Jurnal Akuntansi STEI
Published by Sekolah Tinggi Ilmu Ekonomi Indonesia Jakarta
Journal homepage: https://ejournal.stei.ac.id/index.php/AkuntansiSTEI

Impact of rupiah exchange rate and coal prices on stock price in Indonesia's Energy Sector

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Abstract

Purpose: This study examines the impact of the Rupiah exchange rate and coal prices on stock prices in coal industry energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2020 period.

Methods: A quantitative approach was employed, using panel data regression analysis to assess the relationship between these variables. The study population includes all coal industry energy sector companies listed on the IDX, with a sample of five companies selected through purposive sampling over 24 months, resulting in 120 observations. Data processing was conducted using EViews 10.

Findings: The findings reveal that both the Rupiah exchange rate and coal prices significantly influence stock prices. Furthermore, the Rupiah exchange rate and coal prices collectively explain 28.10% of the variations in stock prices, indicating that other factors also contribute to price fluctuations.

Practical Implications: These results provide valuable insights for investors, policymakers, and financial analysts, highlighting the importance of macroeconomic factors in stock price movements within the energy sector. Understanding these dynamics can help stakeholders make more informed investment and risk management decisions.

Keywords: Stock Prices, Exchange Rate, Coal Prices

Paper type: Research paper

ARTICLE INFO:
Received 2/10/2025
Revised 2/19/2025
Accepted 2/19/2025
Online First 2/20/2025

Jurnal Akuntansi STEI
Vol 11, No.1, 2025, 13-22

ISSN 2442-4072

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DOI: https://doi.org/ 10.36406/jastei.v11i1.46

Abstrak

Tujuan: Penelitian ini mengkaji dampak nilai tukar Rupiah dan harga batubara terhadap harga saham pada perusahaan sektor energi industri batubara yang terdaftar di Bursa Efek Indonesia (BEI) selama periode 2019–2020.

Metode: Pendekatan kuantitatif digunakan dalam penelitian ini, dengan analisis regresi data panel untuk menilai hubungan antara variabel-variabel tersebut. Populasi penelitian mencakup seluruh perusahaan sektor energi industri batubara yang terdaftar di BEI, dengan sampel lima perusahaan yang dipilih melalui metode purposive sampling selama 24 bulan, sehingga menghasilkan 120 observasi. Pengolahan data dilakukan menggunakan EViews 10.

Temuan: Hasil penelitian menunjukkan bahwa nilai tukar Rupiah dan harga batubara berpengaruh signifikan terhadap harga saham. Selain itu, nilai tukar Rupiah dan harga batubara secara bersama-sama mampu menjelaskan 28,10% variasi harga saham, menunjukkan bahwa faktor lain juga berkontribusi terhadap fluktuasi harga saham.

Implikasi Praktis: Temuan ini memberikan wawasan penting bagi investor, pembuat kebijakan, dan analis keuangan, menyoroti pentingnya faktor makroekonomi dalam pergerakan harga saham di sektor energi. Pemahaman terhadap dinamika ini dapat membantu para pemangku kepentingan dalam pengambilan keputusan investasi dan manajemen risiko yang lebih baik.

Kata Kunci: Harga Saham, Nilai Tukar, Harga Batubara

1. Introduction

The energy sector, particularly coal industry companies, plays a crucial role in a country's economic development by serving as a provider of essential energy resources for economic growth. The abundance of natural resources presents opportunities for companies to engage in integrated business activities, encompassing exploration, infrastructure development, production, and final processing, either as a single entity or as independent business units (Arif, 2014).

Mining companies require substantial capital for natural resource exploration and business expansion. Consequently, many mining companies enter the capital market to attract investment and secure corporate financing. Currently, capital market products are regarded as viable investment alternatives, with the sector experiencing significant growth, reaching more than 3.6 million investors from 2015 to November 2020.

A company's stock price reflects its market value in the eyes of investors. Stock prices fluctuate based on market demand and supply, as determined by market participants within the capital market.

Within the energy sector, various subsectors exist, including the coal industry, which is one of the largest contributors to the sector. Coal industry companies represent the majority of firms listed in the energy sector on the Indonesia Stock Exchange (IDX).

According to Arif (2014), since the late 1970s, when Indonesia opened its coal mining sector to foreign investment, the country has experienced growth in domestic coal production, exports, and sales. However, domestic coal sales remain relatively low due to limited domestic consumption. The demand for coal in Indonesia increases by

approximately 7% per year, while domestic coal consumption has also risen, driven by the operation of new power plants and the national electricity demand, which grows by 9% per year.

Several major mining companies in Indonesia have expanded into the broader energy sector. Due to fluctuating commodity prices, these companies have diversified their business models beyond coal exports, transforming into integrated energy companies capable of utilizing their own coal resources. Indonesia's coal exports account for approximately 70-80% of total coal production, with the remainder sold in the domestic market (Arif, 2014).

In this context, this study aims to analyze the impact of the Rupiah exchange rate and coal prices on the stock prices of coal industry companies listed on the Indonesia Stock Exchange during the 2019–2020 period.

2. Theory and Hypothesis

2.1. Theoretical Framework

Exchange Rate

An exchange rate or exchange rate is the value of a country's currency expressed in the currency of another country used for trade transactions. Manurung (2016) defines the foreign exchange rate as the foreign exchange rate against the Rupiah and the Indonesian people remember more in the form of foreign exchange rates in the form of US dollars. Exchange rate movements will affect the company's profits where raw materials imported from other countries will experience an increase in production costs and decreased profits. This will lead to decreased interest in the company's shares and a decrease in the company's stock price so that the exchange rate has a negative influence (Martalena & Malinda, 2019). The exchange rate is calculated using the middle exchange rate in this study. The value of the middle exchange rate is by summing the selling rate and the buying rate which is then divided by two (Habiburrahman, 2015). The buying rate is the rate at which the bank is willing to buy a currency, while the selling rate is the rate at which the bank wants to sell a currency (Sriyono and Kumalasari, 2020).

Coal Prices

Coal is an important component of power generation for the world today. Coal is also the second largest energy supplier after oil. This is inseparable from the world's energy demand which tends to increase every year (Najib, 2019). Price is a unit of value given to a commodity as information from the producer / owner of the commodity. Coal prices in Indonesia are actually agreed between sellers and buyers at a certain time which refers to the price of coal issued and enforced by the Directorate General of Minerals and Coal called The Benchmark Coal Price (HBA). Benchmark Coal Pricing (HBA) has been regulated in the Regulation of the Director General of Minerals and Coal No. 515.K/32/DJB/2011. Indonesian coal prices every day, month, or year also go up or down. HBA is severely affected by macroeconomic conditions, as it becomes an international trade commodity (Arif, 2014). Fluctuations in Indonesia's HBA depend on supply and demand, replacement energy, oil prices, economic climate, and inflation rate so that it will continue to move every month and the average HBA every year could increase or decrease.

Stock Prices

According to Tandelilin (2017) the stock price is the price of the sale and purchase in the

capital market in the form of shares formed due to the mechanism of supply and demand in the capital market. Stock prices are a reflection of investor expectations of earning factors, cash flow and the level of return required by investors, all three of which are strongly influenced by macroeconomic performance (Tandelilin, 2017). Stock prices change up or down from one time to another. The change depends on the strength of demand and supply, if a stock experiences excess demand, then the price tends to rise. Conversely, if there is an excess offer, then the stock price tends to fall (Abi, 2016). The stock price that will be used in this study is the closing price of the shares of the coal issuer on the day of the transaction. The closing price of the stock is the price that occurs last at the end of exchange hours (Abi, 2016).

2.2. Hypothesis Development

Rupiah Exchange Rate on Stock Prices

Exchange rates have a correlation with stock prices, which can be either positive or negative. A negative correlation applies to import-oriented companies because when the Rupiah depreciates, these companies must spend more Rupiah to purchase raw materials, leading to decreased company revenue and a decline in stock prices due to reduced demand. Conversely, a positive correlation applies to export-oriented companies because when the Rupiah weakens, they can obtain cheaper raw materials, resulting in increased profits, higher stock demand, and ultimately, higher stock prices (Martalena & Malinda, 2019). Based on the theory and research above, the hypothesis of this study is that the Rupiah exchange rate affects stock prices.

H1 = The rupiah exchange rate against the US dollar affects the share price.

Coal Prices on Stock Prices

Expectations of fluctuations in coal prices will be responded positively by stock prices. If the sector weakens, generally the stock price of companies moving in the sector is also affected and can be found mining stock prices with relatively cheap value. Based on observations made by Purnomo (2012), it can be concluded that after a deep enough weakness, the price of stocks in the mining sector is quite attractive, then in this situation it is used as a golden opportunity for traders and investors to start making investment decisions gradually against mining stocks. Based on the theory and research above, the provisional answer in this study is that coal prices affect stock prices.

H2 = The coal prices affect the share price.

Rupiah Exchange Rate and Coal Price on Stock Prices

A decrease in the amount of Rupiah required to be exchanged per unit of the U.S. dollar, known as Rupiah appreciation, will make export-based companies that rely on domestically sourced raw materials less competitive in price competition. This will lead to a decline in profitability, making the associated stocks less attractive in the market and causing stock prices to decrease (Rismala & Elwisam, 2019). Al-Azizah et al. (2019) suggest that, simultaneously, global exchange rates, interest rates, and oil prices have a significant effect on the Composite Stock Price Index. Research by Satyatama and Sumantyo (2017) also indicates that the BI rate, exchange rate, and global gold prices have a negative and significant impact on the stock price index in the mining sector. Similarly, Artiani and Sari (2019) state that inflation, the Rupiah exchange rate against the U.S.

dollar, global crude oil prices, and global coal prices collectively have a significant influence on stock prices in the Indonesian Sharia Stock Index. Based on the theory and research above, the hypothesis of this study is that the Rupiah exchange rate and coal prices influence stock prices.

H3 = The rupiah exchange rate against the US dollar and coal prices affect the stock price.

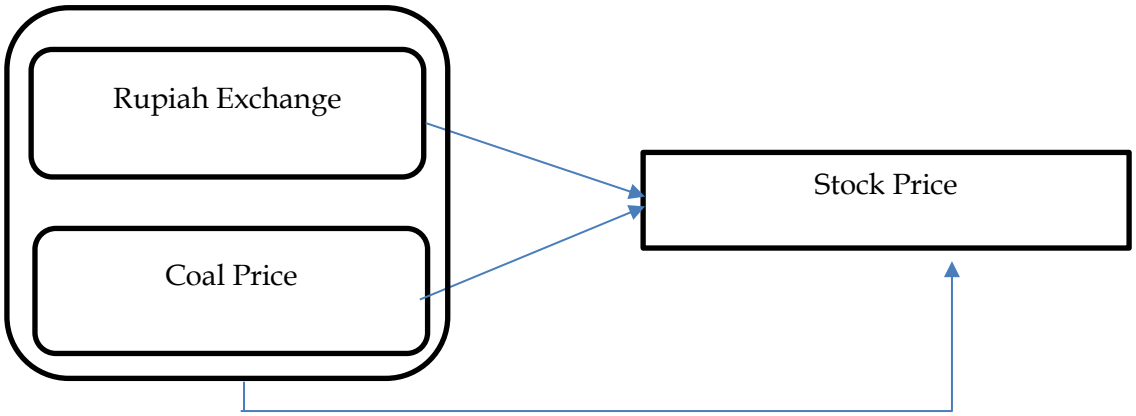

Figure 1. Conceptual Framework

3. Method

3.1. Sample Procedure

This study employs a quantitative approach using the purposive sampling method to determine the sample based on specific criteria. The research population consists of 33 coal industry energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2020 period. After undergoing a selection process based on predetermined criteria, a final sample of 5 companies was obtained, resulting in 120 observation data points, comprising 24 months of observation for each company.

3.2. Variable Measurement (Operationalization)

The variables used in this study include dependent and independent variables. The dependent variable is stock price, measured based on the closing price of stocks listed on the IDX. Meanwhile, the independent variables include the Rupiah exchange rate against the US Dollar, calculated using the middle exchange rate, which is the average of the selling and buying rates (Habiburrahman, 2015), and coal prices, calculated using the formula HBA = 25% ICI + 25% Platts + 25% NEX + 25% GC (Arif, 2014). All variables in this study are measured on a nominal scale.

3.3. Data Analysis Technique

As a quantitative study, various statistical techniques are employed for data analysis. Descriptive statistical analysis is used to describe the characteristics of the data by calculating the minimum, maximum, mean, and standard deviation of each variable. Furthermore, regression analysis is conducted to examine the relationship between the independent and dependent variables. Partial regression (t-test) is used to assess the individual effect of each independent variable on stock prices, while multiple regression determines the relationship between two or more independent variables and the dependent variable simultaneously.

Hypothesis testing is performed using several methods, including the t-test to measure the partial effect of each independent variable on stock prices, the F-test to evaluate the simultaneous impact of independent variables on stock prices, and the Adjusted R-Square, which measures the contribution of independent variables in explaining the dependent variable after adjusting for the number of variables included. The data in this study is processed using Eviews 10 software, and the results are presented in tables and diagrams for easier interpretation.

4. Results and Discussion

Descriptive Analysis

The object in this study is a coal industry energy sector company listed on the Indonesia Stock Exchange for the period 2019-2020 (24 months). Based on several criteria specified selected samples as many as 5 companies, bringing the total sample to 120 samples.

Table 1. Descriptive Statistical

	Stock Price	Rupiah Exchange	Coal Price
Mean	4436,483	14377,92	97630,79
Median	1285,000	14224,50	93352,50
Maximum	21250,00	16367,00	130039,0
Minimum	62,00000	13662,00	73265,00
Std. Dev.	6582,996	533,7740	18493,85
Observations	120	120	120

From Table 1 can be concluded that the highest value at the Rupiah Exchange Rate in the period 2019-2020 is Rp 16,367 which occurred in March 2020, while the lowest value occurred in January 2020 which amounted to Rp 13,662. The average value of rupiah exchange rate is 14,377.92 with a standard deviation of 533.77, the condition of the mean value > the standard deviation indicates a good thing. Because the standard deviation is a reflection of high deviation so that data from the Rupiah Exchange Rate variable shows normal results and does not cause bias.

The highest value in Coal Price in the period 2019-2020 is Rp 130,039 per 100 kg which occurred in January 2019, while the lowest value occurred in August 2020 which amounted to Rp 73,265. The average value of Coal Price of 97,630.79 with a standard deviation of 18,493.85, the condition of the mean value > standard deviation indicates this variable is experiencing considerable fluctuations.

The highest share price of Rp 21,250 per share is the share price of PT Dian Swastatika Sentosa Tbk (DSSA) in April 2020 while the lowest share price is Rp 62 per share, namely PT Borneo Olah Sarana Sukses Tbk (BOSS) in March 2020. The average value of the achievement of the share price in the trade and coal mining sector amounted to Rp 4,436.48.

Hypothesis Test

The results of these model selection tests provided the basis for hypothesis testing. In this study, hypothesis testing was performed using multiple regression analysis, followed by

t-tests (partial significance test) and F-tests (simultaneous significance test) to determine the effect of the independent variables on the dependent variable. Additionally, the Adjusted R-square (R^2) value was analyzed to measure how well the independent variables explain variations in the dependent variable. These statistical tests ensured the robustness and reliability of the findings, confirming the relationships between the Rupiah exchange rate, coal prices, and stock prices in the coal industry energy sector.

Tabel 2. t-Test

Variable	**T statistics**	**Prob.**
C	2,026701	0,0450
Rupiah Exchange	-3,123749	0,0023
Coal price	5,916472	0,0000

The first hypothesis in this study suggests that the Rupiah exchange rate against the US dollar influences the stock prices of coal industry energy companies. The statistical test results indicate that the probability value is smaller than the significance level, as the probability energy companies. The statistical test results reveal that the probability value is smaller than the significance level, with a probability result of 0.0000, which is lower than 0.05. This indicates a significant relationship between coal prices and stock prices. Therefore, H2, which states that coal prices affect the company's stock price, is also accepted.

Tabel 3. F-Test

	Prob.
F- Statistic	24,25381
Adjusted R-squared	0,281000

The calculated F-value (24.25381) is greater than the F-table value (3.07), indicating that the Rupiah exchange rate and coal prices have a simultaneous effect on stock prices. Based on these test results, H3, which states that the Rupiah exchange rate against the US dollar and coal prices influence the stock prices of coal industry energy companies, is accepted.

The Adjusted R-Square value in the regression model is used to determine the proportion of variation in the dependent variable that can be explained by the independent variables (Basuki, 2016). Based on Table 2, the coefficient of determination, as reflected in the Adjusted R-Square value, is 0.281000 or 28.10%. This means that 28.10% of the variation in the dependent variable is explained by the independent variables in the model, while the remaining 71.90% is influenced by other factors not included in this study.

Discussion

This study concludes that the Rupiah exchange rate against the US dollar has a significant effect on the stock prices of coal industry energy companies. The findings align with

Fionita's research (2011), which suggested that the Rupiah exchange rate has a negative correlation and influences stock prices. Similarly, Harsono and Worokinasih (2018) found that the Rupiah exchange rate has a negative and significant effect on the stock price index. This is consistent with economic theory, which states that exchange rate fluctuations impact corporate profits, particularly for companies that import raw materials. A depreciation of the currency increases production costs, leading to lower profits, reduced investor interest, and ultimately, a decline in stock prices. Consequently, the exchange rate is considered to have a negative effect on stock prices (Martalena & Malinda, 2019).

Coal prices significantly influence the stock prices of coal industry energy companies. The findings of this study are consistent with Nababan's research (2019), which demonstrated that benchmark coal prices have a significant positive relationship with coal company stock prices. Likewise, Anisa and Darmawan (2018) asserted that an increase in global mining commodity prices, particularly coal, boosts company revenues, which in turn leads to a rise in stock prices due to positive investor reactions. However, these results contradict Najib's research (2019), which argued that coal prices had no significant effect on stock prices. The findings also support Purnomo (2012), who suggested that following a substantial decline in coal prices, the mining sector becomes attractive to investors, creating an opportunity for strategic investment. A positive correlation exists, meaning that when coal prices fall, the stock prices of companies in the sector also tend to decline, making mining stocks relatively cheaper (Purnomo, 2012).

The movement of the Rupiah exchange rate against the US dollar and fluctuations in coal prices can significantly impact the profitability of energy companies in Indonesia, ultimately affecting stock prices. Therefore, investors are advised to consider these macroeconomic variables in addition to financial ratios before making investment decisions in the energy sector (Tarsono, 2021).

The Rupiah exchange rate and coal prices simultaneously affect the stock prices of coal industry energy companies. The results of this study contradict the findings of Anisa & Darmawan (2018), who stated that the Rupiah exchange rate and world coal prices had no effect on the stock price index of Indonesia's mining sector, as well as the research by Sumani et al. (2012), which found that coal commodity prices did not significantly impact the stock returns of coal mining companies. However, this study is consistent with Al-Azizah et al. (2019), who concluded that exchange rates, interest rates, and world oil prices collectively influence the Composite Stock Price Index. Similarly, Satyatama and Sumantyo (2012) demonstrated that the BI rate, exchange rate, and world gold price have a negative and significant impact on the stock price index of the mining sector.

5. Conclusion

Based on the results of the analysis and discussion, it can be concluded that the Rupiah exchange rate against the US dollar and coal prices influence the share prices of coal industry energy companies listed on the Indonesia Stock Exchange for the period 2019-2020, where a weakening Rupiah makes the capital market less attractive to investors due to declining profits from imported raw materials or reduced export sales, leading to decreased investor interest and lower stock prices, while fluctuations in coal prices directly impact company revenue and investor appeal, with falling coal prices reducing

profits and stock attractiveness, whereas rising coal prices increase company profits, attract investors, and drive stock prices higher, and when both factors occur simultaneously such as a weakening Rupiah alongside rising coal prices company revenue from export sales can increase, boosting investor expectations, driving up demand for shares, and ultimately raising stock prices.

Based on the above conclusions, it is suggested that investors consider the significant influence of the Rupiah exchange rate and coal prices when making investment decisions in coal industry energy sector stocks, while companies, recognizing that exchange rates and coal prices are beyond their control, should focus on strengthening financial performance, enhancing management reputation, and improving corporate image to attract investors.

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Declarations

Funding

The authors received no financial support for the research and publication of this article.

Conflicts of interest/ Competing interests:

The authors have no conflicts of interest to declare that are relevant to the content of this article.

Data, Materials and/or Code Availability:

Data sharing is not applicable to this article as no new data were created or analyzed in this study.