OPEN ACCESS
Scholars Bulletin
Abbreviated Key Title: Sch Bull
ISSN 2412-9771 (Print) |ISSN 2412-897X (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: http://scholarsbulletin.com/

Subject Category: Economics and Finance

Determinants of External and Internal Stock Price of Coal Mining Subsector Companies Period 2005-2017

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***Corresponding author:** Hendri Sivilianto Endri Endri | **Received:** 16.04.2019 | **Accepted:** 24.04.2019 | **Published:** 30.04.2019
DOI:10.21276/sb.2019.5.4.5

Abstract

This study aims to examine the influence of external and internal factors on the price of the company's coal mining subsector for the period 2015-2017. The independent variable used in this study consisted of exchange rate, coal prices, inflation, DER, and ROE. The research sample consisted of 18 coal mining subsector companies. The method of analysis uses panel regression analysis. The results showed that exchange rate and coal price partially had a significant effect on the coal stock price with a 95% confidence level, ROE partially had a significant effect on the coal stock price with a 90% confidence level, while inflation and DER has no significant effect. to the coal stock price. The exchange rate, coal prices, inflation, DER, and ROE simultantly influence the coal stock price, with a determination coefficient of 10.64%.

Keywords: Coal Stock Prices, Exchange Rates, Coal Prices, Panel Data Regression.

INTRODUCTION

The mining sector in the past few years is still a pillar of strengthening the JCI. Most of the mining sector indexes form the coal subsector. Especially when the rupiah weakens, the focus of the JCI is on issuers that export, one of which is the coal subsector issuer. Today, the share of coal mining has always been a conversation among investors. The performance is very good, this is because the proportion of debt is very small and the increase in world coal prices.

The movement of short-term coal issuers shares is very volatile. In 2011, the coal issuer's share price reached 3,038.05 rupiah, and in 2012 and 2015 it declined, 2016 began to crawl again. Many trigger factors, including external and internal factors. But in the long run it shows opportunities, because world coal demand is still very high. External factors that influence the movement of stock prices in the coal mining subsector are macroeconomic factors. While the internal factors that most influence the stock price movement of the coal mining subsector include the composition of debt and the rate of profit.

External factors cannot be controlled by the company, so it is always a scourge. Both entrepreneurs and investors to invest in the mining subsector. Especially government policies related to coal can change at any time. This is a threat as well as an opportunity for coal issuers because the stock price is always highlighted.

LITERATURE REVIEW

Arbitrage Pricing Theory

Arbitrage pricing theory (APT) is one of the equilibrium model theories that describes securities returns not only influenced by market portfolios but is influenced by other sources of risk [1]. The CAPM is basically an APT model that only considers systematic market risk factors. APT is based on the view that the expected return for a security will be influenced by economic factors rather than company specific characteristics.

To implement APT we need to find the risk factors that are relevant to the level of security returns, which in reality there is no agreement on what risk factors are relevant and how many. Some studies that identify macroeconomic variables that affect securities returns are: default risk, interest rate, inflation or deflation, long-term economic growth and residual market risk [2].

APT assumes that different securities will have different sensitivity to systematic risk factors. Each investor has a behavior towards different risks, so investors are able to compile a portfolio depending on their preferences for risk, by knowing the market price of the risk factors that are considered relevant and the

sensitivity of return securities to changes in these factors.

Signalling Theory

Signaling theory states that the information released by the company is important to influence the decisions that will be taken by the stakeholders of the company. The company can provide this information in the annual financial report. This theory emphasizes that the signal given by the company is to reduce information asymmetry. Usually the company discloses the information in the Financial Report Note which contains an explanation of the policies applied in the company. It would be better if the company not only disclosed financial information. Information that the company can disclose is like a company management report that has been carried out for a year or non-accounting disclosure. Large companies often disclose additional information in order to signal to stakeholders about the activities they carry out to achieve goals and what things the company has done for the environment.

Stock Price

The stock price can be divided into [3], (1) the nominal price, is the price stated in the share certificate set by the issuer to assess each share issued; (2) the initial price, is the price at the time the shares are listed on the stock exchange in the context of the initial public offering of shares, called the IPO (Initial Public Offering); (3) market price, is the selling price of one investor with another investor. This price is referred to as the price on the secondary market and is the price that truly represents the price of the issuing company.

Stock prices become very important for investors because they have economic consequences. Stock prices reflect a variety of information that occurs in the capital market assuming efficient capital markets. Stock prices become very important for investors because they have economic consequences. Stock prices reflect a variety of information that occurs in the capital market assuming efficient capital markets.

Risk of Stock Investment

The risk of stock investment in the capital market is grouped into 2 (two) types, namely: (1) systematic risk and (2) non-systematic risk (unsystematic risk). Systematic risk is also called market risk or general risk because it is related to changes that occur in the market as a whole. Systematic risk is a risk that occurs because of events outside the company's activities, such as the risk of changes in inflation, exchange rates, interest rates, and so on. Systematic risk is also called undiversible risk because it cannot be eliminated or minimized through the formation of a portfolio. Non-systematic risk is a company-specific risk because it depends on the micro conditions of the company. Non-systematic risks include company leverage, industry risk, and so on. Non-systematic risk can be minimized by diversifying investment in many securities with the formation of a portfolio [4].

Exchange Rate (IDR to USD)

According to Aggarwal [5], the exchange rate or exchange rate is the price of a country's currency relative to the currency of another country. A simple definition of an exchange rate is the amount of a currency that is given to get another currency. This shows that in general the prices of stock traded on the stock market declined, although certain stocks such as shares of companies engaged in exports may increase in line with the increase in company income or profit caused by an increase in the USD.

Coal Price

Coal is a remnant of ancient trees that is buried and undergoes a natural process of drying in the bowels of the earth [6]. Coal is one of the energy resources that is needed in the industrial world, both domestic and foreign industries. The increase in coal demand every year has triggered an increase in coal prices. The Ministry of Energy and Mineral Resources sets a reference price for coal every month which refers to world coal prices.

Inflation

Inflation is an increase in the price level in general in an economy [7]. Increased inflation will reduce the purchasing power of the invested Rupiah [7]. If inflation increases, investors usually demand additional inflation premiums to compensate for the decline in purchasing power they experience. Bai [7] added that when high inflation exceeds market expectations, it will make stocks become corrected. Conversely, when low inflation is below the market forecast, it will be responded positively in the form of an increase in stock prices.

Debt to Equity Ratio (DER)

Debt to Equity Ratio (DER) is a solvency ratio. This ratio is used to measure how far the creditor is protected by shareholder investment [6]. Companies with higher DER tend to be more risky, and have an impact on decreasing the company's stock price. Profitable companies generally have a low loan amount ratio. Companies whose profits tend to boost their share prices.

Return on Equity (ROE)

Return on Equity (ROE) is a measurement of income (income) available for company owners (both ordinary shareholders and preferred shareholders) for the capital they invest in the company [8]. ROE shows the efficiency of the use of own capital. The higher the ratio, the better, meaning that the position of the company owner is getting stronger, and vice versa.

Research Framework

The concept of analysis of the factors that influence coal stock price movements is explained by the following framework:

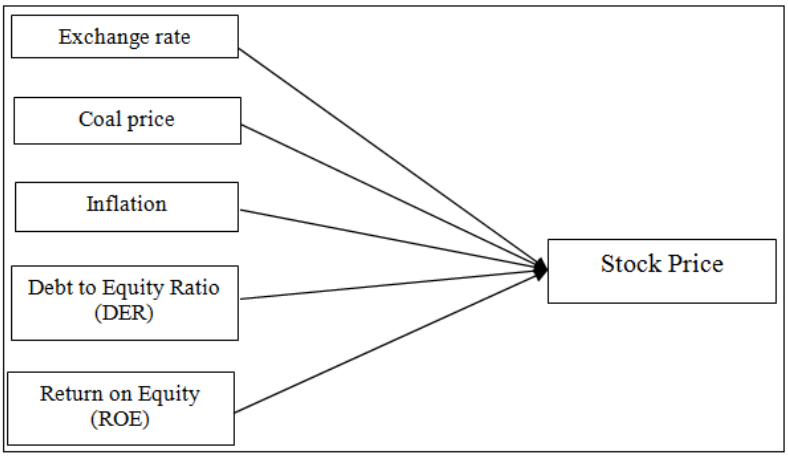

Fig-1: Research Framework

METHODOLOGY

The purpose of this study was to analyze the effect of the exchange rate of IDR/USD, coal prices, inflation, DER and ROE on the stock price of coal mining. The research sample of 18 coal mining companies was taken purposively. The data used is secondary data sourced from IDX (idx.co.id), Bank Indonesia (bi.go.id), BPS (www.bps.go.id) and the Ministry of Energy and Mineral Resources (www.minerba.esdm.go.id). The analytical method used in this study is panel data regression analysis Panel data regression analysis is a regression analysis with data structure is panel data The panel data is a combination of cross section data and time series` Data flow testing can be seen in the following chart.

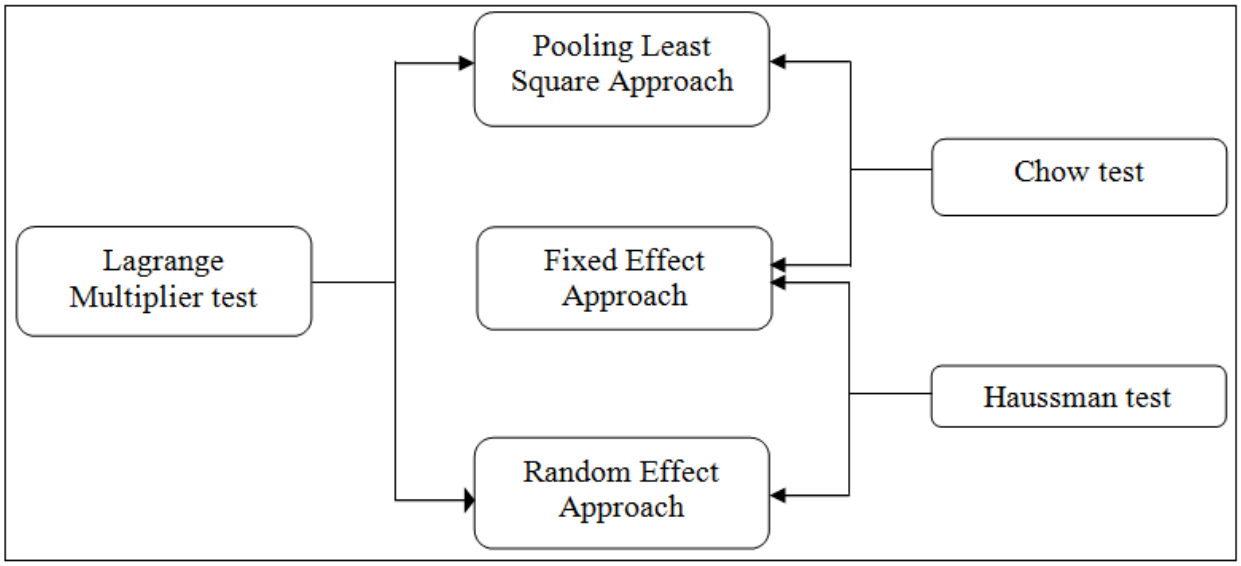

Fig-2: Panel Data Testing Flow

The regression equation models to be estimated are as follows:

$$SP_{it} = \alpha + \beta_1 ER_{it} + \beta_2 CP_{it} + \beta_3 Inflasi_{it} + \beta_4 DER_{it} + \beta_5 ROE_{it} + \varepsilon_{it};$$

Information

SP= stock price
ER= exchange rate
CP =coal price
Inflasi = inflation
DER= Debt to Equity Ratio
ROE= Return on Equity

RESULTS AND DISCUSSION

Descriptive Statistic

Descriptive analysis is a general description of the research variables. The general description of each variable during the study period is described as follows.

Table-1: Descriptice Statistic

	Stock prices (IDR)	Exchange rate(IDR/USD)	Coal Prices (USD/metric ton)	Inflation (%)	DER (many)	ROE (%)
Mean	3.363,69	11.497,64	84,92	5,52	0,57	11,03
Median	740,00	12.120,00	88,15	4,30	0,66	11,10
Maksimum	50.750,00	13.795,00	118,29	17,11	14,80	214,00
Minimum	5,25	8.991,00	38,23	2,78	-56,00	-217,90
Std. Deviasi	7.670,81	1.889,57	20,47	2,76	5,41	39,73
Observasi	157	157	157	157	157	157
Cross sections	18	18	18	18	18	18

Source: e-Views 9.0's output

The average share price of the coal mining subsector throughout the study sample was 3,363.69 rupiah, with a median value of 740 rupiah. The lowest share price of 5.25 rupiah, namely PT. Resource Alam Indonesia Tbk (KKGI). While the highest stock price is 50,750 rupiah, namely PT. Indo Tambangraya Megah Tbk (ITMG). Variation in stock price data is very large at 7,670.81 rupiahs from the average value.

The average rupiah exchange rate for the period 2005 to 2017 was 11,497.64 IDR/USD, with a median value of 12,120 rupiah / USD. The lowest rupiah exchange rate occurred in 2010, which amounted to 8,991 rupiah. While the highest rupiah exchange rate occurred in 2015 which was 13,795 rupiah. Variation in the rupiah exchange rate data is equal to 1,889.57 rupiah / USD from the average value.

The coal prices used in this study refers to the price of Australian coal (Australian thermal coal). The average of coal prices for the period 2005 to 2017 was 84.92 USD/metric ton, with a median value of 88.15 USD/metric tons. The lowest coal prices value occurred in 2005, which was 38.23 USD/metric ton. While the highest coal prices occurred in 2010 which was 118.29 USD/metric ton. Variation in coal prices value data is 20.47 USD/metric ton from the average value.

The average inflation rate from 2005 to 2017 is 5.52 percent, with a median value of 4.30 percent. The lowest inflation value occurred in 2009 which was 2.78 percent. While the highest inflation rate occurred in 2005, which amounted to 17.11 percent. Variation in inflation data is 2.76 percent of the average value.

The average DER value of all study samples was 0.57 times, with a middle value of 0.66 times. The lowest DER value is -56.00 times, namely PT. Borneo Lumbung Energy and Metal Tbk (BORN). While the highest DER value is 14.80 times, namely PT. Delta Dunia Makmur Tbk (DOID). Variation in DER data is 5.41 times the average value.

The average ROE value of the entire study sample was 11.03 percent, with a middle value of 11.10 percent. The lowest ROE value of -217.90 percent, namely PT. Bumi Resources Tbk (BUMI). While the highest ROE value of 214.00 percent, namely PT. Borneo Lumbung Energy and Metal Tbk (BORN). Variation in ROE data is 39.73 percent of the average value.

Regression Panel Data

The test results for selecting the three panel data regression models are presented in the following table:

Table-2: **Testing the Panel Data Regression Model**

No	Model	Pengujian	Hasil
1	Chow Test	Common Effect vs Fixed Effect	Fixed Effect
2	Lagrange Multiplier (LM)	Common Effect vs Random Effect	Random Effect
3	Hausman Test	Fixed Effect vs Random Effect	Random Effect

Source: e-Views 7.0's output

The conclusion generated from the model selection test is the most appropriate random effect model among the three. Furthermore, the analysis was carried out using a random effect model.

The estimation results of the random effect model can be seen in the following table.

Table-3: Estimation Random Effect Model

Variable	Coeffisien	Std. Error	t-statistik	Prob.
C	5602,17	1383,95	4,05	0,0001**
Exchange rate	-0,47	0,07	-6,36	0,0000**
Coal prices	34,34	10,76	3,19	0,0017**
Inflation	-24,23	97,61	-0,24	0,8043
DER	1,46	27,02	0,05	0,9569
ROE	9,51	5,26	1,81	0,0724*
R-squared	0,1351	F-statistic		4,7171
Adjusted R-squared	0,1064	Prob(F-statistic)		0,0005**

**Significant at level 5%
*Significant at level 10%
Source: e-views 7.0's output

Hypothesis 1: The exchange rate has a negative effect on the share price of the coal mining subsector

The panel data regression results in Table-3 show the probability value t statistics of the exchange rate of 0,000 less than 0.05, it can be concluded that the exchange rate partially has a significant effect on the coal mining subsector stock price with a 95 percent confidence level . So hypothesis 1 is proven in this study.

The rupiah exchange rate coefficient is negative, which is equal to -0.47, every increase in the exchange rate of 1 IDR/USD will be followed by a decrease in stock price of 0.47 rupiah per share of the coal mining subsector, with other variables in a fixed condition (ceteris paribus) .

The rupiah exchange rate is one of the systematic risks of stock investment. The general increase in the rupiah exchange rate triggered a decline in the price of shares traded, except for companies that export. In companies that export, usually an increase in the rupiah exchange rate is also followed by an increase in the price of its shares, due to an increase in income or company profits caused by an increase in the dollar. However, this study proves the opposite that the increase in exchange rate was followed by a decline in the share price of the coal mining subsector. This is due to an increase in exchange rate threatening macroeconomic stability, besides that most Indonesian coal is exported to Japan, Taiwan, South Korea and Europe which are also affected by the strengthening of the USD.

Previous research conducted by Wiyani and Vitello [9] also showed similar results that the exchange rate had a negative effect on the share price of the mining sector in Indonesia but was not significant. Aggarwal and Najia [5] research also proves that the exchange rate has a negative and significant effect on the Indian stock market.

Hypothesis 2: Coal prices have a positive effect on the price of coal mining subsidies

The panel data regression results in table 3 show t probability values of coal prices variable statistics of 0.0017 less than 0.05, it can be concluded that coal prices partially has a significant effect on the coal mining subsector share price with a confidence level of 95 percent. And so hypothesis 2 is proven in this study.

The coefficient of coal prices is 34.34, this shows that every increase in coal prices of 1 dollar/metric ton then the share price of the coal mining subsector will increase by 34.34 rupiah with the condition of other variables in a fixed state (ceteris paribus). This study proves that coal prices are the main reference for the increase/decrease in the share price of the coal mining subsector.

Reference coal prices are a reference for coal trading transactions. In accordance with the law of demand, the high demand for a commodity has driven up the price of these commodities. Increased coal prices indicate that coal demand is getting higher. The high demand for coal is an indicator that the coal business prospects are very good. This causes the share price to increase. This research is in accordance with the theory that the increase in coal prices caused coal stock prices to increase.

Previous research conducted by Hasan and Ratti [10] also showed a similar thing that coal prices had a positive and significant effect on the increase in stock prices of coal companies in Australia.

Hypothesis 3: Inflation affects the negative share price of the coal mining subsector

The panel data regression results in Table-3 show the probability value t variable statistics inflation rate of 0.8043 more than 0.05, it can be concluded that the inflation rate partially does not significantly influence the stock price of the coal mining subsector. So hypothesis 3 is not proven in this study.

Inflation shows an increase in prices of consumer goods in general. The increase in inflation has a negative effect on the investment climate in Indonesia. The higher the inflation rate, the worse the investment climate conditions, usually followed by a decrease in the stock prices of companies listed on the

IDX. However, as long as the inflation increase is still in fair condition, the increase in inflation does not make the investment climate worse.

This study shows that the inflation rate does not affect the decline in the share price of the coal mining subsector. In other words, the increase / decrease in inflation does not affect the increase / decrease in coal stock prices. Previous research conducted by Alam and Rashid [11] and Benakovic and Posedel [12] also shows that the inflation rate does not affect the stock price movement of the coal mining subsector.

Hypothesis 4: DER has a negative effect on the share price of the coal mining subsector

The panel data regression results in table 3 show the probability value t DER variable statistics of 0.9569 more than 0.05, it can be concluded that DER partially does not significantly influence the stock price of the coal mining subsector. So hypothesis 4 is not proven in this study.

In theory, the higher the DER level, the lower the stock price. The debt composition that is high compared to its own capital threatens the instability of the company's financial condition. According to the pecking order theory, companies with minimal risk are small debts. This study shows that the DER level in the mining subsector company does not affect the movement of its stock price. Previous research conducted by Singh *et al.,* [13] and Bowens and Endri [4] also proved that DER did not significantly influence stock price movements. As long as the composition of debt is still in a reasonable condition, the increase in debt does not affect the company's stock price.

Hypothesis 5: ROE has a positive effect on the share price of the coal mining subsector

The panel data regression results in table 4.12 show the t-probability value of the ROE variable statistics of 0.07 of 0.10, it can be concluded that ROE partially has a significant effect on the coal mining subsector stock price with a confidence level of 90 percent. So hypothesis 5 is proven in this study.

The ROE coefficient is 9.51, this shows that every increase in ROE of 1 percent then the share price of the coal mining subsector will increase by 9.51 rupiah, with the condition of other variables in a fixed state (ceteris paribus). ROE is the level of profit earned by the company. The higher ROE ratio indicates the company's position is stronger, thus triggering an increase in its share price. This study proves that ROE has a positive effect on the share price of the coal mining subsector. The results of this study are in accordance with the theory that the higher the ROE, the company's stock price also increases.

Previous research conducted by Idawati and Wahyudi [14] and Endri [15] also showed similar results that ROE had a positive and significant effect on the increase in stock prices.

CONCLUSSION

Based on the analysis of the results it can be concluded as follows: the exchange rate partially has a negative and significant effect on the share price of the coal mining subsector. Coal prices partially has a significant effect on the share price of the coal mining subsector. The inflation rate partially does not significantly influence the share price of the coal mining subsector. DER partially does not significantly influence the stock price of the coal mining subsector. Partially ROE has a significant effect on the share price of the coal mining subsector.

Recommendations for investors to pay attention to the exchange rate, coal prices and ROE of the coal mining subsector before investing in their shares. Recommendations for companies to pay attention to company profits because they are proven to increase the price of their shares. The suggestion that can be given from the results of this study is to add other variables so that the value of the coefficient of determination can be greater, and add the research period so that the series obtained is longer, so that accuracy increases.

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