

Integrating the value of honesty into the analysis of coal prices, exchange rates, and export profitability in Indonesia (2019–2023)

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Abstract

This study aims to analyze the influence of coal prices and rupiah exchange rates on the profitability of Indonesian coal exports in 2019–2023. Using panel data and quantitative methods, this study makes export profitability as a dependent variable, while coal prices and rupiah exchange rates are independent variables. Data was obtained from official sources such as the Direktorat Jenderal Mineral dan Batubara, the Badan Pusat Statistik (BPS), and the company's financial statements on the Indonesia Stock Exchange with a population of data, namely the reference coal price listed on the BPS for the 2019–2023 period and the selected sample in the form of data from 8 companies within a period of 5 years. Panel data regression analysis was used to find out how coal prices and exchange rates affect the profitability of coal exports in Indonesia. The results of the study show that coal prices have a positive and significant effect on export profitability, while the rupiah exchange rate does not have a significant impact because the majority of transactions use US dollars. These findings provide insight for policymakers in maintaining the stability of the coal export sector amid global market dynamics.

Keywords: finance coal price; Rupiah exchange rate; export profitability; Indonesia

Introduction

Indonesia is one of the largest coal producers in the world, with production reaching 775 million tons in 2023, of which 518 million tons were exported, exceeding the production target of 695 million tons (Situmeang & Setiawan, 2022). National coal reserves reached 30.22 billion tons, with East Kalimantan having the largest portion, at 38% of the total reserves (Prasada & Pangestuti, 2022). Coal, often referred to as “black gold,” plays an important role in global energy supply, especially in Asia, with Indonesia being one of the major exporters to countries such as China, Japan, South Korea, and India (IEA, 2021). As a country with an open economy, Indonesia

is greatly influenced by global trade dynamics, including changes in the rupiah exchange rate against the US dollar. During 2019–2023, the rupiah fluctuated between Rp15,395 to Rp16,000 per US dollar, which had an impact on export competitiveness. Fluctuations in coal prices also have a direct impact on exporters' profitability, where rising prices increase revenues, while falling prices can hinder the growth of the sector (IEA, 2021). The depreciation of the rupiah generally increases the competitiveness of Indonesia's exports, because the price of domestic goods becomes more competitive than imported goods (Mankiw & Reis, 2007). The trade sector, including coal exports, makes a major contribution to the country's foreign exchange reserves as well as economic stability (Limbong & Novindra, 2016). Therefore, monitoring the exchange rate and coal price is an important aspect in maintaining the profitability of Indonesia's coal exports in the global market.

Table 1.1. Indonesia's coal exports to destination countries
2019-2023 (metric ton)

Destination country	2019	2020	2021	2022	2023
Net weight : 000 tons					
India	121.692,3	98.243,3	70.779,2	110.155,2	108.932,6
Tiongkok	65.670,5	62.492,5	108.487,2	69.685,7	81.682,9
Jepang	28.436,4	26.965,1	22.978,4	26.392,9	25.278,2
Korea selatan	29.550,0	24.831,9	21.011,2	25.823,6	25.284,4
Taiwan	19.061,2	17.603,0	16.291,6	18.244,6	15.119,4
Malaysia	25.323,5	26.706,8	25.497,2	25.222,0	28.144,0
Philipina	27.450,8	28.060,9	30.085,8	30.864,7	36.114,7
Thailand	17.600,4	16.624,8	15.150,7	15.338,3	11.935,5
Hongkong	7.876,8	3.863,5	5.269,9	5.176,9	4.892,9
Spanyol	684,6	0,0	77,2	245,2	0,0

Indonesia's coal exports increased from 374,935.8 tons in 2019 to 379,705.2 tons in 2023, although coal prices fluctuate every year (Badan Pusat Statistik, 2024). The decline in coal prices drove an increase in demand, which contributed to an increase in production. In the context of international trade, price is a major factor in purchasing decisions (Situmeang & Setiawan, 2022). The profitability of coal exports is greatly influenced by coal prices and rupiah exchange rates, especially for Indonesia, which depends on the export of this commodity. Rising global coal prices boosted exporters' earnings and business profitability in the sector, while lower prices led to smaller profit margins (Putra & Karsudjono, 2022). In addition, the rupiah exchange rate also plays an important

role. If the rupiah strengthens against the US dollar, the value of exports in rupiah decreases, while the depreciation of the rupiah increases exporters' profits because income in dollars becomes more valuable in rupiah (Safitri & Hartati, 2020). In the 2019–2023 period, the dynamics of coal prices and the rupiah exchange rate are influenced by global energy policies, demand growth, and domestic economic conditions. Export competitiveness is also influenced by the exchange rate, where the strengthening of the rupiah can increase export costs and reduce profitability. Conversely, the weakening of the rupiah can benefit exporters, but with the risk of market volatility. Given global economic uncertainty, a deeper understanding of the relationship between coal prices and the rupiah exchange rate on export profitability is crucial. This study aims to analyze these factors during the 2019–2023 period to provide insight for the government and industry players in formulating policies that support the sustainability of Indonesia's coal exports.

The increase in coal prices in the international market increases the profitability of Indonesia's coal exports by increasing the profit margin per unit sold (Mankiw, 2018). Since production costs are relatively fixed, the increase in prices contributes to improvements in profitability indicators such as profit margin and export profit to total sales ratio. As per the supply theory, coal exporters tend to increase export volumes when prices rise because higher selling prices can cover production costs and increase profits (Rodriguez & Carter, 2006). However, on the demand side, importing countries such as China and India can reduce demand if prices are too high, especially if cheaper energy alternatives are available, such as natural gas or renewable energy (Frenkel & Rose, 1995). However, in conditions where energy demand remains high and substitution is difficult, price increases do not always have a negative impact on the profitability of coal exports (Mankiw, 2018)

From the perspective of Islamic economics, international trade activities such as coal exports are part of muamalah which is allowed as long as it is carried out in a halal, fair manner, and without harming other parties. The Qur'an emphasizes the importance of honesty in economic transactions as Allah says in QS. An-Nisa (4):29 that is: "O you who have believed, do not eat each other's property in a wrong way, except in a way of business that is done on the basis of mutual consent between you...". This paragraph

shows that export activities are not only aimed at obtaining profits, but must also bring benefits to the community and be carried out with the principle of justice.

Literature review

The exchange rate is the price of a currency expressed in another currency. In the context of international trade, exchange rates are key macroeconomic variables that affect export competitiveness, export prices, export earnings in domestic currencies, and the profitability of exporting firms. According to (Mankiw, 2016) the exchange rate determines how much domestic currency is needed to acquire one unit of foreign currency. Changes in the exchange rate will affect the relative prices of export and import goods as well as export earnings when converted to domestic currencies.

Businesses engaged in coal exports typically make more money per unit of coal sold when coal prices rise in the international market. The company's profit margin per unit of exported coal increased as a direct result of this price increase. Furthermore, price increases can result in higher profits from fixed or largely unchanged production costs, which increases the profitability of the business.

The increase in coal prices also has the potential to increase profitability indicators such as profit margin, which is the ratio between net profit and total revenue, which reflects the company's efficiency in generating profits from its sales. In addition, the ratio of export profit to total sales will improve, considering that coal exports are one of the main sources of income for the company. Under these conditions, the company can obtain greater resources for reinvestment or business expansion, as well as strengthen its position in the global market.

According to supply theory, coal companies as exporters will increase export volumes when coal prices rise will increase the company's profitability. Because higher selling prices can cover production costs and increase profit margins. On the demand theory side, coal-importing countries such as China and India will reduce demand if coal prices are too high, especially if there are cheaper energy alternatives such as natural gas or renewable energy. However, in a situation where energy demand remains high and

substitution is difficult, price increases will have little effect on export profitability.

Research conducted by (Barasyid & Setiawati, 2023) explains that the reference price of coal can have an impact on coal exports because entrepreneurs or mining exporters will definitely try to sell more coal when the price rises because it is currently high. Price is related to market supply and demand. According to supply theory, if the price rises, the supply can naturally increase. Likewise vice versa if the seller's offer drops when the price drops because they believe the profit margin is small.

In addition, research conducted by (Putra & Karsudjono, 2022) explains that export value is greatly influenced by coal prices. This shows that the increase in coal prices will be taken into account by business people to meet their export value targets beforehand. The volume of Indonesian coal shipments to destination countries has increased in line with the price of coal in the country. Money is usually used in transactions that measure the market value of a product. If someone wants to buy products and services, they usually have to pay a certain amount of money in exchange for those goods and services. The amount given is influenced by the increase in prices because the more commodities are exported, the greater the price difference between domestic and foreign markets.

So that the development of the above hypothesis and conclusions can show that significant changes in coal prices affect the value of coal exports, which in turn has a direct impact on the profitability of coal exporters in Indonesia. Which can be formulated to test whether changes in coal prices significantly affect the export profitability of companies in the mining sector during the study period.

H1 : Coal prices have a positive effect on coal export profitability

Exchange rate changes can have a significant impact on a company's export profitability, especially in terms of how the movement of the exchange rate of a local currency (e.g., Rupiah) against a foreign currency (especially the United States Dollar) can affect the income earned from exports. When the local currency exchange rate weakens against foreign currencies, the revenue generated from exports will be more valuable when converted to the

local currency, which in turn can increase the company's profit margins. This is because the company will receive more local money (Rupiah) for each unit of revenue received in foreign currency. Conversely, when the local currency strengthens against the foreign currency, the income from exports calculated in foreign currencies will depreciate when converted to the local currency, leading to a decrease in the value of export revenues in the local currency and potentially reducing the profitability of the company. These changes can also impact a company's strategic decisions, including product pricing in international markets, production cost management, and financial planning.

However, in some conditions, the rupiah exchange rate can actually have a negative impact on the profitability of coal exports in Indonesia. This is due to several factors, based on research data for the 2019–2023 period, although there are fluctuations in the rupiah exchange rate against the US dollar, the impact on export profitability tends to be minimal. This is due to several factors, including that Indonesia is one of the main exporters of coal to several major countries in Asia such as China, India, South Korea, Japan, and Taiwan. These countries have a high need for coal to support the energy and industrial sectors, especially steam power plants and steel processing. China and India are the largest consumers due to their growing domestic needs, while South Korea, Japan, and Taiwan rely on imports due to limited domestic natural resources. Coal is an important source of energy in several countries. Therefore, Indonesia's coal exports are not affected by changes in the exchange rate of the Rupiah against the US dollar; Coal will continue to be delivered to these countries.

In addition, most coal export transactions have used fixed-price futures contracts in US dollars, so changes in exchange rates do not directly affect the income earned, because importing countries will continue to buy coal from Indonesia because futures contracts have been held. Many large exporting companies, including in the coal sector, use hedging strategies to protect themselves from the risk of exchange rate fluctuations. With futures contracts or other financial instruments in place, the impact of exchange rate changes on their income can be minimized. Such as the international agreement between Indonesia and Japan Economic Partnership (IJEPA), the Indonesia – Korea Comprehensive Economic Partnership Agreement (IK-CEPA), and

the China Coal Transportation and Distribution Association (CCTDA).

According to the theory, coal demand from abroad, such as China, is influenced by the relative price of coal calculated in foreign currencies. If the rupiah weakens, the price of coal in US dollars becomes cheaper, so demand from foreign buyers increases. Conversely, if the rupiah strengthens, the price of coal in dollars becomes more expensive, which can reduce demand. Meanwhile, according to the theory, coal companies will adjust production and exports based on the profits obtained. When the exchange rate weakens, exporters earn more rupiah from every dollar received, thus increasing profitability. This can encourage increased production and exports. However, if the rupiah strengthens, profits decrease, so companies can reduce exports or look for more profitable markets.

Research conducted by Sari & Baskara (2018) explains that the profitability of the food and beverage export business listed on the Indonesia Stock Exchange is positively influenced by the decline in the rupiah exchange rate against the dollar. Exporters can now offer their goods at lower prices, making them more competitive abroad, thanks to the decline in the rupiah exchange rate against foreign currencies (US\$). The increase in export earnings was driven by increased competitiveness.

In addition, research conducted by Taufiq & Hanif (2023) explains that the value of Indonesia's coal exports is not affected by the exchange rate. Most of Indonesia's coal is exported to countries that need coal, including China, India, South Korea, Japan, and Taiwan. Coal is an important source of energy in several countries. Therefore, Indonesia's coal exports are not affected by changes in the value of the Rupiah against the US dollar; coal will continue to be delivered to these countries. Through a number of international agreements, including the China Coal Transport and Distribution Association (CCTDA) and the Indonesia-Japan Economic Partnership (IJEPA), these countries import coal from Indonesia.

In addition, research conducted by Lesatari (2016) explained that there is a negative correlation and there is no clear impact of exchange rate variables on the amount of coal exported. The amount of coal exported will increase if the value of the currency

decreases or depreciates. Similarly, coal exports will decline regardless of whether the value of the currency rises or falls.

Therefore, the development of the above hypothesis and conclusions can show that exchange rate changes do not have a direct influence on export volume and profitability, especially in the Indonesian coal sector. So that it can be formulated to test and understand the extent to which the rupiah exchange rate does not affect the company's export profitability as well as risk mitigation strategies that can be applied to optimize export performance in the coal mining sector.

H2 : The rupiah exchange rate has a negative effect on the profitability of coal exports.

Research methods

This study uses a quantitative approach that aims to analyze the influence of coal prices and rupiah exchange rates on the profitability of Indonesian coal exports. The quantitative approach was chosen because it was able to objectively measure the relationship between variables through numerical data processing and hypothesis testing that had been formulated previously (Sugiyono, 2013). This research was conducted at the national level without limiting specific regions due to data limitations per province. The containment period is set for 2019 to 2023, so the results are expected to provide a comprehensive picture of the dynamics of the relationship between variables in the last five years.

The type of data used in this study is secondary data sourced from official publications such as BPS and financial statements of coal companies registered during the research period. Secondary data was chosen because it was available and relevant to the research objectives, and allowed researchers to conduct analysis more efficiently (Gujarati & Porter, 2021). Data collection is carried out through the documentation method, namely by downloading, recording, and processing data from credible official sources.

The population in this study is all reference coal price data recorded internationally during the 2019-2023 period. The sampling technique used is simple random sampling, which is a random selection of samples from the available population to provide equal opportunities for each element of the population. Based on this technique, the study involved 8 coal companies that had complete

data during the five years of observation. Data from these companies were then analyzed to determine the influence of independent variables, namely coal prices and rupiah exchange rates, on dependent variables, namely the profitability of Indonesian coal exports.

The data analysis technique in this study uses a panel data regression approach with the help of Eviews 13 software. The stages of analysis consist of:

1. Panel Data Regression Model Approach

- Common Effect Model Approach

The purpose of the common effect model is to collect enough data for the estimation process, but it is not necessary to use time series data that covers a long period of time.

- Fixed Effect Model Approach

The fixed effect model technique aims to show that independent variables can be attributed to individual differential values.

- Random Effect Model Approach

The purpose of the random effect model is to estimate panel data in which elements of the disorder can be interconnected over time and between individuals.

2. Panel Data Regression Model Selection

- Chow Test

The purpose of the Chow test is to determine a fixed effect model or a common effect model. The probability value (p) of the chi square cross section is used to make the decision. The common effect model is selected if the p -value is greater than 0.05, and the fixed-effect model is selected if the p -value is less than 0.05.

- Hausman Test

The purpose of the thurst test is to determine a random effect model or fixed effect model. Checking the probability value (p) of the random cross-section helps in decision-making. A random effects model is selected if the probability value is greater than 0.05, and a fixed effect model is selected if the probability value is less than 0.05.

- Lagrange Multiplier Test

The purpose of the lagrange multiplier test is to select a random effect model with a common effect model. Decision making was obtained by looking at the probability value (p) for the breusch-pagan cross section. If the value of $p > 0.05$, then the model we choose is a common effect model, but if $p < 0.05$ then the model chosen is a random effect model.

3. Classic Assumption Test

The statistical requirement for multiple linear regression analysis based on the usual smallest square is the classical assumption test.

Normality Test

Data distributions are considered normal if the significant value is greater than 0.05.

Multicollinearity Test

Symptoms of multicollinearity are indicated by tolerance values above 0.10 and VIF values below 10.00

Heteroscedasticity Test

The significance value indicates the presence or absence of heteroscedasticity, if it is greater than 5% then it can be said that there is no heteroscedasticity in the research regression model.

Autocorrelation Test

The purpose of the autocorrelation test is to find out if there is a troubling correlation in the study's regression model.

4. Panel Data Regression Analysis

5. Hipotesis Test

T Test

The t-test is used to determine the effect of Coal Price and Exchange Rate on Export Profitability individually (partial).

F Test

The F test is used to test the ability of Coal Price and Exchange Rate together in explaining Export Profitability.

Determination coefficient test

The value of the determination coefficient ranges from zero to one ($0 < R^2 < 1$).

Results and discussion

Normality test

From figure 4.1, it can be seen that the results of this normality test show that the prob value JB = 0.057504 > 0.05 thus according to the normality test the normally distributed residual value and regression analysis are suitable for use.

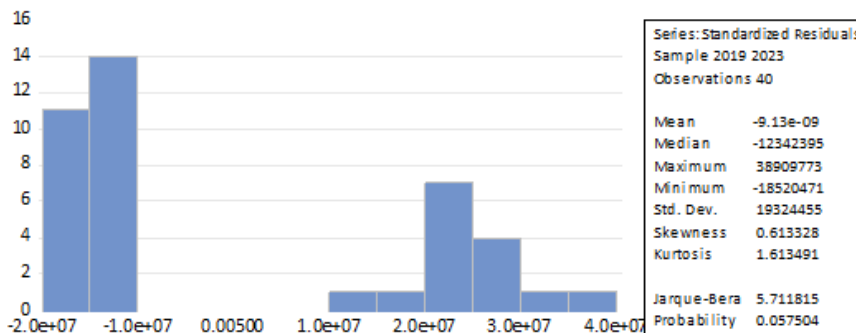


Figure 1. Normality test results

Autocorrelation test results

The data used to estimate multiple linear regression models must be assumed to be time series and free of autocorrelations. To determine whether a regression model is free of autocorrelation, you can use the Brush-Godfrey method or the LM (Lagrange Multiplier) test).

Table 1. Autocorrelation test results

F-statistic	0.554119	Prob. F (2,34)	0.5797
Obs*R-squared	1.231086	Prob. Chi-Square (2)	0.5403

From the test results, it can be seen that the research conducted has been free from autocorrelation indications because the Chi Square Probability of 0.5403 is greater than 0.05.

Heteroscedasticity test results

To test conditions in which the variation of the disrupting variable is not constant to detect the presence or absence of heteroscedasticity using glacial tests.

Table 2. Heteroscedasticity test results

F-statistic	0.125011	Prob. F (2,37)	0.8829
Obs*R-squared	0.268481	Prob. Chi-Square (2)	0.8744
Scaled explained SS	0.070557	Prob. Chi-Square (2)	0.9653

From the test results, it can be seen that the research conducted has been free from heteroscedasticity indications because the Chi Square Probability of 0.8744 is greater than 0.05.

Multiconarity results

The multicolonality test is part of the classical assumption test which aims to test whether there is a strong correlation between dependent variables or independent variables in the regression model used, So that in the regression model, there should be no correlation between independent variables or the absence of multicollinearity. The results of the multicollinearity test in this study are:

Table 3. Multiconearity test results

Variable	Coefficient	Uncentered	Centered
	Variance	VIF	VIF
C	2.06E+16	2091.895	NA
X1	2.17E+09	6.212218	1.454127
X2	90911511	1979.170	1.454127

From the test results, it can be seen that the research conducted is free from indications of multicollinearity because the VIF value obtained is below the value of 10.

Hypothesis testing methods

The results of this study can be obtained from multiple linear regression outputs to find out whether there is a significant influence between two or more independent variables on the bound variables. The following are the results of multiple linear regression in this study in table 4 below:

Table 4. Multiple linear regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	41424778	36777886	1.126350	0.2673
X1	241.0349	117.1139	2.058124	0.0467
X2	-2029.255	2399.672	-0.845639	0.4032
Effects Specification				
			S.D.	Rho
Cross-section random			19742234	0.9399
Idiosyncratic random			4993224.	0.0601
Weighted Statistics				
R-squared	0.213234	Mean dependent var	1717211.	
Adjusted R-squared	0.170707	S.D. dependent var	5483110.	
S.E. of regression	4993224.	Sum squared resid	9.22E+14	
F-statistic	5.013992	Durbin-Watson stat	1.367117	
Prob(F-statistic)	0.011834			
Unweighted Statistics				
R-squared	0.016877	Mean dependent var	15278629	
Sum squared resid	1.46E+16	Durbin-Watson stat	0.086595	

Based on table 4 presents the linear regression equation as follows:

$$Y = 41424778 + 241,0349X1\text{Harga} + (-2029,255X2\text{Nilai tukar})$$

From these equations, it can be explained as follows:

Constant (c) = 41424778 denotes a constant value, where if the value of all independent variables is equal to zero, then the profitability variable (Y) is equal to 41424778.

The coal price coefficient (X1) has a coefficient value of 241.0349. The value of the positive value coefficient means that there is a unidirectional relationship between coal prices and the profitability of Indonesia's coal exports. This means that when the price of coal increases by 1%, the profitability of Indonesia's coal

exports increases by 241.0349. On the other hand, when the benchmark coal price decreases by 1%, the profitability of Indonesia's coal exports also decreases by 241.0349.

The exchange rate coefficient (X2) has a coefficient value of -2029.255. The value of the negative value coefficient means that there is an opposite relationship between the exchange rate and the profitability of Indonesian coal exports. This can be interpreted that when the exchange rate increases by 1%, the profitability of coal exports will decrease by 2029.255. Conversely, when the exchange rate decreases by 1%, the profitability of coal exports will increase by 2029.255.

Hipotesis test

Partial test results (t-test)

From the test results of table 5, it can be seen that the coal price variable has a positive and significant effect on the profitability of coal exports in Indonesia. And the rupiah exchange rate variable has a negative and significant effect on the profitability of coal exports in Indonesia.

Table 5. T test results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	41424778	36777886	1.126350	0.2673
X1	241.0349	117.1139	2.058124	0.0467
X2	-2029.255	2399.672	-0.845639	0.4032

Simultaneous test results (f test)

From the test results of table 6, it can be seen that the variables of coal prices and the rupiah exchange rate simultaneously have a significant influence on the profitability of coal exports in Indonesia.

Table 6. F test results

R-squared	0.213234	Mean dependent var	1717211.
Adjusted R-squared	0.170707	S.D. dependent var	5483110.
S.E. of regression	4993224.	Sum squared resid	9.22E+14
F-statistic	5.013992	Durbin-Watson stat	1.367117
Prob(F-statistic)	0.011834		

Coefficient determination testing (R²)

From table 7, the magnitude of the *Adjusted R-Square* (R²) is 0.170707. This shows that the percentage of independent variables to dependent variables is 17.07% or it can be interpreted that the independent variable used in the model is able to explain 17.07% of the dependent variables. While the remaining 82.93% was influenced by other variables outside the regression model.

Table 7. Determination coefficient test results (R²)

R-squared	0.213234	Mean dependent var	1717211.
Adjusted R-squared	0.170707	S.D. dependent var	5483110.
S.E. of regression	4993224.	Sum squared resid	9.22E+14
F-statistic	5.013992	Durbin-Watson stat	1.367117
Prob(F-statistic)	0.011834		

The effect of coal prices on coal export profitability

The results of the analysis from the above study show that the research hypothesis that coal prices have a significant impact on export profitability is valid. This shows that the increase in coal prices will be taken into account by business people to increase export profitability.

The results of the regression analysis showed that coal prices (X₁) had a significant positive influence on export profitability with a coefficient value of 241.0349 and a significance level of 0.0467 (<0.05). This means that every 1% increase in coal prices will increase export profitability by 241.03%. These findings are consistent with demand and supply theory which states that

increases in commodity prices tend to increase exporters' profit margins, especially in natural resource-based sectors such as coal.

This positive influence is also relevant to global market conditions, where coal demand remains stable, especially from importing countries such as China, despite price fluctuations. This reinforces the argument that the price factor is one of the main determinants of export profitability.

The findings of this study support Marshall's (1890) theory, which states that demand is the amount of goods or services that buyers are willing and able to buy at different price points over a period of time. The law of demand, which states that the quantity demanded increases with the price of goods, *ceteris paribus* (assuming all other elements remain constant), is closely related to this idea of demand. The amount of goods or services that are willing and able to be produced and sold by a producer at different price points within a given period of time is known as supply. According to the rules of supply, producers will offer goods in larger quantities if the price increases, *ceteris paribus*.

The results of the study support researchers Karsudjono (2022), Wahyuni (2020), Wijaya (2018), and Ditya (2022) resulting in an empirical study that prices affect export profitability so that changes in coal prices will have a direct impact on profits on export profitability.

The effect of the rupiah exchange rate on the profitability of coal exports

The F test shows that simultaneously coal prices and exchange rates have a significant effect on export profitability, with a probability value of F of 0.011834 (<0.05). These results show that the combination of these two independent variables together is able to affect the profitability of coal exports.

However, the relatively low Adjusted R-Square value of 17.07% indicates that this model is only able to account for a small portion of the variation in export profitability, while the rest (82.93%) is influenced by other factors outside the model. These factors may include government policies related to exports, logistics costs, demand levels in international markets, or geopolitical factors.

Based on the results of the t-test (partial test), it is known that the exchange rate does not have a significant influence on the

profitability of coal exports. Based on research data for the 2019–2023 period, although there are fluctuations in the rupiah exchange rate against the US dollar, the impact on export profitability tends to be minimal. This is due to several factors, including that Indonesia is one of the main exporters of coal to several major countries in Asia such as China, India, South Korea, Japan, and Taiwan. These countries have a high need for coal to support the energy and industrial sectors, especially steam power plants and steel processing. China and India are the largest consumers due to their growing domestic needs, while South Korea, Japan, and Taiwan rely on imports due to limited domestic natural resources. Coal is an important source of energy in several countries. Therefore, Indonesia's coal exports are not affected by changes in the exchange rate of the Rupiah against the US dollar, coal will continue to be sent to these countries. In addition, most coal export transactions have used fixed-price futures contracts in US dollars, so changes in exchange rates indirectly affect the revenue earned. Because importing countries will continue to buy coal from Indonesia because futures contracts have been held. Many large exporting companies, including in the coal sector, use hedging strategies to protect themselves from the risk of exchange rate fluctuations. With futures contracts or other financial instruments in place, the impact of exchange rate changes on their income can be minimized. Such as the international agreement between Indonesia and Japan Economic Partnership (IJEPA) and the China Coal Transportation and Distribution Association (CCTDA).

This result is in accordance with the research of Hanif and Taufiq (2023) which shows that the value of Indonesia's coal exports is negatively but not significantly affected by exchange rate variables. In addition, these results are in accordance with Lestari's (2016) research which shows that the exchange rate variable has a negative correlation with the volume of coal exports and has no real influence on it.

The above explanation is supported by news data on CNN Indonesia that Indonesia is the 3rd largest coal producer in the world, exporting more than 50% of global coal during the January-December 2023 period. China is the main destination country for Indonesian coal shipments. One of the largest coal importers in Indonesia is China. Meanwhile, the country has more black gold reserves than any other country in the world, even more than

Indonesia. About 13 percent of the world's total coal reserves, or 149.8 billion tons, are in China. China is the world's largest producer and user of coal. China's northern region in particular, Shanxi Province and Inner Mongolia are the country's largest coal-producing regions (CNN Indonesia, 2024).

China's National Bureau of Statistics (NBS) reported that the country produced 4.07 billion tons of coal in 2021. Compared to the previous year, this number increased by 4.7%. In fact, China continues to buy coal from Indonesia despite its abundant inventory. Indonesia exported 108.48 million tonnes of coal to China last year. According to data from BPS, this number is the largest for the period 2012–2021 (CNN Indonesia, 2024).

China imports coal from Indonesia because of its high sulfur content and lower calorie content, according to Hendra Sinadia, Executive Director of Asosiasi Pertambangan Batubara Indonesia (APBI). Chinese coal has high calories, so the Chinese state has to do blending. So that China exports coal from Indonesia because the quality of coal in Indonesia is not only low in calories, but also sulfur, the sulfur content is compatible with blending technology in China. In addition, importing coal from Indonesia is cheaper than supplying it from China. According to Hendra, northern China's coal production is increasing its logistics costs (CNN Indonesia, 2024).

Conclusion

After data collection and testing, it was concluded that coal prices partially had a positive and significant effect on the profitability of coal exports in Indonesia in 2019-2023, while the rupiah exchange rate partially had no effect on the profitability of coal exports in Indonesia in 2019-2023. Simultaneously, the independent variables of coal prices and the rupiah exchange rate have a significant effect on the profitability of coal exports in Indonesia in 2019-2023.

Based on the conclusions that have been obtained above, the increase in global coal prices increases the profit margins of exporters, providing opportunities for companies to achieve greater profits. In addition, fluctuations in the exchange rate between the rupiah and the US dollar are also an important factor in determining the profitability situation. The weakening of the rupiah exchange rate increases the competitiveness of export prices in the international

market, which ultimately boosts income in local currencies. Overall, the interaction between coal prices and exchange rates is the main factor that affects export profitability, influenced by government policies, global economic conditions, and international market demand dynamics.

References

- Badan Pusat Statistik. (2024). *Statistik Perdagangan Luar Negeri Indonesia Ekspor*. Buku I.
- Bank Indonesia. (2022). *Laporan Ekonomi dan Keuangan Indonesia 2022*.
- Bank Indonesia. (2023). "Kurs Valuta Asing."
- Frenkel, J. A., & Rose, A. K. (1995). A Panel Project of the Effect of Exchange Rate Variability on Export Profitability. *NBER Working Paper* No. w5006. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=225785
- Frankel, J. A. (2005). The Effect of Monetary Policy on Real Exchange Rates. *Journal of Monetary Economics*, 52(5), 867-879
- Hastuti, S., & Setiawan, B. (2020). Dampak Fluktuasi Nilai Tukar terhadap Profitabilitas Ekspor. *Jurnal Keuangan dan Akuntansi*, 19(4), 201-210
- IEA. (2021, December 17). Coal Analysis. IEA.
- Limbong, R. J. (2016). *Dampak Fluktuasi Nilai Tukar Rupiah Terhadap Ekspor Produk Pertanian Utama Indonesia*. Institut Pertanian Bogor.
- Mankiw, N. G. (2016). *Macroeconomics Textbook*, 9th Edition. Studylib.Net.
- Mankiw, N. G. (2018). *Principles of Economics* (8th ed.). Cengage Learning.
- Mankiw, N. G., & Reis, R. (2007). Sticky Information in General Equilibrium. *Journal of the European Economic Association*, 5(2-3), 603-613.
- Prasada, M. D., & Pangestuti, I. R. D. (2022). Analisis Pengaruh Harga Minyak Mentah Dunia, Harga Batubara, Harga Emas, Inflasi, dan Nilai Tukar terhadap IHSG. *Diponegoro Journal of Management*, 11(6). Retrieved from <https://ejournal3.undip.ac.id/index.php/djom/article/view/36625>
- Putra, M. I. D., & Karsudjono, A. J. (2022). Pengaruh Harga Batubara dan Nilai Tukar Rupiah terhadap Nilai Ekspor Batubara di Welhunt International PTE. Ltd Jakarta. *Jurnal Ilmiah Ekonomi Bisnis*, 8(1), 133-145.

Rodriguez, R. M., & Carter, E. E. (2006). *International Financial Management*. Third Edition. New Jersey. Prentice-Hall International Edition.

Safitri, W. D., & Hartati, R. (2020). Pengaruh Nilai Tukar, Produksi, dan Harga Terhadap Volume Ekspor Batubara di Provinsi Bengkulu. *EFEKTIF: Jurnal Bisnis dan Ekonomi*, 11(1), 57-68

Situmeang, D., & Setiawan, A. (2022). Pengaruh Ekspor dan Produksi terhadap Harga Batubara Indonesia pada Tahun 2018-2020. *INTAN: Jurnal Penelitian Tambang*, 5(2), 61–68. <https://doi.org/10.56139/intan.v5i2.151>

Sugiyono. (2013). *Metode Penelitian Kuantitatif, Kualitatif dan R & D*. Bandung: Alfabeta.