

# THE IMPACT OF INTEREST RATE, INFLATION, EARNINGS PER SHARE, AND RETURN ON ASSET ON STOCK PRICE IN BANKING SUBSECTOR COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE 2019-2022

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**Abstract.** Generally, investors preferred companies with large market capitalization to minimize risks, such as banking companies. The occurrence of Covid-19 has negatively impacted the macro and microeconomics. This research aimed to investigate whether macroeconomic and microeconomic factors (company performance) influenced the stock prices of banking companies from 2019 to 2022. The research employs multiple linear regression as its methodology. Based on the research findings, interest rates, inflation, earnings per share, and return on assets collectively influence the stock prices of banking institutions. However, in partial analysis, interest rate, inflation, and return on asset do not have an impact the stock prices of banking institutions, whereas earnings per share does have a significant impact.

**Keywords:** stock price; interest rate; inflation; EPS; ROA

## I. INTRODUCTION

The act of allocating current cash with the aim of generating future profits is defined as investment [1]. Generally, as per [2], investors tend to favor companies with larger market capitalizations to mitigate investment risks. Notably, within the Indonesia Stock Exchange (IDX), the banking subsector boasts the highest market capitalization. As reported in [3], the emergence of the Covid-19 pandemic led to a deterioration in both macro and microeconomics. Consequently, the researcher embarked on this study to examine whether macroeconomic and microeconomic factors, specifically business performance, exert an influence on the stock values of banking companies. Similar investigations have been conducted by a journal in [4], [5], [6], and [7].

The approach to securities analysis, according to [1], is the top-down approach. The top-down approach begins by analyzing the macroeconomy, followed by a microeconomic analysis (company performance). Macroeconomic analysis in this study is divided into two components, namely interest rates and inflation.

According to [1], an increase in interest rates will lead to a decrease in stock prices, and vice versa. This theory is supported by the research in [8] and [9], which states that interest rates have a negative effect on stock prices. However, contrasting findings are presented in the studies in [10] and [11], suggesting that interest rates do not impact stock prices. Due to these disparities in prior research findings, the researcher collected data from Bank Indonesia (BI), Kustodian Sentral Efek Indonesia (KSEI), and Yahoo Finance to analyze the relationship between interest rates and the stock prices of banking firms for the years 2019-2022, as table 1. As per the findings in Table 1, the decline in interest rates during 2020 did not lead to an upswing in stock values. This occurrence is identified as an interest rate anomaly unearthed in this study.

TABLE 1  
COMPARISON OF INTEREST RATES WITH STOCK PRICES

| Year | Interest Rate | Stock Prices |
|------|---------------|--------------|
| 2019 | 5,63%         | 1.694        |
| 2020 | 4,25%         | 1.429        |
| 2021 | 3,52%         | 2.061        |
| 2022 | 4,00%         | 2.028        |

Source: data processed by the author (2023)

The second macroeconomic aspect under scrutiny in this research is inflation. Inflation is characterized by a continuous escalation in prices, culminating in a constant erosion of the value of currency [12]. Escalating inflation serves as a negative signal for investors [1]. This perspective aligns with the assertions made in journal articles [13] and [14], which contend that inflation negatively affects stock values. Conversely, articles in [15] and [9] propose that inflation has a minimal impact on stock values. Given the disparities in prior research outcomes, the researcher collated data from BI, KSEI, and Yahoo Finance, as detailed below:

TABLE 2  
COMPARISON OF INFLATION WITH STOCK PRICES

| Year | Inflation | Stock Price |
|------|-----------|-------------|
| 2019 | 3,03%     | 1.694       |
| 2020 | 2,04%     | 1.429       |
| 2021 | 1,56%     | 2.061       |
| 2022 | 4,21%     | 2.028       |

Source: data processed by the author (2023)

The presence of inflation is clearly depicted in Table 2, indicating that the upward trend in inflation does not result in a decrease in stock prices. This observation prompted the researcher to delve into the impact of inflation on stock prices within the banking subsector.

Following the macroeconomic analysis, the study transitions to an evaluation of firm performance. In scrutinizing a

company's performance, investors often consider the estimation of Earnings Per Share (EPS) [1]. The EPS ratio computes the net profit generated by a firm for each outstanding share [16]. Therefore, the higher a company's earnings, the greater the demand for its stock. This argument finds support in studies conducted in [11] and [17], which illustrate a positive correlation between EPS and stock prices. However, these findings contrast with research in [18], which asserts that EPS has no impact on stock prices. Given the disparities in prior research outcomes, the researcher conducted a comparative analysis of EPS and banking stock prices from 2019 to 2022, utilizing data from BEI, KSEI, and Yahoo Finance as follows:

TABLE 3  
COMPARISON OF EPS WITH STOCK PRICES

| Year | EPS    | Stock Price |
|------|--------|-------------|
| 2019 | 122,87 | 1.694       |
| 2020 | 88,32  | 1.429       |
| 2021 | 88,94  | 2.061       |
| 2022 | 130,49 | 2.028       |

Source: data processed by the author (2023)

Table 3 indicates that the average EPS has witnessed a decline from 2019 to 2021. Interestingly, this reduction does not align with a decrease in the stock values of banks. In the context of this study, this EPS phenomenon holds significant importance.

Return on Asset (ROA) constitutes the second component of corporate performance under scrutiny in this research. As per reference [19], ROA serves as a metric of a management's ability to generate earnings from its utilized assets. The greater a company's capacity to generate earnings from its assets, the higher the demand for its stock among investors [19]. This assertion finds affirmation in scholarly articles in [20] and [17], both of which suggest a positive correlation between ROA and stock prices. However, these findings are at odds with the conclusions drawn in scientific articles in [21] and [22], which posit that ROA exerts no influence on stock prices. Given the disparities in prior research findings, the researcher proceeded to compare average pre-tax earnings with the stock prices of banking entities for the years 2019-2022, utilizing data sourced from BEI, KSEI, and Yahoo Finance, as outlined below:

TABLE 4  
COMPARISON OF EARNINGS BEFORE TAX WITH STOCK PRICES

| Tahun | Earnings Before Tax | Stock Price |
|-------|---------------------|-------------|
| 2019  | 4.232.184.308       | 1.694       |
| 2020  | 2.794.540.738       | 1.429       |
| 2021  | 4.030.788.288       | 2.061       |
| 2022  | 5.885.571.771       | 2.028       |

Source: data processed by the author (2023)

Table 4 illustrates that the increase in pre-tax earnings during 2022 does not coincide with a proportional increase in stock prices. This observation has piqued the researcher's interest in investigating the impact of ROA on the stock prices of banking companies.

Interest rates represent compensation provided by banks to customers who have deposited their money (interest on deposits) and the cost that customers must pay to the bank for loans received (interest on loans) [19]. The higher the interest rate, the lower the public's inclination toward investment, and vice versa. This premise is reinforced by the findings in [8], which

assert that interest rates exert a negative influence on stock prices. In other words, as interest rates rise, stock prices tend to decrease due to investors choosing to withdraw their investments.

H<sub>1</sub>: Interest rate affects stock prices.

Inflation is an economic concern that impacts a significant segment of the population by leading to a continuous increase in the prices of goods and services [23]. As per [1], inflation acts as a discouragement for investors to engage in the capital market. This viewpoint is substantiated by research presented in [13], which affirms that inflation exerts a detrimental effect on stock prices. It suggests that as inflation rises, stock prices tend to decline, and conversely, when inflation falls, stock prices are likely to rise.

H<sub>2</sub>: Inflation affects stock prices.

EPS, or Earnings Per Share, is a metric that calculates how much of a company's net income is allocated to each outstanding share of stock [16]. In essence, the larger a company's profit, the higher the demand for its shares. This proposition is corroborated by scholarly articles such as [11] and [17], both of which demonstrate that EPS exerts a positive influence on stock prices. This suggests that an uptick in EPS corresponds to an increase in stock prices.

H<sub>3</sub>: EPS affects stock prices.

ROA, or Return on Assets, evaluates a management's proficiency in generating profit from the assets it employs [19]. The more adept a corporation is at earning profit from its utilized assets, the greater the demand for its shares among investors. This aligns with scholarly articles such as [20] and [17], both of which affirm that ROA has a positive effect on stock prices. In other words, higher ROA is associated with higher stock prices.

H<sub>4</sub>: ROA affects stock prices.

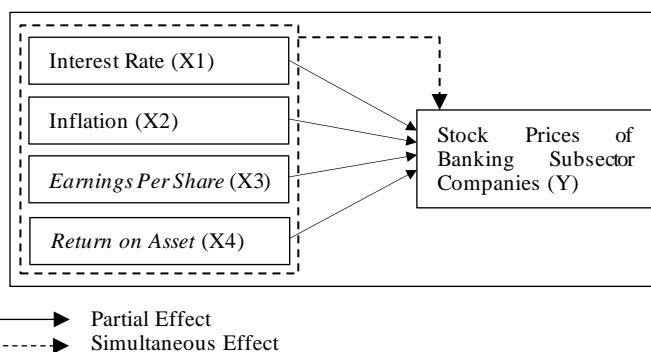


Figure 1 Conceptual Framework  
Source: data processed by the author (2023)

## II. RESEARCH METHODS

Multiple linear regression is a multivariate technique used in research to identify the effects of independent and dependent variables [24]. The study's population encompasses companies within the banking subsector that are listed on the Indonesia Stock Exchange from 2019 to 2022. The sampling technique employed in this study is nonprobability sampling, specifically purposive sampling. The criteria considered in this study are as follows:

TABLE 5  
SAMPLE CRITERIA

| No.   | Criteria  | Total |
|---|---|-------|
| 1.  | Companies in the banking subsector listed on the Indonesia Stock Exchange in the years 2019-2022.                               | 47    |
| 2.  | Companies in the banking subsector that were not listed before the year 2019 on the Indonesia Stock Exchange                    | (4)   |
| 3.  | Companies in the banking subsector that were suspended on the Indonesia Stock Exchange in the years 2019-2022.                  | (2)   |
| 4.  | Companies in the banking subsector that conducted corporate actions on the Indonesia Stock Exchange during the years 2019-2022. | (21)  |
| Total of samples that meet the criteria     |   | 21    |
| Total of samples utilized for object (21x4) |   | 84    |

Source: data processed by the author (2023)

### III. RESULTS AND DISCUSSION

#### Statistical Descriptive Analysis

TABLE 6  
DESCRIPTIVE STATISTIC

|               | N  | Minimum | Maximum | Mean     | Std. Deviation |
|---------------|----|---------|---------|----------|----------------|
| Stock Price   | 84 | 50      | 8549    | 1766.85  | 2142.269       |
| Interest Rate | 84 | 3.52    | 5.63    | 4.3500   | .78890         |
| Inflation     | 84 | 1.56    | 4.21    | 2.7100   | 1.02146        |
| EPS           | 84 | -99.65  | 981.95  | 116.8957 | 203.959        |
| ROA           | 84 | -8.38   | 12.21   | 2.89201  | 2.89201        |

Source: data processed by the author (2023)

The minimum stock price recorded was 50.03, held by PT Bank MNC International Tbk. (BABP) in 2020, and the maximum was 8549.19, held by PT Bank Mandiri (Persero) Tbk. (BMRI) in 2022. The distribution of stock price data was summarized using the mean and standard deviation, resulting in seventy-three samples falling within the range of -375.3906 ( $\mu - (1 \times \text{Std. dev})$ ) and 3909.0770 ( $\mu + (1 \times \text{Std. dev})$ ), while eleven other samples were beyond this interval. This indicates that the stock price data for the years 2019-2022 are clustered within the range of -375.3906 to 3909.0770.

The first independent variable in this study is the interest rate, with a minimum value of 3.52% observed across all companies in 2021 and a maximum value of 5.63% recorded in 2019. The interest rate variable demonstrates an average value larger than the standard deviation, indicating relatively consistent data.

The second independent variable in this study is inflation, with a minimum value of 1.56% occurring in 2021 and a maximum value of 4.21% in 2022. The average inflation value exceeds the standard deviation, suggesting relatively consistent data.

The third independent variable is earnings per share (EPS), with a minimum value of -99.65 held by PT Bank KB Bukopin Tbk. (BBKP) in 2020. This decline is attributed to an increase in the number of outstanding shares from the previous year, from 11.5 billion to 32.6 billion shares, while the company's net

profit plummeted by 1605% from Rp216 billion to -Rp3.2 trillion. The increase in outstanding shares was undertaken to address the unfavorable corporate condition in accordance with Peraturan Otoritas Jasa Keuangan No. 35 (POJK 35). Furthermore, the decrease in net profit is attributed to the heightened total expenses related to provisions for potential losses arising from unrecoverable financing murabahah receivables. The maximum EPS value is 981.95, held by PT Bank Negara Indonesia (Persero) Tbk. (BBNI) in 2022. This is attributed to BBNI's consistent number of outstanding shares compared to the previous year, coupled with a 168% increase in net profit from Rp10.8 trillion to Rp18.3 trillion. The substantial increase in net profit is primarily attributed to augmented interest and Sharia income derived from related parties, involving transactions with Government Bonds and Surat Pembendaharaan Negara (SPN). The distribution of EPS data results in seventy-four samples falling within the range of -87.3087 ( $\mu - (1 \times \text{Std. dev})$ ) and 321.6369 ( $\mu + (1 \times \text{Std. dev})$ ), while ten other samples fall outside this interval. This suggests that the EPS data for the years 2019-2022 are clustered within the range of -87.3087 to 321.6369.

The fourth independent variable is return on asset (ROA), with a minimum value of -8.38% held by PT Bank QNB Indonesia Tbk. (BKSJ) resulting from the increase in the overall provision for impairment losses, leading to a subsequent reduction in the value of financial assets. The maximum ROA value is 12.21%, held by PT Bank BTPN Syariah Tbk. (BTSP) in 2020, attributed to the rise in investment income from securities such as Sharia-compliant bonds (sukuk), Sertifikat Investasi Mudharabah Antarbank (SIMA), Sharia mutual funds, and other securities based on Sharia principles. The distribution of ROA data results in seventy-three samples falling within the range of -2.0409 ( $\mu - (1 \times \text{Std. dev})$ ) and 4.6407 ( $\mu + (1 \times \text{Std. dev})$ ), while eleven other samples fall outside this interval. This indicates that the ROA data for the years 2019-2022 are clustered within the range of -2.0409 to 4.6407.

#### Multicollinearity Test

TABLE 7  
MULTICOLLINEARITY TEST RESULT

| Model         | Collinearity Statistics |       |
|---------------|-------------------------|-------|
|               | Tolerance               | VIF   |
| Interest Rate | .914                    | 1.094 |
| Inflation     | .900                    | 1.111 |
| EPS           | .870                    | 1.149 |
| ROA           | .875                    | 1.143 |

Source: data processed by the author (2023)

In this study, there is no issue of multicollinearity as indicated by the Tolerance values for every independent variable are equal to or greater than 0.10, and the VIF values for all variables are equal to or less than 10.00.

Heteroscedastisity Test

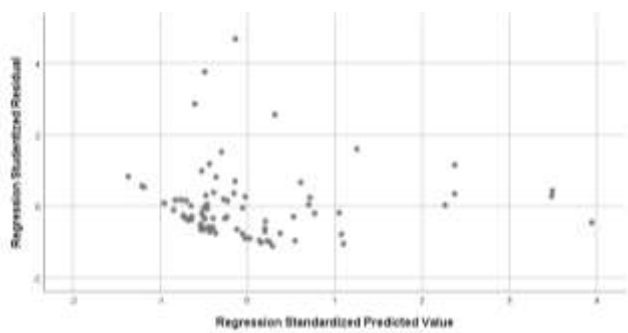


Figure 2 Heteroscedastisity Test Result  
 Source: data processed by the author (2023)

From the scatterplot depicted in Figure 2, it can be noted that the data points are dispersed both above and below the zero line along the Y-axis, and they do not exhibit a discernible pattern. This indicates the absence of heteroskedasticity in the regression model.

Autocorrelation Test

TABLE 8  
 AUTOCORRELATION TEST RESULT

| Model | Std. Error of the Estimate | Durbin-Watson |
|-------|----------------------------|---------------|
| 1     | 1192.71645                 | 2.055         |

Source: data processed by the author (2023)

Table 8 shows a value of  $d=2.055$ , which is greater than  $d_U$  and smaller than  $4-d_U$  ( $d_U < d < 4-d_U$ ). Therefore, in this study, there is no presence of positive or negative autocorrelation.

Normality Test

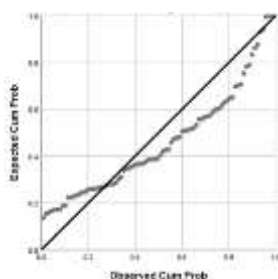


Figure 3 Normality Test  
 Source: data processed by the author (2023)

As depicted in Figure 3, it's clear that the data is scattered around the diagonal line and conforms to its path. Hence, the inference can be drawn that the data follows a normal distribution.

Hypotesis Test

TABLE 8  
 RESULTS OF MULTIPLE LINEAR REGRESSION ANALYSIS

| Model | Unstandardized Coefficients |            |         |
|-------|-----------------------------|------------|---------|
|       | B                           | Std. Error |         |
| 1     | (Constant)                  | 389.871    | 752.838 |
|       | Interest Rate               | 164.055    | 173.721 |
|       | Inflation                   | -195.938   | 135.176 |
|       | EPS                         | 8.490      | .683    |
|       | ROA                         | 113.897    | 47.151  |

Source: data processed by the author (2023)

Based on Table 8, the formulation of the multiple linear regression equation in this study is as follows:

$$Y = 389,871 + 164,055X_1 - 195,938X_2 + 8,490X_3 + 113,897X_4 + e$$

- The constant value of 389,871 indicates that when other variables (interest rate, inflation, EPS, and ROA) *ceteris paribus*, the stock price is 389,871.
- The positif regression coefficient value of variable X1 is 164,055, signifying that a one-unit increase in X1 results in a corresponding increase of 164.055 units in stock price. Assuming that other variables *ceteris paribus*.
- The regression coefficient value of variable X2 is negatively 195,938, indicating that if X2 increases by one unit, the stock price will decrease by 195,938 units. Assuming that other variables remain constant.
- The regression coefficient value of variable X3 is positively 8,490, implying that if X3 increases by one unit, the stock price will increase by 8,490 units. Assuming that other variables *ceteris paribus*.
- The coefficient value of variable X4 is positively estimated at 113,897, indicating that an increase of one unit in X4 will lead to a corresponding increase of 113,897 units in stock price. This assumption holds when other variables are held constant.

Simultaneously Test (F-test)

TABLE 9  
 F-TEST RESULT

| Model |            | df | F      | Sig.              |
|-------|------------|----|--------|-------------------|
| 1     | Regression | 4  | 47.189 | .000 <sup>b</sup> |
|       | Residual   | 79 |        |                   |
|       | Total      | 83 |        |                   |

Source: data processed by the author (2023)

Table 9 shows the probability value of the F test is 0.00, which is smaller than 0.05, or the tabulated F value of 2.49, which is smaller than the calculated F value of 47.189. Consequently, this indicates the rejection of the null hypothesis (H0) and the acceptance of the alternative hypothesis (Ha). Hence, it can be inferred that the combined independent variables significantly influence the dependent variable.

Partial Significantly Test (t-test)

TABLE 10  
 t-TEST RESULT

| Model |               | t      | Sig. |
|-------|---------------|--------|------|
| 1     | (Constant)    | .518   | .606 |
|       | Interest Rate | .944   | .348 |
|       | Inflation     | -1.450 | .151 |
|       | EPS           | 12.437 | .000 |
|       | ROA           | 2.416  | .018 |

Source: data processed by the author (2023)

The interest rate variable has a probability value greater than 0.05, indicating that H0 is accepted, and Ha is rejected. This implies that the interest rate partially does not affect stock prices.

The inflation variable has a probability value greater than 0.05, meaning that H0 is accepted, and Ha is rejected. Thus, inflation partially does not affect stock prices.

The earnings per share (EPS) variable exhibits a probability value below 0.05, leading to the rejection of H0 and acceptance of Ha. Hence, it can be concluded that earnings per share (EPS) partially holds a significant impact on stock prices.

The return on asset (ROA) variable displays a probability value exceeding 0.05, indicating the acceptance of H0 and the rejection of Ha. This implies that return on asset (ROA) partially does not affect stock prices.

#### Coefficient of Determination Test (R<sup>2</sup>)

TABLE 11  
COEFFICIENT OF DETERMINATION TEST RESULT

| Model | R     | R Square | Adjusted R Square |
|-------|-------|----------|-------------------|
| 1     | .840* | .705     | .690              |

Source: data processed by the author (2023)

Based on Table 11, it can be observed that the adjusted R-square value is 0.690 or 69%. Therefore, the interest rate (X1), inflation (X2), earnings per share (X3), and return on assets (X3) collectively have an influence or contribute by 69% to the stock price (Y). Meanwhile, the remaining 31% is attributed to other variables not encompassed within the scope of this study.

#### IV. CONCLUSION

The aim of this study was to examine the impact of interest rates, inflation, EPS, and ROA on banking companies listed on the IDX from 2019 to 2022. A total of 21 organizations were selected as the research sample over this four-year period (84 samples). Based on the results of the various tests conducted and discussed above, it can be concluded that interest rates, inflation, EPS, and ROA significantly affect the stock prices of banking companies listed on the IDX during the years 2019-2022. However, in a limited context, interest rates, inflation, and return on asset have a minimal impact on stock prices. In contrast, the EPS variable has a significant influence on the stock prices of banking companies listed on the IDX between 2019 and 2022. Based on these findings, the researcher makes the following recommendations: For investors considering investments, factors influencing stock prices are typically categorized into internal factors (company performance) and external factors or macroeconomics. Internal factors are under the company's control and can be assessed through the company's financial reports. External factors originate from external sources and are beyond the company's control. Among these influencing factors, investors should ideally have predictions about the potential positive or negative outcomes for their chosen investment company. This foresight is crucial for making informed investment decisions. The study results indicate that interest rates and inflation do not partially influence stock prices. Regulators have implemented appropriate policies regarding interest rates and inflation to maintain stock price stability. Therefore, it is expected that regulators can sustain their performance in the future. On the other hand, the study findings reveal that earnings per share does influence stock prices. Therefore, it is advisable for company managers to provide an appropriate level of earnings per share to enhance the demand for the company's shares.

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