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Stock Price Analysis of PT Bukit Asam Tbk: A Comprehensive Study

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Abstract: This study analyzes the stock price condition of PT Bukit Asam Tbk (PTBA) in relation to macroeconomic factors. Using the ordinary least squares regression method, four independent variables from macroeconomics namely Inflation, BI rate, GDP, and Exchange Rate were examined. The results demonstrate that these variables significantly influence PTBA's stock price, with Inflation and GDP positively affecting it, while the BI rate and Exchange Rate have negative impacts. The conclusion emphasizes the importance of understanding external dynamics that affect a company's stock price in complex industries such as coal mining. This research provides strategic insights for investors and corporate management in navigating volatile market challenges.

Keyword: Stock Price, Macroeconomic Factors, OLS

INTRODUCTION

In recent decades, stocks have become an attractive investment option for both domestic and international investors. The support of clear regulations, high security levels, and the ease of accessing the stock market have made stocks an appealing investment tool for high-net-worth investors as well as for those with smaller capital, such as students and employees (Simanjuntak & Sari, 2018). Furthermore, the fascination of stock investments in the capital market is also driven by the potential for substantial returns. The Indonesia Stock Exchange (IDX) was established to facilitate transactions in the capital market. The IDX has observed that Indonesians' interest in investing in the capital market tends to increase in line with positive economic growth and the advancement of information technology. The sectors of companies listed on the IDX include agriculture, mining, finance, transportation, infrastructure, property, and manufacturing. One of the promising mining subsectors is coal mining.

The coal mining industry is particularly fragile due to its susceptibility to global economic fluctuations, regulatory changes, and environmental concerns. Global economic downturns can drastically reduce demand for coal as industries slow down and energy consumption decreases. For instance, during the COVID-19 pandemic, global industrial activity decreased significantly, leading to a sharp decline in coal demand and prices. Similarly, changes in regulations, such as stricter environmental policies and carbon taxes, can increase

operational costs and limit production capabilities. For example, recent updates in environmental regulations in major coal-consuming countries have imposed higher compliance standards on coal mining operations. Additionally, growing environmental concerns and the shift towards renewable energy sources pose significant long-term risks to the coal mining sector. The International Energy Agency (IEA) reported that global coal demand has been declining in recent years, driven by increasing investments in renewable energy and efforts to reduce carbon emissions. This transition is evidenced by the accelerating adoption of renewable energy technologies globally, which has reshaped the energy landscape. Understanding the dynamics of this industry is crucial for stakeholders, as it can be significantly impacted by macroeconomic variables.

The Indonesian coal mining industry, in particular, has faced these challenges head-on. Between 2018 and 2023, the average stock price of coal companies listed on the Indonesia Stock Exchange (IDX) saw substantial volatility. In 2018, the average stock price was IDR 14,500, but by 2023, it had fluctuated to IDR 7,200, marking a significant decline amid market uncertainties and regulatory changes.

To illustrate further, in recent years, the coal sector has experienced periods of sharp price fluctuations due to shifts in global energy policies and market conditions. For instance, coal prices dropped from $100 per metric ton in 2018 to $50 per metric ton by 2023, reflecting the sector's vulnerability to global economic dynamics and environmental pressures. Such volatility underscores the sensitivity of coal stocks to global market conditions and regulatory shifts, impacting investor sentiment and company performance.

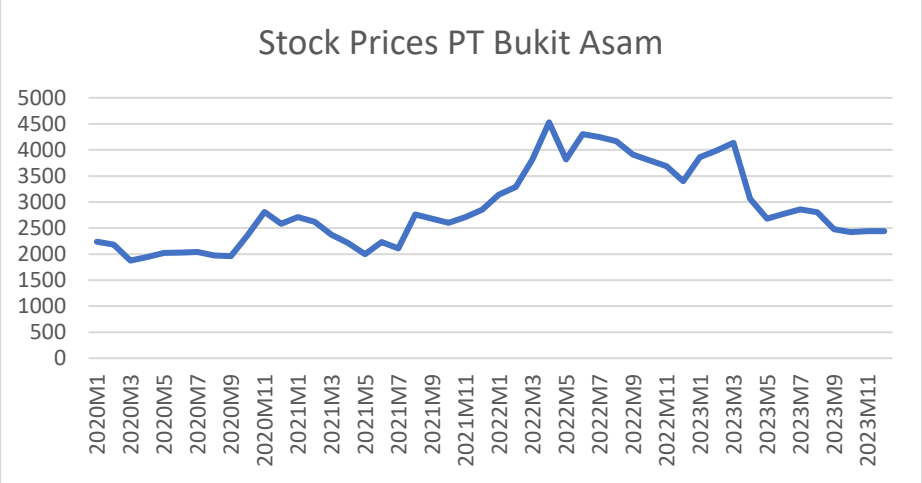

Figure 1. Stock Prices PTBA 2020-2023
Source: Data processed

For PTBA, it can be seen from Figure 1 that shows the fluctuation of PTBA's stock where throughout 2023 the stock price continued to decline. The highest price in 2024 was Rp 4.530, while the lowest price reached Rp1.875 in 2023. This fluctuation reflects the volatile nature of PTBA's stock performance, influenced by market dynamics and external factors. Investors and analysts closely monitor such fluctuations to assess market trends and make informed investment decisions. Understanding these patterns is crucial for stakeholders aiming to navigate the complexities of the stock market effectively.

Given these challenges, it is imperative to analyze how macroeconomic factors influence the stock prices of coal companies. Variables such as inflation, interest rates, GDP growth, and exchange rates play pivotal roles. Inflation can affect production costs and profitability, while interest rate changes influence borrowing costs and investment decisions. Economic growth trends also impact energy demand and commodity prices, directly affecting

coal revenues. Exchange rate fluctuations, moreover, can impact international trade competitiveness and revenue streams for coal exporters.

This study aims to provide a comprehensive analysis of the relationship between macroeconomic factors and the stock prices of PT Bukit Asam Tbk (PTBA*)* from 2020 to 2023. By employing the ordinary least squares regression method, the research will examine the impacts of inflation, BI rate (central bank interest rate), GDP growth, and exchange rates on coal stock prices during this period. The findings will offer valuable insights for investors and company management to navigate the volatile market landscape and make informed strategic decisions.

Using the ordinary least squares regression method, four independent variables from macroeconomics—namely Inflation, BI rate, GDP, and Exchange Rate—were examined. Previous research indicates that these factors are vital in understanding stock price movements in the coal mining sector. Inflation can erode purchasing power and impact costs, while the BI rate (central bank interest rate) influences borrowing costs and investment flows. GDP reflects the overall economic health and demand for coal, and the Exchange Rate affects export competitiveness and profitability.

Several theories explain the relationship between stock prices and macroeconomic factors. The Arbitrage Pricing Theory (APT) posits that a stock's return can be predicted using the relationship between its return and various macroeconomic variables. According to APT, factors such as inflation, interest rates, and economic growth significantly impact stock prices (Ross, 2019). Similarly, the Efficient Market Hypothesis (EMH) suggests that stock prices reflect all available information, including macroeconomic data (Fama, 2020). Thus, changes in macroeconomic variables are quickly incorporated into stock prices.

Another relevant theory is the Dividend Discount Model (DDM), which states that the value of a stock is the present value of its expected future dividends. Macroeconomic factors like GDP growth and inflation influence corporate earnings and dividend payments, thereby affecting stock prices. For instance, higher GDP growth typically signals increased industrial activity and energy consumption, driving coal demand and stock prices up. Conversely, higher interest rates can increase operational costs and reduce profit margins, negatively impacting stock prices.

The results demonstrate that these variables significantly influence PTBA's stock price, with Inflation and GDP positively affecting it, while the BI rate and Exchange Rate have negative impacts. Understanding these external dynamics is essential for managing investments and corporate strategies within the coal mining industry. Given the sector's vulnerability to economic shifts, this research provides strategic insights for investors and corporate management in navigating volatile market challenges. By recognizing the significant impact of macroeconomic factors on stock prices, stakeholders can make more informed decisions and better anticipate future market trends (Wong, Khan, & Du, 2022).

Research questions will guide the investigation into the intricate relationship between macroeconomic factors and stock prices, focusing on PT Bukit Asam Tbk (PTBA) as a case study within the volatile coal mining industry. The research question that will guide the investigation into the complex relationship between macroeconomic factors and stock prices, with a focus on PT Bukit Asam Tbk (PTBA) as a case study in the volatile coal mining industry is how do macroeconomic factors, specifically inflation, BI rate, GDP growth, and exchange rates, influence the stock prices of PT Bukit Asam Tbk (PTBA).

METHOD

The study will utilize the ordinary least squares (OLS) regression analysis to examine the impact of selected macroeconomic variables on PTBA stock prices. OLS regression is suitable for assessing the relationships between multiple independent variables (e.g., inflation, BI rate, GDP growth, exchange rates) and a dependent variable (stock prices). This study is

investigating five research variables, comprising one dependent variable and four independent variables.

RESULTS AND DISCUSSION

Normality Test Before running multiple linear regression, normality test is needed to make sure that the data set is well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed. Kolmogorov-Smirnov normality test using the EViews 12.

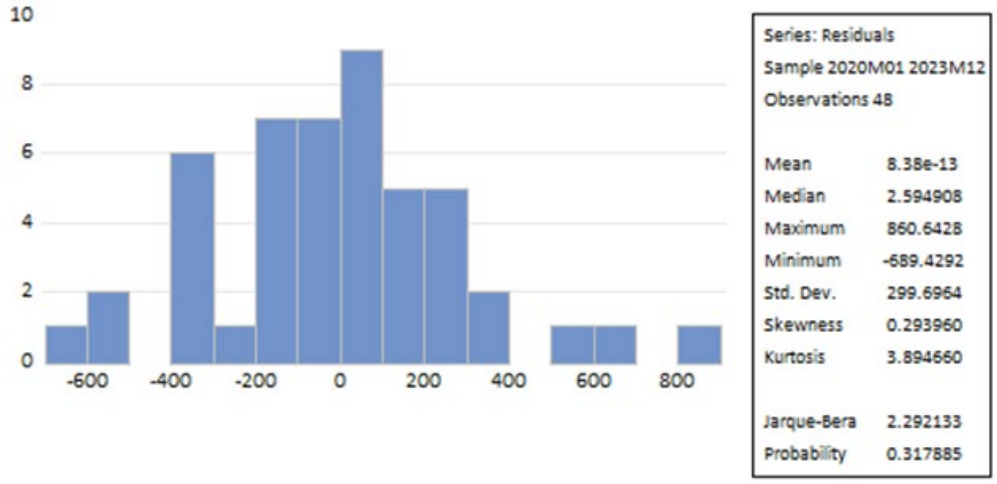

Figure 2. Normality Test
Source: data Processed

The Jarcue-Bera is 0.31. This jarcue-bera value is larger than $\alpha = 0.05$. Based on these results, it indicates that the data is normally distributed.

Multicollinearity Test

Before running multiple linear regression, multicollinearity test is needed to make sure that every independent variable is independent towards other independent variables.

Variance Inflation Factors
Date: 07/05/24 Time: 09:54
Sample: 2020M01 2023M12
Included observations: 48

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	3104113.	1517.701	NA
INF	1777.118	9.135094	1.774081
GDP	4991.960	650.5596	2.081853
BI_RATE	4845.286	47.92940	2.152062
THO	17526.81	1843.797	2.250952

Figure 3. Multicollenearity Test
Source: data Processed

Heteroscedasticity Test

Before running multiple linear regression, Heteroscedasticity test is needed to describe the case where the variance of errors or the model is not the same for all observations, while often one of the basic assumptions in modeling is that the variances are homogeneous and that the errors of the model are identically distributed.

Heteroskedasticity Test: White
Null hypothesis: Homoskedasticity

F-statistic	0.829735	Prob. F(14,33)	0.6340
Obs*R-squared	12.49727	Prob. Chi-Square(14)	0.5664
Scaled explained SS	14.51567	Prob. Chi-Square(14)	0.4120

Figure 4. Heteroscedasticity Test
Source: data Processed

Based on white test where OBS*R S-squared Prob chi squared > 0,05 can be concluded that there is no heteroscedasticity issue.

Multiple Linear Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1513.937	1761.849	0.859289	0.3949
T_THO	-305.6325	132.3889	-2.308597	0.0258
T_INF	458.3763	42.15588	10.87337	0.0000
T_GDP	404.9576	70.65381	5.731576	0.0000
T_BIRATE	-476.6317	69.60809	-6.847361	0.0000

R-squared	0.846459	Mean dependent var	2873.333
Adjusted R-squared	0.832176	S.D. dependent var	764.8379
S.E. of regression	313.3259	Akaike info criterion	14.43070
Sum squared resid	4221443.	Schwarz criterion	14.62561
Log likelihood	-341.3367	Hannan-Quinn criter.	14.50436
F-statistic	59.26388	Durbin-Watson stat	2.087846
Prob(F-statistic)	0.000000		

Figure 6. OLS Regression
Source: data Processed

The constant value is positive, specifically 1513. This indicates that when the independent variables are considered constant (0), the stock price is 1513. The regression value for the positive for Inflation, GDP, and negative for BI rate, and Exchange Rate where all of the independent variables influence the stock price of the PTBA.

CONCLUSION

PTBA's stock where throughout 2023 the stock price continued to decline.This fluctuation reflects the volatile nature of PTBA's stock performance, influenced by market dynamics and external factors.

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