DINASTI INTERNATIONAL JOURNAL OF ECONOMICS, FINANCE AND ACCOUNTING (DIJEFA)
E-ISSN : 2686-6331
P-ISSN : 2686-6358
https://dinastipub.org/DIJEFA dinasti.info@gmail.com +62 811 7404 455

DOI: https://doi.org/10.38035/dijefa.v5i3
Received: 06 June 2024, **Revised:** 19 June 2024, **Publish:** 09 July 2024

The Influence of Net Interest Margin, Non-Performing Loans, and Capital Adequacy Ratio on the Stock Prices of KBMI 4 Banks

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Abstract: This study aims to examine the influence of net interest margin, non-performing loans, and capital adequacy ratio on the stock prices of banks classified as KBMI 4, which are listed on the Indonesia Stock Exchange (IDX) for the period from 2014 to 2021. The research employs a purposive sampling method, resulting in a sample of four banking companies. Multiple linear regression analysis is utilized to analyze the data, with the assistance of the Eviews 12 software. The findings indicate that the capital adequacy ratio positively affects banking stock prices, whereas the net interest margin negatively impacts them. Conversely, non-performing loans do not exhibit a significant effect on the stock prices of these banks.

Keyword: Net Interest Margin, Non-Performing Loans, Capital Adequacy Ratio, Banking Stock Prices.

INTRODUCTION

Investing is crucial as a means to prevent the erosion of the real value of currency. Currency value erosion can occur due to inflation, which is defined as a general and simultaneous increase in the prices of goods. According to data obtained from the Bank Indonesia (BI) website, inflation occurs annually, indicating that the prices of goods consistently rise each year. Price increases occur when the demand for a product exceeds its supply. Several factors can influence the supply of goods, including production, raw material prices, distribution, and others (Zulaecha & Mulvitasari, 2019). These price increases are continuous and persistent over a long period (Sucipto & Sudiyatno, 2018).

The impact of sustained inflation can be mitigated through investment, as it has the potential to generate returns. According to Widyatmoko & Risman (2024), investments are generally made in real instruments such as gold, land, and buildings, as well as financial instruments such as bonds, deposits, and stocks. Each investment instrument carries different levels of returns and risks. In the realm of investment, the term "high risk, high return" is well-known, signifying that higher risks are associated with higher returns, and conversely, lower risks are associated with lower returns (Sudarmawanti & Pramono, 2017).

Examples of investment instruments with low risk include deposits, those with medium risk include bonds, and those with high risk include stocks. According to data from the Central Bureau of Statistics (BPS), the inflation rate in December 2022 was recorded at 5.51%. However, deposit interest rates are significantly lower than this value. For instance, Bank Central offers an interest rate of 2.10% for deposits of 100 billion rupiahs. Bonds also yield returns below the inflation rate; for example, the interest rate for government bonds series VR0033 is 4.79%. On the other hand, many company stocks have provided returns above the inflation rate. For example, Bank Mandiri's stock value increased by 43% during 2022 (Sari et al., 2018).

Returns on stock investments are derived from the appreciation in stock prices, known as capital gains, and from the profits generated by the company, known as dividends. Investing in stocks requires careful analysis and should not be done indiscriminately due to the high risks involved. Investors may lose all their funds if the company faces issues such as liquidity problems, which could lead to the suspension of the stock from trading on the Indonesia Stock Exchange (IDX). According to Puspitaningtyas (2019), each company must maintain its liquidity ratio to avoid sudden liquidity problems.

In stock investment, there are two types of analysis: fundamental analysis and technical analysis. According to Trihatmoko et al. (2024), fundamental analysis uses financial data such as earnings, dividends paid, and other financial metrics, while technical analysis relies on market data such as transaction volume and prices to determine the value of a stock. Conducting risk analysis in investments can help minimize risks, enabling investors to achieve optimal returns with minimal risk.

Paying attention to fundamental ratios is crucial in long-term investments as these ratios reflect the overall health of a company. Fundamental ratios typically fall into several categories: liquidity ratios (current ratio, quick ratio, cash ratio), profitability ratios (gross profit margin, net profit margin, return on investment, return on equity), solvency ratios (debt to asset ratio, debt to equity ratio), and activity ratios (receivable turnover, inventory turnover, total asset turnover, working capital turnover). In addition to considering these ratios, investing in companies with substantial capital provides a sense of security, as such companies are better equipped to manage business risks (Brastama & Yadnya, 2020).

A strong capital base also serves as additional assurance for stock investments. For instance, stocks of banking institutions in the Core Capital Group 4 (Kelompok Bank Modal Inti, KBMI 4) are considered robust investments. According to PJOK Regulation No. 12/PJOK.03/2021 on commercial banks, banks are categorized based on their core capital into four groups: KBMI 1 (core capital up to Rp 6 trillion), KBMI 2 (core capital between Rp 6 trillion and Rp 14 trillion), KBMI 3 (core capital between Rp 14 trillion and Rp 70 trillion), and KBMI 4 (core capital exceeding Rp 70 trillion). With a strong capital base, a company's operations are more secure, especially regarding liquidity risk (Darma et al., 2018).

KBMI 4 banks were selected for this study because they possess the largest capital base, thus minimizing risk. As financial institutions that collect and distribute funds from the public, banks have specific ratios unique to financial institutions, such as net interest margin (NIM), non-performing loans (NPL), and capital adequacy ratio (CAR). These ratios reflect various aspects of a bank's health, including income, the quality of credit disbursed, capital strength, and management efficiency.

Net interest margin (NIM) is the ratio derived from the total interest income received by banks minus the interest expenses paid by the banks. According to Aini (2013), NIM represents the ratio between the interest earned from lending activities and the interest costs of sourced funds. A higher NIM indicates better management of funds by the bank, which can positively influence stock returns. Thus, a higher NIM ratio positively impacts stock prices. This finding is consistent with the research conducted by Harahap & Hairunnisah (2017), which

demonstrated that NIM has a positive and significant effect on stock prices. However, contrasting findings were reported by Endri (2020), who suggested that NIM negatively impacts stock prices. The negative impact of NIM on stock prices could be attributed to the increased lending volume associated with higher NIM, which in turn may reduce the capital adequacy ratio (CAR)—a critical measure of a bank's operational risk-bearing capacity.

Non-performing loans (NPL) represent the ratio of problematic loans to the total loans provided by the bank to borrowers. NPL indicates the percentage of non-performing loans given to third parties, excluding interbank loans (Sudarmawanti & Pramono, 2017). Since NPLs are an additional burden that can reduce a bank's profitability, a higher NPL ratio negatively impacts stock prices. An increase in NPLs can lead to a decrease in stock prices due to its adverse effect on the bank's primary income source, interest income from loans (Hasibuan et al., 2021). However, research by Sudarmawanti & Pramono (2017) found that NPLs do not significantly affect stock prices. This lack of impact may be due to the fact that NPL ratios have a threshold of 5%; as long as the NPL ratio remains below this threshold, investors may perceive the bank to be in a stable condition.

The capital adequacy ratio (CAR) measures a bank's ability to absorb risks arising from its operational activities. An increase in CAR indicates a stronger risk-bearing capacity, which can lead to a rise in stock prices (Gunadi et al., 2020). Research by Rudianto & Dewangga (2021) suggests that CAR influences stock prices because a higher CAR enhances public confidence in the bank. Conversely, a study by Sudarmawanti & Pramono (2017) found that CAR does not significantly impact stock prices. This lack of effect may be due to banks maintaining CAR levels above the minimum threshold of 8%; as long as the CAR does not fall below this minimum, investors may perceive the bank as being in a stable condition.

The explanation above highlights the research gap and the presence of certain anomalies in the financial reports of KBMI 4 banks, where the financial ratios do not align with existing theories. Therefore, further research is warranted to investigate the impact of banking financial ratios on the stock prices of KBMI 4 banks.

METHOD

This study employs a quantitative research design. According to Hardani et al. (2020), quantitative research is an approach that involves the use of numerical data, which is subsequently analyzed using appropriate statistical methods. The data utilized in this study is secondary data. As defined by Syahza (2021), secondary data is information obtained from institutions or companies that has already been documented. The secondary data sources for this study are the official websites of KBMI 4 banks, comprising audited financial statements from 2014 to 2021. The financial data extracted from these reports for the independent variables include net interest margin, non-performing loan, and capital adequacy ratio. The units of analysis are as follows:

a. KBMI 4 banking companies with financial statements for the years 2014-2021 that are listed on the Indonesia Stock Exchange (IDX).
b. KBMI 4 banking companies that comply with the OJK regulations in PJOK No. 12/PJOK.03/2021 concerning commercial banks (Syahza, 2021).

Operational Definitions of Variables

The operational definitions of the variables in this study are divided into independent and dependent variables. According to Damanik & Sasongko (2010), independent variables initiate, alter, and influence dependent variables, while dependent variables are the outcomes and effects of the independent variables (Karasek III & Bryant, 2012).

Table 1. Operational Definitions of Variables

Variable	Definition	Measurement	Scale
Net Interest Margin (NIM)	Represents the net interest income earned by the bank from the interest on loans provided, minus the interest expenses on funds sourced, divided by the total productive assets.	$\text{NIM} = \frac{\text{Net interest income}}{\text{Average productive assets}}$	Ratio
Non-Performing Loan (NPL)	Indicates the level of problematic loans relative to the total loans disbursed. Calculated by dividing the total amount of non-performing loans by the total loans provided.	$\text{NPL} = \frac{\text{Total non-performing loan}}{\text{Total credit}}$	Ratio
Capital Adequacy Ratio (CAR)	Reflects the bank's ability to bear risks, maintain liquidity, and ensure operational stability. Calculated by dividing the total capital by the risk-weighted assets (RWA).	$\text{CAR} = \frac{\text{Capital}}{\text{Risk weighted assets}}$	Ratio
Stock Price	The cost incurred to acquire a certificate of ownership in a company or a share, which represents a claim on the company's income and assets.	Dependent on supply and demand.	Ln (Stock Price)

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics provide an overview and description of the data for all research variables, including the mean, maximum, minimum, and standard deviation. The results are presented in the table below:

Table 2. Descriptive Statistics Results

Variable	Min	Max	Mean	Std. Dev	Skewness	Kurtosis
NIM	4.480000	8.510000	6.159688	1.076639	0.493910	2.684885
NPL	0.600000	4.300000	2.290000	0.906144	0.172507	2.649178
CAR	16.20000	25.80000	20.68969	2.597347	0.226825	2.375173
SP	7.734121	9.920029	8.521265	0.416190	-0.500811	2.227283

Source: Processed Data (2024)

Classical Assumption Tests

Normality Test

The following table presents the results of the normality test conducted using E-views 12:

Table 3. Normality Test Results

	Value
Probabilitas Jarque-Bera	1.419356

Source: Processed Data (2024)

Table 3 indicates that the Jarque-Bera Probability value is greater than 5%. Thus, it can be concluded that the normality test is satisfied, or the residuals are normally distributed.

Multicollinearity Test

The multicollinearity test is used to determine whether there is a strong or perfect correlation among the independent variables. The results of the multicollinearity test conducted using E-views 12 are presented below:

Table 4. Multicollinearity Test Results

Variable	NIM	NPL	CAR	OER
NIM	1.000000	-0.405435	0.167172	-0.286521
NPL	-0.405435	1.000000	-0.063821	0.834475
CAR	0.167172	-0.063821	1.000000	-0.375409

Source: Processed Data (2024)

Table 4 shows that none of the correlation values between variables exceed 0.9, indicating that multicollinearity is not present among the variables in this study.

Heteroscedasticity Test

The heteroscedasticity test is useful for determining whether there is an inequality in the variance of the residuals from one observation to another in the regression model. The results of the heteroscedasticity test conducted using E-views 12 are as follows:

Table 5. Heteroscedasticity Test Results

F-statistic	0.913956	Prob. F (14,17)	0.5312
Obs*R-squared	13.71006	Prob. Chi-Square (4)	0.4364
Scaled explained SS	8.891281	Prob. Chi-Square (4)	0.8389

Source: Processed Data (2024)

Table 5 shows that the chi-square probability value for the observation R-squared is 0.4364. This value is greater than 0.05, indicating that heteroscedasticity is not present in the regression model used in this study.

Autocorrelation Test

To determine whether there is a correlation between the residuals of one observation and the residuals of another observation within a model, an autocorrelation test is performed. The results of the autocorrelation test obtained using E-views 12 are as follows:

Table 6. Autocorrelation Test Results

F-statistic	2.702241	Prob. F (2,25)	0.0867
Obs*R-squared	5.649980	Prob. Chi-Square (2)	0.0541

Source: Processed Data (2024)

Based on Table 6, the chi-square probability value is 0.0541. This value is greater than 0.05, indicating that autocorrelation is not present in the regression model of this study.

Common Effect Model

The Common Effect Model is one of the panel data models that combines time series and cross-sectional data. The results of the Common Effect Model are shown below:

Table 7. Common Effect Model Results

R Squared	0.778438
Adjusted R-Squared	0.737667

Source: Processed Data (2024)

Based on Table 7, the Common Effect Model in this study has an adjusted R-squared value of 0.737667. This indicates that the research variables—net interest margin, non-performing loan, and capital adequacy ratio—collectively explain 73.7% of the variation in stock prices, while the remaining 26.3% is influenced by other variables and factors.

F-Test

The F-test aims to assess the overall suitability of the model used. If the calculated t-value is greater than the critical t-value and the probability value is below 0.05, the model is considered suitable for use. The results of the F-test are as follows:

Table 8. F-Test Results

F-statistic	25.78362
Prob. (F-statistic)	0.000000

Source: Processed Data (2024)

In Table 8, the F-statistic is 25.78362, which is greater than the critical F-value of 2.95. Thus, F-calculated (25.78362) > F-critical (2.95) with a probability value of 0.000000, which is less than 0.05. Therefore, it can be concluded that the selected model is suitable for use.

T-Test

To determine whether the independent variables have a partial effect on the dependent variable, a t-test is employed. The probability values for the equation model using the fixed effect model approach for panel data estimation are as follows:

Table 9. T-Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.656119	0.957091	10.45177	0.0000
NIM	-0.205412	0.052315	-4.979835	0.0000
NPL	0.002186	0.101884	0.023582	0.9914
CAR	0.066107	0.021088	3.200421	0.0041

Source: Processed Data (2024)

The regression equation based on panel data analysis in the table above using the fixed effect model approach is as follows:

$SP = \alpha it + \beta 1NIMit + \beta 2NPLit + \beta 3CARit + \varepsilon it$ ……

$SP = 9.656119 - 0.205412NIMit + 0.002186NPLit + 0.066107CARit + \varepsilon it$

Based on Table 9, it is evident that NIM has a negative effect on stock prices. This result is consistent with the findings of Indiani & Dewi (2016) and Endri (2020), who also found a negative impact of NIM on stock prices. The negative effect of NIM on stock prices may be attributed to the increase in the amount of credit extended by the bank, which introduces a higher risk element that must be accounted for in the risk-weighted assets (RWA). An increase in RWA leads to a decrease in the CAR value, as the denominator in the CAR calculation increases. A lower CAR value indicates a reduced capacity of the bank to anticipate risks in its operations, which is negatively perceived by stock market investors, thereby leading to a decline in stock prices.

Based on Table 9, it is evident that NPL does not have a significant impact on stock prices. This finding aligns with the research conducted by Sudarmawanti & Pramono (2017) and Endri (2020), who also found no significant effect of NPL on stock prices. NPL represents a risk factor in banking business; however, its insignificance regarding stock prices in this study may be attributed to the use of KBMI 4 banking data, which boasts substantial capital and CAR ratios that are more than double the minimum standard set at 8%. Hence, with a high CAR, investors perceive the bank as always in good condition as long as the NPL value does not exceed the 5% threshold. This explains why fluctuations in NPL values do not influence stock prices (Shaliha & Prastiwi, 2023).

Based on Table 9, it can be concluded that CAR has a significant and positive impact on stock prices. This research finding aligns with the results of studies conducted by Alfretdo & Nasution (2021) and Brastama & Yadnya (2020), which found a positive effect of CAR on stock prices. CAR is a ratio that measures the bank's ability to handle risks; the higher this ratio, the better investors perceive the bank's ability to face any potential risks. For instance, in the case of Bank Bukopin, which limited customer withdrawals, causing panic and adversely affecting banking operations, despite its CAR value being at 12.59%, above the minimum requirement. However, this value was significantly lower than the industry's average CAR at the time, which was 21.67%. A high CAR value also allows banks to expand their business without requiring additional capital, as banks must meet the minimum CAR value of 8%, meaning for every 100 rupees loaned, 8 rupees of capital must be provided. Thus, a higher CAR will positively impact stock prices as it relates to the smoothness of operational activities, risk management, and bank development.

CONCLUSION

This study aimed to determine the effects of net interest margin, non-performing loans, and capital adequacy ratio on stock prices of KBMI 4 core bank groups listed on the Indonesia Stock Exchange from 2014 to 2021. The results of this study indicate that capital adequacy ratio has a positive impact and net interest margin has a negative impact on bank stock prices. Meanwhile, non-performing loans do not have a significant impact on bank stock prices. Future research may consider adding other independent variables to enhance the ability of independent variables to depict dependent variables. Subsequent studies may also include KBMI 3 banking stocks to provide more investment options for investors.

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