothesis**: H1a.4d: Cheap Funding (CASA ratio) positively impacts the financial performance of Indonesian banks.
    - **Theoretical Framework**: The Cost of Funds Theory indicates that a higher CASA ratio, representing low-cost deposits, improves profitability by reducing the cost of funds (Venkatesh, 2012).

5. **Efficiency (Cost to Income Ratio)**:
    - **Hypothesis**: H1a.5: High Cost to Income Ratio negatively impacts the financial performance of Indonesian banks.
    - **Theoretical Framework**: The Efficiency Theory states that a lower cost-to-income ratio reflects better operational efficiency, which enhances profitability (Berger & Humphrey, 1997).
6. **Asset Quality Management (NPL)**:
    - **Hypothesis**: H1a.6: Well-managed Non-Performing Loans (NPL) positively impact the financial performance of Indonesian banks.
    - **Theoretical Framework**: The Credit Risk Management Theory emphasizes that lower NPL ratios improve asset quality and profitability by reducing loan losses (Sinkey, 2002).
7. **Provision Management (Provision Coverage Ratio)**:
    - **Hypothesis**: H1a.7: Well-managed Provision Coverage Ratio positively impacts the financial performance of Indonesian banks.
    - **Theoretical Framework**: The Provisioning Theory suggests that higher provision coverage ratios ensure sufficient buffers against potential loan losses, enhancing profitability (Bikker & Metzemakers, 2005).
8. **Macro-Economic Variables**:
    - **Hypothesis**:
        - H1b.1: GDP growth rate positively impacts the financial performance of Indonesian banks.
        - H1b.2: A strong IDR exchange rate over USD positively impacts the financial performance of Indonesian banks.
        - H1b.3: BI Interest Rate positively impacts the financial performance of Indonesian banks.
        - H1b.4: Inflation (CPI) positively impacts the financial performance of Indonesian banks.
    - **Theoretical Framework**: The Economic Cycle Theory asserts that macroeconomic variables such as GDP growth, exchange rates, interest rates, and inflation significantly influence bank profitability

by affecting economic conditions and financial stability (Minsky, 1992).

1.5.2. Factors that impact the Bank's Stock Return

1. **Capital Management (CAR)**:
    - **Hypothesis**: H2a.1: Capital Adequacy Ratio (CAR) positively impacts the stock return of Indonesian banks.
    - **Theoretical Framework**: The Capital Adequacy Theory suggests that a higher CAR indicates financial strength, which positively influences investor confidence and stock returns (Modigliani & Miller, 1958).
2. **Net Interest Margin (NIM)**:
    - **Hypothesis**: H2a.2: Net Interest Margin (NIM) positively impacts the stock return of Indonesian banks.
    - **Theoretical Framework**: The Interest Rate Spread Theory posits that higher NIMs, reflecting better profitability, attract investors and boost stock returns (Saunders & Schumacher, 2000).
3. **Liquidity Management (LDR)**:
    - **Hypothesis**: H2a.3: Well-managed Loan-to-Deposit Ratio (LDR) positively impacts the stock return of Indonesian banks.
    - **Theoretical Framework**: The Liquidity Management Theory states that effective liquidity management enhances financial stability and investor confidence, leading to higher stock returns (Diamond & Dybvig, 1983).
4. **Cheap Funding (CASA Ratio)**:
    - **Hypothesis**: H2a.4: Cheap Funding (CASA ratio) positively impacts the stock return of Indonesian banks.
    - **Theoretical Framework**: The Cost of Funds Theory asserts that a higher CASA ratio reduces funding costs and increases profitability, positively impacting stock returns (Venkatesh, 2012).
5. **Efficiency (Cost to Income Ratio)**:
    - **Hypothesis**: H2a.5: High Cost to Income Ratio negatively impacts the stock return of Indonesian banks.

- **Theoretical Framework**: The Efficiency Theory indicates that operational efficiency, reflected by a lower cost-to-income ratio, enhances profitability and investor returns (Berger & Humphrey, 1997).

6. **Asset Quality Management (NPL)**:
    - **Hypothesis**: H2a.6: Well-managed Non-Performing Loans (NPL) positively impact the stock return of Indonesian banks.
    - **Theoretical Framework**: The Credit Risk Management Theory highlights that lower NPL ratios improve asset quality and investor confidence, boosting stock returns (Sinkey, 2002).
7. **Provision Management (Provision Coverage Ratio)**:
    - **Hypothesis**: H2a.7: Well-managed Provision Coverage Ratio positively impacts the stock return of Indonesian banks.
    - **Theoretical Framework**: The Provisioning Theory suggests that higher provision coverage ratios enhance financial stability and investor confidence, positively affecting stock returns (Bikker & Metzemakers, 2005).
8. **Return on Assets**:
    - **Hypothesis**: H2a.8: Well-managed Return on Assets positively impacts the stock return of Indonesian banks.
    - **Theoretical Framework**: The Profitability Theory suggests that a higher Return on Assets (ROA) indicates better asset utilization and operational efficiency, which boosts investor confidence and stock returns (DeYoung & Rice, 2004; Malau, 2020).
9. **Macro-Economic Variables**:
    - **Hypothesis**:
        - H2b.1: Market Return (JKSE return) positively impacts the stock return of Indonesian banks.
        - H2b.2: GDP growth rate positively impacts the stock return of Indonesian banks.
        - H2b.3: A strong IDR exchange rate over USD positively impacts the stock return of Indonesian banks.

- H2b.4: BI Interest Rate positively impacts the stock return of Indonesian banks.
- H2b.5: Inflation (CPI) positively impacts the stock return of Indonesian banks.

- **Theoretical Framework**: The Economic Cycle Theory states that macro-economic variables such as market returns, GDP growth, exchange rates, interest rates, and inflation significantly influence stock returns by affecting economic conditions and investor confidence (Minsky, 1992).

These hypotheses align with the research framework and aim to investigate the impact of key financial factors and macroeconomic variables on Indonesian banks' financial performance (RoA) and stock return.

2.4. The Flow of Research

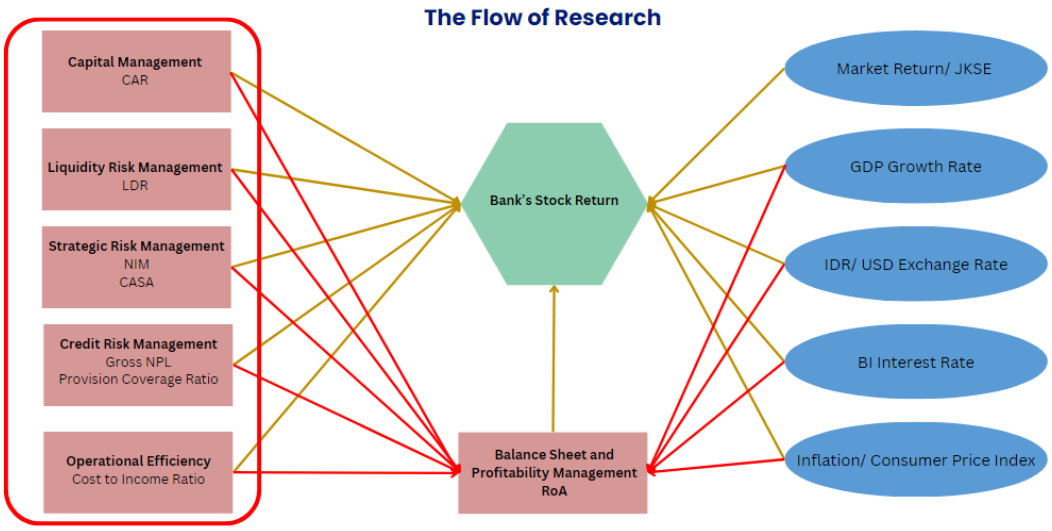

Figure 2.1 Flow of Research

2.5. Research Framework

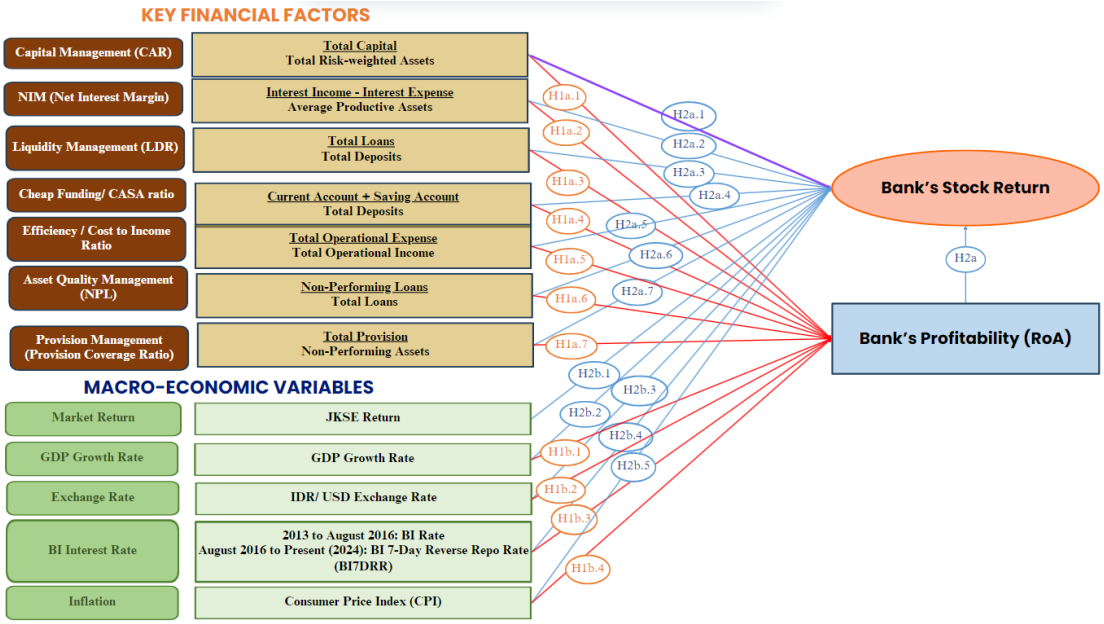

Figure 2.2 Research Framework

These hypotheses align with the research framework and aim to investigate the impact of key financial factors and macroeconomic variables on the financial performance (RoA) and stock return of Indonesian banks. The study draws on a broad array of literature, including works by Basel Committee on Banking Supervision (2018), Beck & Levine (2004), Black & Scholes (1973), Boot, Hoffmann, Laeven, & Ratnovski (2021), Campbell, Lo, & MacKinlay (1997), Claessens & Laeven (2005), De Bondt & Thaler (1985), Demirgüç-Kunt & Levine (2008), European Central Bank (2021), Fama (1970), Fama & French (1993), Financial Stability Board (2019), Frost, Gambacorta, Huang, Shin, & Zbinden (2019); He, Huang, & Zhou (2020), IMF (2020), Jagtiani & Lemieux (2018), Jegadeesh & Titman (1993), Jensen & Meckling (1976), Laeven, Ratnovski, & Tong (2014), Levine (1997), Lintner (1965), Markowitz (1952), Merton (1973), Modigliani & Miller (1958), Muhammad & Ali (2018), Myers & Majluf (1984), OECD (2021), Penrose (1959), Rajan & Zingales (1998), Richard, Jones, & Hensher (2007), Roll (1977), Ross (1976), Schumpeter (1942), Sharpe (1964, 1990), Shiller (1981), Stulz (2019), Tandelilin (2010), Tirole (2014), Tobin (1958), Winter (2000), Zikmund, Babin, Carr, & Griffin (2013), Aziz et al. (2023), Santoso (2021), Wijaya (2022).

Chapter 3.
Methodology

3.1. Research Design

A panel data model estimation approach was employed to investigate the impact of key financial factors and macroeconomic variables on Indonesian banks' financial performance and stock returns. The study utilized a correlational research design to explore the relationships among various variables, including the banks' profitability (RoA) and stock performance. These relationships could manifest as positive, negative, or zero correlations. It is essential to note that the study does not aim to establish causality from these relationships.

The research design was meticulously constructed to serve as a framework for addressing research problems and questions. It encompassed several stages:

- Identifying the Research Topic: The study focused on examining the impact of key financial factors and macroeconomic variables on the financial performance and stock returns of Indonesian banks.
- Conducting a Literature Review: A comprehensive review of existing literature was conducted, drawing from various sources, Basel Committee on Banking Supervision (2018), Beck & Levine (2004), Black & Scholes (1973), Boot, Hoffmann, Laeven, & Ratnovski (2021), Campbell, Lo, & MacKinlay (1997), Claessens & Laeven (2005), De Bondt & Thaler (1985), Demirgüç-Kunt & Levine (2008), European Central Bank (2021), Fama (1970), Fama & French (1993), Financial Stability Board (2019), Frost, Gambacorta, Huang, Shin, & Zbinden (2019); He, Huang, & Zhou (2020), IMF (2020), Jagtiani & Lemieux (2018), Jegadeesh & Titman (1993), Jensen & Meckling (1976), Laeven, Ratnovski, & Tong (2014), Levine (1997), Lintner (1965), Markowitz (1952), Merton (1973), Modigliani & Miller (1958), Muhammad & Ali (2018), Myers & Majluf (1984), OECD (2021), Penrose (1959), Rajan & Zingales (1998), Richard, Jones, & Hensher (2007), Roll (1977), Ross (1976), Schumpeter (1942), Sharpe (1964, 1990), Shiller (1981), Stulz (2019), Tandelilin (2010), Tirole (2014),

Tobin (1958), Winter (2000), Zikmund, Babin, Carr, & Griffin (2013), Aziz et al. (2023), Santoso (2021), Wijaya (2022).

- Defining the Problem: The primary research problem was to understand how key financial factors and macroeconomic variables influence the financial performance and stock returns of Indonesian banks.
- Formulating Research Questions: Research questions were developed to guide the investigation, focusing on the relationships between financial metrics, macroeconomic factors, and bank performance.
- Constructing the Research Design: The research design included specifying the methods and techniques for data collection and analysis.
- Collecting and Classifying Data: Data were collected from the top 12 publicly listed Indonesian banks and classified according to the defined variables.
- Employing Statistical Methods for Analysis: Panel data regression models were employed to analyze the data and explore the relationships between the variables.
- Drawing Conclusions and Making Recommendations: Based on the analysis, conclusions were drawn, and recommendations were made to provide insights for stakeholders in the banking sector.

This structured approach ensures that the study comprehensively addresses the research problem and provides valuable insights into the factors affecting Indonesian banks' financial performance and stock returns.

Figure 3.1 illustrates each stage of the research process, illustrating the sequential progression from identifying the research topic to developing conclusions and recommendations—the adopted design utilized a quantitative approach and purposive sampling technique to collect the necessary sample data. As Winter (2000) noted, quantitative research enhances the validity of the research by employing statistical and mathematical methods to measure results conclusively. The quantitative analysis sought to uncover correlations among variables by testing

hypotheses proposed in the study through various statistical research methods.

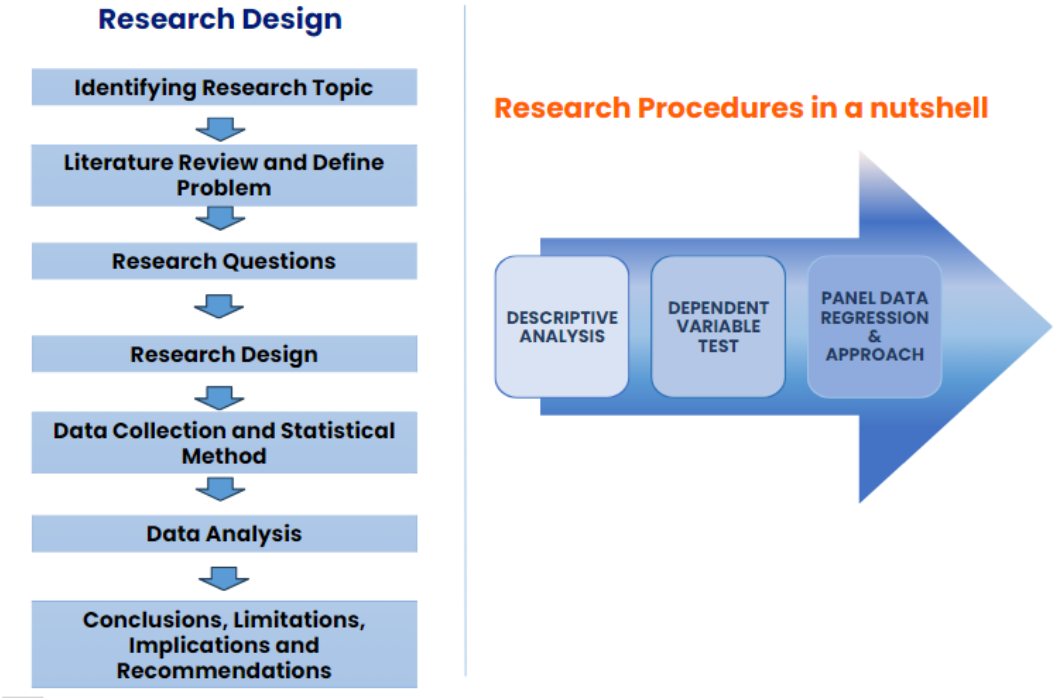

Figure 3.1 Research Design and Research Procedures in a Nutshell

3.2. Measurement of Variables:

According to Sugiyono (2017), research variables are an attribute or nature or value of people, objects or activities that have certain variations set by the researcher to be studied and then drawn conclusions. The types of variables used in this study are independent, dependent, and moderation variables.

3.2.1. Dependent Variable

This study employs two regression equation models with different dependent variables. In the first regression model, the dependent variable is Return on Assets (ROA), in the second regression model, the dependent variable is Stock Returns (SR).

1. Return on Assets (ROA):

ROA measures a bank's efficiency in generating profits relative to its total assets. A higher ROA indicates better efficiency and profitability (Anthony et al., 2016; Basel Committee on Banking Supervision, 2018; Beck & Levine, 2004; Black & Scholes, 1973; Boot et al., 2021; Campbell et al., 1997; Claessens & Laeven, 2005; De Bondt & Thaler, 1985; Demirgüç-Kunt & Levine, 2008;

European Central Bank, 2021; Fama, 1970; Fama & French, 1993; Financial Stability Board, 2019b, 2019a; Frost et al., 2019; He et al., 2020; IMF, 2020; Jagtiani & Lemieux, 2018; Jegadeesh & Titman, 1993; Jensen & Meckling, 1976; Laeven et al., 2014; Levine, 1997; Lintner, 1965; Markowitz, 1952; Merton, 1973; Modigliani & Miller, 1958; Muhammad & Ali, 2018; Myers & Majluf, 1984; OECD, 2021; Penrose, 1959; Rajan & Zingales, 1998; Richard et al., 2007; Roll, 1977; Ross, 1976; Schumpeter, 1942; Sharpe, 1964, 1990; Shiller, 1981; Stulz, 2019; Tandelilin, 2010; Tirole, 2014; Tobin, 1958; Winter, 2000; Zikmund et al., 2013)

ROA is calculated by dividing a company's net income by its total assets. As a formula, it's expressed as:

$$ROA = \frac{Earnings\ before\ tax}{Total\ Asset} \times 100\% \quad \text{.....(3.1)}$$

2. Stock Returns (SR)

Stock Returns reflects the net profit or loss resulting from investments made by individuals in the stock market. Stock Return provides insights into the returns generated by investments in the stock market, serving as a critical financial metric for banks (Muhammad & Ali, 2018; Richard et al., 2007; Tandelilin, 2010).

The formula used to measure stock returns, i.e. the current stock price is reduced by the previous period's stock price compared to the last period's stock price. According to Ristyawan (2019), Stock returns is calculated as follows:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it}} \quad \text{.....(3.2)}$$

Where:

R_{it} = the level of profit of shares i in the period t

P_{it} = Closing price of shares i in period t (closing/end period)

P_{it-1} = Closing price of shares i in the previous period (initial)

3.2.2. Independent Variables

This study uses two regression models for the independent variables, just as it does for the dependent variable. Both regression models use the same independent variables, which are Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Cost to Income Ratio (CIR), Loan to Deposit Ratio (LDR), Current Account Saving

Account (CASA), Non-Performing Loan (NPL), and Provision Coverage Ratio (PCR).

1. **Capital (CAR - Capital Adequacy Ratio)**

   CAR evaluate the bank's financial stability by assessing its capital adequacy relative to risk-weighted assets. The bank's capital is primarily designed to cover unexpected losses and reserves in the event of a banking crisis. Bank capital also ensures that depositors who save money at the bank are confident that their money will be released on time. The formula to calculate CAR:

   $$CAR = \frac{Total\ Capital}{Total\ Risk-\ Weighted\ Assets} \quad \text{.....(3.3)}$$

2. **Net Interest Margin (NIM):**

   NIM is a measure of the net return on the bank's earning assets, which include investment securities, loans, and leases. NIM is a measure of a bank's profitability and growth. It shows how much the bank earns in interest on loans versus how much it pays out in interest on deposits. NIM Formula:

   $$NIM = \frac{Interest\ Income - Interest\ Expenses}{Average\ Productive\ Asset} \quad \text{.....(3.4)}$$

3. **Operational Efficiency (CIR - Cost to Income Ratio)**

   CIR measures the efficiency of the bank's operations by assessing the proportion of costs to income. The CIR, defined as non-interest expense divided by the sum of net interest income and non-interest income (Hess & Francis, 2004). Thus, CIR formula is as follow:

   $$CIR = \frac{Total\ Operational\ Expenses}{Total\ Operational\ Income} \quad \text{.....(3.5)}$$

4. **Liquidity Management (LDR - Loan to Deposit Ratio)**

   LDR gauges the bank's ability to manage liquidity by comparing loans to deposits. The LDR ratio indicates whether the credit issued by the bank is sufficient to meet the demands of depositors who wish to withdraw the funds used by the bank to extend credit. If the LDR ratio is high, it indicates that the bank lacks sufficient liquidity to meet its obligations to customers. In contrast,

if the LDR ratio is too low, it indicates that the bank has sufficient liquidity but may have a lower income, as banks earn income through loans.

The formula to calculate LDR:

$$LDR = \frac{Total\ Loans}{Total\ Deposit} \text{.....(3.6)}$$

5. **Current Account Saving Account (CASA):**

CASA indicates better operating efficiency of the bank. Savings and current accounts are cheap funds for banks because the interest rates are lower than those charged on deposits. However, the CASA ratio describes a bank's financial health. The national banking industry continues to strive to keep the CASA ratio between 50% and 60% of total deposits, ensuring that bank liquidity is always strong and maintained (Ardiansyah et al., 2023).

The formula to calculate CASA:

$$CASA = \frac{Current\ Account + Saving\ Account}{Total\ Deposit} \text{.....(3.7)}$$

6. **Asset Quality (NPL - Non-Performing Loans):**

NPL assesses the quality of the bank's assets by examining the proportion of non-performing loans. Bad loans are sometimes referred to as Non-Performing Loans (NPLs), which are a metric used to manage credit risk. NPL reflects credit risk; the higher the NPL level, the greater the credit risk that the bank bears (Ardiansyah et al., 2023).

Formula for NPL:

$$NPL = \frac{Total\ Non\ Performing\ Loan}{Total\ Loan} \text{.....(3.8)}$$

7. **Provision Coverage Ratio (PCR)**

PCR is the percentage of funds that a bank sets aside for losses due to bad debts. Banks set aside a portion of their profits as a provision against bad loans to deal in times of default (prospective losses). A higher provision coverage ratio means the bank is not vulnerable and the asset quality issue is taken care of. The PCR helps in understanding the asset quality. Lower the asset quality, high will be the PCR (Ponaka, 2024).

The formula for PCR:

$$PCR = \frac{Total\ Provision}{Non-Performing\ Assets} \text{.....(3.9)}$$

3.2.3. Controlled Variables

Control variables are variables whose effects on an outcome variable have been statistically adjusted to estimate the causal effects of an explanatory variable (Mehta, 2015). The control variables in this study's first regression model are the GDP growth rate, exchange rate, BI interest rate, and inflation. The second regression model includes all the same control variables and additionally the Market Returns variable.

1. GDP Growth Rate (GDP)

GDP represents the economic growth rate of a country. Economic growth can influence the overall banking environment. This study will use the quarterly GDP growth rate issued by Badan Pusat Statistik (BPS) from 2013 to 2024. The amount of GDP is measured by a ratio scale, and the method of measurement according to Bertuah and Sakti (2019):

$$GDP = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} \text{.....(3.10)}$$

Where,

GDP = GDP at the period of t

GDP_{t-1} = GDP at period of t-1

2. Exchange Rate (FX)

Exchange rate reflects the rate at which one currency can be exchanged for another. Exchange rates can impact on the financial performance of banks, especially those involved in international transactions. This study will use exchange rate of Indonesian Rupiah (IDR) to United State Dollar (USD), with the method of measurement as follow:

$$FX = \frac{IDR}{USD} \text{.....(3.11)}$$

3. BI Interest Rate (BIRate)

BI Rate is a reference rate that had a stronger relationship with money market rates, was also transactional and nurtured the financial market deepening, particularly the use of repo instruments. High benchmark interest rates and weakening of the rupiah exchange rate have the potential to affect bank credit distribution. This study uses 2013 to August 2016: BI Rate, and August 2016 to Present (2024): BI 7-Day Reverse Repo Rate (BI7DRR).

4. Inflation (CPI)

Inflation is a general increase in prices and a fall in the purchasing value of money. Unevenly rising prices inevitably reduce the purchasing power of some consumers, and this erosion of real income is the single biggest cost of inflation. This study will use CPI issued by Bank Indonesia from Q3 2013 to Q1 2024.

5. Market Returns (JKSE)

Market returns representing the return of the Jakarta Stock Exchange (JKSE). JKSE return can influence the banks' stock returns. This study will use quarterly JKSE returns, IDX Composite or IHSG returns from Q3 2013 to Q4 2024. The formula to calculate market return is:

$$MR_t = \frac{(JKSE_t - JKSE_{t-1})}{JKSE_{t-1}} \quad \text{.....(3.12)}$$

Where:

MR_t = Market return at the period of t

$JKSE_t$ = Jakarta Composite Index at the period of t

$JKSE_{t-1}$ = Jakarta Composite Index at the period of t-1

Overall Significance:

This expanded econometric model now includes both ROA and Stock Return as dependent variables, allowing for a more comprehensive analysis of "The Impact of Key Financial Factors and Macro-Economic Variables on the Financial Performance and Stock Return of Indonesian Banks". The model aims to provide a nuanced understanding of the interplay between these variables and shed light on the complex dynamics within the banking industry (Anthony et al., 2016; Basel Committee on Banking Supervision, 2018; Beck & Levine, 2004; Black & Scholes,

1973; Boot et al., 2021; Campbell et al., 1997; Claessens & Laeven, 2005; De Bondt & Thaler, 1985; Demirgüç-Kunt & Levine, 2008; European Central Bank, 2021; Fama, 1970; Fama & French, 1993; Financial Stability Board, 2019b, 2019a; Frost et al., 2019; He et al., 2020; IMF, 2020; Jagtiani & Lemieux, 2018; Jegadeesh & Titman, 1993; Jensen & Meckling, 1976; Laeven et al., 2014; Levine, 1997; Lintner, 1965; Markowitz, 1952; Merton, 1973; Modigliani & Miller, 1958; Muhammad & Ali, 2018; Myers & Majluf, 1984; OECD, 2021; Penrose, 1959; Rajan & Zingales, 1998; Richard et al., 2007; Roll, 1977; Ross, 1976; Schumpeter, 1942; Sharpe, 1964, 1990; Shiller, 1981; Stulz, 2019; Tandelilin, 2010; Tirole, 2014; Tobin, 1958; Winter, 2000; Zikmund et al., 2013).

Table 3.1 Econometric Model and Measurement of Variables

Type	Variable	Symbol	Variable Measurement	Used in which model?
Dependent Variables	Profitability	ROA	Profit After Tax Average / Total assets during the period	First regression quotation model
	Stock Return	SR	(P1-P0) +D / P0	Second regression quotation model
Independent Variables	Capital	CAR	Total Capital / Total Risk-Weighted Assets	First & Second regression quotation model
	Net Interest Margin	NIM	Net Interest Margin Average / Productive Assets	First & Second regression quotation model
	Loan to Deposit Ratio	LDR	Loans / Deposits	First & Second regression quotation model
	CASA ratio	CASA	Current Account + Saving Account / Total Deposits	First & Second regression quotation model
	Cost to Income Ratio	CIR	Total Cost / Total Income	First & Second regression quotation model
	Asset Quality	NPL	Loans with BI collect 3,4,5 / Loans Balance	First & Second regression quotation model
	Provision Coverage Ratio	PCR	Total Provisions / Gross Non-Performing Assets	
Controlled Variables	Market Return	JKSE Return	(JKSEt−1JKSEt−JKSEt−1)×100	Second regression quotation model
	GDP Growth Rate	GDP growth rate	(GDPq-GDPq-1) / GDPq-1	First & Second regression quotation model
	Exchange Rate	FX	IDR / USD	First & Second regression quotation model

	BI Interest Rate	BI Rate	BI Interest Rate	First & Second regression quotation model
	Inflation	CPI	Consumer Price Index	First & Second regression quotation model

3.2. Data Collection

The data collection for this study employed a purposive sampling method, as outlined by Zikmund et al. (2013). Purposive sampling is a non-probability technique in which an expert selects a sample based on specific characteristics deemed essential for the study's objectives.

The sample comprises 12 banks within the KBMI 4 and KBMI 3 categories. The data collection period spans from Q4 2013 to Q1 2024, amounting to 42 data points. The purposive sampling approach captures a representative snapshot of the industry's diversity.

In terms of coverage, the selected banks were sampled based on various criteria, including total assets, total credit to customers, total deposits, and profit. The coverage percentages for these criteria are 75%, 79%, 73%, and 88%, respectively. This intentional selection ensures a comprehensive representation of the commercial banking industry, enhancing the study's ability to draw meaningful conclusions (Zikmund et al., 2013).

Data were extracted from sources such as annual reports, quarterly published financial statements, and relevant published materials from the selected Indonesian banks to gather information on the financial factors. The timeline for data collection spans from Q4 2013 to Q3 2023, generating a robust dataset of 40 data points. This meticulous approach ensures the inclusion of the most relevant and up-to-date information for a comprehensive analysis of "The Impact of Key Financial Factors and Macro-Economic Variables on the Financial Performance and Stock Return of Indonesian Banks" (Zikmund et al., 2013).

3.2.1. Research Population

The research population in this study comprises commercial banks in Indonesia falling within the KBMI 4 and KBMI 3 categories. KBMI, or the Kategori

Bank Menengah Indonesia (Category of Medium Banks in Indonesia), is a classification system that categorizes banks based on their size and total assets. In this context, the population includes all relevant banks within these specific categories.

3.2.2. Sampling Method

Purposive sampling, a non-probability technique, was employed to strategically select a subset of banks from the broader population. The selection was conducted by an expert with industry knowledge, targeting specific characteristics deemed vital for the study. This deliberate sampling approach ensures that the chosen sample is representative of the diverse landscape of commercial banks falling within KBMI 4 and KBMI 3 in Indonesia.

a. Sample Size: The study selected 12 banks from the KBMI 4 and KBMI 3 categories as the sample. This sample size is sufficient for a focused and in-depth analysis while maintaining practicality and resource efficiency.
b. Data Collection Period: The data collection period spans from Q4 2013 to Q1 2024, encompassing 42 data points. This duration provides a comprehensive and longitudinal perspective, allowing for examining trends and patterns in financial factors over time.
c. Coverage Criteria: The purposive sampling approach considered various coverage criteria, including total assets, total credit to customers, total deposits, and profit. The coverage percentages for these criteria were strategically chosen to ensure a balanced representation of the commercial banking industry.
d. Data Sources: Information on financial factors was gathered from reliable sources such as annual reports, quarterly financial statements, and other pertinent published materials from the selected Indonesian banks. This multi-source approach enhances the dataset's richness and accuracy (Zikmund et al., 2013).

The criteria for the purposive sampling used in this study are:

1. Listed commercial banks in Indonesia stock exchange.
2. Top 12 listed commercial banks based on total assets as of 31 December 2023.
3. Included as KBMI 4 and KBMI 3 banks.
4. Total sampling coverage over total commercial banks based on OJK statistic data as of 31 December 2023 is above 68%.

In summary, the research population consists of all commercial banks falling within KBMI 4 and KBMI 3 in Indonesia, while the sample includes 12 banks selected purposively based on specific criteria. The data collection period spans a decade, on a quarterly basis from Q42013 to Q12024 (42 data points) and the coverage criteria ensure a well-rounded industry representation. The information on financial factors is extracted from authoritative sources, contributing to the robustness of the study.

No	Stock	Bank's Name	Total Asset (in IDR Billion) as of 31 Dec 2023	Total Credit to customers (in IDR Billion) as of 31 Dec 2023	Third Party Funds (in IDR Billion) as of 31 Dec 2023	Profit FY23 (in IDR billion)	Stock price in IDR full amount as of 2 Jan 2024	Market capitalization in IDR tn	IPO date	How long IPO until now? (in year)	KBMI category
1	BMRI	Bank Mandiri	1,688,850.0	1,085,787.0	1,244,014.0	51,096.9	5,827	589	14-Jul-03	21.0	KBMI 4
2	BBRI	BRI	1,835,249.0	1,146,083.0	1,353,201.0	53,153.0	5,467	731	10-Nov-03	20.7	KBMI 4
3	BBCA	BCA	1,370,871.0	787,499.0	1,083,093.0	47,986.0	9,218	1,230	31-May-00	24.1	KBMI 4
4	BBNI	BNI	1,048,726.0	687,913.0	801,933.0	20,784.0	5,130	180	25-Nov-96	27.6	KBMI 4
5	BBTN	BTN	438,750.0	296,584.0	349,934.0	3,501.0	1,219	18	17-Dec-09	14.6	KBMI 3
6	BNGA	CIMB Niaga	327,941.0	206,805.7	236,849.5	6,169.0	1,600	45	29-Nov-89	34.6	KBMI 3
7	BRIS	Bank Syariah Indonesia	353,624.0	237,502.0	293,776.0	5,704.0	1,725	115	09-May-18	6.2	KBMI 3
8	BNLI	Bank Permata	257,444.0	142,198.0	188,312.0	2,585.0	896	32	15-Jan-90	34.5	KBMI 3
9	NISP	Bank OCBC NISP	249,757.0	153,496.8	181,755.0	4,091.0	1,140	68	20-Oct-94	29.7	KBMI 3
10	BTPN	Bank BTPN	181,241.0	145,173.0	142,198.0	2,101.0	2,576	24	12-Mar-08	16.3	KBMI 3
11	BDMN	Bank Danamon	202,571.0	144,643.0	139,222.5	3,504.0	2,662	25	06-Dec-89	34.6	KBMI 3
12	PNBN	Panin Bank	198,845.0	129,289.0	132,567.0	2,151.0	1,130	31	29-Dec-82	40.5	KBMI 3
		Total sample	8,153,869.0	5,162,973.5	6,014,288.0	202,825.9					
		Total commercial banks	**11,765,838**	**7,186,935**	**8,457,929**	**243,326**					
		Sampling coverage	69%	72%	71%	83%					

Figure 3.2 Selected Samples of Commercial Banks

3.3. Data Analysis Technique

This study's data was analyzed using Microsoft Excel, EViews, and SPSS Statistics. EViews provides a variety of statistical and econometric tools for analyzing cross-sectional, time series, and panel data. Meanwhile, SPSS Statistics can be used for statistical data analysis as well as hypothesis testing to solve research problems. SPSS Statistics can also be used to validate assumptions and generate accurate results.

3.3.1. Descriptive Analysis

According to Haslinda and Jamaluddin (2016), descriptive statistics provide an overview or description of data. This descriptive statistical test is done to obtain

an overview of the variables used in this study. Descriptive statistics will be viewed from the mean values, standard deviations, maximum values and minimum values to obtain descriptive variables and average values of frequency and statement categories for descriptive statement items.

According to Sugiyono (2017), descriptive statistics are used to analyze data by describing or describing data that has been collected as is without intending to make conclusions that apply to generalize or generalization. Research conducted on populations (without sampling) will use descriptive statistics in their analysis. Descriptive statistics help summarize and present the main features of a dataset.

1. Mean

   Mean is the average of all the data values and a measurement of the data centralization. Mean is also defined as the value obtained by dividing the total values of various given items in a series by the total number of items (Kothari, 2004). The formula of the mean is:

   $$\bar{X} = \frac{X_1+X_2+X_3+\cdots X_n}{n} = \frac{\sum_{i=1}^{n} X_1}{n} \quad \text{.....(3.13)}$$

   Where:

   $\bar{X}$ = The symbol for the mean (pronounced as X bar)

   $X_1 + X_2 + X_3 + \ldots Xn$ = Value of each item X, i = 1, 2, …, n

   $\sum_{i=1}^{n} X_1$ = Total number of items

2. Standard Deviation

   Standard deviation can be defined as the square root of the average of squares of deviations. Such deviations for the values of individual items in a series are obtained from the arithmetic average (Kothari, 2004). The standard deviation is a measure to quantify the amount of variation or dispersion of the data set. The formula of standard deviation is:

   $$\sigma = \sqrt{\frac{\sum(X_i-\bar{X})^2}{n}} \quad \text{.....(3.14)}$$

   Where:

   σ = the symbol for standard deviation (pronounced as sigma)

   $\bar{X}$ = Mean

   X_i = value of each item

   X_n = Total number of items

3. Correlation Coefficient

The correlation coefficient can measure the strength of the linear relationship between the relative movements of two variables (Ganti, 2020). The formula of correlation is:

$$R_{xy} = \frac{Cov(x,y)}{\sigma_x \sigma_y} \text{.....(3.15)}$$

Where:

R_{xy} = correlation of variables x and y

Cov(x,y) = covariance between x and y

σ_x = standard deviation of x

σ_y = standard deviation of y

The correlation coefficient uses the following hypothesis to perform testing:

$$H_0: rij = 0$$

$$H_a: rij \neq 0$$

Two criteria are used to measure the hypotheses mentioned above:

a. If p-value < significance level of 0.05, the H_0 is rejected = There is a significant linear relationship or correlation between i and j
b. If p-value > significance level of 0.05, the H_0 is is not rejected = There is no significant linear relationship or correlation between i and j

3.3.2. Panel Data Regression Analysis

First Regression Equation Model (ROA):

The first regression equation model assesses the factors influencing banks' profitability, as measured by Return on Assets (ROA). The equation is formulated as follows:

$$\mathbf{RoA}_{it} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}\mathbf{CAR}_{it} + \boldsymbol{\beta_2}\mathbf{NIM}_{it} + \boldsymbol{\beta_3}\mathbf{LDR}_{it} + \boldsymbol{\beta_4}\mathbf{CASA}_{it} + \boldsymbol{\beta_5}\mathbf{CIR}_{it} + \boldsymbol{\beta_6}\mathbf{NPL}_{it} + \boldsymbol{\beta_7}\mathbf{PCR}_{it} + \boldsymbol{\beta_8}\mathbf{GDP}_t + \boldsymbol{\beta_9}\ \mathbf{FX}_t + \boldsymbol{\beta_{10}}\ \mathbf{BIrate}_t + \boldsymbol{\beta_{11}}\ \mathbf{CPI}_t + \boldsymbol{\varepsilon}_{it} \text{ .....(3.16)}$$

Where:

i = the unit of observation

t = the period

ROA (Return on Assets) = The dependent variable representing banks' profitability.

CAR, NIM, LDR, CASA, CIR, NPL, PCR = Independent variables related to key financial factors.

GDP, FX, BIrate, CPI = Controlled variables representing the economic environment, exchange rates, interest rate, and inflation.

$\boldsymbol{\varepsilon_t}$ = The error term accounting for unobserved factors.

Second Regression Equation Model (Stock Return):

The second regression equation model explores the factors influencing the stock return of banks. The equation is formulated as follows:

$$\mathbf{SR_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 NIM_{it} + \beta_3 LDR_{it} + \beta_4 CASA_{it} + \beta_5 CIR_{it} + \beta_6 NPL_{it} + \beta_7 PCR_{it} + \beta_8 RoA_{it} + \beta_9 GDP_t + \beta_{10} GDP_t + \beta_{11} FX_t + \beta_{12} BIrate_t + \beta_{12} CPI_t + \varepsilon_{it}} \quad \textit{(3.17)}$$

Where:

i = the unit of observation

t = the period

SR (Stock Return) = The dependent variable representing the return generated by investments in the stock market.

CAR, NIM, LDR, CASA, CIR, NPL, PCR, ROA = Independent variables influencing stock return.

GDP, FX, BIrate, CPI = Controlled variables for economic conditions and external factors.

$\boldsymbol{\varepsilon_t}$ = The error term representing unobserved factors affecting stock return.

Interpretation:

These regression models allow for a quantitative assessment of the impact of various financial factors on bank profitability (ROA) and stock return. The coefficients ($\boldsymbol{\beta_i}$) associated with each independent variable indicate the strength and direction of their impact. The models provide a systematic approach to analyzing and understanding the intricate relationships between these variables, contributing valuable insights to the overarching thesis (Anthony et al., 2016; Basel Committee on Banking Supervision, 2018; Beck & Levine, 2004; Black & Scholes, 1973; Boot et al., 2021; Campbell et al., 1997; Claessens & Laeven, 2005; De Bondt & Thaler,

1985; Demirgüç-Kunt & Levine, 2008; European Central Bank, 2021; Fama, 1970; Fama & French, 1993; Financial Stability Board, 2019b, 2019a; Frost et al., 2019; He et al., 2020; IMF, 2020; Jagtiani & Lemieux, 2018; Jegadeesh & Titman, 1993; Jensen & Meckling, 1976; Laeven et al., 2014; Levine, 1997; Lintner, 1965; Markowitz, 1952; Merton, 1973; Modigliani & Miller, 1958; Muhammad & Ali, 2018; Myers & Majluf, 1984; OECD, 2021; Penrose, 1959; Rajan & Zingales, 1998; Richard et al., 2007; Roll, 1977; Ross, 1976; Schumpeter, 1942; Sharpe, 1964, 1990; Shiller, 1981; Stulz, 2019; Tandelilin, 2010; Tirole, 2014; Tobin, 1958; Winter, 2000; Zikmund et al., 2013).

3.3.3. Panel Data Model Approaches

3.3.3.1. Common Effect Model (CEM)

Common effect model (CEM) or pooled least square (PLS) is a model obtained by combining or collecting all cross-data and time-guided data (Gujarati, 2016). This data model is then estimated using ordinary least square (OLS), which is the simplest method of linear regression (Baltagi, 2005). The Common-Effect Model equation is as follows:

$$Yit = \alpha + \beta X_{it} + eit$$

$$i = 1, \dots \dots, n \; t$$

$$= 1, \dots \dots, T \quad \text{……..(3.18)}$$

Where:

Yit = the dependent variable of the cross-sectional units over the period observed

X_{it} = the independent variable of the cross-sectional units over the period observed

α = the intercept of the regression model

β = the slope coefficient

eit = the error component of the observed cross-sectional units and period

n = the number of observed cross-sectional units

T = the number of observed periods

3.3.3.2. Fixed Effect Model (FEM)

Fixed effect model (FEM) can solve the problem of interception assumptions or slopes from regression equations that are considered constant in the pooled least square model (Gujarati, 2016). This method uses dummy variables to generate different parameter values across cross-section units and between times (time-series). The Fixed-Effect Model equation is as follows:

$$Yit = \beta X_{it} + ait + eit$$

$$i = 1, \dots\dots, n\ t$$

$$= 1, \dots\dots, T \quad \text{.....(3.19)}$$

Where:

Yit = the dependent variable of the cross-sectional units over the period observed

X_{it} = the independent variable of the cross-sectional units over the period observed

ai = the regression model intercept of the observed cross-sectional units and/or the observed period

β = slope coefficient

eit = the error component of the observed cross-sectional units and period

n = the number of observed cross-sectional units

T = the number of observed periods

3.3.3.3. Random Effect Model (REM)

The random-effect model (REM) is used to estimate panel data where interference variables may be interconnected between time and between individuals (Gujarati, 2016). In this model, different parameters between time and between individuals are entered into errors because this model is often also referred to as the Error Component Model (ECM). The Random Effect Model equation is as follows:

$$Yit = \beta X_{it} + a + wit$$

$$wit = \varepsilon it + eit$$

$$i = 1, \dots\dots, n\ t$$

$$= 1, \dots\dots, T \quad \text{.....(3.20)}$$

Where:

Yit = the dependent variable of the cross-sectional units over the period observed

X_{it} = the independent variable of the cross-sectional units over the period observed

a = intercept of the regression model

β = slope coefficient

wit = combination of two error components, namely εit and eit

εit = individual-specific error component

eit = the error component of the observed research sample and period

n = the number of observed cross-sectional units

T = the number of observed periods

3.3.4. Selection of Panel Data Estimation Model

Three model conformity testing procedures will be used to select the best data panel regression model: The Chow test, Hausman test, and Lagrange Multiplier test (LM test).

1. Chow Test

The Chow Test (Chow Test) or restricted F test Gujarati (2003) is used to determine which model can best be used to estimate panel data, whether fixed effect model (FEM) or common effect model (CEM). The formula for obtaining statistical F values as formulated by Chow is as follows:

$$F = \frac{(PRSS-URSS)/(N-1)}{(URSS)/(NT-N-K)} \quad \text{.....(3.21)}$$

Where:

PRSS = Residual Sum of Square (CEM)

URSS = Residual Sum of Square (FEM)

N = the amount of cross-section data

T = the amount of time series data

K = the number of free variables

The null hypothesis of the restricted F test is as follows:

H_0 = Common effect model (CEM) is better than fixed-effect model (FEM)

H_1 = Fixed effect model (FEM) is better than common effect model (CEM)

The hypothesis testing criteria is that if the F count value results > F table at a certain level of α confidence, then H_0 is rejected, H_1 is accepted, meaning the fixed effect model is more appropriately used for estimation techniques (Aulia, 2004).

2. Hausman Test

The Hausman test is used to choose which model is best used to estimate panel data, whether fixed effect model (FEM) or random effect model (REM) (Gujarati, 2003). The formula for obtaining Hausman's test scores is as follows:

$m = (\beta - b)(M0 - M1) - 1(\beta - b) \approx X2(K)$……………………...…(3.22)

Where:

β = a vector for fixed effect variable statistics

b = a vector for random effect variable statistics

M0 = covariance matrix for fem conjecture

M1 = the covariance matrix for alleged REM

Hypothesis zero of the Hausman test is as follows:

H_0 = Random effect model (REM) is better than fixed-effect model (FEM)

H_1 = Fixed effect model (FEM) is better than common effect model (CEM)

The hypothesis testing criteria if X2 calculates > X2 tables and the p-value is significant, then H_0 is rejected, and the fixed effect model is appropriate for use (Gujarati, 2016).

3. Lagrange Multiplier (LM) Test

The Lagrange Multiplier test or LM Test is used to choose which model is best used to estimate panel data, whether random effect model (REM) or common effect model (CEM) (Gujarati, 2016). The formula for obtaining the Lagrange multiplier test value is as follows:

$LM = \frac{nT}{2(T-1)}\left[\frac{\sum_{i=1}^{n}\left(\sum_{t=1}^{T} e_{it}\right)^2}{\sum_{i=1}^{n}\sum_{t=1}^{T} e_{it}^2} - 1\right]^2$……………………………………….(3.23)

Where:

N = Number of individuals

Q = Number of periods

e = Residual from model OLS

The null hypothesis of the LM Test is:

H_0 = Common effect model (CEM) is better than random effect model (REM)

H_1 = Random effect model (REM) is better than common effect model (CEM)

With the hypothesis testing criteria, if X^2 calculates > X^2 table and the p-value is significant, H_0 is rejected, meaning the REM model is more appropriately used (Gujarati, 2016).

3.3.5. Classical Assumption Test

A classical assumption test is a statistical test performed to determine the relationship between variables. The classical assumption test includes the linearity test, normality test, autocorrelation test, multicollinearity test, and heteroscedasticity test (Basuki and Yuliadi, 2015). However, according to Iqbal (2015), a study that used panel data should not use all of the classical assumption tests because of these reasons: the linearity test is hardly performed on every linear regression model because it is assumed that the model is already linear; the normality test provides a result that is not really meant for a study that used samples of more than one company, panel data, and secondary data; the autocorrelation test provides a result that will be more meaningful for a study that only used time-series data, and the heteroscedasticity test provides a result that is not meant for a study that used panel data because the data is assumed to have heteroscedasticity already. Based on the reasons that have been stated, the classical assumption test that should be used in this study is only a multicollinearity test. The multicollinearity test must be performed because this study used more than two independent variables.

The multicollinearity test is used to determine the existence of a high correlation between variables in a regression model (Ainiyah et al., 2016). The multicollinearity testing can be done by looking at the value of Variance Inflation Factors (VIF). If the Variance Inflation Factors (VIF) is less than 10 or not exceeding 10, it means there is no multicollinearity problem between independent variables in the regression model (Hair Jr et al., 2010). Meanwhile, if the Variance Inflation Factors (VIF) is equal or more than 10, it means there is a multicollinearity problem between independent variables in the regression model.

The multicollinearity problem does not significantly affect the usefulness of the regression equation to predict the value of a dependent variable. Because of this reason, the multicollinearity problem is not a huge concern for a study that wants to focus on prediction. However, the multicollinearity problem is a huge concern for a study that intends to assess the relative importance of an independent variable with a high VIF. There are several ways to prevent the multicollinearity problem in a multiple regression analysis. These include replacing the dependent variable without replacing the independent variables, combining cross-sectional and time-series data, and adding samples (Basuki and Prawoto, 2016).

3.3.6. Significance Test

Hypothesis testing aims to determine the influence of independent variables (X) with dependent variables (Y) is using linear regression of panel data. The steps of this analysis are as follows:

3.3.7.1. Partial Test (t-test)

The t-test shows how far the influence of one individually independent variable affects, explaining the dependent variable's variation. The t-test is used to test the regression coefficient of its independent variable partially. The procedures used to perform the t-test are:

- Formulating a hypothesis
- Hi; $\beta1=\beta2=\beta3\neq 0$, means that the independent variable has a significant effect on the dependent variable partially.
- Determining the level of significance

  This hypothesis was tested using a significance level of = α

  Where:

  α = Highly Significant: p-value < 0.01

  α = Significant: 0.01< p-value < 0.05

  α = Marginally Significant: < 0.05 p-value < 0.1
- Determine the research hypothesis testing criteria:
- Based on the comparison of t_{count} with t_{table} with guidelines:

1. If $t_{count} < t_{table}$ means that the independent variable is partially significant and does not significantly affect the dependent variable.
2. If $t_{count} > t_{table}$ means that the independent variable partially has a significant influence on the dependent variable.

- Based on the p-value, the conditions are:
  1. If the p-value > α, the independent variable partially does not significantly affect the dependent variable.
  2. If the p-value < α, the independent variable partially has a significant influence on the dependent variable.

3.3.7.2. Simultaneous Significance Test (F-test)

A simultaneous significance test (F-test) is used to determine whether all independent variables have the same effect on the dependent variable. The hypotheses of the F-test are as follows:

H_0: All parameters = 0

H_a: At least one parameter ≠ 0

Two criteria are used to measure the hypotheses as mentioned above:

a. If p-value < significance level of 0.05, the H_0 is rejected = all the independent variables have the same effect on the dependent variable
b. If p-value > significance level of 0.05, the H_0 is not rejected = all the independent variables do not have the same effect on the dependent variable.

3.3.7.3. Coefficient of Determination Test (Adjusted R^2)

The coefficient of determination (R^2) essentially measures how far the model's ability to explain the dependent variable is. The coefficient of determination value is between zero and one. A small value of R^2 means that the ability of the independent variables in explaining the variation of the dependent variable is very limited. A value close to one means that the independent variables provide almost all the information needed to predict the variation of the dependent variable. In general, the coefficient of determination for cross-sectional data is

relatively low due to the large variation between each observation, while for time series data, it usually has a high coefficient of determination.

One thing to note is the spurious regression problem. Ghozali (2013) emphasizes that the coefficient of determination is only one and not the only criteria for choosing a good model. The reason is that if a linear regression estimate produces a high coefficient of determination but is not consistent with the economic theory of high determination, that is, but is inconsistent with the economic theory chosen by the researcher, or does not pass the classical assumption test, then the model is not a good estimator model. and should not be selected as an empirical model.

The basic weakness of using the coefficient of determination is the bias towards the number of independent variables included in the model. Every additional one independent variable, then R^2 must increase no matter whether the variable has a significant effect on the dependent variable. Therefore, many researchers recommend using the adjusted R^2 value when evaluating which regression model is the best. Unlike R^2, the value of adjusted R^2 can fluctuate if one independent variable is added to the model.

In fact, the adjusted R^2 value can be negative, although what is desired must be positive. According to Ghozali (2013) and Gujarati (2003) if in the empirical test the adjusted R^2 value is negative, then the adjusted R^2 value is considered to be zero. Mathematically if the value of $R^2 = 1$, then Adjusted $R^2 = R^2 = 1$ while the value of $R^2 = 0$, then adjusted $R^2 = (1 = k)/(n – k)$ if $k > 1$, then adjusted R^2 will be negative (I Ghozali, 2013).

3.6. Research Hypothesis Testing

- Hypothesis 1a.1 and 2a.1:
  - CAR

    $H_{1a.1}$ & $H_{2a.1}$: $\beta_1=0$

    $H_{1a.1}$ & $H_{2a.1}$: $\beta_1>0$

- Hypothesis 1a.2 and 2a.2:
  - NIM

    $H_{1a.2}$ & $H_{2a.2}$: β_1=0

    $H_{1a.2}$ & $H_{2a.2}$: β_1>0
- Hypothesis 1a.3 and 2a.3:
  - LDR

    $H_{1a.3}$ & $H_{2a.3}$: β_1=0

    $H_{1a.3}$ & $H_{2a.3}$: β_1>0
- Hypothesis 1a.4 and 2a.4:
  - CASA

    $H_{1a.4}$ & $H_{2a.4}$: β_1=0

    $H_{1a.4}$ & $H_{2a.4}$: β_1>0
- Hypothesis 1a.5 and 2a.5:
  - CIR

    $H_{1a.5}$ & $H_{2a.5}$: β_1=0

    $H_{1a.5}$ & $H_{2a.5}$: β_1>0
- Hypothesis 1a.6 and 2a.6:
  - NPL

    $H_{1a.6}$ & $H_{2a.6}$: β_1=0

    $H_{1a.6}$ & $H_{2a.6}$: β_1>0
- Hypothesis 1a.7 and 2a.7:
  - PCR

    $H_{1a.7}$ & $H_{2a.7}$: β_1=0

    $H_{1a.7}$ & $H_{2a.7}$: β_1>0
- Hypothesis 2b.1:
  - Market Return

    $H_{2b.1}$: β_1=0

    $H_{2b.1}$: β_1>0
- Hypothesis 2a.1 and 2b.2:
  - GDP Growth

    $H_{2a.1}$ & $H_{2b.2}$: β_1=0

    $H_{2a.1}$ & $H_{2b.2}$: β_1>0

- Hypothesis 2a.2 and 2b.3:
  - Exchange Rate

    $H_{2a.2}$ & $H_{2b.3}$: β_1=0

    $H_{2a.2}$ & $H_{2b.3}$: β_1>0
- Hypothesis 2a.3 and 2b.4:
  - BI Rate

    $H_{2a.3}$ & $H_{2b.4}$: β_1=0

    $H_{2a.3}$ & $H_{2b.4}$: β_1>0
- Hypothesis 2a.4 and 2b.5:
  - Inflation

    $H_{2a.4}$ & $H_{2b.5}$: β_1=0

    $H_{2a.4}$ & $H_{2b.5}$: β_1>0

3.7. Research Process

Figure 3.3 below shows the research process. The first step of the research process is to obtain descriptive statistical results consisting of mean, standard deviation, and correlation coefficient. The second step of the research process is to identify the free variable (X) and the bound variable (Y). Once the free variable (X) and the bound variable (Y) are identified, the third step of the research process is to form a data panel to be tested to select the most suitable panel data model between common-effect, fixed-effect, and random-effect models for regression.

In choosing the panel data model best suited for regression, the fourth step of the research process is to perform the Chow Test, Hausman Test, and Lagrange Multiplier Test. The fifth stage of the research process is to perform the classical assumption test of multicollinearity test against multiple linear regression equations. The sixth stage of the research process is to conduct a significant test consisting of the Individual Regression Coefficient Test (t-Test), F-Test, and the Coefficient of Determination Test (Adjusted R^2), against multiple linear regression equations. Step seventh, or the end of the research process, is to interpret the test results.

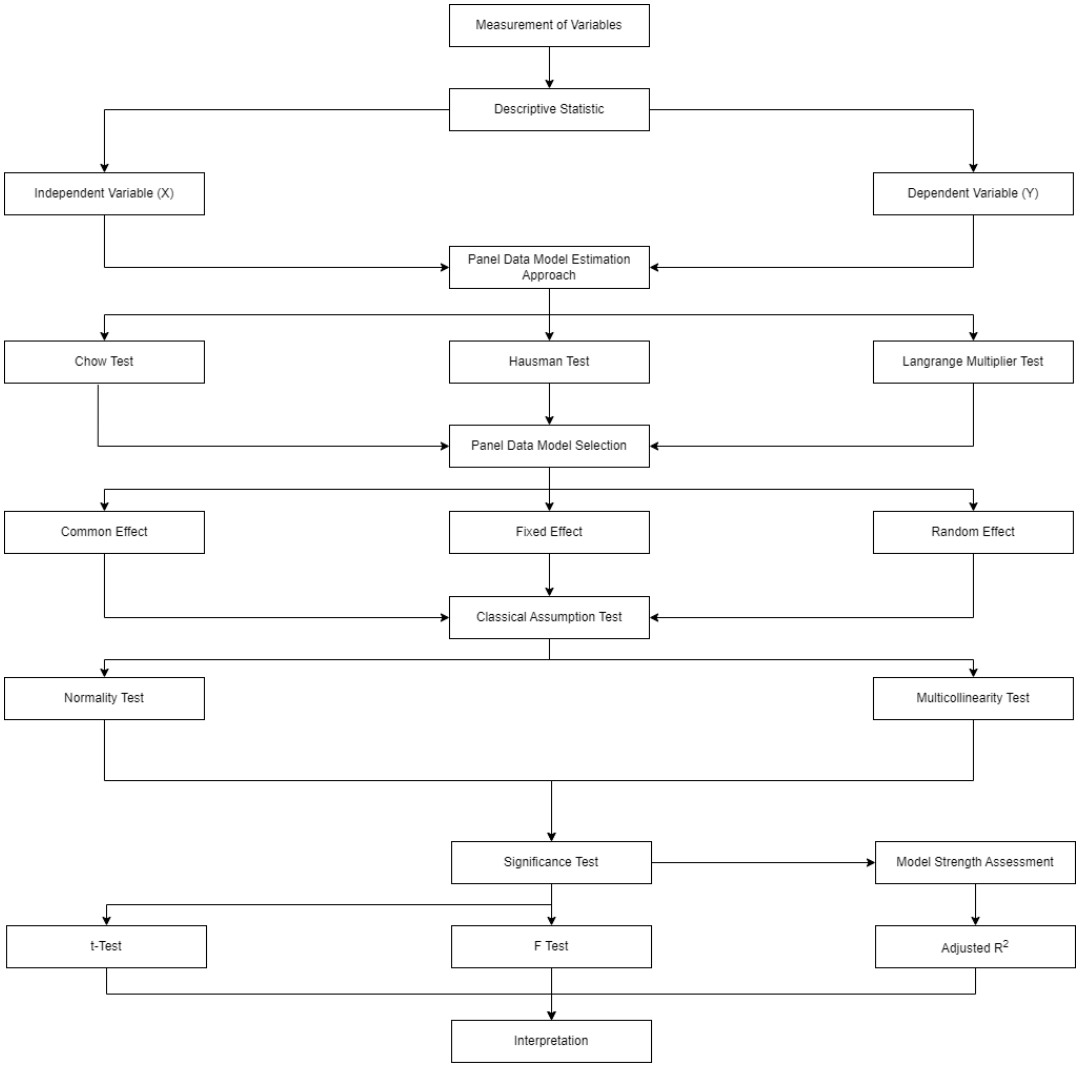

Figure 3.3 Research Process

Chapter 4.
Findings, Analysis, and Discussion

4.1. Descriptive Statistic Analysis

According to Ghozali (2018)Descriptive statistics refers to a set of data analysis methods that provide a thorough overview and evaluation of a dataset or specific research variables. These methodologies consist of calculating statistical measures such as the arithmetic mean, median, maximum, minimum, and standard deviation, which yield significant insights into the dataset.

For research purposes, all variables use the abbreviation and initial that commonly used, which are Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Loan to Deposit Ratio (LDR), Current Account Saving Account (CASA), Cost to Income Ratio (CIR), Non-Performing Loan (NPL), Provision Coverage Ratio (PCR), Market Return (JKSE), GDP Growth (GDP), Exchange Rates IDR to USD (FX), BI Rates (BI), Inflation (CPI), Return on Assets (ROA), and Stock Return (SR). This study observation includes the cross-section (company) data and periods from 2013 Q4 until 2024 Q1. The total observation of this study is 42 records for JKSE, GDP, FX, BI, and CPI and 504 data for SR and bank performance indicators derived from 12 banks and 42 periods. Table 4.1 shows the descriptive statistical result of the data.

Table 4.1 Descriptive Statistic Result

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
CAR	504	11.03	41.40	21.2421	4.51197	20.358
NIM	504	3.06	12.72	5.4565	1.50795	2.274
LDR	504	60.54	171.32	90.5203	14.79383	218.857
CASA	504	12.00	81.55	52.6139	15.75562	248.240
CIR	504	32.41	104.80	53.0513	14.86263	220.898
NPL	504	0.12	4.97	1.1464	0.93656	0.877
PCR	504	0.15	4.48	1.6435	0.71970	0.518
ROA	504	-1.24	5.03	2.1938	1.07377	1.153
JKSE	42	-16.76	6.78	-0.0678	4.20975	17.722
GDP	42	-4.19	5.05	0.9669	2.43920	5.950

FX	42	11430.0	15520.0	13945.786	1023.7023	1047966.368
BI	42	3.50	7.75	5.5179	1.43815	2.068
CPI	42	1.33	8.38	3.8543	1.90056	3.612
SR	504	-102.38	38.96	-0.9655	11.80847	139.440

Table 4.2 displays the Coefficient Correlation between variables using Pearson's Correlation. The analysis reveals a strong positive correlation (0.868) between JKSE and SR, indicating a direct relationship where an increase in market returns generally corresponds to increased stock returns. Conversely, a significant negative correlation (-0.649) is observed between FX and CIR, suggesting an inverse relationship where a higher exchange rate tends to be associated with a lower CIR. Other significant correlations seen are between FX and CASA (0.722), BI and CPI (0.692), and between BI and NIM (0.654). CAR and CPI also show a strong negative correlation with a value of -0.594.

Table 4.2 Coefficient Correlation Result

		CAR	NIM	LDR	CASA	CIR	NPL	PCR	ROA
CAR	Pearson Correlation	1	0.049	-0.079	0.064	-.194**	-.247**	.293**	0.082
	Sig. (2-tailed)		0.273	0.077	0.151	0.000	0.000	0.000	0.065
	N	504	504	504	504	504	504	504	504
NIM	Pearson Correlation	0.049	1	-.095*	-.180**	-.144**	-.089*	-0.024	.524**
	Sig. (2-tailed)	0.273		0.034	0.000	0.001	0.047	0.592	0.000
	N	504	504	504	504	504	504	504	504
LDR	Pearson Correlation	-0.079	-.095*	1	-.275**	.360**	0.019	-.401**	-.233**
	Sig. (2-tailed)	0.077	0.034		0.000	0.000	0.677	0.000	0.000
	N	504	504	504	504	504	504	504	504
CASA	Pearson Correlation	0.064	-.180**	-.275**	1	-.582**	-.362**	.547**	.468**
	Sig. (2-tailed)	0.151	0.000	0.000		0.000	0.000	0.000	0.000
	N	504	504	504	504	504	504	504	504
CIR	Pearson Correlation	-.194**	-.144**	.360**	-.582**	1	.345**	-.556**	-.463**
	Sig. (2-tailed)	0.000	0.001	0.000	0.000		0.000	0.000	0.000
	N	504	504	504	504	504	504	504	504
NPL	Pearson Correlation	-.247**	-.089*	0.019	-.362**	.345**	1	-.551**	-.523**
	Sig. (2-tailed)	0.000	0.047	0.677	0.000	0.000		0.000	0.000

	N	504	504	504	504	504	504	504	504
PCR	Pearson Correlation	.293**	-0.024	-.401**	.547**	-.556**	-.551**	1	.416**
	Sig. (2-tailed)	0.000	0.592	0.000	0.000	0.000	0.000		0.000
	N	504	504	504	504	504	504	504	504
ROA	Pearson Correlation	0.082	.524**	-.233**	.468**	-.463**	-.523**	.416**	1
	Sig. (2-tailed)	0.065	0.000	0.000	0.000	0.000	0.000	0.000	
	N	504	504	504	504	504	504	504	504
JKSE	Pearson Correlation	0.223	0.150	-0.009	0.009	0.076	0.198	-0.085	-0.212
	Sig. (2-tailed)	0.156	0.344	0.953	0.956	0.633	0.210	0.594	0.178
	N	42	42	42	42	42	42	42	42
GDP	Pearson Correlation	0.166	0.030	-0.007	0.001	-0.109	0.076	-0.119	-0.061
	Sig. (2-tailed)	0.294	0.848	0.962	0.997	0.493	0.632	0.452	0.699
	N	42	42	42	42	42	42	42	42
FX	Pearson Correlation	.402**	-.635**	0.071	.722**	-.649**	-.309*	0.253	0.024
	Sig. (2-tailed)	0.008	0.000	0.655	0.000	0.000	0.046	0.106	0.881
	N	42	42	42	42	42	42	42	42
BI	Pearson Correlation	-.389*	.654**	0.021	-.313*	0.271	-0.040	0.016	.468**
	Sig. (2-tailed)	0.011	0.000	0.897	0.044	0.083	0.801	0.920	0.002
	N	42	42	42	42	42	42	42	42
CPI	Pearson Correlation	-.594**	.480**	-0.285	-.309*	0.160	-0.147	0.132	.499**
	Sig. (2-tailed)	0.000	0.001	0.068	0.046	0.310	0.353	0.404	0.001
	N	42	42	42	42	42	42	42	42
SR	Pearson Correlation	-0.004	0.073	-0.042	0.034	0.009	0.041	-0.006	0.049
	Sig. (2-tailed)	0.924	0.103	0.349	0.443	0.843	0.353	0.886	0.271
	N	504	504	504	504	504	504	504	504

		JKSE	GDP	FX	BI	CPI	SR
CAR	Pearson Correlation	0.223	0.166	.402**	-.389*	-.594**	-0.004
	Sig. (2-tailed)	0.156	0.294	0.008	0.011	0.000	0.924
	N	42	42	42	42	42	504
NIM	Pearson Correlation	0.150	0.030	-.635**	.654**	.480**	0.073
	Sig. (2-tailed)	0.344	0.848	0.000	0.000	0.001	0.103
	N	42	42	42	42	42	504
LDR	Pearson Correlation	-0.009	-0.007	0.071	0.021	-0.285	-0.042
	Sig. (2-tailed)	0.953	0.962	0.655	0.897	0.068	0.349

	N	42	42	42	42	42	504
CASA	Pearson Correlation	0.009	0.001	.722**	-.313*	-.309*	0.034
	Sig. (2-tailed)	0.956	0.997	0.000	0.044	0.046	0.443
	N	42	42	42	42	42	504
CIR	Pearson Correlation	0.076	-0.109	-.649**	0.271	0.160	0.009
	Sig. (2-tailed)	0.633	0.493	0.000	0.083	0.310	0.843
	N	42	42	42	42	42	504
NPL	Pearson Correlation	0.198	0.076	-.309*	-0.040	-0.147	0.041
	Sig. (2-tailed)	0.210	0.632	0.046	0.801	0.353	0.353
	N	42	42	42	42	42	504
PCR	Pearson Correlation	-0.085	-0.119	0.253	0.016	0.132	-0.006
	Sig. (2-tailed)	0.594	0.452	0.106	0.920	0.404	0.886
	N	42	42	42	42	42	504
ROA	Pearson Correlation	-0.212	-0.061	0.024	.468**	.499**	0.049
	Sig. (2-tailed)	0.178	0.699	0.881	0.002	0.001	0.271
	N	42	42	42	42	42	504
JKSE	Pearson Correlation	1	-0.198	-0.214	0.035	-0.089	.868**
	Sig. (2-tailed)		0.208	0.175	0.825	0.576	0.000
	N	42	42	42	42	42	42
GDP	Pearson Correlation	-0.198	1	-0.034	-0.004	0.002	-0.144
	Sig. (2-tailed)	0.208		0.831	0.980	0.990	0.364
	N	42	42	42	42	42	42
FX	Pearson Correlation	-0.214	-0.034	1	-.535**	-.565**	-0.118
	Sig. (2-tailed)	0.175	0.831		0.000	0.000	0.456
	N	42	42	42	42	42	42
BI	Pearson Correlation	0.035	-0.004	-.535**	1	.692**	0.079
	Sig. (2-tailed)	0.825	0.980	0.000		0.000	0.617
	N	42	42	42	42	42	42
CPI	Pearson Correlation	-0.089	0.002	-.565**	.692**	1	0.016
	Sig. (2-tailed)	0.576	0.990	0.000	0.000		0.920
	N	42	42	42	42	42	42
SR	Pearson Correlation	.868**	-0.144	-0.118	0.079	0.016	1
	Sig. (2-tailed)	0.000	0.364	0.456	0.617	0.920	
	N	42	42	42	42	42	504

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.1.1. Capital Adequacy Ratio (CAR)

Figure 4.1 shows CAR's boxplot, which illustrates the CAR data distribution based on the descriptive statistical results shown in Table 4.3.

Table 4.3 CAR Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
CAR	504	11.03	41.40	21.2421	4.51197	20.358

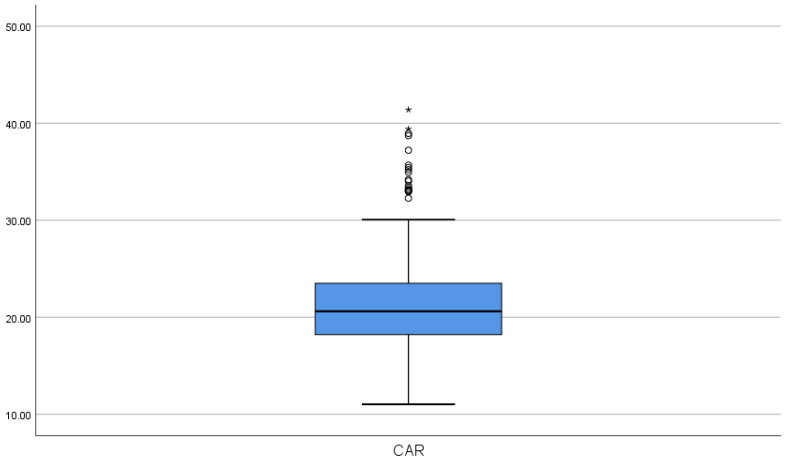

Figure 4.1 CAR Box Plot

Table 4.3 and Figure 4.1 show that the average rate of the CAR ratio is 21.24. In addition to the average data, it also shows the maximum, minimum, and standard deviation data on the CAR ratio. The maximum value of CAR ratio data is 41.40 in BNLI's first quarter of 2023. The minimum value of CAR ratio data is 11.03, derived from BRIS's second quarter of 2015; the standard deviation of CAR ratio data is 4.5. Since the standard deviation is lower than average, the CAR ratio data varies less.

4.1.2. Net Interest Margin (NIM)

Figure 4.2 shows the NIM boxplot to illustrate the distribution of NIM data based on the descriptive statistical results shown in Table 4.4.

Table 4.4 NIM Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
NIM	504	3.06	12.72	5.4565	1.50795	2.274

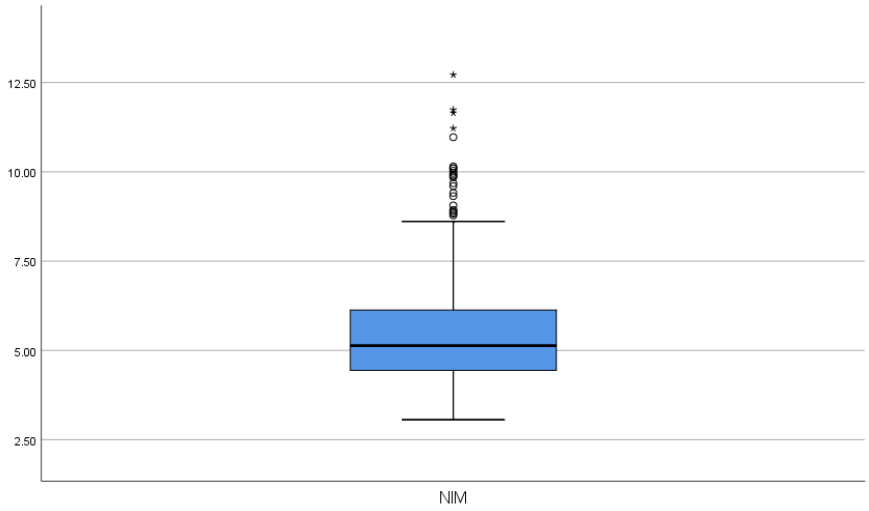

Figure 4.2 NIM Box Plot

Table 4.4 and Figure 4.2 show that the average rate of NIM ratio is 5.45. In addition to the average data, the maximum, minimum, and standard deviation data on the NIM ratio are also shown. The maximum value of NIM ratio data is 12.72 in BTPN's fourth quarter of 2013. The minimum value of NIM ratio data is 3.06, derived from BBTN's fourth quarter of 2020; the standard deviation of NIM ratio data is 1.50. The NIM ratio data varies less since the standard deviation is lower than average.

4.1.3. Loan to Deposit Ratio (LDR)

Figure 4.3 shows the LDR boxplot to illustrate the distribution of LDR data based on the descriptive statistical results shown in Table 4.5.

Table 4.5 LDR Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
LDR	504	60.54	171.32	90.5203	14.79383	218.857

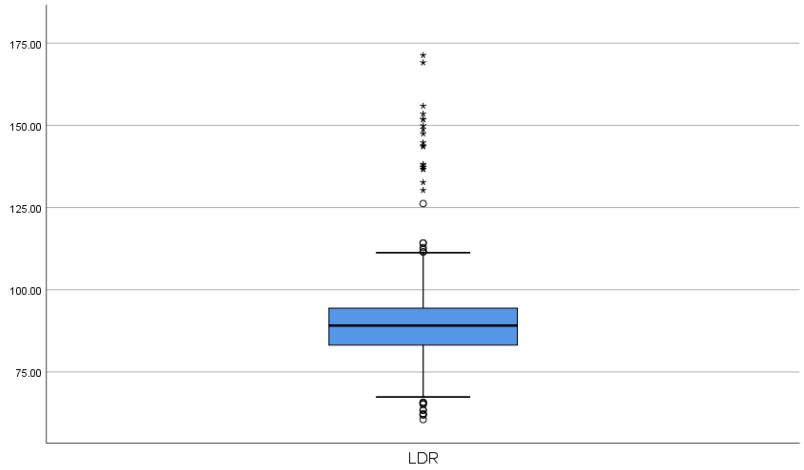

Figure 4.3 LDR Box Plot

Table 4.5 and Figure 4.3 show that the average rate of LDR ratio is 90.52. In addition to the average data, the maximum, minimum, and standard deviation data on the LDR ratio are also shown. The maximum value of LDR ratio data is 171.32 in BTPN's fourth quarter of 2019. The minimum value of LDR ratio data is 60.54, derived from BBCA's first quarter of 2022; the standard deviation of LDR ratio data is 14.79. The LDR ratio data varies less since the standard deviation is lower than average.

4.1.4. Current Account Saving Account (CASA)

Figure 4.4 shows the CASA boxplot to illustrate the distribution of CASA data based on the descriptive statistical results shown in Table 4.6.

Table 4.6 CASA Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
CASA	504	12.00	81.55	52.6139	15.75562	248.240

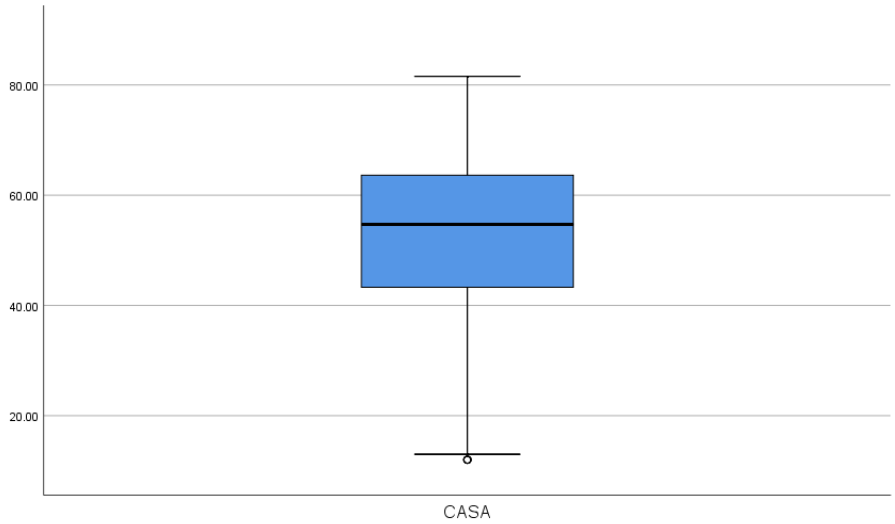

Figure 4.4 CASA Box Plot

Table 4.6 and Figure 4.4 show that the average rate of CASA ratio is 52.61. In addition to the average data, the maximum, minimum, and standard deviation data on the CASA ratio are also shown. The maximum value of CASA ratio data is 81.55 in BBBCA's fourth quarter of 2022. The minimum value of CASA ratio data of 12.00 derived from BTPN in the fourth quarter of 2016 and 2017, the second quarter of 2017 and 2018, and the third quarter of 2017; the standard deviation of CASA ratio data is 15.75. The CASA ratio data varies less since the standard deviation is lower than average.

4.1.5. Cost to Income Ratio (CIR)

Figure 4.5 shows the CIR boxplot to illustrate the distribution of CIR data based on the descriptive statistical results shown in Table 4.7.

Table 4.7 CIR Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
CIR	504	32.41	104.80	53.0513	14.86263	220.898

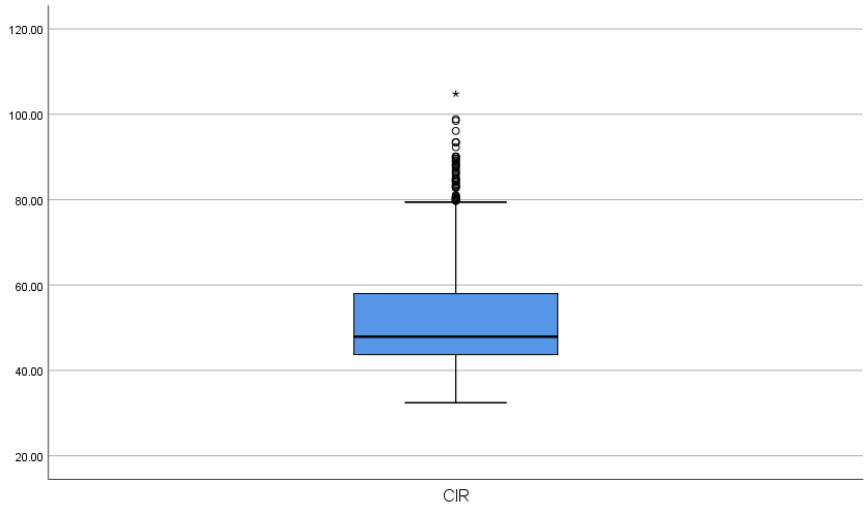

Figure 4.5 CIR Box Plot

Table 4.7 and Figure 4.5 show that the average rate of CIR ratio is 14.86. In addition, the average data also show the maximum, minimum, and standard deviation data on the CIR ratio. The maximum value of CIR ratio data is 104.80 in PNBN's third quarter of 2019. The minimum value of CIR ratio data is 32.41, derived from BBNI's first quarter of 2024; the standard deviation of CIR ratio data is 14.86. The CIR ratio data varies less since the standard deviation is lower than average.

4.1.6. Non-Performing Loan (NPL)

Figure 4.6 shows the boxplot of NPL to illustrate the distribution of NPL data based on descriptive statistical results shown in Table 4.8.

Table 4.8 NPL Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
NPL	504	0.12	4.97	1.1464	0.93656	0.877

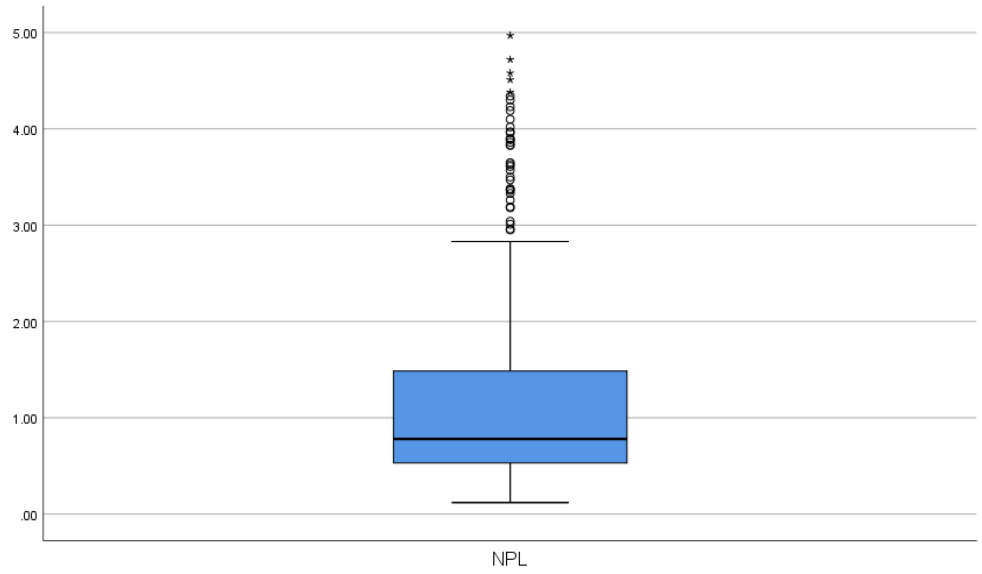

Figure 4.6 NPL Box Plot

Table 4.8 and Figure 4.6 show that the average rate of the NPL ratio is 1.14. In addition to the average data, the maximum, minimum, and standard deviation data on the NPL ratio are also shown. The maximum value of NPL ratio data is 4.97 in BRIS's fourth quarter of 2018. The minimum value of NPL ratio data is 0.12, derived from BDMN's first quarter of 2023; the standard deviation of NPL ratio data is 0.93. The NPL ratio data varies less since the standard deviation is lower than average.

4.1.7. Provision Coverage Ratio (PCR)

Figure 4.7 shows the PCR boxplot to illustrate the distribution of PCR data based on the descriptive statistical results shown in Table 4.9.

Table 4.9 PCR Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
PCR	504	0.15	4.48	1.6435	0.71970	0.518

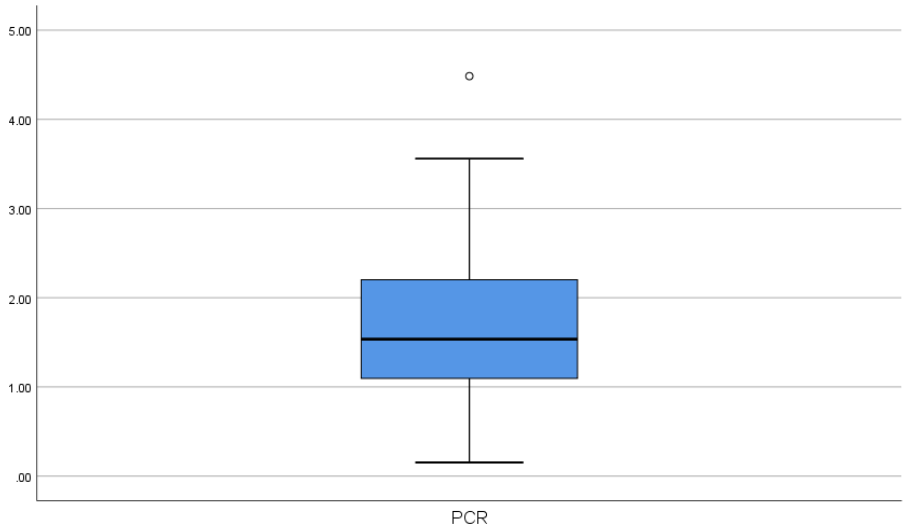

Figure 4.7 PCR Box Plot

Table 4.9 and Figure 4.7 shows that the average rate of PCR ratio is 1.64. In addition to the average data, the maximum, minimum, and standard deviation data on the PCR ratio are also shown. The maximum value of PCR ratio data is 4.48 in BMRI's first quarter of 2014. The minimum value of PCR ratio data of 0.15 derived from BRIS's second quarter of 2014; the standard deviation of PCR ratio data is 0.71. Since the standard deviation is lower than average, the PCR ratio data varies less.

4.1.8. Market Returns (JKSE)

Figure 4.8 shows the boxplot of JKSE to illustrate the distribution of JKSE data based on descriptive statistical results shown in Table 4.10.

Table 4.10 JKSE Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
JKSE	42	-16.76	6.78	-0.0678	4.20975	17.722

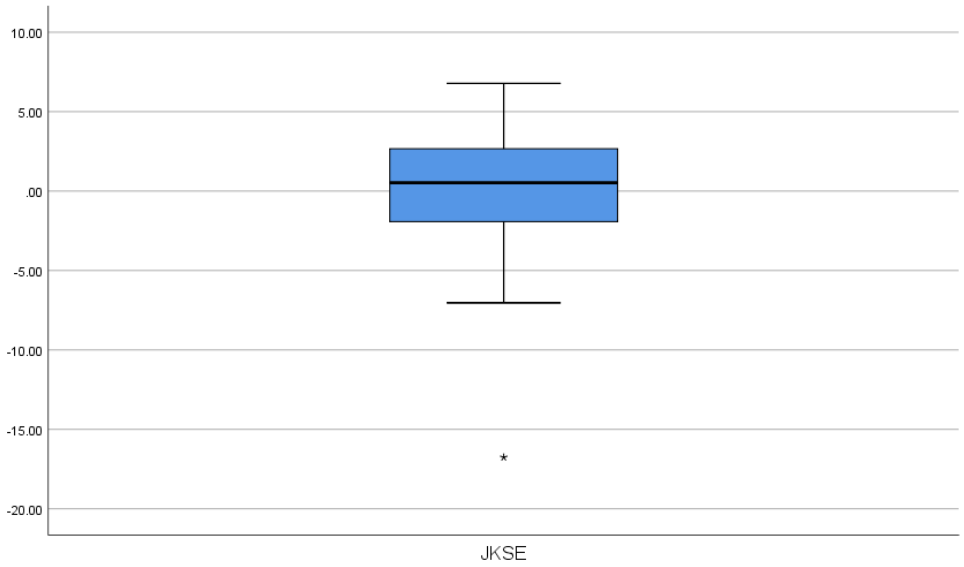

Figure 4.8 JKSE Box Plot

Table 4.10 and Figure 4.8 shows that the average rate of the JKSE ratio is -0.06. In addition to the average data, the maximum, minimum, and standard deviation data on the JKSE ratio are also shown. The maximum value of JKSE ratio data is 6.78 in the fourth quarter of 2017. The minimum value of JKSE ratio data of -16.76 derived from the first quarter of 2020; the standard deviation of JKSE ratio data is 4.20. Since the standard deviation is higher than average, the market return data varies.

4.1.9. GDP Growth (GDP)

Figure 4.9 shows the boxplot of GDP to illustrate the distribution of GDP data based on descriptive statistical results shown in Table 4.11.

Table 4.11 GDP Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
GDP	42	-4.19	5.05	0.9669	2.43920	5.950

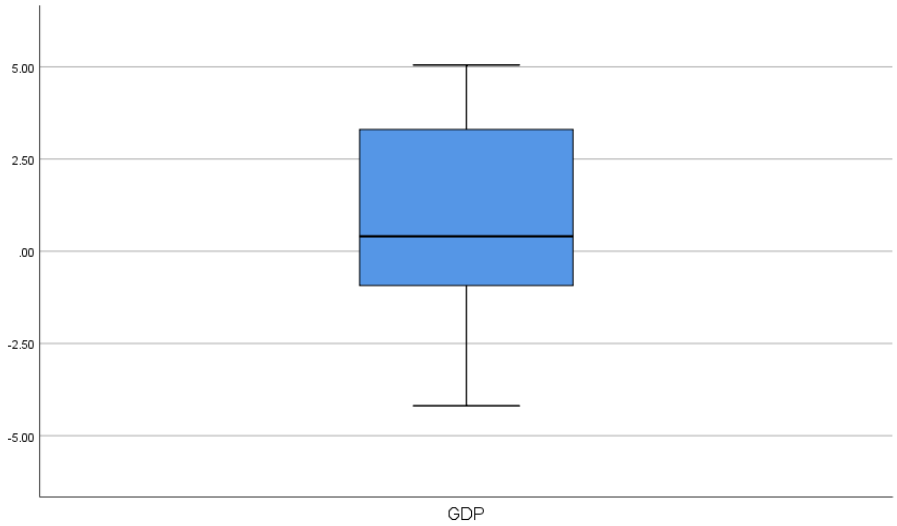

Figure 4.9 GDP Box Plot

Table 4.11 and Figure 4.9 shows that the average rate of GDP ratio is 0.96. In addition to the average data, it also shows the maximum, minimum, and standard deviation data on the GDP ratio. The maximum value of GDP ratio data is 5.05 in the third quarter of 2020. The minimum value of GDP ratio data of -4.19 derived from the second quarter of 2020; the standard deviation of GDP ratio data is 2.43. Since the standard deviation is higher than average, GDP data varies.

4.1.10. Exchange Rates IDR to USD (FX)

Figure 4.10 shows the box plot of FX to illustrate the distribution of FX data based on descriptive statistical results shown in Table 4.12.

Table 4.12 FX Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
FX	42	11430.0	15520.0	13945.786	1023.7023	1047966.368

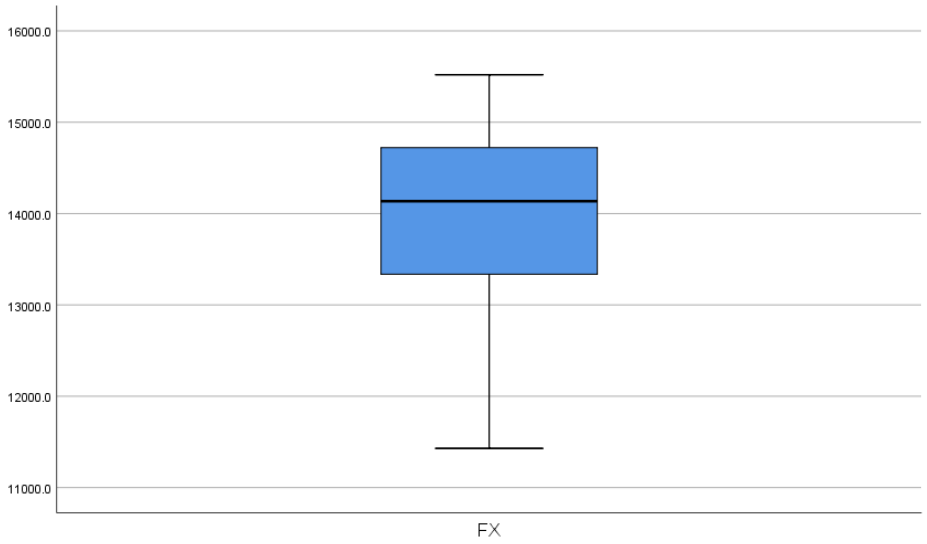

Figure 4.10 FX Box Plot

Table 4.12 and Figure 4.10 show that the average rate of FX is 13,945. In addition to the average data also show the maximum, minimum, and standard deviation data on FX. The maximum value of FX data is 15,520 in the fourth quarter of 2023. The minimum value of FX data of 11,430 derived from the first quarter of 2014; the standard deviation of FX data is 1,203. Since the standard deviation is lower than average that means FX data varies less.

4.1.11. BI Rates (BI)

Figure 4.11 shows the boxplot of the BI rate to illustrate the distribution of BI rate data based on descriptive statistical results shown in Table 4.13.

Table 4.13 BI Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
BI	42	3.50	7.75	5.5179	1.43815	2.068

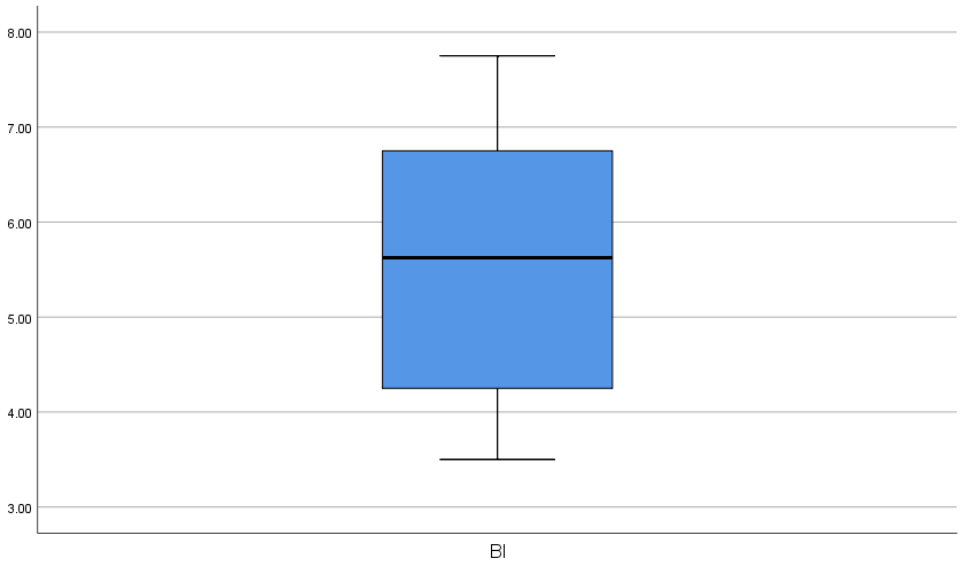

Figure 4.11 BI Box Plot

Table 4.13 and Figure 4.11 show that the average rate of BI rate is 5.51. In addition to the average data, it also shows the maximum, minimum, and standard deviation data on the BI rate. The maximum value of BI rate data is 7.75 from the fourth quarter of 2014 until the first quarter of 2015. The minimum value of BI rate data is 3.35, derived from the first quarter of 2021 until the second quarter of 2022; the standard deviation of BI rate data is 1.43. Since the standard deviation is lower than average, BI rate data varies less.

4.1.12. Inflation (CPI)

Figure 4.12 shows the CPI boxplot to illustrate the distribution of CPI data based on the descriptive statistical results shown in Table 4.14.

Table 4.14 CPI Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
CPI	42	1.33	8.38	3.8543	1.90056	3.612

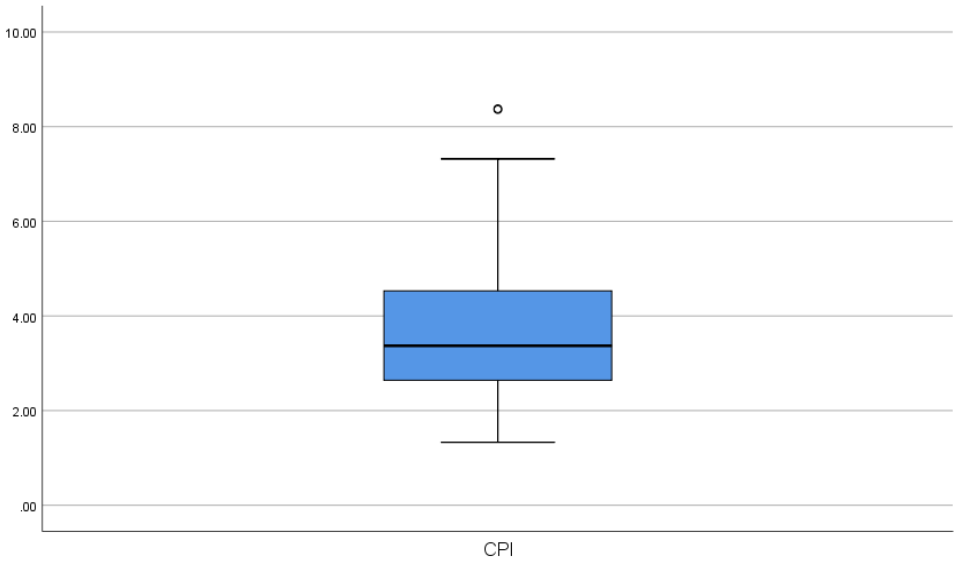

Figure 4.12 CPI Box Plot

Table 4.14 and Figure 4.12 show that the average rate of CPI ratio is 3.85. In addition to the average data, it also shows the maximum, minimum, and standard deviation data on the CPI ratio. The maximum value of CPI ratio data is 8.38 in the fourth quarter of 2013. The minimum value of CPI ratio data is 1.33, derived from the second quarter of 2021; the standard deviation of CPI ratio data is 1.90. Since the standard deviation is lower than average, the CPI ratio data varies less.

4.1.13. Return on Assets (ROA)

Figure 4.13 shows the ROA boxplot to illustrate the distribution of ROA data based on the descriptive statistical results shown in Table 4.15.

Table 4.15 ROA Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
ROA	504	-1.24	5.03	2.1938	1.07377	1.153

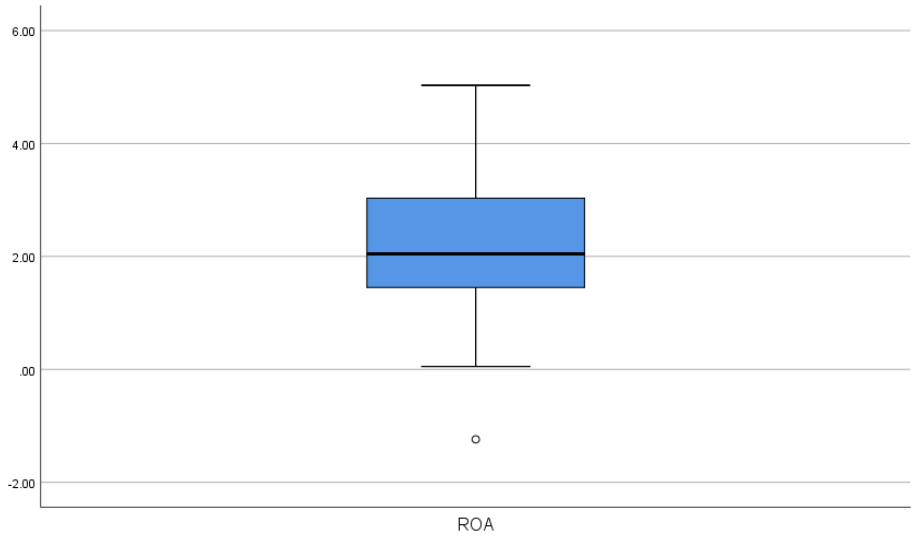

Figure 4.13 ROA Box Plot

Table 4.15 and Figure 4.13 show that the average rate of ROA ratio is 2.19. In addition to the average data, it also shows the maximum, minimum, and standard deviation data on the ROA ratio. The maximum value of ROA ratio data is 5.03 in BBRI's fourth quarter of 2013. The minimum value of ROA ratio data is -1.24 derived from BNLI in the second quarter of 2016; the standard deviation of ROA ratio data is 1.07. Since the standard deviation is lower than average, the ROA ratio data varies less.

4.1.14. Stock Returns (SR)

Figure 4.14 shows the SR boxplot to illustrate the distribution of SR data based on the descriptive statistical results shown in Table 4.16.

Table 4.16 SR Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
SR	504	-102.38	38.96	-0.9655	11.80847	139.440

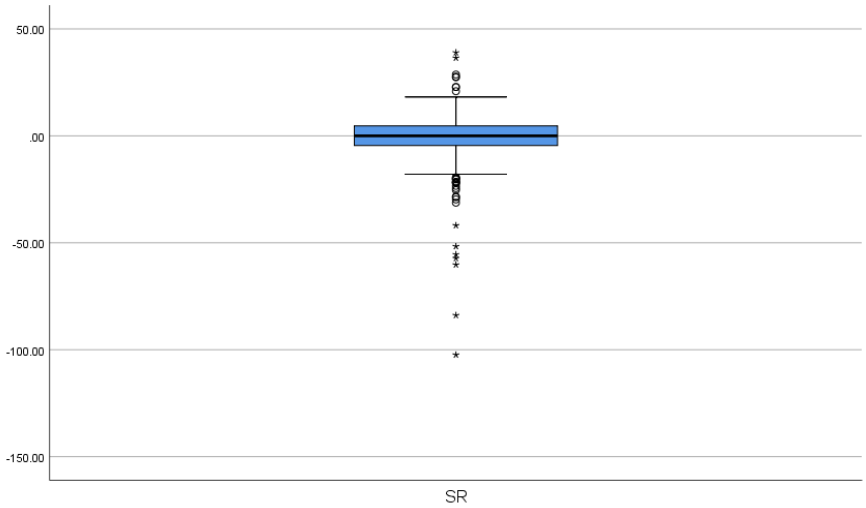

Figure 4.14 SR Box Plot

Table 4.15 and Figure 4.13 show that the average rate of SR ratio is -0.96. In addition to the average data, it also shows the maximum, minimum, and standard deviation data on the SR ratio. The maximum value of SR ratio data is 38.96 in BBTN's second quarter of 2020. The minimum value of SR ratio data is -102.38, derived from BBTN's first quarter of 2020; the standard deviation of SR ratio data is 11.80. Since the standard deviation is higher than average, the SR ratio data varies.

4.2. Panel Data Regression Analysis

A panel dataset is a type of dataset that combines cross-sectional and time-series data. It involves collecting measurements of certain variables over a period of time on observable units, such as individuals, households, enterprises, cities, and states. A cross-sectional data set comprises observations on a specific number of variables at a particular point in time, while a time-series data set has one or more variables observed over multiple periods. (Xu et al., 2007).

The panel data model will be assessed to identify the most suitable model for this study. As previously stated, three models, namely the Chow test, Hausman test, and Lagrange Multiplier (LM) test, can be used to choose the most appropriate panel data model for this study. Based on Napitupulu et al. (2021), model selection decisions are made based on the test findings presented in the Figure 4.15:

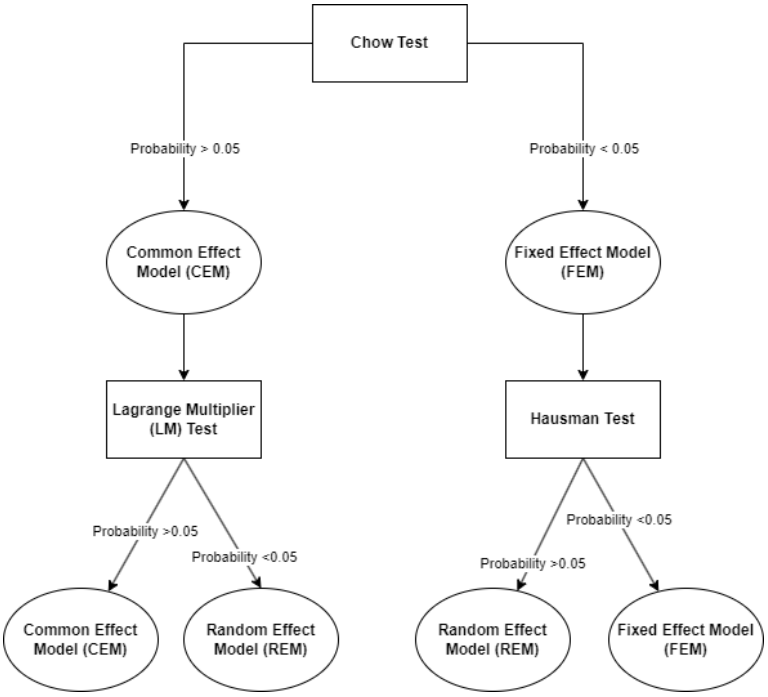

Figure 4.15 Panel Data Model Selection Decision Tree

Source: Napitupulu et al. (2021)

4.2.1. First Model

a. Chow Test

The Chow test is employed to determine the optimal model selection between the Common Effect Model (CEM) and the Fixed-Effect Model (FEM) for the first model.

Table 4.17 First Model Chow Test Result

Effects Test	Statistic	d.f.	Prob.
Cross-section F	16.314084	-11,481	0.0000
Cross-section Chi-square	159.799051	11	0.0000

Table 4.18 shows a chi-square probability value of 0.0000 lower than 0.05. This suggests that the fixed-effect model is more favorable than the common-effect model. Therefore, the Hausman test should be used to proceed with the model selection test.

b. Hausman Test

The Hausman test is employed to determine the optimal model selection between the Fixed Effect Model (FEM) and the Random Effect Model (REM) for the first model.

Table 4.18 First Model Hausman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	11	1.0000

The p-value for the cross-section random in Table 4.18 is 1.0000, which is more than the significance level of 0.05. This suggests that the random effect model is more appropriate than the fixed effect model. This concludes that the random effect model is the most optimal model for the first model.

4.2.2. Second Model

a. Chow Test

Table 4.19 shows the chow test result of the second model to determine the optimal model selection between the Common Effect Model (CEM) and the Fixed-Effect Model (FEM).

Table 4.19 Second Model Chow Test Result

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.004003	-11,479	0.4415
Cross-section Chi-square	11.48851	11	0.4033

The result shows a chi-square probability value of 0.4033 greater than 0.05. This suggests that the common effect model is more favorable than the fixed effect model. Therefore, the Hausman test is unnecessary; instead, the Lagrange multiplier test should be used to proceed with the model selection test.

b. Lagrange Multiplier (LM) Test

This test is utilized to ascertain the model between the Common Effect Model (CEM) and the Random Effect Model (REM).

Table 4.20 Second Model LM Test Result

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1.130776	9.701502	10.83228
	(0.2876)	(0.0018)	(0.001)

Honda	-1.063379	3.114723	1.450519
	(0.8562)	(0.0009)	(0.0735)
King-Wu	-1.063379	3.114723	0.488333
	(0.8562)	(0.0009)	(0.3127)
Standardized Honda	-0.282265	4.006856	-3.12102
	(0.6111)	0	(0.9991)
Standardized King-Wu	-0.282265	4.006856	-3.62663
	(0.6111)	0	(0.9999)
Gourieroux, et al.	--	--	9.701502
			(0.0029)

The p-value for the Breusch-Pagan test in Table 4.20 is 0.2876, which is more than the significance level of 0.05. This suggests that the common effect model is more appropriate than the random effect model. This validates the earlier chow test, which concluded that the common effect model is the most optimal model for the second model.

4.3. Classical Assumption Test

4.3.1. Normality Test

Ghozali (2013) asserts that normality tests can be employed to determine if the dependent variables, independent variables, or both in a regression model follow a normal distribution or have distributions that are not known. The Jarque-Bera (J-B) test will be used to conduct the normality test using EViews statistics software. If the p-value is below the 5% significance level, the data does not follow a normal distribution. If the probability value (p-value) exceeds the significance level of 5%, the data will follow a normal distribution.

a. First Model Normality Test

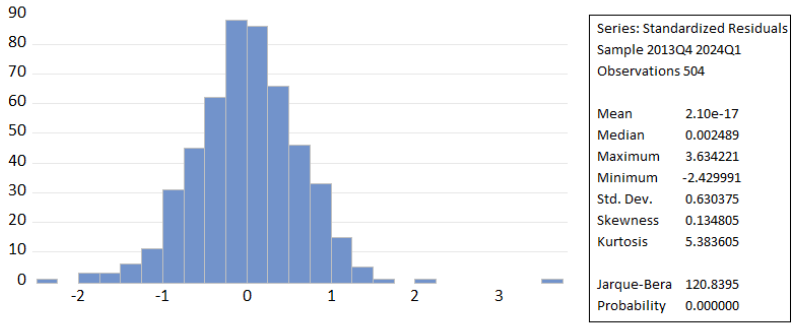

Figure 4.16 First Model Normality Test Result 1

The normality test for the first model as shown in Figure 4.16, yielded a Jarque-Bera probability value of 0.000. Given that this value falls below the conventional significance threshold of 0.05, the null hypothesis of normality is rejected. To investigate the potential influence of atypical observations on the observed non-normality, an outlier detection procedure was subsequently employed.

Table 4.21 First Model Outlier Identification

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.177355	0.558348	-0.317643	0.7509
CAR	-0.003144	0.00611	-0.514602	0.6071
NIM	0.359292	0.01744	20.60161	0.0000
LDR	-0.002795	0.001753	-1.594562	0.1115
CASA	0.027582	0.001908	14.4575	0.0000
CIR	-0.006678	0.002153	-3.100979	0.0020
NPL	-0.358294	0.031562	-11.35192	0.0000
PCR	0.057031	0.049476	1.152705	0.2496
GDP	0.009181	0.00902	1.017876	0.3093
FX	-4.68E-05	3.35E-05	-1.397469	0.1629
BI	0.094687	0.02231	4.244225	0.0000
CPI	0.023688	0.017172	1.379463	0.1684
@ISPERIOD("133")	-1.968328	0.479557	-4.104473	0.0000
@ISPERIOD("154")	-1.413056	0.480586	-2.940275	0.0034
@ISPERIOD("155")	-1.689431	0.478553	-3.530287	0.0005
@ISPERIOD("167")	1.310244	0.499676	2.622186	0.0090
@ISPERIOD("216")	-1.716951	0.478306	-3.589646	0.0004
@ISPERIOD("217")	-1.816398	0.4791	-3.79127	0.0002
@ISPERIOD("218")	-1.915404	0.479165	-3.997376	0.0001
@ISPERIOD("219")	-1.706247	0.479631	-3.557418	0.0004
@ISPERIOD("220")	-1.372499	0.478119	-2.870624	0.0043
@ISPERIOD("221")	-1.21976	0.478779	-2.547647	0.0112

@ISPERIOD("280")	-1.418544	0.481378	-2.946843	0.0034
@ISPERIOD("281")	-1.468995	0.479982	-3.060524	0.0023
@ISPERIOD("305")	-2.225074	0.481082	-4.625144	0.0000
@ISPERIOD("307")	3.864754	0.478965	8.068975	0.0000
@ISPERIOD("331")	-1.158898	0.484699	-2.390967	0.0172
@ISPERIOD("395")	-1.381204	0.485444	-2.845239	0.0046
@ISPERIOD("422")	-1.514734	0.479737	-3.157427	0.0017
@ISPERIOD("423")	2.035675	0.479384	4.246443	0.0000
@ISPERIOD("438")	1.223996	0.479559	2.552339	0.0110
@ISPERIOD("442")	1.611433	0.477668	3.373542	0.0008
@ISPERIOD("443")	1.253782	0.478593	2.619722	0.0091
@ISPERIOD("444")	1.181379	0.478416	2.469354	0.0139
@ISPERIOD("454")	1.499909	0.477724	3.139699	0.0018

After the outlier identification process, 23 outliers were detected within the first model, as detailed in Table 4.21. To assess the impact of these atypical observations on the data's distributional properties, the outliers were excluded, and the normality test was re-administered on the revised dataset.

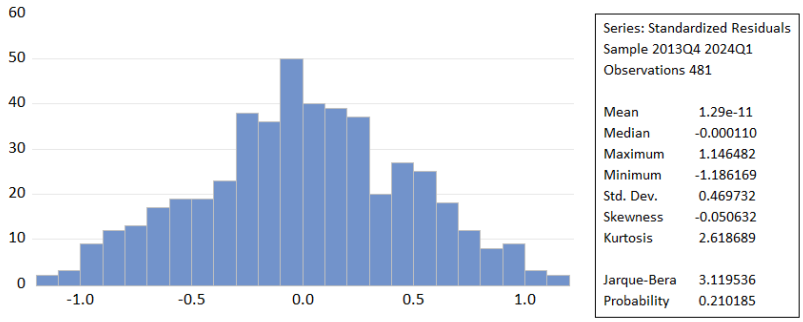

Figure 4.17 First Model Normality Test Result 2

From the histogram above, the JB value for the second normality test is 3.119536, while the Chi-Square value of 0.210185 is greater than the significant level of 0.05. Hence, it can be concluded that the data in the first model is a normal distribution.

b. Second Model Normality Test

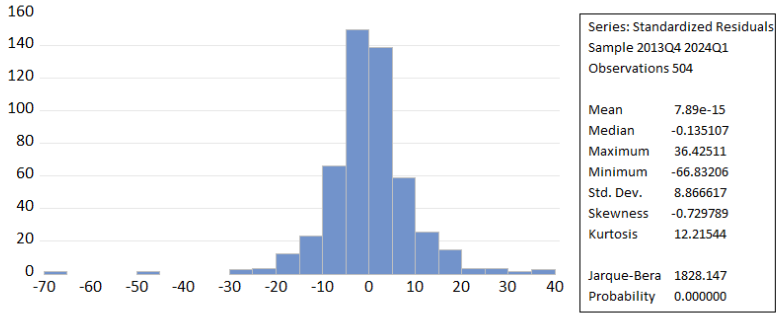

Figure 4.18 2nd Model Normality Test Result 1

The normality test for the second model, as shown in Figure 4.18, yielded a Jarque-Bera probability value of 0.000. Given that this value falls below the conventional significance threshold of 0.05, the null hypothesis of normality is rejected. Subsequently, an outlier detection procedure was employed to investigate the potential influence of atypical observations on the observed non-normality.

Table 4.22 2nd Model Outlier Identification 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-31.7211	7.885882	-4.02252	0.0001
CAR	-0.104899	0.082838	-1.26632	0.2060
NIM	0.246718	0.301035	0.819565	0.4129
LDR	0.032432	0.023696	1.368653	0.1718
CASA	0.059132	0.02975	1.987657	0.0474
CIR	0.075323	0.029713	2.534991	0.0116
NPL	1.314147	0.442442	2.970216	0.0031
PCR	0.894088	0.654326	1.366425	0.1725
ROA	1.045815	0.507333	2.061396	0.0398
JKSE	1.548008	0.095538	16.20304	0.0000
GDP	0.080362	0.13223	0.607746	0.5437
FX	0.001008	0.000484	2.08052	0.0380
BI	0.106563	0.30108	0.353936	0.7235
CPI	0.464104	0.240926	1.926338	0.0547
@ISPERIOD("26")	-30.69327	6.663856	-4.60593	0.0000
@ISPERIOD("68")	-34.43516	6.646449	-5.18099	0.0000
@ISPERIOD("69")	18.90359	6.43764	2.936416	0.0035
@ISPERIOD("133")	-20.89675	6.512284	-3.20882	0.0014
@ISPERIOD("152")	-58.00474	6.647507	-8.72579	0.0000
@ISPERIOD("187")	-19.46188	6.449446	-3.01761	0.0027
@ISPERIOD("194")	-75.55129	6.675565	-11.3176	0.0000
@ISPERIOD("195")	35.65817	6.461208	5.518808	0.0000
@ISPERIOD("196")	-17.71795	6.469822	-2.73855	0.0064
@ISPERIOD("199")	-16.57926	6.443527	-2.57301	0.0104

@ISPERIOD("218")	27.87997	6.50188	4.287985	0.0000
@ISPERIOD("278")	14.24538	6.704739	2.124674	0.0341
@ISPERIOD("281")	28.88955	6.489287	4.451883	0.0000
@ISPERIOD("283")	20.10476	6.437065	3.12328	0.0019
@ISPERIOD("303")	-20.75941	6.560807	-3.16415	0.0017
@ISPERIOD("313")	18.88241	6.436448	2.93367	0.0035
@ISPERIOD("315")	24.8234	6.417807	3.867895	0.0001
@ISPERIOD("318")	17.6187	6.40153	2.752264	0.0061
@ISPERIOD("320")	18.97259	6.660761	2.848412	0.0046
@ISPERIOD("362")	22.75489	6.679288	3.406785	0.0007
@ISPERIOD("468")	21.94892	6.455266	3.400158	0.0007
@ISPERIOD("479")	-24.67312	6.4673	-3.81506	0.0002
@ISPERIOD("488")	-27.92455	6.669544	-4.18688	0.0000
@ISPERIOD("497")	36.41773	6.456734	5.640271	0.0000

Table 4.22 shows the result of the initial identification, which detected 24 outliers in the second model data. After removing these outliers, the normality test was re-applied to the refined dataset.

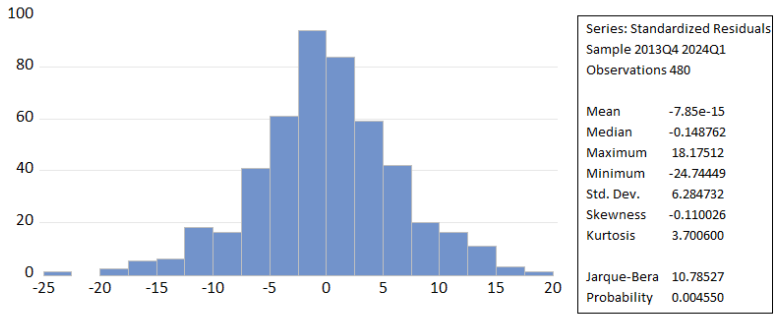

Figure 4.19 2nd Model Normality Test Result 2

The normality test for the second model, shown in Figure 4.19, showed a Jarque-Bera probability value of 0.004. Given that this value falls below the conventional significance threshold of 0.05, the null hypothesis of normality is still rejected. Subsequently, a second outlier detection procedure was employed.

Table 4.23 2nd Model Outlier Identification 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-24.42266	6.540322	-3.73417	0.0002
CAR	-0.051134	0.069059	-0.74044	0.4594
NIM	0.062561	0.249432	0.250815	0.8021
LDR	0.063242	0.01975	3.202089	0.0015
CASA	0.064043	0.024711	2.591649	0.0099

CIR	0.044225	0.024768	1.785596	0.0749
NPL	1.467023	0.365244	4.016554	0.0001
PCR	0.790086	0.543086	1.454807	0.1464
ROA	1.105098	0.42584	2.595104	0.0098
JKSE	1.210543	0.086226	14.03921	0.0000
GDP	-0.075609	0.112613	-0.67141	0.5023
FX	0.000431	0.000405	1.064276	0.2878
BI	0.030412	0.24712	0.123067	0.9021
CPI	0.42261	0.20158	2.096493	0.0366
@ISPERIOD("70")	11.50394	5.177977	2.221706	0.0268
@ISPERIOD("72")	12.68428	5.187409	2.445206	0.0149
@ISPERIOD("88")	13.96947	5.190405	2.691402	0.0074
@ISPERIOD("145")	-16.16913	5.144261	-3.14314	0.0018
@ISPERIOD("153")	14.05202	5.18343	2.71095	0.0070
@ISPERIOD("157")	-15.36526	5.160244	-2.97762	0.0031
@ISPERIOD("161")	-13.32589	5.159945	-2.58257	0.0101
@ISPERIOD("169")	-15.10595	5.204451	-2.90251	0.0039
@ISPERIOD("259")	13.63705	5.270611	2.587375	0.0100
@ISPERIOD("280")	-18.01484	5.241126	-3.43721	0.0006
@ISPERIOD("282")	-20.20003	5.177472	-3.90152	0.0001
@ISPERIOD("305")	15.80692	5.259062	3.005655	0.0028
@ISPERIOD("319")	13.83284	5.134599	2.694044	0.0073
@ISPERIOD("323")	16.62744	5.227414	3.180815	0.0016
@ISPERIOD("348")	-18.24886	5.167772	-3.53128	0.0005
@ISPERIOD("349")	14.92674	5.152502	2.896988	0.004
@ISPERIOD("353")	-12.84192	5.190168	-2.47428	0.0137
@ISPERIOD("375")	14.98432	5.145302	2.912233	0.0038
@ISPERIOD("397")	17.1417	5.222137	3.282508	0.0011
@ISPERIOD("404")	-24.01172	5.55522	-4.32237	0.0000
@ISPERIOD("428")	-14.73428	5.175436	-2.84696	0.0046
@ISPERIOD("437")	19.37974	5.157876	3.757311	0.0002
@ISPERIOD("446")	-31.24397	5.373788	-5.81414	0.0000
@ISPERIOD("448")	-14.17767	5.171697	-2.7414	0.0064
@ISPERIOD("451")	-13.1779	5.144555	-2.56152	0.0108
@ISPERIOD("464")	-13.79324	5.209682	-2.64762	0.0084
@ISPERIOD("470")	-12.97905	5.204796	-2.49367	0.0130
@ISPERIOD("472")	17.80291	5.165823	3.446287	0.0006
@ISPERIOD("482")	15.48631	5.171574	2.994507	0.0029
@ISPERIOD("499")	-17.90722	5.181387	-3.45607	0.0006

The second model's data required a two-stage outlier identification process to achieve normality. The initial identification detected 24 outliers (Table 4.22), while the second one revealed an additional 30 outliers (Table 4.23). After removing these outliers, the normality test was re-applied to the refined dataset.

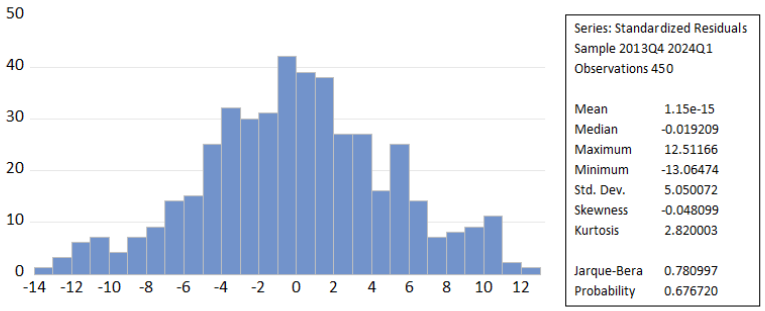

Figure 4.20 Second Model Normality Test Result

After the second outliers' data are removed from the histogram shown in Figure 4.17, the JB value is 0.780997, while the Chi-Square value of 0.676720 is greater than the significant level of 0.05. Hence, it can be concluded that the data in the second model is a normal distribution.

4.3.2. Multicollinearity Test

The multicollinearity test aims to determine if regression models identify relationships among independent variables. An ideal regression model should not exhibit any correlations among its independent variables. (Ghozali, 2013). A multicollinearity test was conducted to analyze the correlation between independent variables by calculating the variance inflation factor (VIF) values. Multicollinearity is present when the Variance Inflation Factor (VIF) exceeds 10. In such cases, it can be concluded that the independent variable included in the model does not exhibit multicollinearity.

a. First Model Multicollinearity Test

Table 4.24 First Model Multicollinearity Test Result

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
CAR	3.73E-05	39.2866	1.692746
NIM	0.000304	21.75109	1.54052
LDR	3.07E-06	57.68639	1.497802
CASA	3.64E-06	24.49865	2.012444
CIR	4.64E-06	31.41072	2.281718
NPL	0.000996	4.86841	1.946298
PCR	0.002448	17.57816	2.82321
GDP	8.14E-05	1.224434	1.054667
FX	1.12E-09	488.6945	2.557143
BI	0.000498	36.06354	2.242769

CPI	0.000295	12.09721	2.320593

Based on Table 4.21, the results of the multicollinearity test for the first model show that the VIF value in all variables (CAR, NIM, LDR, CASA, CIR, NPL, PCR, GDP, FX BI, and CPI) is smaller than 10. Thus, it can be concluded that all first model variables are independent of multicollinearity problems because the VIF value < 10.

b. Second Model Multicollinearity Test

Table 4.25 Second Model Multicollinearity Test Result

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	42.77581	789.1861	NA
CAR	0.004769	41.89517	1.826335
NIM	0.062216	37.28139	2.637491
LDR	0.00039	60.48189	1.619672
CASA	0.000611	34.24176	2.877343
CIR	0.000613	34.19573	2.489795
NPL	0.133403	5.361663	2.181059
PCR	0.294942	17.61846	2.857054
ROA	0.181339	20.48596	3.778951
JKSE	0.007435	1.768307	1.761968
GDP	0.012682	1.548615	1.308008
FX	1.64E-07	590.6139	3.193826
BI	0.061068	36.84912	2.288046
CPI	0.040634	13.98491	2.671569

Based on Table 4.22, the results of the multicollinearity test for the first model show that the VIF value in all variables (CAR, NIM, LDR, CASA, CIR, NPL, PCR, ROA, JKSE, GDP, FX BI, and CPI) is smaller than 10. Thus, it can be concluded that all first model variables are independent of multicollinearity problems because the VIF value < 10.

4.4. Significance Test

The significance test performed for this study consists of three tests: the partial regression coefficient test (t-test), the simultaneous significance test (test f), and the determination coefficient test (Test R2). The results of the first model significance

test are in Table 4.23, and the results of the second model significance test are in Table 4.24.

Table 4.26 First Model Significance Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.177355	0.460276	-0.385323	0.7002
CAR	-0.003144	0.005037	-0.624249	0.5328
NIM	0.359292	0.014377	24.99121	0.0000***
LDR	-0.002795	0.001445	-1.934317	0.0537*
CASA	0.027582	0.001573	17.53797	0.0000***
CIR	-0.006678	0.001775	-3.761707	0.0002***
NPL	-0.358294	0.026019	-13.77069	0.0000***
PCR	0.057031	0.040786	1.398313	0.1627
GDP	0.009181	0.007436	1.234756	0.2175
FX	-4.68E-05	2.76E-05	-1.695229	0.0907*
BI	0.094687	0.018391	5.148546	0.0000***
CPI	0.023688	0.014156	1.673387	0.0949*
		Effects Specification		
			S.D.	**Rho**
Cross-section random			3.13E-06	0.0000
Idiosyncratic random			0.39174	1.0000
		Weighted Statistics		
R-squared	0.794923	Mean dependent var		2.22158
Adjusted R-squared	0.790114	S.D. dependent var		1.03727
S.E. of regression	0.475208	Sum squared resid		105.9109
F-statistic	165.2683	Durbin-Watson stat		0.499387
Prob(F-statistic)	0.000000			
		Unweighted Statistics		
R-squared	0.794923	Mean dependent var		2.22158
Sum squared resid	105.9109	Durbin-Watson stat		0.499387

*** Highly Significant: p-value < 0.01
** Significant: 0.01 < p-value < 0.05
* Marginally Significant: < 0.05 p-value < 0.1

Table 4.27 Second Model Significance Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-24.38267	6.579153	-3.70605	0.0002
CAR	-0.052948	0.069398	-0.762971	0.4459
NIM	0.070204	0.250775	0.279948	0.7797
LDR	0.063498	0.019844	3.199919	0.0015***

CASA	0.064524	0.024835	2.598099	0.0097***
CIR	0.044536	0.024887	1.789501	0.0742*
NPL	1.464794	0.366974	3.991548	0.0001***
PCR	0.798954	0.545755	1.463945	0.1439
ROA	1.088282	0.428486	2.539828	0.0114**
JKSE	1.195189	0.087056	13.72896	0.0000***
GDP	-0.101663	0.113433	-0.896233	0.3706
FX	0.000423	0.000407	1.039138	0.2993
BI	0.043659	0.248228	0.175881	0.8605
CPI	0.41589	0.202852	2.050208	0.0409**
R-squared	0.414095	Mean dependent var		-0.09187
Adjusted R-squared	0.396625	S.D. dependent var		6.597568
S.E. of regression	5.124807	Akaike info criterion		6.13668
Sum squared resid	11450.95	Schwarz criterion		6.264523
Log-likelihood	-1366.753	Hannan-Quinn criteria.		6.187067
F-statistic	23.70365	Durbin-Watson stat		1.95303
Prob(F-statistic)	0.000000			

*** Highly Significant: p-value < 0.01
** Significant: 0.01 < p-value < 0.05
* Marginally Significant: < 0.05 p-value < 0.1

4.4.1. Test on Individual Regression Coefficient (t-Test)

The statistical test t is employed to assess the individual impact of an independent variable on the variation of dependent variables (Ghozali, 2013). The chosen significance level (α) is 5% (0.05). The level of significance of the p-value determines the acceptance and rejection criteria of the hypothesis. If the p-value (significance) is more significant than 0.05, the study hypothesis is rejected, indicating no discernible effect of the independent variable on the dependent variables. Alternatively, if the p-value exceeds 0.05, the hypothesis in the study is not rejected. The presence of independent variables has a discernible impact on dependent variables.

The t-test results, including the coefficient values, t-statistic values, and p-values of each independent variable of the two models, are displayed in Tables 4.23 and 4.24. The relationship between each independent variable and the dependent variables, as determined by the best model selection test for each model, REM for the first model and CEM for the second model, can be explained as follows:

a. First Model t-Test Result

RoA = -0.385323 - 0.624249CAR + 24.99121NIM - 1.934317LDR + 17.53797CASA - 3.761707CIR - 13.77069NPL + 1.398313PCR + 1.234756GDP - 1.695229FX + 5.148546BIrate + 1.673387CPI

1. **Capital Adequacy Ratio (CAR)**

   CAR t-test on the regression model resulted in a t-statistic value of -0.624249 and a probability significance value of 0.5328 > 0.05. Therefore, hypothesis H1a.1 is rejected, and it can be concluded that CAR has a negative and insignificant effect on ROA.

2. **Net Interest Margin (NIM)**

   As for NIM, the t-test on the regression model resulted in a t-statistic value of 24.99121 and a probability significance value of 0.0000 < 0.01. Therefore, hypothesis H1a.2 is accepted, and it can be concluded that NIM has a positive and highly significant effect on ROA.

3. **Loan to Deposit Ratio (LDR)**

   The t-test on the regression model for LDR yielded a t-statistic value of -1.934317 and a probability significance value of 0.0537 < 0.05 p-value < 0.1. Therefore, hypothesis H1a.3 is accepted, and it can be concluded that LDR has a negative and marginally significant effect on ROA.

4. **Current Account Saving Account (CASA)**

   CASA t-test on the regression model resulted in a t-statistic value of 17.53797 and a probability significance value of 0.0000 < 0.01. Therefore, hypothesis H1a.4 is accepted, and it can be concluded that CASA has a positive and highly significant effect on ROA.

5. **Cost to Income Ratio (CIR)**

   The t-test on the regression model for CIR resulted in a t-statistic value of -3.761707 and a probability significance value of 0.0002 < 0.01. Therefore, hypothesis H1a.5 is accepted, and it can be concluded that CIR has a negative and highly significant effect on ROA.

6. **Non-Performing Loan (NPL)**

   Based on the t-test results on the regression model, we obtained a t-statistic value for NPL of -13.77069 and a probability significance value of 0.0000

< 0.01, meaning hypothesis H1a.6 is accepted. Thus, it can be concluded that NPL has a negative and highly significant effect on ROA.

7. **Provision Coverage Ratio (PCR)**

   For PCR, the t-test on the regression model resulted in a t-statistic value of 1.398313 and a probability significance value of 0.1627 > 0.05. Therefore, hypothesis H1a.7 is rejected, and it can be concluded that PCR has a positive and insignificant effect on ROA.

8. **GDP Growth (GDP)**

   GDP t-test on the regression model resulted in a t-statistic value of 1.234756 and a probability significance value of 0.2175 > 0.05. Therefore, hypothesis H1b.1 is rejected, and it can be concluded that GDP has a positive and insignificant effect on ROA.

9. **Exchange Rate IDR to USD (FX)**

   The t-test on the regression model for FX resulted in a t-statistic value of -1.695229 and a probability significance value of 0.0907 < 0.05 p-value < 0.1. Therefore, hypothesis H1b.2 is accepted, and it can be concluded that FX has a negative and marginally significant effect on ROA.

10. **BI Rates (BI)**

    BI t-test on the regression model resulted in a t-statistic value of 5.148546 and a probability significance value of 0.0000 < 0.01. Therefore, hypothesis H1b.3 is accepted, and it can be concluded that BI has a positive and highly significant effect on ROA.

11. **Inflation (CPI)**

    Lastly, the t-test on the regression model for CPI resulted in a t-statistic value of 1.673387 and a probability significance value of 0.0949 < 0.05 p-value < 0.1. Therefore, hypothesis H1b.4 is accepted, and it can be concluded that CPI has a positive and marginally significant effect on ROA.

a. Second Model t-Test Result

SR = -3.70605 - 0.762971CAR + 0.279948NIM + 3.199919LDR + 2.598099CASA + 1.789501CIR + 3.991548NPL + 1.463945PCR + 2.539828RoA + 13.72896GDP - 0.896233GDP + 1.039138 FX + 0.175881BIrate + 2.050208CPI

1. **Capital Adequacy Ratio (CAR)**

   CAR t-test on the regression model resulted in a t-statistic value of -0.762971 and a probability significance value of 0.4459 > 0.05. Therefore, hypothesis H2a.1 is rejected, and it can be concluded that CAR has a negative and insignificant effect on Bank Stock Return (SR).

2. **Net Interest Margin (NIM)**

   As for NIM, the t-test on the regression model resulted in a t-statistic value of 0.279948 and a probability significance value of 0.7797 > 0.05. Therefore, hypothesis H2a.2 is rejected, and it can be concluded that NIM has a positive and insignificant effect on Bank Stock Returns (SR).

3. **Loan to Deposit Ratio (LDR)**

   The t-test on the regression model for LDR yielded a t-statistic value of 3.199919 and a probability significance value of 0.0015 < 0.01. Therefore, hypothesis H2a.3 is accepted, and it can be concluded that LDR has a positive and highly significant effect on Bank Stock Returns (SR).

4. **Current Account Saving Account (CASA)**

   CASA t-test on the regression model resulted in a t-statistic value of 2.598099 and a probability significance value of 0.0097 < 0.01. Therefore, hypothesis H2a.4 is accepted, and it can be concluded that CASA has a positive and highly significant effect on Bank Stock Returns (SR).

5. **Cost to Income Ratio (CIR)**

   The t-test on the regression model for CIR resulted in a t-statistic value of 1.789501 and a probability significance value of 0.0742 < 0.05 p-value < 0.1. Therefore, hypothesis H2a.5 is accepted, and it can be concluded that CIR has a positive and marginally significant effect on bank stock returns (SR).

6. **Non-Performing Loan (NPL)**

   Based on the t-test results on the regression model, we obtained a t-statistic value for NPL is 3.991548 and a probability significance value of 0.0001 < 0.01, meaning hypothesis H2a.6 is accepted. Thus, it can be concluded that NPL has a positive and highly significant effect on Bank Stock Returns (SR).

7. **Provision Coverage Ratio (PCR)**

   For PCR, the t-test on the regression model resulted in a t-statistic value of 1.463945 and a probability significance value of 0.1439 > 0.05. Therefore, hypothesis H2a.7 is rejected, and it can be concluded that PCR has a positive and insignificant effect on Bank Stock Return (SR).

8. **Return on Assets (ROA)**

   ROA t-test on the regression model resulted in a t-statistic value of 2.539828 and a probability significance value of 0.0114 < 0.05. Therefore, hypothesis H2a.8 is accepted, and it can be concluded that ROA positively and significantly affects Bank Stock Returns (SR).

9. **Market Returns (JKSE)**

   JKSE t-test on the regression model resulted in a t-statistic value of 13.72896 and a probability significance value of 0.0000 < 0.01. Therefore, hypothesis H2b.1 is accepted, and it can be concluded that JKSE has a positive and highly significant effect on Bank Stock Returns (SR).

10. **GDP Growth (GDP)**

    The GDP t-test on the regression model resulted in a t-statistic value of -0.896233 and a probability significance value of 0.3706 > 0.05. Therefore, hypothesis H2b.2 is rejected, and it can be concluded that GDP has a negative and insignificant effect on Bank Stock Returns (SR).

11. **Exchange Rate IDR to USD (FX)**

    The t-test on the regression model for FX resulted in a t-statistic value of 1.039138 and a probability significance value of 0.2993 > 0.05. Therefore, hypothesis H2b.3 is rejected, and it can be concluded that FX has a positive and insignificant effect on Bank Stock Returns (SR).

12. **BI Rates (BI)**

    BI t-test on the regression model resulted in a t-statistic value of 0.175881 and a probability significance value of 0.8605 > 0.05. Therefore, hypothesis H2b.4 is rejected, and it can be concluded that BI has a positive and insignificant effect on Bank Stock Returns (SR).

13. **Inflation (CPI)**

Lastly, the t-test on the regression model for CPI resulted in a t-statistic value of 2.050208 and a probability significance value of 0.0409 < 0.05. Therefore, hypothesis H2b.5 is accepted, and it can be concluded that CPI positively and significantly affects Bank Stock Returns (SR).

4.4.2. Simultaneous Significance Test (F-Test)

The F-test, or the simultaneous significance test, is used to ascertain if all independent factors exert an equal impact on dependent variables. Suppose the p-value from the F test is less than the significance level of 0.05. In that case, the null hypothesis should be rejected, indicating that all independent factors have a significant effect on the dependent variables. If the p-value obtained from the F-test is greater than the significance level of 0.05, the null hypothesis should not be rejected. Therefore, it can be inferred that the independent factors do not significantly impact the dependent variable.

Based on the results of simultaneous tests (F-test) for the first model in Table 4.23, all variables have probabilities (F-statistics) or p-values (0.00) smaller than 0.05. This result concludes that CAR, NIM, LDR, CASA, CIR, NPL, PCR, GDP, FX, BI, and CPI affect ROA similarly.

Thus, the results of simultaneous tests (F-test) for the second model shown in Table 4.24 stated that all variables have probabilities (F-statistics) or p-values (0.00) that are smaller than 0.05. This result concludes that CAR, NIM, LDR, CASA, CIR, NPL, PCR, ROA, JKSE, GDP, FX, BI, and CPI have the same effect on Bank Stock Returns (SR).

4.4.3. Coefficient of Determination Test (Adjusted R^2)

The coefficient of determination (Adjusted R2) test measures the regression model's ability to explain the relationship between independent and dependent variables.

Based on the results of the panel data regression for the first model with the random effect model method, the Adjusted R-squared value is 0.790114. This result can be interpreted that the CAR, NIM, LDR, CASA, CIR, NPL, PCR, GDP, FX, BI, and CPI variables can jointly explain the ROA of 79.01%, and the remaining 20.99% explained by other variables outside the research model.

Meanwhile, the results of the regression of panel data for the second model with the common effect model method, the Adjusted R-squared value is 0.396625. This result can be interpreted that the CAR, NIM, LDR, CASA, CIR, NPL, PCR, ROA, JKSE, GDP, FX, BI, and CPI variables can jointly explain the SR of 39.66% and the remaining 60.34% explained by other variables outside the research model.

4.5. Research Summary

Table 4.28 Summary of Research Findings

Hypothesis	Research Findings	Remarks
1st Model - Random Effect Model		
H1a.1: Capital Adequacy Ratio (CAR) positively impacts the financial performance of Indonesian banks.	t-statistic = -0.624249 Prob. = 0.5328 > 0.05 Decision: Hypothesis is rejected	CAR has a negative and insignificant effect on the financial performance of Indonesian banks.
H1a.2: Net Interest Margin (NIM) positively impacts the financial performance of Indonesian banks.	t-statistic = 24.99121 Prob. = 0.000 < 0.01 Decision: Hypothesis is accepted	NIM has a positive and highly significant effect on the financial performance of Indonesian banks.
H1a.3: Well-managed Loan-to-Deposit Ratio (LDR) positively impacts the financial performance of Indonesian banks.	t-statistic = -1.934317 Prob. = 0.0537 < 0.05 p-value < 0.1 Decision: Hypothesis is accepted	LDR has a negative and marginally significant effect on the financial performance of Indonesian banks.
H1a.4d: Cheap Funding (CASA ratio) positively impacts the financial performance of Indonesian banks.	t-statistic = 17.53797 Prob. = 0.0000 < 0.01 Decision: Hypothesis is accepted	CASA has a positive and highly significant effect on the financial performance of Indonesian banks.
H1a.5: High Cost to Income Ratio negatively impacts the financial performance of Indonesian banks.	t-statistic = -3.761707 Prob. = 0.0002 < 0.01 Decision: Hypothesis is accepted	CIR has a negative and highly significant effect on the financial performance of Indonesian banks.
H1a.6: Well-managed Non-Performing Loans (NPL) positively impact the financial performance of Indonesian banks.	t-statistic = -13.77069 Prob. = 0.0000 < 0.01 Decision: Hypothesis is accepted	NPL has a negative and highly significant effect on the financial performance of Indonesian banks.
H1a.7: Well-managed Provision Coverage Ratio positively impacts the financial performance of Indonesian banks.	t-statistic = 1.398313 Prob. = 0.1627 > 0.05 Decision: Hypothesis is rejected	PCR has a positive and insignificant effect on the financial performance of Indonesian banks.

H1b.1: GDP growth rate positively impacts the financial performance of Indonesian banks.	t-statistic = 1.234756 Prob. = 0.2175 > 0.05 Decision: Hypothesis is rejected	GDP has a positive and insignificant effect on the financial performance of Indonesian banks.
H1b.2: A strong IDR exchange rate over USD positively impacts the financial performance of Indonesian banks.	t-statistic = -1.695229 Prob. = 0.0907 < 0.05 p-value <0.1 Decision: Hypothesis is accepted	FX has a negative and marginally significant effect on the financial performance of Indonesian banks.
H1b.3: BI Interest Rate positively impacts the financial performance of Indonesian banks	t-statistic = 5.148546 Prob. = 0.0000 < 0.01 Decision: Hypothesis is accepted	BI has a positive and highly significant effect on the financial performance of Indonesian banks.
H1b.4: Inflation (CPI) positively impacts the financial performance of Indonesian banks.	t-statistic = 1.673387 Prob. = 0.0949 < 0.05 p-value < 0.1 Decision: Hypothesis is accepted	CPI has a positive and marginally significant effect on the financial performance of Indonesian banks.
2nd Model – Common Effect Model		
H2a.1: Capital Adequacy Ratio (CAR) positively impacts the stock return of Indonesian banks.	t-statistic =-0.762971 Prob. = 0.4459 > 0.05 Decision: Hypothesis is rejected	CAR has a negative and insignificant effect on the stock return of Indonesian banks.
H2a.2: Net Interest Margin (NIM) positively impacts the stock return of Indonesian banks.	t-statistic = 0.279948 Prob. = 0.7797 > 0.05 Decision: Hypothesis is rejected	NIM has a positive and insignificant effect on the stock return of Indonesian banks.
H2a.3: Well-managed Loan-to-Deposit Ratio (LDR) positively impacts the stock return of Indonesian banks.	t-statistic = 3.199919 Prob. = 0.0015 < 0.01 Decision: Hypothesis is accepted	LDR has a positive and highly significant effect on the stock return of Indonesian banks.
H2a.4: Cheap Funding (CASA ratio) positively impacts the stock return of Indonesian banks.	t-statistic = 2.598099 Prob. = 0.0097 < 0.01 Decision: Hypothesis is accepted	CASA has a positive and highly significant effect on the stock return of Indonesian banks.
H2a.5: The high Cost to Income Ratio negatively impacts the stock return of Indonesian banks.	t-statistic = 1.789501 Prob. = 0.0742 < 0.05 p-value < 0.1 Decision: Hypothesis is accepted	CIR has a positive and marginally significant effect on the stock return of Indonesian banks.

H2a.6: Well-managed Non-Performing Loans (NPL) positively impact the stock return of Indonesian banks.	t-statistic = 3.991548 Prob. = 0.0001 < 0.01 Decision: Hypothesis is accepted	NPL has a positive and highly significant effect on Indonesian banks' stock returns.
H2a.7: Well-managed Provision Coverage Ratio positively impacts the stock return of Indonesian banks.	t-statistic = 1.463945 Prob. = 0.1439 > 0.05 Decision: Hypothesis is rejected	PCR has a positive and insignificant effect on the stock return of Indonesian banks.
H2a.8: Well-managed Return on Assets positively impacts the stock return of Indonesian banks.	t-statistic = 2.539828 Prob. = 0.0114 < 0.05 Decision: Hypothesis is accepted	ROA has a positive and significant effect on the stock return of Indonesian banks.
H2b.1: Market Return (JKSE return) positively impacts the stock return of Indonesian banks.	t-statistic = 13.72896 Prob. = 0.0000 < 0.01 Decision: Hypothesis is accepted	JKSE has a positive and highly significant effect on Indonesian banks' stock returns.
H2b.2: GDP growth rate positively impacts the stock return of Indonesian banks.	t-statistic = -0.896233 Prob. = 0.3706 > 0.05 Decision: Hypothesis is rejected	GDP has a negative and insignificant effect on the stock return of Indonesian banks.
H2b.3: A strong IDR exchange rate over USD positively impacts the stock return of Indonesian banks.	t-statistic = 1.039138 Prob. = 0.2993 > 0.05 Decision: Hypothesis is rejected	FX has a positive and insignificant effect on Indonesian banks' stock returns.
H2b.4: BI Interest Rate positively impacts the stock return of Indonesian banks.	t-statistic = 0.175881 Prob. = 0.8605 > 0.05 Decision: Hypothesis is rejected	BI has a positive and insignificant effect on the stock return of Indonesian banks.
H2b.5: Inflation (CPI) positively impacts the stock return of Indonesian banks	t-statistic = 2.050208 Prob. = 0.0409 < 0.05 Decision: Hypothesis is accepted	CPI has a positive and significant effect on the stock return of Indonesian banks.

4.6. Research Analysis and Discussion

Table 4.25 presents the summary research results for the first and second models. Based on the result of the first model using the random effect model, NIM, CASA, BI, and CPI positively and significantly affect the return on assets (ROA) for the period Q4 2013 to Q1 2024. Meanwhile, LDR, CIR, NPL, and FX negatively and significantly affect the return on assets (ROA).

The findings of the first model align with prior research by Ardiansyah et al. (2023), which demonstrated that NPL, CASA, and LDR collectively influence ROA. Putri and Widjaja (2022) also indicated that NPLs negatively impact profit variations in Commercial Banks listed on the IDX between 2013 and 2017. The NPL ratio has an inverse relationship with ROA, as elevated NPL levels correlate with increased non-performing loans, reducing potential profits. Higher NPLs compel banks to allocate more significant reserves to mitigate the risk of these loans, thereby increasing the reserve burden. This, in turn, diminishes profit generation and disrupts banking efficiency.

Renjani (2020) measured that CASA positively impacted the ROA of foreign exchange Islamic commercial banks between 2015 and 2019. Similarly, other studies, such as those by Khabibah et al. (2020) have demonstrated that CASA contributes to enhanced banking profitability. A higher CASA ratio is associated with increased bank profits, as CASA represents a portion of low-cost funds within third-party deposits. An increased share of these low-cost funds reduces banks' interest expenses when raising third-party funds, thereby enhancing the bank's potential net profit. Consequently, a higher CASA ratio indicates a more significant potential for profit generation, making banks with high CASA ratios more attractive to investors.

Hasyim et al. (2023) They examined the impact of macroeconomic factors on profitability (ROA), revealing that the exchange rate (FX) negatively affects ROA. In contrast, both inflation and the BI rate exert a significant favorable influence on profitability. These findings are consistent with the results of the first model in the current study.

The results of the second model, employing the standard effect model, indicate that LDR, CASA, CIR, NPL, ROA, JKSE, and CPI have a positive and significant impact on the stock returns of Indonesian banks during the period from Q4 2013 to Q1 2024. This finding is supported by previous research, such as Chiang et al. (2024), which demonstrated that LDR, NPL, and market returns positively and significantly influenced stock returns for 2007-2011. Additionally, Kalam (2020) Found that inflation (CPI) has a significant effect on stock returns, while Ibrahim and Agbaje (2013) Established a co-integrated relationship between stock returns

and inflation. Their results further indicate that inflation positively and significantly impacts stock returns, underscoring its importance as a macroeconomic variable that influences investment flows and determines the direction and variations in stock returns over time.

Chapter 5.
Conclusion, Limitation, Implication, and Recommendation

5.1. Conclusion

This study addresses a research gap in the existing literature by examining the inconsistent findings of previous researchers regarding the impact of 7 (seven) key financial factors and 5 (five) macroeconomic factors on bank's profitability and stock returns, specifically analyzed for banks in category III and IV.

Based on existing problems, this study has several research objectives: 1) to analyze the impact of Financial Metrics and Macroeconomic Variables on Financial Performance and 2) to analyze the impact of Financial Metrics and Macroeconomic Variables on Stock Return. This study examined the quarterly financial and macroeconomic factors of twelve banks listed on the Indonesia Stock Exchange from Q4 2013 to Q4 2024. This study employed a Regression Data Panel Analysis, the Classical Assumptions test, and the Significance Test to address all the research inquiries. The analysis and discussion of the results of each test are presented in Chapter 4 of this study. The summary of the findings from each test is as follows:

The study employed panel data regression and conducted significance tests to address the first and second model inquiries, specifically by examining individual regression coefficients using t-tests and conducting simultaneous significance tests using F-tests. The regression analysis of panel data reveals for the first model that the independent variables, Net Interest Margin (NIM), Current Account Saving Account (CASA), BI rate (BI), and Inflations (CPI) have a positive significant impact on the bank's profitability performance Return of Assets (ROA). While the variables Loan to Deposit Ratio (LDR), Cost to Income Ratio (CIR), Non-Performing Loan (NPL), and Exchange Rate (FX) have a negative significant impact on the bank's profitability performance ROA. Conversely, the variables of Capital Adequacy Ratio (CAR), Provision Coverage Ratio (PCR), and GDP growth (GDP) do not exert any influence on the bank's profitability performance during the period spanning from Q4 2013 to Q1 2024.

In addition, the finding for this study's second model reveals that the independent variables, Loan Deposit Ratio (LDR), Current Account Saving

Account (CASA), Cost to Income Ratio (CIR), Non-Performing Loans (NPL), Return on Assets (ROA), Market Returns (JKSE) and Inflations (CPI) have a positive significant impact on the bank's stock returns. While the variables Capital Adequacy Ratio (CAR), Net Income Margin (NIM), Provision Coverage Ratio (PCR), GDP growth (GDP), Exchange Rate (FX), and BI rate (BI) do not exert any influence on bank's stock returns during the period spanning from Q4 2013 to Q1 2024.

According to the results of the simultaneous tests (F-test), all independent variables in the first and second models have p-values (F-statistics) of 0.00, which is less than 0.05. This outcome indicates that the null hypothesis should be rejected to infer that all independent variables exert an equal impact on the dependent variable.

The Adjusted R-squared value in the first model result is 0.790114, and the second model result is 0.396625. The findings suggest that the independent variables in the first model, specifically CAR, NIM, LDR, CASA, CIR, NPL, PCR, GDP, FX, BI, and CPI, collectively account for 79.01% of the variation in the dependent variable, which is ROA, as for the second model independent variables, CAR, NIM, LDR, CASA, CIR, NPL, PCR, ROA, JKSE, GDP, FX, BI, and CPI collectively account for 39.66% of the variation in the dependent variable, which is stock returns. The remaining 20.99% (first model) and 60.34% (second model) of the variation is attributed to other variables not included in the research model.

5.2. Limitation

This research has several limitations that should be considered for future studies to achieve more accurate outcomes, as outlined below:

1. The study exclusively examined the CAR, NIM, LDR, CASA, CIR, NPL, PCR, and ROA as financial factors and JKSE, GDP, FX, BI, and CPI as macroeconomic factors.
2. The study's observation period only extends from Q4 2013 to Q1 2024.
3. This research's findings are specific to banking companies in Indonesia and cannot be extrapolated to other industries.

5.3. Theoretical Implication

The study's results yield the following theoretical implication:

1. Development of a Holistic Framework: This study contributes to developing a comprehensive framework that integrates key financial factors and macroeconomic variables to assess their collective impact on banks' financial performance and stock returns. By doing so, the research provides a more nuanced understanding of how these elements interact, offering a robust model for analyzing bank profitability and investment outcomes in the banking sector.
2. Exploration of Moderating Roles: The findings underscore the importance of examining the moderating roles of financial metrics and macroeconomic factors. The interactions between these variables significantly influence banks' financial performance and stock returns, suggesting that the relationships are not linear but contingent on the specific economic context and financial conditions. This insight prompts further exploration into how varying levels of these factors might amplify or mitigate their effects, thereby offering a more dynamic understanding of bank performance's financial and economic determinants.

5.4. Practical Implication

The practical implications of this research are significant for both financial managers and policymakers. First, the study offers actionable insights that can be directly applied to optimize financial strategies, thereby enhancing banks' financial performance and stock returns. By understanding the complex interplay between key financial metrics and macroeconomic variables, bank managers are better equipped to develop targeted approaches that improve profitability and shareholder value.

Moreover, the research supports evidence-based decision-making in financial management and investment strategies. Executives and investors can leverage these findings to make informed choices that align with broader financial objectives, leading to improved bank performance and optimized investment outcomes. Additionally, the study gives managers a deeper understanding of how financial metrics and macroeconomic factors influence financial performance. This enhanced insight allows for more effective anticipation and response to financial trends and economic shifts.

The research also offers practical recommendations for managers to make well-informed financial strategy and performance management decisions. These recommendations can guide the development of policies and practices that support sustainable growth and financial stability. Furthermore, the findings provide valuable information for banks and government agencies to make effective decisions regarding financial management and investment policies, ensuring that strategies are adaptable to changing financial and economic conditions.

Finally, the study equips policymakers with the tools to incorporate sustainability principles into their regulatory frameworks. By integrating concepts such as industry innovation, infrastructure development, and economic growth, financial regulations can promote stability and performance and support broader sustainable development goals.

5.5. Recommendation for Further Research

Given the constraints of this study, there are several recommendations for researchers seeking to advance further and refine this investigation, precisely:

1. The study exclusively examined CAR, NIM, LDR, CASA, CIR, NPL, PCR, and ROA as indicators of financial factors and JKSE, GDP, FX, BI, and CPI as indicators of macroeconomic factors. Future research should include additional bank performance variables, such as Return on Equity (ROE), Liquidity Ratio, and Good Corporate Governance (GCG), to further analyze the impact of bank performances and stock returns.
2. The study's observation period extends from Q4 2013 to Q1 2024. Future research should explore the possibility of conducting analyses over an extended period or using different observation periods. This will help us obtain more accurate and potentially different research results and increase the sample size of participants.
3. This research's findings are specific to banking companies in Indonesia. Therefore, future studies could explore other industries to obtain more samples and better results.

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APPENDIX A

FINANCIAL FACTORS DATA

Time	Bank	CAR	NIM	LDR	CASA	CIR	NPL	PCR	ROA
Q4 2013	BMRI	14.93	5.68	82.97	64.70	47.50	0.37	2.36	3.66
Q1 2014	BMRI	16.15	5.94	86.61	62.96	44.50	0.45	4.48	3.55
Q2 2014	BMRI	16.04	5.89	85.40	62.17	45.60	0.47	2.20	3.48
Q3 2014	BMRI	16.47	5.87	84.34	61.22	47.00	0.46	2.15	3.53
Q4 2014	BMRI	16.60	5.94	82.02	59.79	47.30	0.44	2.20	3.57
Q1 2015	BMRI	17.87	5.41	83.80	59.18	45.40	0.53	1.85	3.54
Q2 2015	BMRI	17.63	5.58	82.97	61.68	46.10	0.63	1.69	3.21
Q3 2015	BMRI	17.81	5.63	84.27	63.54	44.70	0.74	1.61	3.00
Q4 2015	BMRI	18.60	5.90	87.05	65.62	45.99	0.60	1.64	3.15
Q1 2016	BMRI	18.48	6.28	86.72	62.06	45.52	0.85	1.55	2.58
Q2 2016	BMRI	21.78	6.06	87.19	63.56	46.68	1.33	1.21	2.15
Q3 2016	BMRI	22.63	6.40	89.90	63.33	44.04	1.04	1.37	2.35
Q4 2016	BMRI	21.36	6.29	85.86	64.18	44.53	1.38	1.32	1.95
Q1 2017	BMRI	21.11	5.69	89.22	63.69	44.26	1.16	1.41	2.38
Q2 2017	BMRI	21.55	5.65	88.61	64.43	44.48	1.28	1.42	2.61
Q3 2017	BMRI	21.98	5.64	89.05	64.68	46.41	0.85	1.44	2.72
Q4 2017	BMRI	21.64	5.63	88.11	66.23	47.58	1.06	1.42	2.72
Q1 2018	BMRI	20.94	5.61	90.67	64.63	45.50	1.05	1.43	3.17
Q2 2018	BMRI	20.64	5.51	94.17	64.61	45.49	0.89	1.42	3.04
Q3 2018	BMRI	21.38	5.52	92.48	64.46	46.44	0.81	1.44	2.96
Q4 2018	BMRI	20.96	5.52	96.74	64.11	47.15	0.67	1.48	3.17
Q1 2019	BMRI	22.47	5.55	93.82	62.39	46.17	0.74	1.51	3.42
Q2 2019	BMRI	21.01	5.49	97.94	64.37	46.64	0.72	1.51	3.08
Q3 2019	BMRI	22.50	5.49	92.52	63.68	46.75	0.71	1.58	3.01
Q4 2019	BMRI	21.39	5.46	96.37	65.33	47.99	0.84	1.46	3.03
Q1 2020	BMRI	17.65	5.26	94.91	64.13	46.13	0.47	2.65	3.55
Q2 2020	BMRI	19.20	4.76	87.65	61.89	46.12	0.82	1.99	2.23
Q3 2020	BMRI	19.83	4.50	83.03	65.39	41.92	0.64	2.07	1.95
Q4 2020	BMRI	19.90	4.48	82.95	65.63	44.89	0.43	2.29	1.64
Q1 2021	BMRI	18.51	4.65	81.15	67.60	42.36	0.44	2.29	2.22
Q2 2021	BMRI	18.94	4.63	86.00	68.49	40.84	0.49	2.31	2.43
Q3 2021	BMRI	19.40	4.67	83.29	69.74	40.63	0.43	2.40	2.42
Q4 2021	BMRI	19.60	4.73	80.04	69.70	42.54	0.41	2.54	2.53
Q1 2022	BMRI	18.20	5.01	83.66	70.31	36.44	0.35	2.58	3.34
Q2 2022	BMRI	18.41	5.06	84.79	70.75	35.82	0.33	2.65	3.38
Q3 2022	BMRI	19.32	5.12	83.18	69.73	35.82	0.31	2.81	3.40
Q4 2022	BMRI	19.46	5.16	77.61	73.42	38.19	0.26	2.96	3.30
Q1 2023	BMRI	19.52	5.11	84.90	74.17	33.46	0.26	3.18	3.59
Q2 2023	BMRI	19.96	5.30	85.68	73.42	32.82	0.29	3.26	3.72
Q3 2023	BMRI	20.68	5.35	87.64	78.78	33.94	0.32	3.26	3.85

Q4 2023	BMRI	21.48	5.25	86.75	79.40	34.36	0.29	3.56	4.03
Q1 2024	BMRI	19.01	4.89	89.66	79.45	34.31	0.33	3.41	3.31
Q4 2013	BBRI	16.99	8.55	88.54	60.03	44.35	0.31	2.26	5.03
Q1 2014	BBRI	18.27	9.06	92.01	58.49	44.83	0.47	2.00	5.02
Q2 2014	BBRI	18.10	8.93	94.00	58.21	43.37	0.57	1.81	4.92
Q3 2014	BBRI	18.57	8.78	85.29	54.29	45.25	0.46	1.89	4.82
Q4 2014	BBRI	18.31	8.51	81.68	54.45	45.59	0.36	1.87	4.74
Q1 2015	BBRI	20.08	7.57	80.47	52.80	46.58	0.60	1.53	3.99
Q2 2015	BBRI	20.41	7.88	87.87	55.13	47.14	0.66	1.39	3.91
Q3 2015	BBRI	20.59	8.08	84.89	57.09	45.96	0.59	1.47	3.95
Q4 2015	BBRI	20.59	8.13	86.88	59.96	45.75	0.52	1.48	4.19
Q1 2016	BBRI	19.49	8.09	88.81	57.43	46.62	0.59	1.52	3.65
Q2 2016	BBRI	22.10	8.43	90.03	57.67	47.04	0.60	1.51	3.68
Q3 2016	BBRI	21.88	8.41	90.68	58.35	46.05	0.57	1.57	3.59
Q4 2016	BBRI	22.91	8.27	87.77	61.16	44.43	1.09	1.59	3.84
Q1 2017	BBRI	20.86	8.08	93.15	57.40	42.00	1.22	1.81	3.34
Q2 2017	BBRI	21.67	8.12	89.76	58.32	42.64	1.16	1.93	3.31
Q3 2017	BBRI	22.17	8.13	90.39	57.79	42.99	1.06	2.06	3.34
Q4 2017	BBRI	22.96	7.93	88.13	61.22	44.51	0.88	1.95	3.69
Q1 2018	BBRI	20.74	7.49	92.26	58.33	41.19	1.16	1.81	3.35
Q2 2018	BBRI	20.13	7.64	95.27	60.00	43.44	1.10	1.90	3.37
Q3 2018	BBRI	21.02	7.61	93.15	58.67	44.51	1.16	1.80	3.60
Q4 2018	BBRI	21.21	7.45	89.57	62.15	44.36	0.92	1.98	3.68
Q1 2019	BBRI	21.68	6.89	91.43	58.31	44.20	1.05	1.93	3.35
Q2 2019	BBRI	20.77	7.02	93.90	59.07	46.14	1.11	1.94	3.31
Q3 2019	BBRI	21.62	7.02	93.84	59.77	40.76	1.13	1.60	3.42
Q4 2019	BBRI	22.55	6.98	88.64	57.70	40.03	1.04	1.64	3.50
Q1 2020	BBRI	18.23	6.66	90.39	57.45	41.50	0.63	2.33	3.19
Q2 2020	BBRI	19.83	5.72	85.78	57.55	50.24	0.77	2.08	2.41
Q3 2020	BBRI	20.38	5.76	82.58	59.02	49.82	0.78	2.26	2.07
Q4 2020	BBRI	20.61	6.00	83.66	59.66	45.40	0.80	2.49	1.98
Q1 2021	BBRI	19.40	7.00	86.77	58.91	41.71	0.86	2.54	2.65
Q2 2021	BBRI	19.63	7.02	84.52	59.56	39.78	0.93	2.66	2.38
Q3 2021	BBRI	24.37	6.86	83.05	59.60	42.07	0.86	2.59	2.52
Q4 2021	BBRI	25.28	6.89	83.67	63.08	43.26	0.70	2.82	2.72
Q1 2022	BBRI	22.39	6.85	87.14	63.63	38.37	0.77	2.70	3.56
Q2 2022	BBRI	22.97	7.35	88.95	65.12	37.11	0.86	2.64	3.82
Q3 2022	BBRI	24.00	7.23	88.92	65.43	38.99	0.87	2.83	3.97
Q4 2022	BBRI	23.30	6.80	79.17	66.70	41.95	0.73	2.97	3.03
Q1 2023	BBRI	23.01	6.67	85.26	64.53	37.37	0.82	2.70	4.11
Q2 2023	BBRI	24.65	6.81	87.83	65.49	38.96	0.76	2.43	3.93
Q3 2023	BBRI	25.23	6.97	88.34	63.64	37.63	0.73	2.22	3.87
Q4 2023	BBRI	25.23	6.84	84.73	64.55	37.74	0.76	2.22	3.93
Q1 2024	BBRI	21.87	6.59	83.78	63.43	34.25	1.00	2.05	3.69

Q4 2013	BBCA	15.66	6.18	75.35	78.85	39.90	0.19	3.04	3.84
Q1 2014	BBCA	17.67	6.45	77.11	77.69	48.66	0.19	2.99	3.46
Q2 2014	BBCA	17.02	6.46	75.51	77.22	43.43	0.21	2.91	3.78
Q3 2014	BBCA	17.24	6.49	75.88	76.22	40.51	0.30	2.51	3.86
Q4 2014	BBCA	16.86	6.53	76.77	75.11	45.38	0.22	2.78	3.86
Q1 2015	BBCA	19.39	6.53	74.91	75.22	52.41	0.23	2.61	3.48
Q2 2015	BBCA	19.04	6.57	75.69	76.03	47.31	0.25	2.54	3.75
Q3 2015	BBCA	19.20	6.61	78.10	76.54	40.66	0.27	2.53	3.86
Q4 2015	BBCA	18.65	6.72	81.06	76.06	41.97	0.22	2.88	3.84
Q1 2016	BBCA	20.04	7.04	78.92	76.90	48.22	0.28	1.86	3.57
Q2 2016	BBCA	20.29	6.99	77.88	77.72	44.28	0.35	1.89	3.86
Q3 2016	BBCA	21.54	6.88	77.25	78.17	40.32	0.36	1.92	3.99
Q4 2016	BBCA	21.90	6.81	77.12	77.00	41.35	0.31	2.16	3.96
Q1 2017	BBCA	23.10	6.32	75.05	75.76	51.75	0.38	1.90	3.48
Q2 2017	BBCA	22.10	6.26	74.49	74.61	45.59	0.40	1.86	3.67
Q3 2017	BBCA	23.62	6.19	74.74	74.51	38.24	0.43	1.80	3.83
Q4 2017	BBCA	23.06	6.19	78.22	76.35	43.18	0.45	1.88	3.89
Q1 2018	BBCA	23.65	6.06	77.85	77.30	51.77	0.46	1.81	3.40
Q2 2018	BBCA	22.81	6.05	77.02	78.18	45.54	0.43	1.90	3.59
Q3 2018	BBCA	23.19	6.07	80.88	77.67	38.24	0.42	1.91	3.86
Q4 2018	BBCA	23.39	6.13	81.58	76.69	43.18	0.45	1.81	4.01
Q1 2019	BBCA	24.49	6.19	81.03	76.84	48.44	0.50	1.75	3.46
Q2 2019	BBCA	23.58	6.24	78.97	76.17	43.10	0.52	1.89	3.70
Q3 2019	BBCA	23.79	6.23	80.58	75.64	37.30	0.59	1.66	3.98
Q4 2019	BBCA	23.80	6.24	80.47	75.49	41.87	0.47	1.92	4.02
Q1 2020	BBCA	22.50	6.13	77.64	77.14	48.57	0.59	2.33	3.17
Q2 2020	BBCA	22.93	5.96	73.28	76.03	41.18	1.05	2.03	3.12
Q3 2020	BBCA	24.72	5.83	69.55	76.42	37.44	0.74	2.44	3.38
Q4 2020	BBCA	25.83	5.70	65.77	76.58	37.43	0.74	2.64	3.32
Q1 2021	BBCA	24.53	5.30	65.24	77.21	35.33	0.70	2.88	3.05
Q2 2021	BBCA	25.33	5.25	62.35	77.86	34.38	0.90	2.28	3.14
Q3 2021	BBCA	26.15	5.17	61.97	78.14	33.35	0.89	2.31	3.49
Q4 2021	BBCA	25.66	5.10	61.96	78.59	34.89	0.78	2.32	3.41
Q1 2022	BBCA	23.86	4.92	60.54	79.99	35.80	0.79	2.42	3.06
Q2 2022	BBCA	24.72	4.98	63.47	80.89	34.34	0.69	2.42	3.47
Q3 2022	BBCA	25.36	5.13	63.34	80.98	34.49	0.66	2.45	3.69
Q4 2022	BBCA	25.77	5.34	65.23	81.55	33.92	0.59	2.82	3.91
Q1 2023	BBCA	28.86	5.59	65.61	81.19	35.15	0.57	2.81	4.20
Q2 2023	BBCA	29.47	5.56	65.75	80.72	32.91	0.67	2.53	4.40
Q3 2023	BBCA	29.50	5.52	67.41	79.89	33.56	0.68	2.23	4.42
Q4 2023	BBCA	29.44	5.54	70.20	81.09	33.77	0.58	2.33	4.46
Q1 2024	BBCA	26.30	5.62	71.23	81.53	32.41	0.63	2.19	4.40
Q4 2013	BBNI	15.09	6.11	85.30	70.18	64.44	0.55	1.30	3.36
Q1 2014	BBNI	15.57	6.08	88.39	67.52	51.14	0.61	1.30	3.28

Q2 2014	BBNI	15.95	5.95	80.28	63.29	47.33	0.55	1.31	3.26
Q3 2014	BBNI	16.23	6.13	85.74	64.51	51.12	0.52	1.28	3.32
Q4 2014	BBNI	16.22	6.20	87.81	67.33	58.01	0.39	1.24	3.49
Q1 2015	BBNI	17.83	6.52	87.76	66.30	50.93	0.47	1.24	3.55
Q2 2015	BBNI	17.11	6.53	87.63	66.03	50.20	0.78	1.34	1.48
Q3 2015	BBNI	17.43	6.50	87.67	63.94	46.64	0.68	1.31	2.45
Q4 2015	BBNI	19.49	6.42	87.77	63.88	44.81	0.91	1.32	2.64
Q1 2016	BBNI	19.87	6.12	87.97	61.55	46.41	0.85	1.35	3.03
Q2 2016	BBNI	19.30	6.06	91.40	63.34	45.23	0.66	1.37	2.16
Q3 2016	BBNI	18.39	6.22	92.85	62.69	48.97	0.73	1.38	2.51
Q4 2016	BBNI	19.36	6.17	90.41	67.49	54.07	0.44	1.38	2.69
Q1 2017	BBNI	19.00	5.62	89.33	61.56	47.56	0.56	1.40	2.76
Q2 2017	BBNI	18.99	5.55	88.93	63.86	46.27	0.66	1.41	2.72
Q3 2017	BBNI	19.01	5.52	87.86	63.29	46.15	0.79	1.41	2.80
Q4 2017	BBNI	18.53	5.50	85.58	65.81	50.85	0.70	1.42	2.75
Q1 2018	BBNI	17.92	5.41	90.13	65.82	48.04	0.76	1.42	2.73
Q2 2018	BBNI	17.46	5.45	87.28	66.72	46.46	0.94	1.43	2.73
Q3 2018	BBNI	17.80	5.31	89.04	64.66	52.68	0.84	1.44	2.76
Q4 2018	BBNI	18.51	5.29	88.76	67.55	41.79	0.85	1.45	2.78
Q1 2019	BBNI	19.18	4.99	91.26	63.21	47.26	0.85	1.44	2.68
Q2 2019	BBNI	18.68	4.87	92.30	66.81	47.70	0.80	1.47	2.44
Q3 2019	BBNI	19.33	4.85	96.57	66.74	43.60	0.78	1.53	2.51
Q4 2019	BBNI	19.73	4.92	91.54	66.62	43.85	1.25	1.41	2.42
Q1 2020	BBNI	16.07	4.88	92.26	67.41	43.85	0.52	2.37	2.63
Q2 2020	BBNI	16.71	4.47	87.79	67.50	43.51	0.55	2.07	1.38
Q3 2020	BBNI	16.75	4.32	83.11	65.38	44.18	0.53	2.01	0.88
Q4 2020	BBNI	16.78	4.50	87.28	68.32	44.17	0.95	1.84	0.54
Q1 2021	BBNI	18.07	4.90	87.24	67.85	40.62	1.03	1.95	1.46
Q2 2021	BBNI	18.18	4.85	87.83	69.60	40.73	0.90	2.06	1.48
Q3 2021	BBNI	19.90	4.76	85.14	69.66	42.07	0.90	2.19	1.51
Q4 2021	BBNI	19.74	4.67	79.71	69.40	43.33	0.73	2.22	1.43
Q1 2022	BBNI	19.29	4.51	85.24	69.22	39.75	0.70	2.52	2.29
Q2 2022	BBNI	18.42	4.70	90.06	69.23	40.43	0.58	2.58	2.44
Q3 2022	BBNI	18.90	4.80	91.18	70.88	41.37	0.57	2.66	2.48
Q4 2022	BBNI	19.27	4.81	84.25	72.45	42.62	0.49	2.69	2.46
Q1 2023	BBNI	21.61	4.67	85.43	68.92	41.67	0.53	2.75	2.67
Q2 2023	BBNI	21.61	4.58	85.21	69.59	41.14	0.62	2.93	2.59
Q3 2023	BBNI	21.88	4.64	90.05	69.07	41.26	0.61	3.07	2.64
Q4 2023	BBNI	21.95	4.58	85.81	71.61	42.90	4.58	3.06	2.60
Q1 2024	BBNI	20.52	4.01	89.01	70.07	43.18	0.66	3.13	2.49
Q4 2013	BBTN	15.62	5.44	104.42	46.86	57.17	3.04	0.28	1.79
Q1 2014	BBTN	15.74	4.96	100.53	43.23	58.84	3.57	0.27	1.39
Q2 2014	BBTN	15.03	4.53	105.17	46.69	75.48	3.83	0.26	1.11
Q3 2014	BBTN	14.33	4.42	108.54	48.23	70.57	3.63	0.28	1.02

Q4 2014	BBTN	14.64	4.47	108.86	49.13	58.22	2.76	0.34	1.14
Q1 2015	BBTN	15.05	4.70	109.71	47.27	59.40	3.47	0.30	1.53
Q2 2015	BBTN	14.78	4.72	109.94	49.82	66.08	3.37	0.30	1.55
Q3 2015	BBTN	15.78	4.77	105.71	49.16	54.22	3.18	0.33	1.50
Q4 2015	BBTN	16.97	4.87	108.78	51.12	55.20	2.11	0.43	1.61
Q1 2016	BBTN	16.50	4.59	108.98	49.67	61.28	2.34	0.35	1.56
Q2 2016	BBTN	22.07	4.65	110.97	48.94	61.45	2.23	0.41	1.54
Q3 2016	BBTN	20.60	4.59	104.30	48.09	57.18	2.40	0.39	1.59
Q4 2016	BBTN	20.34	4.98	102.66	52.88	55.68	1.85	0.45	1.76
Q1 2017	BBTN	18.90	4.32	107.79	62.73	48.31	2.35	0.38	1.48
Q2 2017	BBTN	18.38	4.42	111.49	58.67	49.38	2.24	0.39	1.52
Q3 2017	BBTN	16.97	4.49	109.79	58.35	51.22	2.06	0.40	1.56
Q4 2017	BBTN	18.87	4.76	103.13	52.50	51.59	1.66	0.44	1.71
Q1 2018	BBTN	17.92	4.20	100.80	51.11	62.15	2.83	0.41	0.26
Q2 2018	BBTN	17.42	4.10	107.80	48.81	61.53	3.01	0.41	0.28
Q3 2018	BBTN	17.96	4.23	112.83	48.41	56.15	1.99	0.45	0.90
Q4 2018	BBTN	18.21	4.32	85.58	45.19	51.32	1.83	0.48	1.34
Q1 2019	BBTN	17.62	3.63	112.19	47.16	61.49	2.00	0.44	1.24
Q2 2019	BBTN	16.99	3.53	114.24	44.51	64.46	2.42	0.36	1.12
Q3 2019	BBTN	16.88	3.41	111.54	42.58	63.76	2.33	0.52	0.44
Q4 2019	BBTN	17.32	3.32	98.12	43.37	58.08	2.96	0.48	0.13
Q1 2020	BBTN	18.73	3.13	114.22	44.01	58.99	2.38	1.05	0.76
Q2 2020	BBTN	19.10	3.16	111.27	44.68	56.43	2.40	1.06	0.63
Q3 2020	BBTN	18.95	3.13	93.26	36.96	55.72	2.26	1.08	0.59
Q4 2020	BBTN	19.34	3.06	93.19	41.11	53.85	2.06	1.09	0.69
Q1 2021	BBTN	17.65	3.31	88.62	38.20	53.55	1.94	1.14	0.94
Q2 2021	BBTN	17.80	3.41	89.12	37.47	51.99	1.87	1.20	0.68
Q3 2021	BBTN	17.97	3.52	92.79	41.53	51.17	1.50	1.25	0.74
Q4 2021	BBTN	19.14	3.99	92.86	44.30	48.18	1.20	1.39	0.81
Q1 2022	BBTN	18.15	4.29	95.39	44.15	45.02	1.28	1.44	1.07
Q2 2022	BBTN	17.36	4.58	93.12	44.73	46.07	1.04	1.49	1.03
Q3 2022	BBTN	17.32	4.51	92.60	45.90	48.35	1.23	1.48	1.03
Q4 2022	BBTN	20.17	4.40	92.65	48.52	46.66	1.32	1.54	1.02
Q1 2023	BBTN	21.21	3.51	93.79	52.19	47.41	1.46	1.44	1.02
Q2 2023	BBTN	20.42	3.62	98.22	54.34	47.76	1.75	1.36	0.93
Q3 2023	BBTN	19.59	3.76	98.27	45.90	46.65	1.58	1.39	0.96
Q4 2023	BBTN	20.07	3.75	95.36	48.52	45.26	1.32	1.00	1.07
Q1 2024	BBTN	19.00	3.26	96.23	49.93	54.56	1.38	1.49	1.02
Q4 2013	BNGA	15.38	5.52	90.34	43.99	47.98	1.61	1.26	2.75
Q1 2014	BNGA	16.40	5.41	94.18	44.80	50.24	1.43	1.06	2.78
Q2 2014	BNGA	16.06	5.42	93.83	45.52	51.66	1.67	0.93	2.48
Q3 2014	BNGA	16.02	5.44	94.53	45.84	52.54	2.26	0.88	2.00
Q4 2014	BNGA	15.39	5.50	95.62	44.87	50.61	1.99	0.90	1.60
Q1 2015	BNGA	16.40	5.22	92.35	43.44	54.31	1.85	1.05	0.19

Q2 2015	BNGA	15.87	5.07	92.76	47.42	56.09	1.69	1.02	0.20
Q3 2015	BNGA	15.88	5.17	92.04	47.66	53.02	1.49	1.24	0.21
Q4 2015	BNGA	16.16	5.17	94.87	46.81	52.67	1.62	1.14	0.21
Q1 2016	BNGA	17.88	5.23	94.49	52.05	51.27	1.94	0.82	0.62
Q2 2016	BNGA	17.49	5.36	93.31	51.99	49.61	1.95	1.22	0.83
Q3 2016	BNGA	17.96	5.41	92.76	52.58	48.69	2.42	1.09	0.99
Q4 2016	BNGA	17.71	5.47	95.37	50.84	48.14	2.19	1.20	1.19
Q1 2017	BNGA	18.21	5.55	95.65	55.74	49.13	2.13	1.19	1.45
Q2 2017	BNGA	18.14	5.72	99.14	54.32	48.51	2.05	1.11	1.57
Q3 2017	BNGA	18.60	5.58	91.99	53.28	47.82	2.03	1.17	1.62
Q4 2017	BNGA	18.22	5.45	94.67	52.55	47.74	2.17	1.10	1.67
Q1 2018	BNGA	18.66	4.81	90.66	55.04	48.58	2.00	1.04	1.64
Q2 2018	BNGA	18.13	4.86	94.82	56.12	50.28	1.88	1.12	1.69
Q3 2018	BNGA	18.97	4.92	91.41	53.25	51.26	1.83	1.08	1.73
Q4 2018	BNGA	19.20	4.96	96.12	52.61	50.76	1.55	1.12	1.74
Q1 2019	BNGA	19.90	5.12	95.89	53.74	50.93	1.43	1.21	1.91
Q2 2019	BNGA	20.13	5.25	93.45	53.89	49.40	1.51	1.08	1.97
Q3 2019	BNGA	20.64	5.22	97.41	53.67	51.40	1.32	1.20	1.76
Q4 2019	BNGA	20.92	5.16	96.03	55.35	50.70	1.31	1.22	1.78
Q1 2020	BNGA	18.79	4.89	92.67	60.06	47.78	1.58	1.86	1.99
Q2 2020	BNGA	19.34	4.93	88.19	61.03	48.17	1.91	1.57	1.59
Q3 2020	BNGA	20.24	4.80	82.32	60.31	51.95	1.54	1.69	1.20
Q4 2020	BNGA	21.24	4.75	81.45	59.62	49.36	1.42	1.87	0.99
Q1 2021	BNGA	21.39	4.99	83.69	63.30	43.68	1.52	1.92	1.85
Q2 2021	BNGA	21.35	4.95	76.78	62.40	44.71	1.28	2.18	2.01
Q3 2021	BNGA	21.92	4.86	75.06	61.70	45.67	1.10	2.12	1.90
Q4 2021	BNGA	22.29	4.71	72.80	61.30	46.59	1.17	2.05	1.75
Q1 2022	BNGA	22.82	4.29	74.19	63.60	44.39	1.13	2.04	1.92
Q2 2022	BNGA	20.77	4.36	78.62	65.70	44.09	0.99	2.10	2.05
Q3 2022	BNGA	20.61	4.43	84.47	67.70	44.89	0.94	2.04	2.07
Q4 2022	BNGA	21.86	4.49	83.19	63.60	45.29	0.75	2.36	2.06
Q1 2023	BNGA	20.82	4.52	79.57	61.20	45.87	0.77	2.45	2.46
Q2 2023	BNGA	22.73	4.42	83.13	64.30	44.20	0.75	2.52	2.55
Q3 2023	BNGA	23.40	4.32	83.27	66.70	45.11	0.68	2.53	2.55
Q4 2023	BNGA	23.53	4.20	86.19	63.90	46.22	0.71	2.72	2.48
Q1 2024	BNGA	24.03	3.97	81.08	64.60	45.37	0.79	2.39	2.53
Q4 2013	BRIS	14.49	6.27	102.70	22.40	83.40	3.26	0.44	1.15
Q1 2014	BRIS	14.15	6.09	102.13	23.00	98.45	3.36	0.32	0.46
Q2 2014	BRIS	13.99	5.97	95.14	23.77	96.09	3.61	0.15	0.05
Q3 2014	BRIS	13.86	5.90	94.85	23.75	93.43	4.19	0.37	0.30
Q4 2014	BRIS	12.89	6.04	93.90	23.66	93.41	3.65	0.39	0.08
Q1 2015	BRIS	13.22	7.00	88.24	25.77	76.75	3.96	0.35	0.53
Q2 2015	BRIS	11.03	7.11	92.05	26.53	90.09	4.38	0.59	0.78
Q3 2015	BRIS	13.82	6.85	86.61	25.00	90.12	3.86	0.65	0.80

Q4 2015	BRIS	13.94	6.66	84.16	23.96	89.68	3.89	0.73	0.76
Q1 2016	BRIS	14.66	6.33	82.73	23.89	84.66	3.90	0.69	0.99
Q2 2016	BRIS	14.06	6.49	87.92	26.61	84.64	3.83	0.88	1.03
Q3 2016	BRIS	14.30	6.48	83.98	23.94	86.25	3.89	1.20	0.98
Q4 2016	BRIS	20.63	6.67	81.47	25.23	86.28	3.19	0.94	0.95
Q1 2017	BRIS	21.14	5.73	77.56	25.09	89.64	3.33	1.16	0.65
Q2 2017	BRIS	20.38	5.57	76.79	24.99	87.96	3.50	1.03	0.71
Q3 2017	BRIS	20.98	5.79	73.14	24.21	86.70	4.02	0.86	0.82
Q4 2017	BRIS	20.29	5.84	71.87	26.13	92.29	4.72	1.10	0.51
Q1 2018	BRIS	23.95	5.16	68.70	23.76	89.23	4.10	1.35	0.86
Q2 2018	BRIS	29.31	5.18	77.78	25.21	85.80	4.23	1.09	0.92
Q3 2018	BRIS	30.07	5.28	76.40	26.03	87.57	4.30	0.96	0.77
Q4 2018	BRIS	29.73	5.36	75.49	29.29	93.44	4.97	2.16	0.43
Q1 2019	BRIS	27.82	5.20	79.55	28.76	38.45	4.34	0.37	0.43
Q2 2019	BRIS	26.88	5.37	85.25	33.75	38.52	4.51	0.28	0.32
Q3 2019	BRIS	26.55	5.58	90.40	32.09	40.23	3.97	0.44	0.32
Q4 2019	BRIS	25.26	5.72	80.12	32.06	43.00	3.38	0.52	0.31
Q1 2020	BRIS	21.99	6.08	92.10	57.54	43.22	2.95	1.12	1.00
Q2 2020	BRIS	23.73	5.96	91.01	59.46	39.10	2.49	1.38	0.90
Q3 2020	BRIS	19.38	5.73	82.65	58.65	37.62	1.73	2.67	0.84
Q4 2020	BRIS	19.04	5.89	80.99	59.19	37.29	1.77	2.53	0.81
Q1 2021	BRIS	23.10	6.13	77.28	57.76	35.30	0.92	2.04	1.72
Q2 2021	BRIS	22.27	6.18	74.48	54.81	34.22	0.75	2.17	1.64
Q3 2021	BRIS	22.75	6.00	74.45	55.80	33.98	1.02	2.27	1.70
Q4 2021	BRIS	22.09	6.04	73.39	57.91	34.51	0.87	2.35	1.61
Q1 2022	BRIS	17.20	6.01	74.37	57.50	33.91	0.90	2.28	1.93
Q2 2022	BRIS	17.31	6.16	78.14	59.43	35.71	0.74	2.29	2.03
Q3 2022	BRIS	17.19	6.22	81.45	60.90	34.99	0.59	2.36	2.08
Q4 2022	BRIS	20.29	6.31	79.37	61.57	34.44	0.57	2.80	1.98
Q1 2023	BRIS	20.36	6.04	79.14	61.49	34.68	0.54	2.91	2.48
Q2 2023	BRIS	20.29	5.99	87.80	59.93	36.15	0.62	3.03	2.36
Q3 2023	BRIS	20.70	5.93	88.31	59.63	48.43	0.61	2.90	2.34
Q4 2023	BRIS	21.04	5.82	81.73	60.57	37.43	0.55	2.81	2.35
Q1 2024	BRIS	21.35	5.38	83.05	60.86	38.24	0.55	1.96	2.51
Q4 2013	BNLI	14.28	4.22	89.26	34.58	84.99	0.31	1.12	1.55
Q1 2014	BNLI	14.48	3.37	93.49	35.98	88.43	0.31	1.20	1.17
Q2 2014	BNLI	13.66	3.51	91.54	32.18	87.92	0.73	0.81	1.25
Q3 2014	BNLI	13.19	3.54	88.05	27.92	61.91	0.75	0.79	1.25
Q4 2014	BNLI	13.58	3.63	89.13	33.48	90.08	0.63	0.87	1.16
Q1 2015	BNLI	13.96	3.58	88.79	32.32	85.10	0.64	0.87	1.57
Q2 2015	BNLI	14.00	3.76	89.96	34.14	88.80	1.14	0.74	1.16
Q3 2015	BNLI	13.62	3.96	88.18	33.54	55.88	1.33	0.85	0.87
Q4 2015	BNLI	15.00	3.96	87.84	36.79	98.86	1.40	1.08	0.16
Q1 2016	BNLI	15.10	3.94	89.71	38.00	53.00	1.78	0.74	1.14

Q2 2016	BNLI	18.60	3.91	85.92	42.00	52.00	2.67	1.02	-1.24
Q3 2016	BNLI	19.33	3.95	85.93	43.00	55.00	2.46	0.98	1.23
Q4 2016	BNLI	15.64	3.93	80.45	47.00	56.00	2.24	1.23	4.89
Q1 2017	BNLI	16.99	3.45	74.58	46.00	49.00	2.21	1.37	1.41
Q2 2017	BNLI	18.89	3.77	86.70	56.00	54.00	1.79	1.67	1.00
Q3 2017	BNLI	18.84	3.94	82.75	50.00	56.00	1.75	1.76	0.77
Q4 2017	BNLI	18.12	3.99	87.54	52.00	55.00	1.67	1.92	0.61
Q1 2018	BNLI	19.19	4.02	90.61	49.00	64.00	1.67	1.94	0.57
Q2 2018	BNLI	19.59	3.96	86.11	48.00	66.00	1.49	2.11	0.50
Q3 2018	BNLI	17.73	3.91	88.99	47.00	65.00	1.68	1.90	0.54
Q4 2018	BNLI	19.44	4.11	90.08	48.30	64.50	1.73	1.77	0.78
Q1 2019	BNLI	19.90	4.02	86.91	47.00	65.00	1.63	1.74	1.30
Q2 2019	BNLI	19.81	4.15	92.69	52.00	63.00	1.32	1.58	1.24
Q3 2019	BNLI	19.84	4.23	87.99	50.00	63.46	1.19	1.65	1.28
Q4 2019	BNLI	19.89	4.39	86.32	50.70	62.44	1.34	1.30	1.30
Q1 2020	BNLI	19.61	4.59	79.94	53.50	60.98	1.23	1.49	0.69
Q2 2020	BNLI	21.26	4.53	80.69	52.10	57.53	1.80	1.12	0.93
Q3 2020	BNLI	21.60	4.42	74.53	50.80	58.30	1.48	1.19	0.68
Q4 2020	BNLI	35.68	4.74	78.69	51.22	58.67	1.04	2.41	0.97
Q1 2021	BNLI	35.21	4.45	76.57	54.40	59.53	0.97	2.52	1.30
Q2 2021	BNLI	35.43	4.43	75.44	51.60	52.73	1.17	2.20	1.02
Q3 2021	BNLI	34.04	4.39	74.05	53.00	53.60	0.87	2.19	0.82
Q4 2021	BNLI	34.94	4.04	68.97	54.02	54.92	0.69	2.30	0.73
Q1 2022	BNLI	33.12	3.81	69.87	56.40	54.42	0.62	2.27	1.60
Q2 2022	BNLI	32.96	4.02	77.66	58.70	54.24	0.48	2.32	1.54
Q3 2022	BNLI	33.17	4.25	83.28	59.30	53.10	0.48	2.41	1.64
Q4 2022	BNLI	34.19	4.33	68.93	58.00	55.13	0.36	2.45	1.10
Q1 2023	BNLI	41.40	4.57	67.60	57.10	50.24	0.35	2.60	1.57
Q2 2023	BNLI	38.96	4.47	73.31	56.40	49.92	0.32	2.77	1.45
Q3 2023	BNLI	39.41	4.46	75.63	55.90	49.18	0.33	2.89	1.47
Q4 2023	BNLI	38.73	4.47	74.80	55.00	51.54	0.38	2.94	1.34
Q1 2024	BNLI	37.22	4.37	81.97	57.70	50.18	0.33	3.10	1.67
Q4 2013	NISP	19.28	4.11	92.49	38.79	78.41	0.35	2.19	1.81
Q1 2014	NISP	19.92	4.13	100.83	35.96	78.93	0.38	2.24	1.89
Q2 2014	NISP	19.66	4.11	91.52	37.23	80.45	0.66	1.61	1.75
Q3 2014	NISP	19.07	4.13	83.55	30.37	80.88	0.67	1.61	1.70
Q4 2014	NISP	18.74	4.15	93.59	34.81	79.99	0.80	1.42	1.79
Q1 2015	NISP	19.19	3.82	84.61	29.83	79.81	0.83	1.39	1.77
Q2 2015	NISP	18.67	3.71	87.32	35.21	80.09	0.75	1.47	1.70
Q3 2015	NISP	17.28	3.86	89.72	39.47	81.06	0.79	1.34	1.60
Q4 2015	NISP	17.32	4.07	98.05	41.68	80.28	0.78	1.50	1.68
Q1 2016	NISP	18.00	5.23	94.70	39.30	46.70	0.76	1.11	2.05
Q2 2016	NISP	18.95	4.70	92.85	41.90	46.50	0.61	1.86	1.98
Q3 2016	NISP	18.97	4.63	92.13	42.50	46.50	0.61	1.94	1.93

Q4 2016	NISP	18.28	4.62	89.96	39.40	46.30	0.77	1.68	1.85
Q1 2017	NISP	18.23	4.31	85.89	39.20	45.80	0.84	1.87	2.06
Q2 2017	NISP	17.55	4.49	94.34	43.50	43.70	0.86	1.93	2.08
Q3 2017	NISP	17.71	4.49	89.78	39.80	43.00	0.93	1.96	2.04
Q4 2017	NISP	17.51	4.47	93.42	38.50	45.60	0.72	2.23	1.96
Q1 2018	NISP	17.01	4.24	91.13	34.90	45.70	0.66	2.32	2.18
Q2 2018	NISP	16.74	4.15	96.70	36.60	47.00	0.72	2.16	2.14
Q3 2018	NISP	17.03	4.19	100.91	37.80	45.70	0.67	2.24	2.18
Q4 2018	NISP	17.63	4.15	93.51	36.50	43.40	0.82	2.18	2.10
Q1 2019	NISP	17.74	3.89	89.69	38.40	45.30	0.92	2.09	2.29
Q2 2019	NISP	18.53	4.00	91.12	37.60	44.00	0.83	2.13	2.33
Q3 2019	NISP	18.61	3.92	90.50	37.90	46.70	0.80	2.17	2.24
Q4 2019	NISP	19.10	3.95	94.00	40.40	44.60	0.78	2.29	2.22
Q1 2020	NISP	18.71	3.89	89.84	45.50	44.40	0.88	2.08	2.42
Q2 2020	NISP	20.64	3.88	86.57	43.80	44.00	0.94	2.22	2.29
Q3 2020	NISP	20.92	3.86	77.28	41.90	43.50	0.88	2.60	1.86
Q4 2020	NISP	21.98	3.79	72.01	42.20	42.28	0.79	2.37	1.47
Q1 2021	NISP	22.03	3.80	73.87	45.10	44.94	0.78	2.80	1.25
Q2 2021	NISP	22.73	3.92	76.58	48.80	44.13	0.99	2.21	1.92
Q3 2021	NISP	22.41	3.86	72.67	49.20	44.15	0.96	2.33	1.77
Q4 2021	NISP	22.94	3.82	71.69	50.60	43.40	0.91	2.67	1.55
Q1 2022	NISP	22.33	3.62	70.31	51.10	45.98	0.71	2.91	1.39
Q2 2022	NISP	21.89	3.74	73.94	56.70	45.98	1.86	2.54	1.86
Q3 2022	NISP	20.81	3.91	81.24	60.70	44.77	0.77	2.68	1.92
Q4 2022	NISP	21.39	4.04	77.20	54.60	43.98	0.96	2.24	1.86
Q1 2023	NISP	23.99	4.43	80.51	55.60	44.00	0.75	2.31	2.20
Q2 2023	NISP	23.07	4.40	78.86	54.80	43.58	0.67	2.58	2.21
Q3 2023	NISP	23.04	4.37	77.58	51.70	44.49	0.66	3.16	2.15
Q4 2023	NISP	23.48	4.36	83.75	55.80	44.24	0.58	3.26	2.14
Q1 2024	NISP	22.95	4.43	83.98	56.60	47.79	0.63	2.88	2.37
Q4 2013	BTPN	23.09	12.72	88.33	14.00	58.00	0.38	1.58	4.54
Q1 2014	BTPN	22.82	11.65	95.44	15.00	55.00	0.41	1.42	3.93
Q2 2014	BTPN	22.28	11.74	94.92	15.00	55.00	0.50	1.25	3.92
Q3 2014	BTPN	23.45	11.22	98.18	14.00	56.00	0.44	1.26	3.65
Q4 2014	BTPN	23.19	10.97	97.67	15.00	59.00	0.38	1.41	3.59
Q1 2015	BTPN	25.73	10.15	98.43	14.00	54.00	0.42	1.30	3.51
Q2 2015	BTPN	24.27	9.97	97.72	17.00	58.00	0.45	1.20	3.29
Q3 2015	BTPN	24.40	9.92	96.47	14.00	58.00	0.41	1.24	3.17
Q4 2015	BTPN	24.52	9.89	97.25	13.00	65.00	0.42	1.31	2.97
Q1 2016	BTPN	25.51	9.68	96.01	13.00	61.00	0.44	0.98	2.67
Q2 2016	BTPN	24.58	10.03	94.57	15.00	61.00	0.44	1.26	2.79
Q3 2016	BTPN	25.31	10.10	95.84	13.00	63.00	0.46	1.18	2.76
Q4 2016	BTPN	25.60	10.10	95.66	12.00	66.00	0.40	1.34	2.58
Q1 2017	BTPN	24.56	9.85	94.63	13.00	63.00	0.40	1.43	2.43

Q2 2017	BTPN	24.52	9.60	95.41	12.00	66.00	0.49	1.20	2.30
Q3 2017	BTPN	25.23	9.41	94.59	12.00	54.00	0.49	1.20	2.17
Q4 2017	BTPN	24.91	9.32	96.62	12.00	50.00	0.45	1.30	1.19
Q1 2018	BTPN	25.44	8.83	96.17	13.00	46.00	0.51	1.27	2.37
Q2 2018	BTPN	23.62	8.91	93.72	12.00	45.00	0.54	1.24	2.41
Q3 2018	BTPN	24.03	8.86	96.63	13.00	49.00	0.60	1.20	2.34
Q4 2018	BTPN	23.69	8.61	96.25	13.00	56.00	0.56	1.23	1.84
Q1 2019	BTPN	22.68	4.89	137.38	21.00	53.89	0.40	1.07	1.09
Q2 2019	BTPN	22.88	4.73	151.77	28.00	53.69	0.43	1.03	1.33
Q3 2019	BTPN	23.91	4.78	147.46	24.00	75.22	0.44	1.05	1.37
Q4 2019	BTPN	23.51	4.83	171.32	28.00	75.57	0.45	1.09	1.29
Q1 2020	BTPN	21.95	4.80	169.09	29.00	89.05	0.49	1.21	1.47
Q2 2020	BTPN	22.52	4.64	153.49	56.88	78.07	0.55	1.30	1.51
Q3 2020	BTPN	24.34	4.49	151.89	56.85	78.47	0.52	1.41	1.37
Q4 2020	BTPN	25.19	4.44	138.17	57.92	75.66	0.53	1.77	1.01
Q1 2021	BTPN	26.81	4.76	138.01	58.52	77.17	0.63	1.51	2.27
Q2 2021	BTPN	26.46	4.69	144.77	58.34	71.93	0.62	1.57	1.99
Q3 2021	BTPN	24.52	4.57	136.61	59.11	70.57	0.49	1.68	1.51
Q4 2021	BTPN	24.96	4.46	126.22	61.17	71.30	0.39	1.60	1.41
Q1 2022	BTPN	24.41	4.16	136.68	61.03	78.62	0.35	1.84	1.41
Q2 2022	BTPN	24.09	4.08	149.92	61.78	77.54	0.37	1.83	1.98
Q3 2022	BTPN	23.81	4.03	155.90	61.37	80.67	0.40	1.71	1.71
Q4 2022	BTPN	25.94	3.99	130.29	62.69	54.96	0.45	1.55	1.52
Q1 2023	BTPN	26.43	3.92	132.68	62.23	56.76	0.45	1.58	1.43
Q2 2023	BTPN	27.32	3.98	143.54	61.63	52.74	0.45	1.73	1.87
Q3 2023	BTPN	27.27	4.04	143.81	61.96	52.59	0.48	1.63	1.70
Q4 2023	BTPN	27.52	4.07	148.86	63.04	58.30	0.41	1.94	1.44
Q1 2024	BTPN	26.25	4.11	137.25	62.35	59.33	0.39	1.76	1.78
Q4 2013	BDMN	17.48	8.46	95.06	47.51	56.74	1.14	1.10	2.75
Q1 2014	BDMN	18.43	7.51	94.12	41.42	59.44	1.16	1.15	1.43
Q2 2014	BDMN	17.81	7.29	98.93	43.95	58.92	1.26	1.09	4.93
Q3 2014	BDMN	18.20	7.28	91.34	43.11	59.06	1.44	1.03	3.76
Q4 2014	BDMN	18.07	7.31	92.60	49.26	57.98	1.34	1.04	3.14
Q1 2015	BDMN	19.79	7.33	92.74	46.10	52.04	1.48	1.05	1.73
Q2 2015	BDMN	19.61	7.07	89.57	45.53	53.81	1.66	0.95	2.07
Q3 2015	BDMN	20.15	7.11	91.09	46.13	53.70	1.85	0.92	1.76
Q4 2015	BDMN	20.84	7.14	87.53	43.06	53.15	1.98	1.00	1.45
Q1 2016	BDMN	22.18	7.19	90.16	41.92	43.25	2.15	0.79	2.03
Q2 2016	BDMN	22.15	7.26	92.52	42.80	49.39	2.18	0.98	2.21
Q3 2016	BDMN	22.98	7.12	91.65	44.68	50.36	2.40	0.89	2.15
Q4 2016	BDMN	22.30	7.20	91.00	46.61	50.50	1.96	1.02	1.73
Q1 2017	BDMN	23.24	7.47	92.80	45.80	41.96	2.01	1.01	2.84
Q2 2017	BDMN	23.19	7.28	89.57	44.99	48.82	1.99	1.05	2.75
Q3 2017	BDMN	23.81	6.97	93.78	48.18	50.40	2.03	1.03	2.73

Q4 2017	BDMN	23.24	6.87	93.29	49.30	51.99	1.88	1.04	2.47
Q1 2018	BDMN	22.46	6.48	93.52	48.76	71.27	2.23	0.92	3.00
Q2 2018	BDMN	22.52	6.38	94.11	48.67	68.64	2.30	0.92	2.67
Q3 2018	BDMN	23.08	6.31	98.45	49.70	62.55	2.24	0.89	2.81
Q4 2018	BDMN	22.79	6.22	94.95	47.47	60.12	2.05	0.97	2.69
Q1 2019	BDMN	22.83	5.47	94.30	46.28	59.17	2.06	0.90	3.22
Q2 2019	BDMN	22.24	5.30	95.66	47.13	55.58	2.44	0.73	2.76
Q3 2019	BDMN	23.04	5.27	96.48	48.26	54.25	2.65	0.77	2.61
Q4 2019	BDMN	24.59	5.31	98.85	50.49	50.51	2.15	0.88	2.28
Q1 2020	BDMN	23.21	5.29	95.08	50.13	52.47	1.64	1.09	2.22
Q2 2020	BDMN	24.47	4.96	94.34	54.87	65.34	1.93	1.06	1.36
Q3 2020	BDMN	25.93	4.93	88.70	52.50	57.95	1.51	1.20	1.26
Q4 2020	BDMN	25.59	5.02	83.96	52.16	58.95	0.91	1.74	0.97
Q1 2021	BDMN	26.23	5.00	85.33	54.45	53.90	0.85	1.59	3.05
Q2 2021	BDMN	26.54	5.14	85.51	56.16	48.01	0.89	1.69	2.95
Q3 2021	BDMN	26.56	5.17	87.82	57.41	44.72	1.04	1.63	2.94
Q4 2021	BDMN	26.38	5.19	84.56	58.88	41.81	0.37	2.10	2.64
Q1 2022	BDMN	25.69	5.06	84.68	60.50	46.78	0.61	1.86	3.78
Q2 2022	BDMN	25.45	5.10	89.88	64.30	46.82	0.56	1.77	3.23
Q3 2022	BDMN	25.33	5.15	93.97	64.10	40.82	0.30	1.92	3.64
Q4 2022	BDMN	25.34	5.18	90.97	63.61	38.65	0.23	2.05	3.39
Q1 2023	BDMN	26.17	5.18	93.69	58.65	40.77	0.12	2.25	3.70
Q2 2023	BDMN	26.28	5.13	99.54	55.76	41.30	0.17	2.35	2.91
Q3 2023	BDMN	26.27	5.13	100.04	51.61	40.22	0.19	2.29	2.47
Q4 2023	BDMN	25.34	5.14	96.52	52.12	51.60	0.23	2.44	2.13
Q1 2024	BDMN	24.58	4.89	97.57	48.98	51.87	0.28	2.48	1.88
Q4 2013	PNBN	15.32	4.09	87.71	61.98	79.78	0.75	0.76	1.85
Q1 2014	PNBN	16.20	3.78	89.13	65.94	79.67	0.75	0.77	2.05
Q2 2014	PNBN	15.82	3.76	91.45	64.91	78.47	0.71	0.74	2.24
Q3 2014	PNBN	17.46	3.98	95.59	64.35	80.43	0.54	0.84	2.37
Q4 2014	PNBN	15.62	3.83	90.51	53.83	82.88	0.46	0.82	1.79
Q1 2015	PNBN	16.70	4.03	92.24	38.92	83.22	0.42	0.92	1.74
Q2 2015	PNBN	16.45	4.13	96.40	39.14	84.34	0.41	0.91	1.61
Q3 2015	PNBN	19.78	4.48	96.93	41.43	88.20	0.52	0.90	1.22
Q4 2015	PNBN	19.94	4.41	94.22	41.18	87.12	0.42	0.93	1.27
Q1 2016	PNBN	19.92	4.98	93.71	39.47	82.77	0.50	0.92	1.68
Q2 2016	PNBN	19.77	4.96	95.62	39.47	84.00	0.51	0.98	1.57
Q3 2016	PNBN	20.82	4.94	93.74	40.19	83.61	0.64	0.89	1.59
Q4 2016	PNBN	20.49	5.03	94.37	39.10	82.87	0.82	0.85	1.69
Q1 2017	PNBN	21.03	4.47	86.58	38.28	79.41	0.73	0.87	1.88
Q2 2017	PNBN	22.43	4.42	93.30	38.25	80.03	0.72	0.88	1.78
Q3 2017	PNBN	23.57	4.47	91.20	37.67	79.25	0.72	0.87	1.84
Q4 2017	PNBN	21.99	4.68	96.39	36.34	78.79	0.77	0.92	1.61
Q1 2018	PNBN	22.35	4.35	90.25	35.94	80.24	0.69	0.88	1.65

Q2 2018	PNBN	21.70	4.50	100.01	37.90	80.46	0.74	0.88	1.66
Q3 2018	PNBN	23.04	4.60	102.60	37.18	78.48	0.88	0.85	1.92
Q4 2018	PNBN	23.49	4.61	104.15	38.21	75.54	0.74	0.89	2.25
Q1 2019	PNBN	23.89	4.44	104.10	37.20	77.82	0.75	0.89	1.94
Q2 2019	PNBN	23.81	4.43	102.45	36.52	76.99	0.79	0.86	2.01
Q3 2019	PNBN	23.80	4.52	104.80	37.19	104.80	0.64	0.91	2.02
Q4 2019	PNBN	24.07	4.63	107.92	39.29	45.68	0.97	0.93	2.09
Q1 2020	PNBN	24.48	5.08	103.26	40.21	45.19	0.39	1.68	2.00
Q2 2020	PNBN	26.70	4.61	90.82	38.24	46.24	0.52	1.56	1.77
Q3 2020	PNBN	28.14	4.44	84.23	40.15	84.23	0.41	1.48	2.06
Q4 2020	PNBN	29.55	4.46	83.26	41.78	44.65	0.50	1.59	2.08
Q1 2021	PNBN	28.15	4.70	86.12	42.94	41.26	0.73	1.42	1.49
Q2 2021	PNBN	28.83	4.85	83.52	43.50	37.12	0.47	1.65	1.78
Q3 2021	PNBN	29.75	4.88	86.14	45.60	37.64	0.59	1.47	1.97
Q4 2021	PNBN	29.66	4.88	88.05	47.13	37.70	0.90	1.28	1.73
Q1 2022	PNBN	28.52	5.18	84.45	48.87	41.91	0.55	1.40	1.68
Q2 2022	PNBN	27.49	5.22	91.75	49.91	42.09	0.59	1.36	1.98
Q3 2022	PNBN	28.30	5.27	92.17	49.72	43.30	0.72	1.31	2.06
Q4 2022	PNBN	29.81	5.20	91.67	47.07	41.77	0.81	1.46	1.83
Q1 2023	PNBN	33.35	4.79	92.64	48.25	47.51	0.65	1.53	1.28
Q2 2023	PNBN	33.55	4.88	90.89	48.34	43.06	1.07	1.49	2.00
Q3 2023	PNBN	33.03	4.77	91.84	48.51	46.23	1.02	1.54	1.85
Q4 2023	PNBN	32.98	4.71	97.51	47.41	47.56	0.29	2.05	1.42
Q1 2024	PNBN	32.27	4.36	97.47	47.87	52.48	0.33	1.99	1.58

APPENDIX B

MACROECONOMIC DATA

Time	JKSE	GDP	FX	BI	CPI
Q4 2013	0.42	-2.18	12,204	7.50	8.38
Q1 2014	3.20	0.04	11,430	7.50	7.32
Q2 2014	-0.31	3.83	11,729	7.50	6.70
Q3 2014	0.01	3.27	12,062	7.50	4.53
Q4 2014	1.50	-2.07	12,440	7.75	8.36
Q1 2015	1.25	-0.16	12,776	7.75	6.38
Q2 2015	-5.86	3.74	13,282	7.50	7.26
Q3 2015	-6.34	3.31	13,840	7.50	6.83
Q4 2015	3.30	-1.73	13,803	7.50	3.35
Q1 2016	1.56	-0.36	13,309	7.25	4.45
Q2 2016	4.58	4.01	13,132	6.75	3.45
Q3 2016	-0.40	3.13	13,040	6.50	3.07
Q4 2016	2.87	-1.81	13,471	4.75	3.02
Q1 2017	3.37	-0.30	13,358	4.75	3.61
Q2 2017	1.60	4.01	13,336	4.75	4.37
Q3 2017	0.63	3.19	13,372	4.50	3.72
Q4 2017	6.78	-1.70	13,556	4.25	3.61
Q1 2018	-6.19	-0.41	13,780	4.25	3.40
Q2 2018	-3.08	4.21	14,268	4.50	3.12
Q3 2018	-0.70	3.09	14,788	5.25	2.88
Q4 2018	2.28	-1.69	14,378	6.00	3.13
Q1 2019	0.39	-0.52	14,128	6.00	2.48
Q2 2019	2.41	4.20	14,196	6.00	3.28
Q3 2019	-2.52	3.05	14,142	5.75	3.39
Q4 2019	4.79	-1.74	13,901	5.00	2.72
Q1 2020	-16.76	-2.41	14,592	5.00	2.96
Q2 2020	3.19	-4.19	14,879	4.50	1.96
Q3 2020	-7.03	5.05	14,722	4.00	1.42
Q4 2020	6.53	-0.40	14,080	3.75	1.68
Q1 2021	-4.11	-0.93	14,496	3.50	1.37
Q2 2021	0.64	3.30	14,365	3.50	1.33
Q3 2021	2.22	1.57	14,267	3.50	1.60
Q4 2021	0.73	1.05	14,339	3.50	1.87
Q1 2022	2.66	-0.94	14,374	3.50	2.64
Q2 2022	-3.32	3.73	14,773	3.50	4.35
Q3 2022	-1.92	1.83	15,185	4.25	5.95
Q4 2022	-3.26	0.36	15,315	5.50	5.51
Q1 2023	-0.55	-0.90	15,263	5.75	4.97
Q2 2023	0.43	3.86	15,038	5.75	3.52
Q3 2023	-0.19	1.60	15,309	5.75	2.28
Q4 2023	2.71	0.45	15,520	6.00	2.61
Q1 2024	-0.37	-0.83	15,485	6.25	3.05

APPENDIX C

STOCK RETURNS DATA

Time	Bank	SR	Bank	SR	Bank	SR	Bank	SR
Q4 2013	BMRI	2.55	BBNI	-3.80	BRIS	12.50	BTPN	3.49
Q1 2014	BMRI	3.70	BBNI	8.27	BRIS	8.33	BTPN	1.52
Q2 2014	BMRI	-4.63	BBNI	-0.21	BRIS	-3.85	BTPN	3.76
Q3 2014	BMRI	-2.98	BBNI	3.17	BRIS	6.67	BTPN	7.39
Q4 2014	BMRI	2.32	BBNI	1.23	BRIS	5.00	BTPN	-3.67
Q1 2015	BMRI	3.81	BBNI	4.84	BRIS	-1.54	BTPN	0.36
Q2 2015	BMRI	-7.21	BBNI	-29.72	BRIS	10.00	BTPN	-12.70
Q3 2015	BMRI	-14.83	BBNI	-19.71	BRIS	3.45	BTPN	-1.37
Q4 2015	BMRI	8.11	BBNI	4.41	BRIS	-5.26	BTPN	-8.96
Q1 2016	BMRI	7.28	BBNI	2.40	BRIS	7.14	BTPN	-1.43
Q2 2016	BMRI	5.25	BBNI	7.69	BRIS	11.11	BTPN	-5.26
Q3 2016	BMRI	-0.22	BBNI	-5.86	BRIS	2.08	BTPN	-4.30
Q4 2016	BMRI	9.29	BBNI	6.33	BRIS	-6.25	BTPN	-7.20
Q1 2017	BMRI	3.42	BBNI	3.47	BRIS	9.09	BTPN	-3.66
Q2 2017	BMRI	1.18	BBNI	0.76	BRIS	5.88	BTPN	-0.40
Q3 2017	BMRI	2.60	BBNI	0.68	BRIS	-2.33	BTPN	0.00
Q4 2017	BMRI	7.50	BBNI	18.18	BRIS	4.76	BTPN	0.81
Q1 2018	BMRI	-8.14	BBNI	-12.10	BRIS	3.03	BTPN	-5.37
Q2 2018	BMRI	-2.92	BBNI	-20.21	BRIS	-1.96	BTPN	8.75
Q3 2018	BMRI	-2.60	BBNI	-5.41	BRIS	-7.56	BTPN	-7.49
Q4 2018	BMRI	-0.34	BBNI	3.41	BRIS	-2.86	BTPN	-3.49
Q1 2019	BMRI	4.68	BBNI	6.38	BRIS	-1.89	BTPN	-2.78
Q2 2019	BMRI	4.36	BBNI	8.70	BRIS	-1.98	BTPN	-1.38
Q3 2019	BMRI	-3.94	BBNI	-4.76	BRIS	-7.43	BTPN	0.00
Q4 2019	BMRI	9.12	BBNI	4.46	BRIS	4.24	BTPN	3.08
Q1 2020	BMRI	-55.45	BBNI	-83.90	BRIS	-12.24	BTPN	-41.88
Q2 2020	BMRI	9.70	BBNI	16.38	BRIS	2.60	BTPN	14.81
Q3 2020	BMRI	-19.96	BBNI	-14.86	BRIS	-28.67	BTPN	-10.23
Q4 2020	BMRI	0.00	BBNI	2.83	BRIS	36.44	BTPN	16.40
Q1 2021	BMRI	0.00	BBNI	-3.93	BRIS	-28.38	BTPN	-1.76
Q2 2021	BMRI	-1.69	BBNI	-16.63	BRIS	17.17	BTPN	2.78
Q3 2021	BMRI	0.81	BBNI	-0.47	BRIS	-8.82	BTPN	-1.08
Q4 2021	BMRI	0.36	BBNI	-0.74	BRIS	-9.83	BTPN	-1.53
Q1 2022	BMRI	2.53	BBNI	3.03	BRIS	-3.74	BTPN	1.12
Q2 2022	BMRI	-7.26	BBNI	-16.88	BRIS	-7.46	BTPN	-0.80
Q3 2022	BMRI	6.10	BBNI	5.01	BRIS	-3.40	BTPN	-0.81
Q4 2022	BMRI	-6.05	BBNI	-7.32	BRIS	-0.93	BTPN	0.38
Q1 2023	BMRI	3.15	BBNI	6.15	BRIS	9.52	BTPN	-0.80
Q2 2023	BMRI	2.88	BBNI	1.09	BRIS	-2.37	BTPN	4.43
Q3 2023	BMRI	0.00	BBNI	11.14	BRIS	-5.23	BTPN	-1.48
Q4 2023	BMRI	3.31	BBNI	1.86	BRIS	4.89	BTPN	-2.67

Q1 2024	BMRI	3.45	BBNI	-1.69	BRIS	8.86	BTPN	-0.38
Q4 2013	BBRI	-6.67	BBTN	-11.49	BNLI	-2.15	BDMN	-0.66
Q1 2014	BBRI	9.97	BBTN	15.95	BNLI	7.66	BDMN	6.21
Q2 2014	BBRI	-0.51	BBTN	-4.81	BNLI	-2.30	BDMN	-0.36
Q3 2014	BBRI	-4.43	BBTN	4.70	BNLI	6.04	BDMN	3.97
Q4 2014	BBRI	3.64	BBTN	6.22	BNLI	-3.65	BDMN	7.18
Q1 2015	BBRI	7.94	BBTN	14.74	BNLI	-2.18	BDMN	6.34
Q2 2015	BBRI	-13.43	BBTN	-1.26	BNLI	-1.25	BDMN	-2.79
Q3 2015	BBRI	-13.17	BBTN	-7.04	BNLI	-13.27	BDMN	-22.11
Q4 2015	BBRI	2.16	BBTN	1.93	BNLI	-16.40	BDMN	11.72
Q1 2016	BBRI	2.11	BBTN	4.87	BNLI	5.97	BDMN	-5.92
Q2 2016	BBRI	3.79	BBTN	0.58	BNLI	17.02	BDMN	7.34
Q3 2016	BBRI	0.22	BBTN	-4.69	BNLI	-8.20	BDMN	-0.74
Q4 2016	BBRI	3.25	BBTN	5.17	BNLI	0.00	BDMN	12.40
Q1 2017	BBRI	1.69	BBTN	5.73	BNLI	-4.48	BDMN	-5.32
Q2 2017	BBRI	9.15	BBTN	3.85	BNLI	0.72	BDMN	-1.95
Q3 2017	BBRI	-0.68	BBTN	4.44	BNLI	-2.13	BDMN	-4.81
Q4 2017	BBRI	2.96	BBTN	10.36	BNLI	0.80	BDMN	27.70
Q1 2018	BBRI	-5.80	BBTN	1.58	BNLI	-11.97	BDMN	4.00
Q2 2018	BBRI	0.73	BBTN	-24.49	BNLI	12.93	BDMN	8.63
Q3 2018	BBRI	-4.14	BBTN	-4.56	BNLI	0.40	BDMN	5.56
Q4 2018	BBRI	10.23	BBTN	-5.12	BNLI	27.36	BDMN	2.30
Q1 2019	BBRI	0.79	BBTN	0.82	BNLI	-10.94	BDMN	7.08
Q2 2019	BBRI	10.73	BBTN	-0.41	BNLI	-1.92	BDMN	3.54
Q3 2019	BBRI	0.50	BBTN	-2.04	BNLI	12.61	BDMN	-1.26
Q4 2019	BBRI	5.34	BBTN	-0.47	BNLI	17.79	BDMN	6.84
Q1 2020	BBRI	-60.25	BBTN	-102.38	BNLI	-9.18	BDMN	-51.67
Q2 2020	BBRI	22.86	BBTN	38.96	BNLI	-0.39	BDMN	9.29
Q3 2020	BBRI	1.00	BBTN	-31.25	BNLI	-14.22	BDMN	-25.35
Q4 2020	BBRI	16.71	BBTN	4.64	BNLI	20.86	BDMN	-0.96
Q1 2021	BBRI	7.04	BBTN	-20.35	BNLI	-16.59	BDMN	-14.29
Q2 2021	BBRI	1.04	BBTN	-19.34	BNLI	-5.40	BDMN	-14.22
Q3 2021	BBRI	2.89	BBTN	1.06	BNLI	-2.58	BDMN	11.65
Q4 2021	BBRI	-0.74	BBTN	1.16	BNLI	-11.07	BDMN	-2.55
Q1 2022	BBRI	7.09	BBTN	-3.50	BNLI	-4.17	BDMN	2.46
Q2 2022	BBRI	-3.16	BBTN	-16.84	BNLI	-1.65	BDMN	-8.94
Q3 2022	BBRI	2.09	BBTN	-1.35	BNLI	-6.41	BDMN	-3.94
Q4 2022	BBRI	4.67	BBTN	-1.01	BNLI	-12.32	BDMN	-10.62
Q1 2023	BBRI	0.86	BBTN	-8.16	BNLI	-8.95	BDMN	0.35
Q2 2023	BBRI	6.07	BBTN	3.03	BNLI	4.10	BDMN	5.80
Q3 2023	BBRI	-5.31	BBTN	-2.87	BNLI	-1.62	BDMN	-2.45
Q4 2023	BBRI	8.44	BBTN	-3.60	BNLI	-1.09	BDMN	-2.52
Q1 2024	BBRI	3.78	BBTN	8.04	BNLI	5.13	BDMN	2.35
Q4 2013	BBCA	-0.52	BNGA	-4.35	NISP	0.00	PNBN	-3.03
Q1 2014	BBCA	3.54	BNGA	9.66	NISP	2.99	PNBN	-9.33

Q2 2014	BBCA	2.05	BNGA	-1.48	NISP	0.71	PNBN	3.33
Q3 2014	BBCA	14.34	BNGA	-4.21	NISP	-2.95	PNBN	8.21
Q4 2014	BBCA	0.19	BNGA	-8.98	NISP	7.35	PNBN	-1.29
Q1 2015	BBCA	4.89	BNGA	0.63	NISP	5.00	PNBN	22.81
Q2 2015	BBCA	-4.63	BNGA	-6.67	NISP	-4.84	PNBN	-13.64
Q3 2015	BBCA	-5.09	BNGA	17.22	NISP	-13.47	PNBN	-21.47
Q4 2015	BBCA	6.95	BNGA	0.00	NISP	-5.88	PNBN	-5.49
Q1 2016	BBCA	-1.32	BNGA	0.87	NISP	-11.81	PNBN	17.86
Q2 2016	BBCA	2.44	BNGA	5.90	NISP	-4.49	PNBN	9.74
Q3 2016	BBCA	4.14	BNGA	-0.60	NISP	-21.79	PNBN	-9.70
Q4 2016	BBCA	7.74	BNGA	4.73	NISP	15.46	PNBN	2.00
Q1 2017	BBCA	6.65	BNGA	4.81	NISP	3.21	PNBN	1.66
Q2 2017	BBCA	5.51	BNGA	-9.40	NISP	2.78	PNBN	4.10
Q3 2017	BBCA	6.65	BNGA	-6.95	NISP	-0.54	PNBN	6.14
Q4 2017	BBCA	7.08	BNGA	9.63	NISP	-6.67	PNBN	-16.67
Q1 2018	BBCA	0.54	BNGA	-17.95	NISP	-0.27	PNBN	-21.50
Q2 2018	BBCA	-5.70	BNGA	-16.84	NISP	-5.88	PNBN	0.00
Q3 2018	BBCA	-2.69	BNGA	1.08	NISP	-5.42	PNBN	13.27
Q4 2018	BBCA	-0.19	BNGA	2.19	NISP	1.75	PNBN	-8.30
Q1 2019	BBCA	-0.09	BNGA	-11.74	NISP	-0.55	PNBN	-12.85
Q2 2019	BBCA	2.92	BNGA	14.35	NISP	0.00	PNBN	3.85
Q3 2019	BBCA	-0.49	BNGA	-4.48	NISP	0.00	PNBN	-3.37
Q4 2019	BBCA	6.06	BNGA	5.70	NISP	0.00	PNBN	8.99
Q1 2020	BBCA	-13.85	BNGA	-21.95	NISP	-5.00	PNBN	-57.25
Q2 2020	BBCA	8.87	BNGA	9.72	NISP	4.76	PNBN	9.20
Q3 2020	BBCA	-15.77	BNGA	-13.19	NISP	-4.14	PNBN	-9.46
Q4 2020	BBCA	8.35	BNGA	16.58	NISP	1.22	PNBN	7.04
Q1 2021	BBCA	-7.96	BNGA	-1.51	NISP	1.14	PNBN	-6.02
Q2 2021	BBCA	-5.81	BNGA	-10.80	NISP	-4.52	PNBN	-12.82
Q3 2021	BBCA	6.43	BNGA	-3.59	NISP	-2.92	PNBN	-5.37
Q4 2021	BBCA	0.34	BNGA	-2.07	NISP	-1.49	PNBN	1.95
Q1 2022	BBCA	-0.94	BNGA	5.38	NISP	-0.77	PNBN	-5.26
Q2 2022	BBCA	-6.90	BNGA	-2.97	NISP	-0.79	PNBN	28.70
Q3 2022	BBCA	4.09	BNGA	-6.07	NISP	2.76	PNBN	6.34
Q4 2022	BBCA	-8.77	BNGA	1.69	NISP	0.00	PNBN	-23.38
Q1 2023	BBCA	0.00	BNGA	2.36	NISP	-3.27	PNBN	-1.05
Q2 2023	BBCA	1.09	BNGA	9.15	NISP	13.92	PNBN	0.00
Q3 2023	BBCA	-3.97	BNGA	-0.59	NISP	-2.75	PNBN	-4.40
Q4 2023	BBCA	4.52	BNGA	-0.59	NISP	-0.85	PNBN	7.44
Q1 2024	BBCA	1.99	BNGA	8.49	NISP	-0.36	PNBN	2.61