PROFESOR
Professional Education Studies and Operations Research
An International Journal
Vol. 1 No. 2 (Dec 2024) https://www.journal-profesor.org e-ISSN: 3047-4744

Moderation Analysis of Inflation and Interest Rates on the Effect of PBV and ROA on the Share Price of the Infrastructure Sector Listed on the IDX

Imelda Sari[1], Adler Haymans Manurung[2], Agung Dharmawan Buchdadi[3], Muhammad Yusuf[4]
[1]Universitas Bina Sarana Informatika, Indonesia
[2]Universitas Bhayangkara Jakarta Raya, Indonesia
[3]Universitas Negeri Jakarta, Indonesia
[4]Universitas Negeri Jakarta, Indonesia
*Corresponding Author imelda.isx@bsi.ac.id

Abstract - *The aim of this study is to analyze the moderation of inflation and interest rates on the influence of PBV and ROA on the price of shares in infrastructure sectors listed in the EIB. Data analysis techniques are descriptive statistical analysis and hypothesis testing using double regression using the statistical program SPSS version 24. The variables in this study consist of three types of variables, namely: 1) Independent variable, i.e. PBV and ROA; 2) Dependent variabel, that is, the price of stocks; 3) Moderation variable: inflation and interest rates. The population in this study is a company in the infrastructure sector that publishes its financial report 10 years back and is listed on the Indonesian Stock Exchange for the period 2017-2022. The results of the study are divided into three parts of the six proposed hypotheses. Hypotheses 1 and 2, i.e. the variables PBV and ROA have a positive and significant influence on the stock price variables. The hypotheses 3 and 6 are that the inflation moderation variables strengthen the influence of PBW on the share price and the interest-rate moderators strengthen ROA on the price of the stock. Samples of research on one infrastructure sector. Further research is suggested to conduct a comparative study between the infrastructure sector with other sectors, such as the technology sector, to see if the same results apply to other industries.*

Keywords*: Ethical climate, Islamic leadership, innovative behavior.*

I. INTRODUCTION

The Indonesian economy has shown significant growth (Kemenkeu, 2023), especially in the infrastructure sector (Sandra, 2021). This sector plays an important role in economic growth and regional development, as it can show that road and internet infrastructure significantly contribute to production output (Szarucki, 2022). Research in Asian countries highlights the substantial influence of physical infrastructure, including transport, telecommunications, and energy development, on economic growth, suggesting the need to focus attention on infrastructure for sustainable economic growth (Anisa, 2022).

As reported by the Badan Pusat Statistik (BPS), Indonesia has witnessed notable progress in many infrastructure components, although there are still obstacles in achieving equitable distribution across all provinces (BPS, 2020). Based on BPS statistics, improvements are evident every year in education, health, economic, and rural property infrastructure.

The allocation of substantial funds by governments to the infrastructure sector significantly contributes to the advancement of economic growth and competitiveness (Watson, 2019). This financial commitment is critical for the maintenance and expansion of infrastructure, which generates positive externalities, supports sustainable economic progress, and encourages investments that facilitate economic progress. Furthermore, it

PROFESOR
Professional Education Studies and Operations Research
An International Journal
Vol. 1 No. 2 (Dec 2024) https://www.journal-profesor.org e-ISSN: 3047-4744

has the potential to address gaps in infrastructure development and increase economic impact by highlighting linkages with long-term sustainability goals at regional and national levels.

The company undertakes infrastructure procurement and development. An increase in the company's share price in the capital market will reflect the company's commendable performance and prospects. A company's stock price serves as an important metric of financial stability and performance, impacting investor choice and public confidence (Rolanda, 2023). Various factors such as return on assets, return on equity, current ratio, cash ratio, market ratio, profitability, liquidity, debt-to-equity ratio, and total asset turnover collectively affect stock prices. In addition to reflecting company performance, stock prices also shape investor confidence, the perceived value of the company, and regulatory decisions and policies, offering valuable insights into future possibilities. Understanding stock price dynamics is critical to shaping investor perceptions, company valuations, and regulatory approaches in the corporate domain, emphasizing the importance of stock prices in the financial domain.

Profitability ratios and market ratios are two among the various factors believed to have the potential to influence stock prices. The profitability ratio, denoted by ROA, and the market ratio, represented by PBV, offer insights into a company's performance and future prospects. ROA evaluates a company's capacity to generate profits through the utilization of its assets. An increase in PBV tends to increase investors' interest in buying the company's shares, consequently leading to an increase in the stock price. This study seeks to examine the moderating effects of inflation and interest rates on the impact of PBV and ROA on stock prices in the infrastructure sector listed on the IDX.

Signaling Theory

Signal Theory explains how organizations communicate critical information to stakeholders through their activities and financial records, helping investors in making decisions related to acquisition or divestment of shares (Korompis, 2022). This theory states that better dissemination of information by the company's top management leads to more impactful signals perceived by investors, consequently affecting increased valuation of company stocks. Signals are generally distributed by an organization's executive team, delivering information through financial statements, profit disclosure, and other transparency modes. These signals help investors understand the organization's performance and future prospects, affect investment decisions and the valuation of the company's stock.

Stock Price

The valuation of a company on the stock market is described through its stock price, which is set by the market operators to regulate the balance between the supply and demand of stocks (Jogiyanto, 2016). It represents the value of the company that is valued in the market as determined by a market operator involved in the stock exchange, thus reflecting the performance and efficiency of the firm, with a higher share price indicating a larger company's value (Hasni, 2022). Various elements such as profitability, capital structure, size, tax rate, dividend policy, business risk, return on assets, profit on equity, current ratio, and total turnover of assets potentially affect the price of stocks both individually and simultaneously. Stock prices play an important role in measuring corporate financial well-being and public confidence, highlighting the need for companies to analyze many factors to maintain stock price stability and secure sustained investor confidence and support.

Price to Book Value (PBV)

PBV represents a monetary ratio used to assess the effectiveness of the market price in relation to the book price (Putri, 2017). The calculation of PBV involves dividing the market price per share by the book value per share, thus indicating whether a stock is undervalued or overvalued. PBV analysis is very important in making investment decisions, especially over a long period, as it allows investors to evaluate stock price equity (Nasution, 2023). This specific ratio serves as a valuable tool to identify areas within the company where the value of the ratio is low and the value is favorable when the ratio shows a low value. Nonetheless, a very small forecast ratio may be unfavorable, potentially signaling an underlying problem within the company. Additionally, in cases where PBV is high, investors tend to attribute a valuation to the company that exceeds the cost of investing in the company.

PBV prices have shown a mixed impact on stock prices across different sectors and time frames. Andini's investigation in the banking industry revealed a substantial and favorable relationship between PBV and stock prices (Andini, 2022). In contrast, a separate examination within the manufacturing sector revealed a negligible and adverse correlation with stock prices, yet a favorable but insignificant relationship with stock returns (Kamaludin, 2022). The calculation of PBV requires the utilization of the next formula:

PROFESOR
Professional Education Studies and Operations Research
An International Journal
Vol. 1 No. 2 (Dec 2024) https://www.journal-profesor.org e-ISSN: 3047-4744

$$Price\ to\ Book\ Value = \frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Share}$$

H1: It was suspected that there is a positive and significant influence of the PBV variable on the stock price variable

***Return on Assets* (ROA)**

The *Return On Assets* (ROA) metric is very important in financial analysis because it serves as a key indicator to assess the profitability of a company based on its capacity to generate revenue from its overall assets (Septiyarina, 2022). The ROA value is obtained by dividing the company's net income by its total assets, thus showing the efficiency of the assets used to generate revenue. Particularly in the banking industry, ROA plays an important role in measuring the profitability and operational effectiveness of companies by illustrating their ability to earn a return on invested capital (Zhao, 2021). An increase in ROA not only increases investor confidence in the company's future prospects but also triggers an increase in its share price.

The impact of ROA on stock value shows variability across different research efforts. Sahupala's study in 2016 revealed an important correlation between ROA and stock prices within the banking sector (Sahupala, 2023). In contrast, an investigation focusing on food and beverage companies over the 2017-2020 timeframe showed that ROA had no significant positive impact on stock prices (Andini, 2022). The calculation of ROA requires the utilization of the next formula:

$$ROA = \frac{Net\ Income}{Total\ Assets}\ 100\%$$

H2: It is suspected that there is a positive and significant effect of the ROA variable on the stock price variable

Inflation

Inflation denotes an increase in the prices of commodities and services over time, resulting in an increase in the cost of goods compared to previous levels (Bhatia, 2022). Price escalation manifests comprehensively rather than selectively, covers a wide array of goods and services, and persists continuously rather than momentarily. Furthermore, Inflation can be interpreted as a reduction in the value of a currency that is associated with a decline in the purchasing power of money in relation to commodities and services. It characterizes a general rise in the prices of goods and services over time, implying a decline in the purchasing power of money as individuals require a larger amount of money to obtain the same commodities. Basically, during a period of inflation, the value of money decreases, consequently allowing money holders to acquire fewer goods with the same monetary amount compared to previous instances.

The effect of PBV and profitability on firm value is affirmative and substantial, although this association is dampened by the presence of inflation (Minja, 2022). In addition, the analysis conducted by Anita and Negoro emphasizes that earnings per share, under the moderating influence of inflation, shows an adverse and important impact on stock prices, emphasizing the importance of considering inflation moderation in understanding stock price dynamics (Michael, 2019). This conclusion implies that while PBV and profitability have a positive impact on company valuation and stock prices, the introduction of inflation as a moderating factor may alter this correlation, highlighting the need to contemplate the impact of inflation on financial indicators when assessing stock prices. Inflation is measured through metrics such as the Consumer Price Index (CPI) or Gross Domestic Product (GDP) Deflator.

The following formula is used in the calculation of Inflation:

$$Inflation = \frac{(Current\ Year\ Price\ Index\ -\ Previous\ Year\ Price\ Index)}{Previous\ Year\ Price\ Index} x\ 100\%$$

H3: It is suspected that inflation is able to moderate (strengthen) the influence of the PBV variable on the stock price variable.

PROFESOR
Professional Education Studies and Operations Research
An International Journal
Vol. 1 No. 2 (Dec 2024) https://www.journal-profesor.org e-ISSN: 3047-4744

The impact of Return on Assets (ROA) on stock prices is considerable, especially when exposed to the influence of inflation. Research findings show that the interaction of ROA with inflation can lead to mixed results in terms of stock returns. A study conducted by Suandi in the consumer goods sector revealed that no change was seen in the relationship between ROA and stock prices following inflation moderation (Sanurdi, 2023). ROA serves as a valuable metric for evaluating company performance and attracting investors, with inflation having an insignificant effect on its effect on stock prices. Another investigation focusing on consumer goods also determined that ROA has no direct impact on stock prices, as inflation plays a moderating role in the relationship between ROA and stock prices (Wiagustini, 2019). In a study conducted by Anita, it was observed that the effect of ROA on stock prices was reduced when subjected to inflation moderation, suggesting that inflation moderates the impact of ROA on stock prices (Negoro, 2019).

H4: It is suspected that inflation is able to moderate (strengthen) the effect of the ROA variable on the stock price variable.

Interest Rate

The interest rate represents the cost of utilizing a loan or the benefit of saving, presented as a percentage of the amount borrowed or saved (Fernando, Sovia, Yanto, 2018). In a scenario where an individual borrows from a financial institution, the interest rate represents an additional payment beyond the principal, serving as compensation to the lender for the risk and opportunity cost associated with borrowed funds. In contrast, depositing funds in a bank account generates an interest rate that represents the additional amount the bank gives to the depositor, allowing the institution to lend to others. Central banks, for example, Bank Indonesia, set policy rates to impact the economy by managing inflation, employment levels, and currency stability.

The interaction between PBV, interest rates and stock prices is crucial for stakeholders and policy makers in effectively monitoring and regulating these variables to foster a vibrant and secure financial market environment. Interest rate fluctuations adversely affect stock prices, while exchange rate variations positively affect stock prices. Research conducted in the Tanzanian stock market, with oil prices as a moderating factor, revealed that PBV does not directly affect stock prices; however, interest rates exert substantial effects on stock prices (Minja, 2022). A separate study conducted in China highlights that the relationship between PBV and stock prices is moderated by interest rates in China's financial landscape. This underscores the efficient transmission of monetary policy through stock prices in the Chinese financial market (Chen, 2005). Furthermore, another study showed that the impact of PBV on stock returns is moderated by interest rates, with the effect of PBV on stock returns weakening in the presence of high interest rates. Nature Research emphasized the significant negative correlation between interest rates and stock prices, illustrating that changes in interest rates are negatively correlated with stock prices (Uddin, 2009).

H5: It is suspected that interest rates are able to moderate (strengthen) the effect of PBV variables on stock price variables

Several studies have observed that ROA plays an important role in influencing stock prices. Nevertheless, there is a dearth of studies focusing on the impact of interest rates as a moderating factor. An examination in the consumer goods sector revealed a positive relationship between ROA and stock price, with the moderating influence identified as board size rather than interest rate (Anita, 2023). In the banking domain, it was found that ROA exerts an indirect influence on stock prices through its interaction with interest rates. Interest rate is considered a mediating variable in the relationship between ROA and stock price dynamics (Daud, Suharto, 2023). A study conducted by Conrad revealed that low interest rates lead to a decrease in the cost of capital, resulting in an increase in stock prices. This inverse relationship between interest rates and the cost of capital has important implications for the valuation of company shares (Conrad, 2021).

H6: It is suspected that interest rates are able to moderate (strengthen) the effect of ROA variables on stock price variables.

PROFESOR
Professional Education Studies and Operations Research
An International Journal
Vol. 1 No. 2 (Dec 2024) https://www.journal-profesor.org e-ISSN: 3047-4744

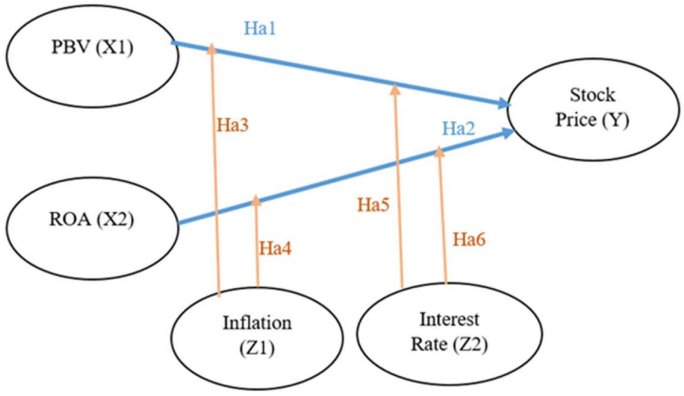

Figure 1. Research Model

II. METHOD

This research uses a quantitative approach and belongs to the field of exploratory investigation, explaining the causal relationship between variables through hypothesis testing. This method aims to determine the impact of independent variables on the dependent variable (Sugiyono, 2018). The data analysis method includes descriptive statistical analysis and hypothesis testing through multiple regression using SPSS version 24 statistical software.

The sampling technique used is purposive sampling, a sample selection method based on certain criteria. The samples for this study, PBV and ROA, were taken from financial reports available on the company's official website. In addition, inflation and SBI interest rate reports from the Bank Indonesia website, along with stock prices from 2017-2022, were sourced from Investing.com.

The variables examined in this investigation include three categories: 1) Independent variables, PBV and ROA; 2) Dependent variable, stock price; 3) Moderating variables, inflation, and interest rates. The study population consists of companies in the infrastructure sector that have disclosed financial statements for the past ten years and are listed on the Indonesia Stock Exchange from 2017 to 2022. The study includes a total of 12 companies that meet the specified criteria: ACST, ADHI, CASS, DGIK, EXCL, IDPR, JKON, LINK, PBSA, PTPP, TLKM, and WIKA.

Table 1. Sample Selection

No	Sample Criteria	Violation Criteria	Accumulation Criteria
1	Infrastructure sector companies listed on the Indonesia Stock Exchange	(0)	70
2	Companies with a listing date before 2016	(43)	27
3	Companies that publish complete financial reports and annual reports from the period 2017-2022.	(15)	12
Number of companies that fit the criteria			12
Number of years of research			6
Total data processed			72

Source: Data processed, 2024

The resulting equation model is:

$Y = \alpha + \beta 1X1 + \beta 2X2 + e$ ..... (1)

$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3Z1 + \beta 4(X1.Z1) + \beta 5(X2.Z1) + e$ ..... (2)

$Y = \alpha + \beta 1X2 + \beta 2X2 + \beta 3Z2 + \beta 4(X1.Z2) + \beta 5(X2.Z2) + e$ ..... (3)

PROFESOR
Professional Education Studies and Operations Research
An International Journal
Vol. 1 No. 2 (Dec 2024) https://www.journal-profesor.org e-ISSN: 3047-4744

Description:
Y = Stock Price
α = Constant
X1 = PBV
X2 = ROA
Z1 = Inflation
Z2 = Interest Rate

III. RESULT AND DISCUSSION

A. Result

Table 2. Deskriptif Data Model 1

	N	Minimum	Maximum	Mean	Std. Deviation
PBV	72	3	189	21.56	30.145
ROA	72	-2506	1862	284.29	873.086
INFLASI	72	168	551	308.67	128.316
BIRATE	72	352	563	445.50	73.256
SAHAM	72	50	5425	1462.49	1384.097
Valid N (listwise)	72				

Table 2 illustrates the depiction of the data derived from Model 1. In cases where the raw deviation value exceeds the mean value, it signifies the height of the distribution of the variable data. Conversely, if the raw deviation value is lower than the mean value, it indicates the low dispersion of the variable data.

The PBV variable shows a minimum value of 3, a maximum value of 189, a mean value of 21.56, and a standard deviation value of 30.145. Similarly, the ROA variable displays a minimum value of -2506, a maximum value of 1862, a mean value of 284.29, and a standard deviation value of 873.086. In addition, the inflation moderation variable illustrates a minimum value of 168, a maximum value of 551, an average value of 308.67, and a standard deviation value of 128.316. Furthermore, the tariff moderation variable shows a minimum value of 352, a maximum value of 563, an average value of 445.50, and a standard deviation value of 73.256. Finally, the stock variable highlights a minimum value of 50, a maximum value of 5425, an average value of 1462.49, and a standard deviation value of 1384.097.

The t test is conducted to determine the effect of each independent variable on the dependent variable. The method used in this test is by looking at the significance value of the data processing results.

Table 3. Adjusted R Square Model 1

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate
1	.573[a]	.329	.309	1150.381
a. Predictors: (Constant), ROA, PBV				

Table 3 shows the adjusted R square value of 0.309, meaning that 30.9% of the stock price variable can be explained by variations in the PBV variable and the ROA variable, the remaining 69.1% is explained by other causes outside the model.

Table 4. Model 1 t-test

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1655.558	191.583		8.641	.000
	PBV	-15.937	4.984	-.347	-3.198	.002
	ROA	.529	.172	.334	3.075	.003
a. Dependent Variable: SAHAM						

PROFESOR
Professional Education Studies and Operations Research
An International Journal
Vol. 1 No. 2 (Dec 2024) https://www.journal-profesor.org e-ISSN: 3047-4744

Table 4 obtained the following regression equation:
$Y = \alpha + \beta 1X1 + \beta 2X2 + e$ ..... (1)
$Y = 1655.558 - 15.937X1 + 0{,}529X2 + e$ ..... (1)

PBV variable sig value 0.002 <0.005, meaning that the PBV variable has a positive and significant effect on the stock price variable **(accept H1).**
ROA variable sig value 0.003 <0.005, meaning that the ROA variable has a positive and significant effect on the stock price variable **(accept H2).**

Table 5. Adjusted R Square Model 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.632[a]	.399	.354	1112.817

a. Predictors: (Constant), ROA TERHADAP INFLASI, INFLASI, PBV , ROA, PBV TERHADAP INFLASI

Table 5 shows the Adjusted R Square value of 0.354> 0.309 (Table 3), there is an increase after the inclusion of the moderating variable inflation, from model 1 worth 0.309 to 0.399, indicating there is an effect of the existence of the moderating variable inflation.

Table 6. Uji t Model 2

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2348.573	483.020		4.862	.000
	PBV	-39.800	13.301	-.867	-2.992	.004
	ROA	.905	.403	.571	2.245	.028
	INFLASI	-1.741	1.511	-.161	-1.152	.253
	PBV TERHADAP INFLASI	.055	.032	.554	1.701	.094
	ROA TERHADAP INFLASI	-.001	.001	-.273	-.975	.333

a. Dependent Variable: SAHAM

$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3Z1 + \beta 4(X1.Z1) + \beta 5(X2.Z1) + e$ ..... (2)
$Y = 2348.573 - 39.800X1 + 0.905X2 - 1.741Z1 + 0.055(X1.Z1) - 0.001(X2Z1) + e$ ..... (2)

Table 6 shows that the PBV variable has a sig value of 0.04 <0.05. This means that the PBV variable has a positive and significant effect on the stock price variable. While the sig value. ROA, Inflation, PBV on inflation and ROA on inflation have a sig value> 0.05.

The effect of PBV moderated by inflation on stock prices is 0.055 with a probability of 0.094 greater than the significance level of 0.05. The positive coefficient value indicates that the inflation moderation variable has a positive effect between PBV and stock prices. The calculated t value of 1.701> 1.667 (t table value) means that the inflation moderation variable strengthens the effect of PBV on stock prices **(accept H3).**

The effect of ROA moderated by inflation on stock prices is -0.001 with a probability of 0.333 greater than the significance level of 0.05. The negative coefficient value indicates that the inflation moderation variable negatively affects ROA on stock prices. The calculated t value of -0.975 < 1.667 (t table value) means that the inflation moderation variable weakens the effect of ROA on stock prices **(reject H4).**

Table 7. Adjusted R Square Model 3

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate
1	.608[a]	.369	.321	1140.257

a. Predictors: (Constant), ROA TERHADAP BIRATE, BIRATE, PBV TERHADAP BIRATE, ROA, PBV

PROFESOR
Professional Education Studies and Operations Research
An International Journal
Vol. 1 No. 2 (Dec 2024) https://www.journal-profesor.org e-ISSN: 3047-4744

Table 7 shows the Adjusted R Square value of 0.321> 0.309 (Table 3), there is an increase after the inclusion of the interest rate moderation variable, from model 1 worth 0.309 to 0.321, indicating there is an effect of the existence of moderation variable interest rates.

Table 8. Uji t Model 3

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	994.110	1199.126		.829	.410
	PBV	12.796	35.554	.279	.360	.720
	ROA	-1.013	1.138	-.639	-.890	.377
	BIRATE	1.398	2.731	.074	.512	.610
	PBV TERHADAP BIRATE	-.068	.083	-.624	-.811	.420
	ROA TERHADAP BIRATE	.004	.003	.988	1.870	.175

$Y = \alpha + \beta 1X2 + \beta 2X2 + \beta 3Z2 + \beta 4(X1.Z2) + \beta 5(X2.Z2) + e$ ……..…….. (3)

$Y = 994.110 + 12.796X1 - 1.013X2 + 1.398Z2 - 0.068(X1Z2) + 0.004(X2Z2) + e$ …… (3)

Table 8 finds the results of all variables sig value > 0.05. The effect of PBV moderated by interest rates on stock prices is -0.068 with a probability of 0.420 greater than the significance level of 0.05. The negative coefficient value indicates that the interest rate moderation variable negatively affects ROA on stock prices. The calculated t value of -0.811 < 1.667 (t table value) means that the interest rate moderation variable weakens the effect of PBV on stock prices **(reject H5).**

The effect of ROA moderated by interest rates on stock prices is 0.004 with a probability of 0.175 greater than the significance level of 0.05. The positive coefficient value indicates that the interest rate moderation variable has a positive effect between ROA and stock prices. The calculated t value of 1.870> 1.667 (t table value) means that the interest rate moderation variable strengthens the effect of ROA on stock prices **(accept H6).**

B. Discussion

The PBV variable shows a positive and significant impact on the stock price variable.

Increased investor confidence in the company is expected to result in increased demand for stocks and, as a consequence, the stock price is anticipated to rise. To build investor confidence, organizations must ensure the coherence of their internal and external operations. Internally, companies will strengthen their business models and expansion strategies to enhance future growth prospects and introduce innovative products/services to increase competitiveness. Externally, it is crucial for companies to increase dividend distribution to shareholders consistently and maintain high stability of dividend liquidation to attract investor interest (Walker, 2019). According to Walker's study, companies that have recorded increased dividends have accumulated abnormal profitable returns, especially in the early years of consecutive growth, although these returns tend to decrease over time. The results of research on the PBV variable show a positive and substantial influence on the stock price variable similar to the research done by Andini (Andini, 2022).

The impact of ROA variables on stock price variables is significant and affirmative.

A high return on assets (ROA) indicates an efficient use of assets by a company to generate profits, which potentially results in an increase in share value. This perception by investors stems from the profitability and stability the company perceives (Sholikha, 2023). Companies wishing to increase ROAs should prioritize optimum asset distribution through investments in high-yielding ventures and mitigation of unemployed or poorly performing assets. Such strategic measures have the potential to increase overall profitability and increase the attractiveness of investors. Research results show that the ROA variable shows a positive and substantial influence on the stock price variable, similar to the findings of the Sahupala study (Sahupala, 2023).

Inflation moderation variables strengthen the influence of PBV on stock prices.

PROFESOR
Professional Education Studies and Operations Research
An International Journal
Vol. 1 No. 2 (Dec 2024) https://www.journal-profesor.org e-ISSN: 3047-4744

This study reveals that the inflation variable acts as a moderator, intensifying the effect of PBV on stock prices. These results are in line with previous findings of Minja's research (Minja, 2022). In a situation of rising inflation rates, the relationship between PBV and stock prices becomes more apparent. Infrastructure companies with a high PBV, which indicates that the value of their assets exceeds their equity value, tend to observe more substantial share price increases compared to those with a low PV. This is associated with valuation of corporate assets such as property, machinery, and inventory, resulting in increased corporate book value related to PBV. As a result, investors have shown preference to buy shares of companies with a high PBV because they anticipate capital gains from valuations of company assets.

On the contrary, at a time of low inflation, the impact of PBV on stock prices decreases. The value of the company's assets did not see a significant boost, resulting in investors being less influenced by PBV in their investment choices. This suggests that inflation regulates the correlation force between PB V and the stock price, with higher inflation rates strengthening the effect of PBV on stock price determination in the infrastructure sector.

Inflation moderation variables weaken the influence of ROA on stock prices.

This discovery is in line with the research conducted by Anita (Negoro, 2019). In high-inflation situations, companies in the infrastructure sector that show high ROAs, show large gains relative to their assets, tend to witness lower share price increases compared to companies with lower ROA. This is due to the fact that during periods of high inflation, the profitability of companies decreases with rising costs such as raw materials, employees' wages, and interest payments on loans that become more expensive. As a result, the company's ROA may decrease, despite the fact that the company actually earns the same profit in nominal terms. As a result, investors may show a decreased interest in acquiring shares of companies with high ROAs because they have doubts about the sustainability of the company's profits amid high inflation conditions.

Increased inflation has led to a decrease in the purchasing power of corporate income. In other words, this income could not get as many goods and services as possible during periods of low inflation. As a result, investors may show a decrease in enthusiasm for company stocks, leading to falling stock prices. During periods of high inflation, investors can focus on assets that are traditionally considered to be effective hedges against inflation such as gold or real estate. This shift in focus can lead to a decrease in interest in stocks, resulting in a fall in stock prices.

On the contrary, when inflation rates are low, corporate spending shows minimal fluctuations. As a result, the company’s ROA serves as a more accurate reflection of profit-generating capacity. Investors tend to give more importance to ROA when making investment-related decisions.

Interest rate moderation variables weaken the influence of PBV on the stock price.

When interest rates are high, companies with high PBVs, which indicates that the value of their assets exceeds their equivalents, tend to witness smaller share price increases compared to companies with low PVs. This phenomenon emerged as a result of the escalation of corporate capital costs, such as borrowing costs. As a result, this situation can lead to a decrease in the profitability of the company, regardless of the rigidity of its asset value. Such a decrease in profitability makes sense even in companies with high PBV. Investors' reluctance to buy shares of entities with high PBVs stems from their concerns about the sustainability of company revenues amid a high-interest scenario.

On the contrary, at a time of low interest rates, the cost of capital for the company decreases. As a result, the corporate book value, as represented by PBV, more accurately reflects its intrinsic value. Investors place greater emphasis on PBVs during the evaluation of their investments. The results of this research reflect the results of Nature's research (Uddin, 2009).

Interest rate moderation variables strengthen the influence of ROA on stock prices.

The correlation between the return on assets (ROA) and the stock price is generally considered positive. It is generally expected that companies with higher ROAs will also show higher stock prices. This association reflects the efficiency of the company in using its assets to generate revenue. Nevertheless, this relationship can be influenced by the applicable interest rate, which represents the cost borrowers pay when seeking funds. During periods of higher interest rates, the capital cost of the company rises, potentially

improving the valuation of its assets and reducing its liabilities, thereby potentially lowering the Price to the Book Value (PBV).

During periods of high interest rates, companies with high ROAs (showing large gains relative to assets) often witness more tangible share price increases compared to those with lower ROA. Investors typically prefer low-risk investments such as bonds, which cause increased demand for high ROA companies' shares, thereby raising their prices. A strong ROA signals a company's ability to consistently generate profits, instilling greater investor confidence. Moreover, rising interest rates can raise the capital cost of companies with low ROAs, potentially causing their profitability to decline, thus preventing investors from buying their shares.

On the contrary, when interest rates are low, investors tend to show a greater willingness to invest in high-risk assets such as equity, which results in increased overall demand for stocks, not just limited to companies with high ROAs. The results of this investigation are in line with the conclusions drawn by Conrad in his latest study (Conrad, 2021).

IV. CONCLUSION

1. The PBV variable shows a constructive and significant impact on the stock price variable. An increase in the PBV will increase investor confidence in the company's future prospects, resulting in an escalation in the share price.
2. The variable associated with the Return on Assets (ROA) indicates a noticeable and profitable impact on the variable regarding the price of the stock. An increased ROA indicates that an organization effectively uses its resource to generate revenue, thereby attracting the attention of investors and leading to an escalation in the value of the share.
3. A moderate inflation factor increases the impact of PBVs on stock prices. During periods of rising inflation, companies with high PBWs usually observe more substantial price increases due to the valuation of their assets.
4. A moderate inflation factor reduces the impact of Return on Assets (ROA) on stock prices. In periods of high inflation, rising costs lead to a decline in corporate profits, resulting in a decrease in ROA even though the nominal rate of profit remains stable. As a result, investors show a decreased interest in companies that show high ROA values.
5. A fluctuating interest rate can reduce the impact of the Price-to-Book Value (PBV) on the stock price. In the case of a rise in interest rates, the company experiences an increase in the cost of capital which leads to a decrease in profitability even though the PBV remains constant. Investors showed lower enthusiasm for the shares of companies with a high PBV.
6. Fluctuating interest rates play an important role in increasing the impact of Return on Assets (ROA) on stock prices. During periods of higher interest rates, investors show preference for low-risk investment vehicles such as bonds. As a result, there was a boost in the demand for corporate stocks that showed strong ROA figures, resulting in a rise in stock valuation.

Further research could investigate comparative studies between the infrastructure sector and other sectors, such as the technology sector, to see if the same results apply in other sector.

REFERENCES

Andini, W. P. (2022). The influence of roa, roe, and der on stock price with dividend policy as an intervening variable. *Indonesia Accounting Research Journal*. https://doi.org/10.35335/iarj.v10i2.8

Anisa. (2022). Efek Spasial Infrastruktur terhadap Pertumbuhan Ekonomi. *Jurnal Akuntansi Dan Keuangan Akuntabel*, *19*(2), 468–474. https://doi.org/10.30872/jakt.v19i2.10934

Anita, A. dan. (2023). Peran dewan komisaris dalam memoderasi profitabilitas pada harga saham industri consumer goods indonesia. *JAA Jurnal Aplikasi Akuntansi*, *8*(1), 31–43. https://doi.org/doi: 10.29303/jaa.v8i1.230

Bhatia, G. &. (2022). Inflation in the economy. In *Management Internship and Learning Outcome* (pp. 95–110). https://doi.org/10.52458/9789391842826.2022.eb.grf.asu.ch-20

BPS. (2020). *Statistik Infrastruktur Indonesia 2020*.
Chen. (2005). Monetary Policy Transmission on Interest Rate and Stock Price. *Commercial Research,*.
Conrad. (2021). The Effects of Money Supply and Interest Rates on Stock Prices, Evidence from Two Behavioral Experiments. *Applied Economics and Finance*, *8*(2), 33–41. https://doi.org/https://doi.org/10.11114/aef.v8i2.5173
Daud, Suharto, I. (2023). The Influence of ROA and CAR on Stovk Price with Interest Rates As Intervening Variables (Case Study of Bank Rakyat Indonesia Tbk Company) (PERIOD 2010 -2020). *KIJMS Krisnadwipayana International Journal of Management Studies*, *3*(1), 93–105. https://doi.org/10.35137/kijms.v3i1.966
Fernando, Sovia, Yanto, G. (2018). *Bank Indonesia Interest Rate Prediction and Forecast With Backpropagation Neural Network*. https://doi.org/10.1109/ICITSI.2018.8695914
Hasni, I. &. (2022). Analisis Struktur Modal, Profitabilitas dan Ukuran Perusahaan terhadap Nilai Saham pada Perusahaan Manufaktur yang terdaftar di Bursa Efek Indonesia. *IBF: Journal Perbankan Syariah & Keuangan*, *2*(2), 240–253. https://jurnal.iain-bone.ac.id/index.php/ibf/article/view/3790/1497
Jogiyanto. (2016). *Teori Portofolio Dan Analisis Investasi* (Kesepuluh). BPFE-YOGYAKARTA.
Kamaludin, A. &. (2022). Pengaruh Earnings Per Share (EPS), Price Earnings Ratio (PER), & Price Book Value (PBV) Terhadap Harga Saham Perusahaan Farmasi yang terdaftar di BEI Periode 2016-2020. *Jurnal Indonesia Sosial Sains*, *3*(9), 1236–1248. https://doi.org/10.36418/jiss.v3i9.701
Kemenkeu. (2023). *Recent Macroeconomic and Fiscal Update*. https://fiskal.kemenkeu.go.id/files/red/file/1680254658_fpa_red_march_2023.pdf
Korompis, H. S. (2022). The Effect of Earning Per Share and Debt to Equity Ratio on Stock Price with Independent Commissioners as Moderation Variable (Study on Infrastructures Sector Companies Listed On The IDX Period 2018-2021). *JOGTA Journal of Governance, Taxation and Auditing*, *1*(2), 110–114. https://doi.org/doi: 10.38142/jogta.v1i2.440
Michael, R. &. (2019). The Effect Of Financial Ratio On Company Value With Inflation As A Moderation Variable. *Jurnal Akuntansi*, *XXIII*(1), 34–46. https://doi.org/http://dx.doi.org/10.24912/ja.v23i1.458
Minja, K. &. (2022). Moderating Effects of Oil Price on the Impact of Macroeconomic Variables on Stock Market Performance. *Business Management Review*, *25*(1), 75–89. https://doi.org/http://creativecommons.org/licenses/by/4.0
Nasution, C. B. (2023). Mengapa PBV (Price Book Value) Penting Dalam Penilaian Saham (Perusahaan Farmasi Yang Terdaftar di BEI periode 2021). *Jumek:Jurnal Manajemen Dan Ekonomi Kreatif*, *1*(1), 80–89. https://doi.org/10.59024/jumek.v1i1.32
Negoro, A. &. (2019). Influence Analysis of Gross Domestic Product, Return on Equity, and Earning Share in Stock Price Using Moderating Variables Inflation over Consumer Goods Companies Indonesia Stock Exchange. *JOMA Journal of Multidisciplinary Academic*, *3*(4), 114–122.
Putri, C. &. (2017). Faktor-faktor yang mempengaruhi price to book value. *Jurnal Studi Akuntansi & Keuangan*, *1*(1), 11–20.
Rolanda, I. &. (2023). The Effect of Current Ratio, Debt to Equity Ratio, Return on Assets, and Company Size on stock Price. *Ekonomika Dan Manajemen*, *12*(01), 27–38. https://journal.budiluhur.ac.id/index.php/ema/article/view/2215/pdf_25
Sahupala, W. L. (2023). Pengaruh Return On Asset (ROA) dan Earning Per Share (EPS) terhadap Harga Saham (Studi Pada Perusahaan Sektor Perbankan yang Terdaftar di Bursa Efek Indonesia). *IFIJEB: Indo-Fintech Intellectuals Journals of Economics and Business*, *3*(1), 20–35. https://doi.org/10.54373/ifijeb.v3i1.84
Sandra, S. D. N. (2021). Analisis Dampak Profitabilitas terhadap harga saham pada perusahaan sektor infrastruktur. *Accounting Information System (AIMS)*, *4*(2), 1–8.
Sanurdi, S. A. (2023). Inflasi Pemoderasi ROA, EPS dan DER Terhadap Return Saham Perusahaan Consumer Goods di JII. *Ekonomi, Keuangan, Investasi Dan Syariah (Ekuitas)*, *4*(3), 925–933. https://doi.org/10.47065/ekuitas.v4i3.2909
Septiyarina. (2022). Pengaruh current ratio, total asset turnover, dan return on assets terhadap pertumbuhan laba. *Jurnal Cendekia Keuangan, 1(1), 57-69.*, *1*(1), 57–69.
Sholikha. (2023). Cost Efficiency, Innovation and Financial Performance of Banks in Indonesia. *Journal of Economic and Administrative Sciences*, *39*(1), 100–116. https://doi.org/10.1108/JEAS-07-2020-0124
Sugiyono. (2018). *Metode Penelitian Kombinasi (Mixed Methods)*. CV. Alfabeta.

Szarucki, S. B. (2022). Infrastruktur in the Framework of Production Functions_Evidence of EU member states at the regional level. *Technological and Economic Development of Economy*, *28*(6), 1897–1914. https://doi.org/https://doi.org/10.3846/tede.2022.18090

Uddin, A. &. (2009). Relationship between Interest Rate and Stock Price: Empirical Evidence from Developed and Developing Countries. *International Journal of Business and Management*, *4*(3), 43–51. www.ccsenet.org/journal.html

Walker, D. &. (2019). Dividend Consistency: Rewards, Learning, and Expectations. *Applied Corporate Finance*, *31*(4), 118–129. https://doi.org/doi:10.1111/jacf.12381

Watson. (2019). *Infrastructure Investment Challenges and Opportunities for Social Security Reserve Funds*. https://www.issa.int/sites/default/files/documents/publications/2-Infrastructure investment-258560.pdf

Wiagustini, S. &. (2019). Pengaruh Inflasi, Profitabilitas, Struktur Modal dan Earning Per Share terhadap Harga Saham Perusahaan Consumer Goods. *E-Jurnal Manajemen*, *8*(6), 3930–3959. https://doi.org/https://doi.org/10.24843/EJMUNUD.2019.v08.i06.p23

Zhao, Z. W. J. W. (2021). ROA: A Rapid Learning Scheme For In-Situ Memristor Networks. *Frontiers in Artificial Intelligence*. https://doi.org/10.3389/frai.2021.692065