

The Effect of Interest Rates, Exchange Rates, and Inflation on Stock Prices, Moderated by CAR (A Study of the Banking Industry on the Indonesia Stock Exchange, 2021–2025)

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ABSTRACT

This study aims to analyze and examine the influence of macroeconomic factors, consisting of Interest Rates, Exchange Rates, and Inflation, on Stock Prices in banking sector companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2025 period. Furthermore, this study also examines the role of the Capital Adequacy Ratio (CAR) as a moderating variable in moderating the effects of interest rates, exchange rates, and inflation on these stock prices. The research method employed is an explanatory research approach with an ex post facto design. The population in this study comprises all banking companies listed on the IDX during the 2021–2025 period. The sampling technique utilizes a purposive sampling method based on specific criteria, resulting in a sample of 44 banking companies for observation. The data used are secondary data, including annual financial statements and official macroeconomic indicator data. The data analysis method applies Panel Data Regression Analysis with a Moderated Regression Analysis (MRA) approach, processed using EViews 14 statistical software. The results of the study indicate that: 1) Interest Rates have a negative and significant effect on Stock Prices. 2) Exchange Rates have a positive and significant effect on Stock Prices. 3) Inflation has a positive and significant effect on Stock Prices. 4) CAR is able to moderate the effect of Interest Rates on Stock Prices, classified as a Pure Moderator. 5) CAR is unable to moderate the effect of Exchange Rates on Stock Prices, classified as a Predictor Moderator. 6) CAR is able to moderate the effect of Inflation on Stock Prices, classified as a Quasi Moderator in the banking industry on the IDX for the 2021–2025 period.

Informasi Artikel

Kata Kunci:

Tingkat Suku Bunga,
Nilai Tukar, Inflasi,
Harga Saham, Capital
Adequacy Ratio
(CAR), Perbankan,
Eviews 14..

ABSTRAK

Penelitian ini bertujuan untuk menganalisis dan menguji pengaruh faktor makroekonomi yang terdiri dari Tingkat Suku Bunga, Nilai Tukar dan Inflasi terhadap Harga Saham pada perusahaan sektor industri perbankan yang terdaftar di Bursa Efek Indonesia (BEI) periode 2021–2025. Selain itu, penelitian ini juga menguji peran Capital Adequacy Ratio (CAR) sebagai variabel moderasi dalam memoderasi pengaruh tingkat suku bunga, nilai tukar, dan inflasi terhadap harga saham tersebut. Metode penelitian yang digunakan adalah pendekatan explanatory research dengan desain ex post facto. Populasi dalam penelitian ini adalah seluruh perusahaan perbankan yang terdaftar di BEI selama periode 2021–2025. Teknik pengambilan sampel menggunakan metode purposive sampling berdasarkan kriteria tertentu, sehingga diperoleh sebanyak 44 perusahaan perbankan sebagai sampel pengamatan. Data yang digunakan adalah data sekunder berupa laporan keuangan tahunan dan data indikator makroekonomi resmi. Metode analisis data yang digunakan adalah Analisis Regresi Data Panel dengan pendekatan Moderated Regression Analysis (MRA) dengan bantuan software statistik EViews 14. Hasil penelitian menunjukkan bahwa: 1) Tingkat Suku Bunga berpengaruh negatif dan signifikan terhadap Harga Saham. 2) Nilai Tukar berpengaruh positif dan signifikan terhadap Harga Saham. 3) Inflasi berpengaruh positif dan signifikan terhadap Harga Saham. 4) CAR mampu memoderasi pengaruh Tingkat Suku Bunga terhadap Harga Saham dengan jenis hubungan Pure Moderator. 5) CAR tidak mampu memoderasi pengaruh Nilai Tukar terhadap Harga Saham dengan jenis hubungan Predictor Moderator. 6) CAR mampu memoderasi pengaruh Inflasi terhadap Harga Saham dengan jenis hubungan Quasi Moderator pada industri perbankan di BEI periode 2021–2025.

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1. Introduction

Indonesia's economy for the 2021–2025 period is projected to grow at a positive yet dynamic rate, with GDP growth fluctuating from 3.69% in 2021 to 5.11% in 2025. Amid these macroeconomic conditions, the capital market and the banking industry play a strategic role as financial intermediaries with substantial market capitalization and liquidity. Banking stocks, particularly those included in the INFOBANK15 index, are a primary focus for investors because their price movements reflect market expectations regarding the national economic outlook as well as the banks' ability to manage financial risks.

The interest rate (BI-Rate) is the key macroeconomic variable influencing banks' funding costs and net interest margins. During the observation period, the BI-Rate fluctuated from a low of 3.50% in 2021, peaking at 6.00% in 2023–2024, before being lowered to 4.75% in September 2025 to stimulate economic growth. The impact of these interest rate changes on stock prices has shown inconsistency across previous studies, with findings ranging from a significant negative effect to a positive one, and even no significant effect at all. This is more clearly illustrated in Table 1, which shows the fluctuations in banking stock prices during the study period.

Table 1. Development of Banking Stock Prices for the 2021–2025 Period

Periode	BBCA	BBNI	BBRI	BMRI
30 Des 2025	Rp 8.075	Rp 4.370	Rp 3.660	Rp 5.100
30 Des 2024	Rp 9.675	Rp 4.350	Rp 4.080	Rp 5.700
29 Des 2023	Rp 9.400	Rp 5.375	Rp 5.725	Rp 6.050
30 Des 2022	Rp 8.550	Rp 9.225	Rp 4.940	Rp 9.925
30 Des 2021	Rp 7.300	Rp 6.750	Rp 4.110	Rp 7.025

Source: Indonesia Stock Exchange (<https://www.idx.co.id/id>). Data processed, 2026.

As shown in the table above, the year-end closing stock prices of several banks namely BCA, BNI, BRI, and Bank Mandiri represent the Indonesian banking industry. These banks are among those with the largest market capitalization and highest liquidity in Indonesia; therefore, their stock price movements reflect general trends and sentiment within the national banking sector. These stock prices can be influenced by the banks' internal conditions as well as external factors, such as interest rates, exchange rates, and inflation.

In addition to interest rates, external stability as reflected in the

rupiah exchange rate also significantly affects stock prices. The JISDOR exchange rate indicates that the rupiah has come under pressure and weakened from Rp14,278 per U.S. dollar at the end of 2021 to Rp16,720 per U.S. dollar by the end of 2025. [11]

This depreciation phenomenon has yielded mixed empirical results among researchers; some have found negative effects due to increased market risk and costs, while others have found a contextual positive relationship that actually enhances corporate competitiveness.

The third macroeconomic factor analyzed is inflation, which fluctuated from 1.87% in 2021, surged sharply to 5.51% in 2022, and stood at 2.92% in 2025. Inflation has a direct impact on consumer purchasing power, operating costs, and the quality of bank credit. However, as with other variables, the existing literature still shows inconsistent results, with some studies indicating that inflation has no significant effect, while others find a significant impact on stock prices. [1]

To bridge the inconsistencies in previous research, the Capital Adequacy Ratio (CAR) is positioned as a moderating variable because it reflects a bank's capital adequacy in absorbing external risks. Based on this research gap, this study, titled "The Effect of Interest Rates, Exchange Rates, and Inflation on Stock Prices Moderated by CAR (A Study of the Banking Industry on the Indonesia Stock Exchange for the Period 2021–2025)," was conducted. This research is expected to provide empirical evidence regarding the extent to which a bank's internal capital resilience (CAR) can strengthen or weaken the impact of macroeconomic shocks on its stock prices.

Research on the effect of exchange rates on stock prices has yielded mixed results. [5] and [6] found that exchange rate depreciation tends to have a significant negative impact on stock prices, as it reduces purchasing power and corporate profitability. However, [7] and [2] found different results, namely that exchange rates have a significant effect on stock prices. These findings suggest that under certain conditions, exchange rate movements may have a positive relationship with stock market performance, meaning that changes in the exchange rate can enhance competitiveness and investors' perceptions of stocks. The inconsistency in these findings indicates that the impact of the exchange rate on stock prices is contextual and may vary depending on economic conditions and market characteristics.

Inflation is also a macroeconomic variable that can affect consumer purchasing power, corporate operating costs, credit quality, and expectations regarding monetary policy. Rising inflation may prompt the central bank to maintain or raise interest rates, thereby affecting the cost of capital and investment

decisions. [11] notes that year-on-year inflation in 2021 stood at 1.87%, then rose quite sharply to 5.51% in 2022. The data for 2023–2024 shows that inflationary pressures were relatively more contained, until inflation rose again to 2.92% in 2025. These inflation trends indicate that price pressures fluctuate from year to year, which could be one factor influencing investors' perceptions of banking stocks.

2. Research Method

This study uses three macroeconomic variables as independent variables: interest rates (X1), exchange rates (X2), and inflation (X3). Bank stock prices serve as the dependent variable (Y). This study also includes the Capital Adequacy Ratio (CAR) as a moderating variable (Z) because CAR reflects a bank's capital resilience in absorbing risk. Banks with a higher CAR typically have a stronger capital buffer, allowing the market to assess them as better able to withstand macroeconomic shocks. The CAR has the potential to weaken or strengthen the influence of macroeconomic variables on banking stock prices. Figure 1 shows the model of the relationships among the variables to be tested in the banking industry on the Indonesia Stock Exchange for the period 2021–2025.

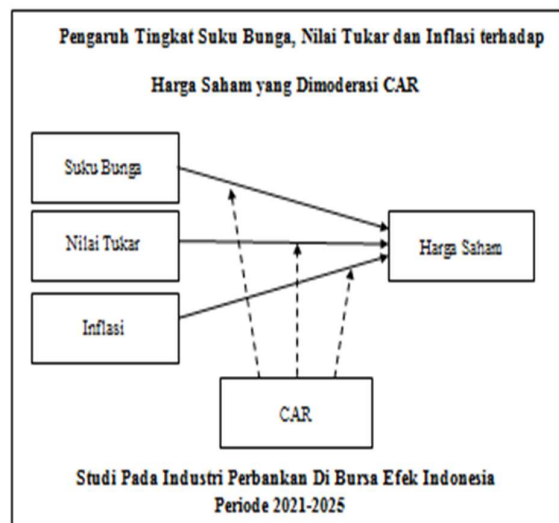


Figure 1. Research Model Framework

This study examines the direct effects of interest rates, exchange rates, and inflation on stock prices, as well as the role of the capital adequacy ratio (CAR) as a moderating variable that influences the strength of the relationships between interest rates and stock prices, exchange rates and stock prices, and inflation and stock prices.

This study employs a quantitative explanatory research approach with an ex post facto design and utilizes secondary data. This approach was chosen because the study aims to

explain and test the empirical relationships among the variables, including both direct effects and moderating effects. [2] This study focuses on testing the effects of interest rates, exchange rates, and inflation on stock prices, as well as examining the role of the Capital Adequacy Ratio (CAR) as a moderating variable in the banking industry listed on the Indonesia Stock Exchange for the period 2021–2025.

This confirmatory study aims to test existing theories and empirical findings regarding the influence of macroeconomic variables (interest rates, exchange rates, and inflation) on stock prices, with the Capital Adequacy Ratio (CAR) serving as a moderating variable. The scope of the study is limited to the banking industry listed on the Indonesia Stock Exchange (IDX) for the period 2021–2025. Using panel data that combines time-series and cross-sectional data, this study relies on objective secondary data obtained indirectly through official publications on the websites of the IDX, Bank Indonesia (BI), the Financial Services Authority (OJK), and the Central Statistics Agency (BPS). [10]

The population in this study comprises all banking companies listed on the IDX during the 2021–2025 period, totaling 47 banks. The sample was selected using purposive sampling based on five strict criteria: the banks must have been continuously listed, published complete annual financial reports, had year-end closing stock prices available, reported CAR data throughout the observation period, and not have been delisted. Based on the screening of these criteria, 3 banks (BANK, BSWD, MASB) were excluded, resulting in a final sample of 44 banks that met the requirements for analysis.

The research variables used are classified into three main types: a dependent variable (Y), namely stock price; three independent variables (X), including the interest rate (X1), the exchange rate (X2), and inflation (X3); and one moderating variable (Z), namely the CAR. To detect and demonstrate the moderating effect of the bank's internal capital adequacy, three interaction variables were also formed—the products of CAR and each macroeconomic indicator ($X1 \times Z$, $X2 \times Z$, $X3 \times Z$). All quantitative data were collected using documentation techniques from financial statements and market data.

The data analysis method applied is panel data regression using the Moderated Regression Analysis (MRA) approach. The MRA approach was chosen to empirically test whether the interaction coefficients of Interest Rate $\times$ CAR, Exchange Rate $\times$ CAR, and Inflation $\times$ CAR are significant in strengthening or weakening the relationship with stock prices. To eliminate potential multicollinearity resulting from the formation of interaction terms, the data were first transformed using the mean-centering approach (subtracting the mean from each variable's value)

before the regression model was computationally processed using EViews 14 software.

3. Results and Discussion

3.1 Results

Before testing the structural model, the instrument was evaluated through content validity tests and reliability tests as well as construct validity, in line with the data analysis procedures in previous research methods.

Descriptive statistical analysis is used to provide an initial overview of the characteristics of the research data before further testing is conducted. Through this analysis, each research variable—namely, interest rates, exchange rates, inflation, stock prices, and the Capital Adequacy Ratio (CAR)—is described based on its minimum, maximum, mean, and standard deviation. Descriptive statistics are important because they reveal general patterns, the degree of dispersion, and trends in the data within a quantitative study (Ghozali, 2021). [4]

Table 2. Results of Descriptive Statistical Analysis

Date: 06/18/26 Time: 20:49 Sample: 2021M01 2025M12					
	SUKU_BUN...	NILAI_TUKAR	INFLASI	HARGA_SA...	CAR
Mean	4.941667	9.639269	2.733500	6.517406	3.480122
Median	5.500000	9.638165	2.535000	6.675188	3.318531
Maximum	6.250000	9.724361	5.950000	10.46310	8.633197
Minimum	3.500000	9.552795	-0.090000	3.135494	2.312535
Std. Dev.	1.082609	0.053922	1.366826	1.531754	0.633437
Skewness	-0.357299	0.055335	0.747955	-0.090193	2.973025
Kurtosis	1.397307	1.641769	2.852130	2.010294	22.17512
Jarque-Bera	338.7201	204.2742	248.5571	111.3262	44334.47
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	13046.00	25447.67	7216.440	17205.95	9187.523
Sum Sq.	67562.00	245304.6	24656.35	118330.0	33032.58
Sum Sq. Dev.	3093.017	7.673092	4930.216	6191.809	1058.879
Observations	2640	2640	2640	2640	2640

Source: Data processed using Eviews (2026)

This study used a total of 2,640 observation data points, balanced across five variables during the observation period. Based on macroeconomic indicators, the BI-Rate variable recorded an average value of 4.94% with moderate fluctuations (standard deviation of 1.08), ranging from a minimum of 3.50% to a maximum of 6.25%. Meanwhile, the rupiah exchange rate remained highly stable, with an average value of 9.64 and relatively small exchange rate variations (standard deviation of 0.05). In contrast, the inflation variable showed fairly high fluctuations with a standard deviation of 1.37, ranging from a

maximum of 5.95% to a minimum of -0.09%, indicating a period of deflation.

Regarding internal banking variables, stock prices exhibited a fairly wide data dispersion (standard deviation of 1.53), with an average value of 6.52 and a range from a minimum of 3.14 to a maximum of 10.46. On the other hand, the Capital Adequacy Ratio (CAR) variable recorded an average value of 3.48, ranging from a minimum of 2.31 to a maximum of 8.63. Overall, the characteristics of the data distribution in this study are highly diverse; while macroeconomic factors such as the exchange rate tend to be stable, the CAR variable actually shows the strongest indication of an irregular distribution due to high values of skewness and kurtosis.

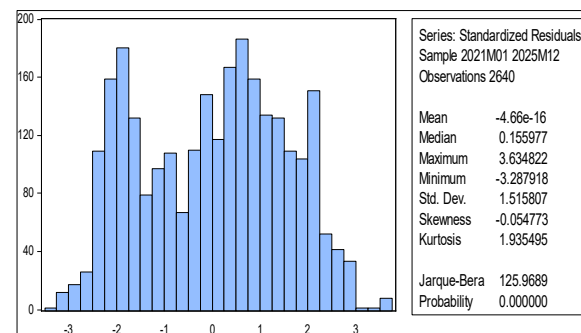


Figure 2. Normality Test Results

Source: Data processed using Eviews (2026)

Based on Figure 2, the normality test results show that the probability is $0.000 < 0.05$, meaning the data is not normally distributed, which indicates a rejection of the null hypothesis. Although the residuals are not normally distributed, the large number of observations means that the regression estimates remain valid.

Table 3. Results of the Multicollinearity Test

	SUKU_BUN...	NILAI_TUKAR	INFLASI	CAR
SUKU...	1.000000	0.701454	0.086701	0.063586
NILAI...	0.701454	1.000000	-0.043715	0.023034
INFLASI	0.086701	-0.043715	1.000000	0.026425
CAR	0.063586	0.023034	0.026425	1.000000

Source: Data processed using Eviews (2026)

Based on Table 3, the multicollinearity test results show that the correlations among the variables in this study are generally below 0.8. Thus, in this regression model, the variables—interest rates, exchange rates, inflation, and CAR—are free from multicollinearity, as there are no overly strong linear relationships among them.

Based on Table 4, the probability values of the regression

coefficients for each independent variable are less than 0.05: interest rate $0.0000 < 0.05$, exchange rate $0.0000 < 0.05$, and inflation $0.0422 < 0.05$. Thus, in the uncontrolled regression model, there is a significant effect of the independent variables on the absolute value of the residuals.

Table 4. Heteroscedasticity Test Results

Dependent Variable: RESABS				
Method: Panel EGLS (Cross-section random effects)				
Date: 06/18/26 Time: 21:25				
Sample: 2021M01 2025M12				
Periods included: 60				
Cross-sections included: 44				
Total panel (balanced) observations: 2640				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.748321	1.540396	-4.380902	0.0000
SUKU_BUNGA	0.042818	0.008098	5.287617	0.0000
NILAI_TUKAR	0.810018	0.162125	4.996259	0.0000
INFLASI	0.009300	0.004576	2.032442	0.0422
Effects Specification			S.D.	Rho
Cross-section random			0.721155	0.8384
Idiosyncratic random			0.316587	0.1616
Weighted Statistics				
R-squared	0.066330	Mean dependent var	0.073371	
Adjusted R-squared	0.065267	S.D. dependent var	0.327453	
S.E. of regression	0.316587	Sum squared resid	264.1986	
F-statistic	62.42205	Durbin-Watson stat	0.216004	
Prob(F-statistic)	0.000000			

Source: Data processed using Eviews (2026)

The following table shows the results of the Random Effects Model in this study:

Table 5. Random Effects Model

Dependent Variable: HARGA_SAHAM				
Method: Panel EGLS (Cross-section random effects)				
Date: 06/18/26 Time: 21:12				
Sample: 2021M01 2025M12				
Periods included: 60				
Cross-sections included: 44				
Total panel (balanced) observations: 2640				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	27.57779	1.812010	15.21945	0.0000
SUKU_BUNGA	-0.110662	0.009498	-11.65079	0.0000
NILAI_TUKAR	-2.121482	0.189232	-11.21101	0.0000
INFLASI	0.001096	0.005337	0.205334	0.8373
CAR	-0.019250	0.019940	-0.965356	0.3345
Effects Specification			S.D.	Rho
Cross-section random			1.502487	0.9431
Idiosyncratic random			0.369089	0.0569
Weighted Statistics				
R-squared	0.256662	Mean dependent var	0.206586	
Adjusted R-squared	0.255533	S.D. dependent var	0.427697	
S.E. of regression	0.369028	Sum squared resid	358.8379	
F-statistic	227.4549	Durbin-Watson stat	0.173475	
Prob(F-statistic)	0.000000			

Source: Data processed using Eviews (2026)

Based on a series of estimation model selection tests conducted previously (Chow Test and Hausman Test), the best model selected to estimate all regression equations is the Random Effects Model (REM). Therefore, the MRA test in this study was estimated using the Panel EGLS method (cross-section random effects).

Table 6. Uji F Model A

Dependent Variable: HARGA_SAHAM
Method: Panel EGLS (Cross-section random effects)
Date: 06/22/26 Time: 01:46
Sample: 2021M01 2025M12
Periods included: 60
Cross-sections included: 44
Total panel (balanced) observations: 2640
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	27.43125	1.805325	15.19464	0.0000
SUKU_BUNGA	-0.111670	0.009441	-11.82870	0.0000
NILAI_TUKAR	-2.112670	0.189008	-11.17767	0.0000
INFLASI	0.000944	0.005334	0.177054	0.8595
Effects Specification			S.D.	Rho
Cross-section random			1.487539	0.9420
Idiosyncratic random			0.369082	0.0580
Weighted Statistics				
R-squared	0.256337	Mean dependent var	0.208656	
Adjusted R-squared	0.255491	S.D. dependent var	0.427748	
S.E. of regression	0.369082	Sum squared resid	359.0805	
F-statistic	302.8726	Durbin-Watson stat	0.173254	
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.019990	Mean dependent var	6.517406	
Sum squared resid	6068.036	Durbin-Watson stat	0.010252	

Source: Data processed using Eviews (2026)

The F-test examines whether the variables Interest Rate, Exchange Rate, and Inflation collectively and simultaneously have a significant effect on Stock Prices. Based on Table 5.12, the F-statistic is 302.8726 with a p-value of 0.000000, which is smaller than the significance level of 0.05. The conclusion is that, collectively, Interest Rates, Exchange Rates, and Inflation significantly influence Stock Prices. This finding supports the study's basic premise that stock prices are not only driven by internal company factors (micro), but are shaped by a combination of various systemic macroeconomic risks, in line with the Arbitrage Pricing Theory, which states that markets respond to multiple economic factors simultaneously.

Table 7. t-Test for Model A

Variabel	Koefisien	t-statistic	Prob.	Hipotesis	Conclusion
Interest Rate (X1)	-0.111670	-11.82870	0.0000	H ₁ : Tingkat Suku Bunga	Signifikan

				→ Harga Saham	
Exchange Rate (X2)	- 2.112670	- 11.17767	0.0000	H2: Nilai Tukar → Harga Saham	Signifikan
Inflasi (X3)	0.000944	0.177054	0.8595	H3: Inflasi → Harga Saham	Tidak Signifikan

Source: Data processed using Eviews (2026)

The results of the analysis show that the interest rate coefficient has no significant effect. Theoretically, an increase in the benchmark interest rate raises the discount rate in the Discounted Cash Flow (DCF) model and triggers investors to reallocate their assets to safer instruments, thereby putting downward pressure on stock prices. Meanwhile, an appreciation in the exchange rate—reflecting the depreciation of the rupiah—increases banks' foreign exchange operating costs and triggers capital outflows by foreign investors seeking to hedge against exchange rate risk. On the other hand, the insignificant impact of inflation indicates the presence of rational expectations, whereby market participants assess that the domestic inflation rate remains within reasonable limits under government control, so its fluctuations tend to be ignored in short-term stock price movements.

The following table summarizes the results of the hypothesis testing in this study:

Table 8. Summary of Hypothesis Testing Results

Hi po te sis	Variabel	Ko efis ien	t- statist ic	Pro b.	Type of Moderat ion	Concl usion
H ₁	Tingkat Suku Bunga → Harga Saham	- 0,111670	- 11,17767	0,0040	Pengaruh Langsung Negatif	Diteri ma (Signif ikan)
H ₂	Nilai Tukar → Harga Saham	- 2,112670	- 2,719086	0,0000	Pengaruh Langsung Negatif	Diteri ma (Signif ikan)
H ₃	Inflasi → Harga Saham	0,000944	0,177054	0,8595	Pengaruh Langsung Positif	Ditola k (Tidak Signifi kan)
H ₄	Tingkat Suku Bunga x	- 0,0	- 4,751600	0,0000	Pure Moderat or	Diteri ma

Hi po te sis	Variabel	Ko efis ien	t- statist ic	Pro b.	Type of Moderat ion	Concl usion
	CAR → Harga Saham	78563			(Memper kuat Negatif)	(Signif ikan)
H ₅	Nilai Tukar x CAR → Harga Saham (Mediasi)	0,319862	0,898661	0,368	Predictor Moderat or (Bukan Moderasi)	Ditola k (Tidak Signifi kan)
H ₆	Inflasi x CAR → Harga Saham (Mediasi)	0,027061	2,911384	0,0036	Quasi Moderat or (Memper lemah Negatif)	Diteri ma (Signif ikan)

Source: Data processed using Eviews (2026)

Stock price dynamics in the banking sector are influenced in complex ways by a combination of macroeconomic factors and internal capital indicators. Directly, the Interest Rate (H1) and Exchange Rate (H2) were found to have a significant and consistent negative impact on stock prices, indicating that interest rate hikes and the depreciation of the rupiah create negative sentiment in the market. Conversely, fluctuations in the inflation rate (H3) have, in part, no significant empirical effect on banking equity movements, thus rejecting the direct hypothesis. Nevertheless, testing for interaction effects via Moderated Regression Analysis (MRA) yielded varied and insightful findings.

The Capital Adequacy Ratio (CAR) was found to act as a significant Pure Moderator that amplifies the negative effect of interest rates on stock prices (H4), but it failed to moderate the effect of the exchange rate (H5) and was therefore categorized only as a Predictor Moderator. The most unique finding shows that CAR functions as a Quasi Moderator (H6) that successfully mitigates the adverse impact of inflation on stock prices. A robust capital structure (capital buffers) is highly valued by investors as a protective cushion capable of neutralizing macroeconomic risks, which theoretically reinforces the validity of Contingency Theory, Fisher Effect Theory, and Signaling Theory.

3.2 Discussion

The discussion of the research results will elaborate on how the analysis of the hypothesis testing addresses the research objectives, relating them to the underlying theory and to the results of previous studies.

3.2.1 The Effect of Interest Rates on Stock Prices (H1)

Based on the results of the Random Effects Model (REM) estimation, the Interest Rate variable has a regression coefficient of -0.111670 with a t-statistic of -11.17767 and a p-value of 0.0000. Since the p-value is significantly smaller than the significance level of 0.05 ($0.0000 < 0.05$), Hypothesis 1 (H1) is empirically accepted. This proves that the interest rate has a negative and statistically significant partial effect on the stock prices of banking issuers on the Indonesia Stock Exchange throughout the observation period. Theoretically, this finding fully supports the Present Value Theory, according to which an increase in the benchmark interest rate raises the discount rate while simultaneously increasing the required rate of return demanded by investors. Consequently, the present value of the estimated future cash flows of banking issuers decreases. In addition to increasing banks' cost of funds, interest rate hikes also prompt rational investors to reallocate their assets from risky equity instruments to safer money market instruments or bonds. These empirical results are consistent with studies [3] and [5] and refute research findings that claim the effect is insignificant.

3.2.2 The Effect of the Exchange Rate on Stock Prices (H2)

Based on the estimation results, the exchange rate variable has a regression coefficient of -2.112670 with a t-statistic of -11.17767 and a probability of 0.0000 ($0.0000 < 0.05$), therefore, Hypothesis 2 (H2) is empirically accepted, proving that the exchange rate has a negative and statistically significant partial effect on stock prices. Theoretically, this finding fully supports the Exchange Rate Exposure Theory, whereby the depreciation of the rupiah against the U.S. dollar triggers exchange rate risk that inflates operating costs and the management of banks' foreign exchange liabilities, thereby eroding net profit margins. This decline in internal profitability is met with a negative market reaction and is exacerbated by the potential for capital outflows by international investors seeking to avoid exchange rate losses. These results empirically confirm the findings in [3] and are supported by [8] and [9], which underscore the importance of exchange rate stability for investor perceptions in the equity market.

3.2.3 The Effect of Inflation on Stock Prices (H3)

Based on the estimation results, the Inflation variable yielded a regression coefficient of 0.000944 with a t-statistic of 0.177054 and a probability level of 0.8595 ($0.8595 > 0.05$), therefore, Hypothesis Three (H3) is empirically rejected, proving that inflation does not have a significant partial effect on stock prices. Theoretically, within the framework of the Fisher Effect Theory, the lack of a significant effect indicates the presence of rational expectations, where market participants assess that the domestic inflation rate during the observation period remains within reasonable limits under government control. Moderate inflation fluctuations are considered not to severely disrupt consumer purchasing power or banking fundamentals, so they tend to be ignored by investors in short-term trading decisions. These empirical results are consistent with the findings but contradict the results of study [5] and those stating a significant effect [8].

3.2.4 The Effect of Interest Rates on Stock Prices Moderated by CAR (H4)

Based on the Moderated Regression Analysis (MRA) estimates in Model C, the interaction term between the Interest Rate and CAR (X1Z) yielded a regression coefficient of -0.078563 with a t-statistic of -4.751600 and a p-value of 0.0000 ($0.0000 < 0.05$), therefore Hypothesis Four (H4) is empirically accepted. Since CAR was not significant as an independent predictor in Model B but its interaction term was highly significant in Model C, CAR is definitively classified as a Pure Moderator, which strengthens the negative effect of the Interest Rate on Stock Price. Theoretically, these findings support Contingency Theory and Signaling Theory, in which a high CAR ratio during monetary tightening is interpreted by investors as a signal that bank management is being overly defensive by hoarding core capital. The market views this capital hoarding as slowing the expansion of productive credit and reducing future profit growth opportunities, thereby triggering a deeper decline in stock prices, in line with the reasoning in [6]

3.2.5 The Effect of the Exchange Rate on Stock Prices, Moderated by CAR (H5)

Based on the Moderated Regression Analysis (MRA) estimates in Model C, the interaction term between Exchange Rate and CAR (X2Z) yielded a regression coefficient of 0.319862 with a t-statistic of 0.898661 and a p-value of 0.3689 ($0.3689 > 0.05$), therefore Hypothesis Five (H5) is empirically rejected. Since

CAR was found to be a significant independent predictor in Model B but its interaction term was not significant in Model C, CAR is classified as a Moderator Predictor (not a Moderating Variable). Theoretically, this finding indicates that investors respond to exchange rate risk resulting from the depreciation of the rupiah in an absolute and independent manner, consistent with Exchange Rate Exposure Theory. Market participants assess that banks with both high and low CARs still face the same macro-level pressures of rising operating costs and the risk of foreign currency asset depreciation; thus, the CAR ratio acts only as an internal control (bank-specific predictor) that is unable to intervene in or mitigate the impact of exchange rate volatility on daily stock prices.

3.2.6 The Effect of Inflation on Stock Prices Moderated by CAR (H6)

Based on the Moderated Regression Analysis (MRA) estimates in Model C, the interaction term between Inflation and CAR (X3Z) yielded a regression coefficient of 0.027061 with a t-statistic of 2.911384 and a p-value of 0.0036 ($0.0036 < 0.05$), therefore, Hypothesis Six (H6) is empirically accepted. Since CAR was found to be significant both as an independent predictor in Model B and in its interaction term in Model C, CAR is classified as a Quasi-Moderator. Given that its interaction coefficient is positive—opposite to the main coefficient for inflation—CAR was found to weaken the negative effect of inflation on stock prices. Theoretically, this unique finding confirms the convergence of Fisher Effect Theory and Signaling Theory, whereby high inflation—which has the potential to erode the real value of financial assets—can be mitigated if banks possess strong capital. Investors view a high CAR ratio as a robust capital buffer to neutralize external risks and maintain market confidence, thereby structurally dampening the potential decline in stock prices due to inflation, in line with the reasoning in [7]

4. Conclusion

The main conclusion of this study of 44 banking issuers on the IDX for the 2021–2025 period shows that, directly, the Interest Rate (H1) and Exchange Rate (H2) have a significant negative effect on Stock Prices, while Inflation (H3) has no significant effect. Through moderation analysis (MRA), the Capital Adequacy Ratio (CAR) was found to act as a Pure Moderator (H4), amplifying the negative effect of interest rates on stock prices as investors interpret capital retention defensively as a slowdown in productive lending. On the other hand, the CAR fails to moderate the effect of the exchange rate and is therefore classified as a Predictor Moderator (H5). Interestingly, however, the CAR functions as a Quasi Moderator (H6) that significantly weakens the negative effect of inflation, as a robust capital ratio

is highly valued by the market as a strong capital buffer.

In terms of theoretical implications, these empirical findings based on panel data make a strong contribution to the expansion of Contingency Theory in macro financial management. These results demonstrate that the transmission of external monetary risks to the equity market is not strictly linear but rather conditional and dependent on internal constraints related to bank soundness. The successful demonstration of a pure moderating effect (H4) and this pseudo-moderation (H6) reinforces the scientific integration between Present Value Theory, Fisher Effect Theory, and Signaling Theory, which confirms that stock valuation decisions by rational investors are highly dependent on the fundamental capital signals emitted by issuers in response to economic volatility.

In practical terms, bank management is advised to manage the CAR flexibly to avoid becoming over-capitalized when interest rates rise thereby preventing negative market signals while still being required to strengthen the CAR during periods of volatile inflation to maintain public confidence. For investors, it is advisable to conduct an integrated multi-factor analysis by selecting banks with flexible capital during periods of monetary tightening, and choosing banks with strong CARs to protect assets during periods of high inflation. Finally, for regulatory authorities (OJK and BI), these findings suggest establishing dynamic CAR corridor limits aligned with the macroeconomic cycle to maintain the stability of the national financial sector's stock price index.

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