

# **The Effect of Return On Asset (ROA), Debt to Equity Ratio (DER), and Earning Per Share (EPS) on Stock Prices in the Mining Sector on the Indonesia Stock Exchange for the 2015 - 2019 Period**

**Andri Setiawan**

Faculty of Economics and Business, Widyatama University, Bandung, Indonesia  
andri.setiawan@widyatama.ac.id

**Muhammad Bayu Aji Sumantri**

Faculty of Economics and Business, Widyatama University, Bandung, Indonesia  
muhammad.bayu@widyatama.ac.id

**Abstract.** Stock Exchange is a market where a company is buying and selling securities. In Indonesia, this place of buying and selling is known as Indonesia Stock Exchange (IDX). Companies listed on the stock exchange are companies that are open to the public. In the data presented by the IDX, there are several companies with different sectors. This study aims to examine the effect of Return on Asset (ROA), Debt to Equity Ratio (DER), and Earning Per Share (EPS) on share prices in mining sector companies on the Indonesia Stock Exchange from 2015 to 2019. The population in this study are 48 companies and the number of samples studied after going through the stage purposive sampling was 32 companies. The population in this study are mining sector companies listed on the IDX. Data analysis using Fixed Effect Model from panel data regression analysis. The method used in this research is descriptive and verification methods with quantitative analysis. The results showed that the variable Debt to Equity Ratio (DER) had no significant effect on stock prices. Meanwhile, Return on Asset (ROA) and Earnings per Share (EPS) have a positive and significant effect on stock prices. The results of this study are expected that the variable Return on Assets (ROA), Debt to Equity Ratio (DER), and Earnings per Share (EPS) can be used as a reference, both by company management and by investors in determining the right investment strategy.

**Keywords.** Return on Asset (ROA), Debt to Equity Ratio (DER), Earning Per Share (EPS), and Stock Price.

## **1. Introduction**

Industrial development in this era of globalization has developed tremendously, even for some people they are more familiar with the term industry 4.0 (four point o) which means that there have been many changes including integration between the internet and the business world or production in an industry, and of course every company in the industrial world as it is today must be able to develop its company more effectively, efficiently, with the help of technology which will certainly encourage the company's performance to be better.

In the economic aspect in Indonesia, in the last five years, it has developed positively and quite significantly (Angelina, S., & Nugraha, 2020). Indonesia's economic growth was recorded to have increased from 4.88 percent in 2015 to 5.17 percent in 2018. As for the first semester of 2019, Indonesia's economic growth reached 5.06 percent. Then, the unemployment rate decreased from 5.81 percent in February 2015 to 5.01 percent in February 2019. The poor continued to decline from 11.22 percent in March 2015 to 9.41 percent in March 2019, the lowest in the history of the Republic of Indonesia. Source: (<https://money.kompas.com>)

Even some companies in the industrial sector 4.0 experienced a significant increase in financial performance. This is because the company management can develop the company by managing investments in the form of properties, securities, and also very good stock management. In addition, Indonesia's advanced economy and optimization of industry 4.0 also strongly support the company's financial performance.

However, the mining sector has experienced a decline in financial performance in the last five years which has affected the company's share price. For on 11 November 2016, the example, JCI collapsed by 218.33 points or 4.01% to the level of 5,231.97 after foreign funds ran away by more than IDR 2 trillion. Meanwhile, the LQ45 index closed down 47.90 points or 5.17% to the level of 878.31. On August 13, 2018, the JCI fell by 3.55% to the level of 5,861.25. This fall was the deepest since 11 November 2016. At that time, JCI also fell by 4.01%. On March 25, 2019, the JCI closed down by 114.02 points or 1.75% to 6,411.25. Of the 533 stocks, 109 shares rose, 315 were corrected, and 109 were stagnant. Source: (<https://www.cnbcindonesia.com>)



**Figure 1.** Decline in Share Prices in the Mining Sector 2015-2019  
Source: Indonesia Stock Exchange (2020)

An investor in managing investment needs must be able to understand company stock data, one of which is to understand several company ratios such as profitability, liquidity, value added, leverage, etc. Apart from that, a good investor must also be able to analyze stock

prices, because stock price movements are very volatile and influenced by several micro and macro economic indicators. This can cause the company's performance to decline and even go bankrupt, so it will be very difficult to determine which stocks will be profitable for long-term investments that expect high rates dividend and capital gains for the company.

Assessing the company's performance can be done with fundamental and technical analysis. In conducting performance assessment of the company can be done financial ratio analysis containing elements of ROA, DER, and EPS.

The researcher intends to contribute empirical evidence with real data regarding the factors that influence stock prices. This research can also be used as a consideration for companies to make decisions in investing in an indexed company in IDX to investigate the role of ROA, DER, and EPS to the Share Price in the Mining Sector in the IDX Period 2015 – 2019.

## **2. Theoretical Framework**

### **Signal Theory**

Signal theory (Signaling theory) originated from the writings of George Akerlof in his 1970 work "The Market for Lemons", which introduced the term asymmetric information (information asymmetry). Akerlof (1970) studied the phenomenon of imbalance of information about the quality of products between buyers and sellers, by conducting tests on the used car market.

Signaling Theory or signal theory developed by Ros in 1997, states that company executives who have better information about their company will be motivated to convey this information to potential investors so that the company's stock price increases.

### **Relationship between Signal Theory and Financial Performance**

Signal theory was developed in economics and finance to account for the fact that company managers generally have better and faster information than outside investors. Therefore, as an owner must first know the condition of the company from a company manager. (Sulistyanie, A., & Bayu Aji Sumantri, 2020).

Financial reports are intended to be used by various parties, including the company's management itself. However, those who are most concerned with financial reports are actually external users (outside management). Internal users (management) have direct contact with the entity or company and are aware of significant events that have occurred, so that their level of dependence on accounting information is not as high as external users. Information in the form of the level of profitability, liquidity, or rate of return on assets or also how much profit is obtained from the assets used.

### **Stock Price**

According to (Brigham, E. F., & Houston, 2011) Share price determines shareholder wealth. Maximizing shareholder wealth translates into maximizing the company's share price. The price of a share at any given time will depend on the cash flows an "average" investor is expected to receive in the future if an investor buys shares.

The stock price is the closing price of the stock market during the observation period for each type of stock sampled and its movements are always observed by investors.

If the demand for shares is too much then the share price will tend to increase, and when the stock supply is too much then the share price will tend to decrease. (Sartono, 2014). It can be concluded that the stock price is formed on demand and the supply in the buying and selling

market of shares which investors must always observe because of its relatively fast fluctuations and is usually the closing price.

Technical and fundamental analysis can be used to analyze stock prices. Technical Analysis emphasizes more on external factors that affect the listed companies stock prices rise and fall as well as rise and fall of demand and supply of shares (Nugraha, N. M., & Riyadhi, 2019). The method used to analyze stocks is by observing the stock price for several periods which is then made a chart / table. This approach argues that stock prices are influenced by a certain fashion flow, without neglecting external factors, such as economic policies and so on.

Fundamental Analysis carried out with the purpose of the fundamental aspects of a company's foray into the capital market (Pasaribu, 2008). Broadly speaking, this analysis is to find important steps to identify fundamental or principal factors (such as sales, costs, sales growth, dividend policy, etc.) that are expected to affect future stock prices. If the company's ability increases (resulting in increased profit), the share price will also increase. In other words, profitability will affect stock prices (Husnan, S., & Pudjiastuti, 2012).

### **ROA**

(Fahmi, 2012) said that ROA is how the company is able to provide returns from investments already provided by investors and in accordance with the expectations of the investment.

Profitability ratio can be calculated with ROA that serves to measure the company's ability to generate profit from all assets owned by the company (Sutrisno, 2013).

According to (Tandelilin, 2010) the formula for finding ROA :

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

### **DER**

DER is used to compare debt with equity, which means how much debt the company finances. Increasing debt can be a risk for a company, which means the company's poor performance and unhealthy financial condition are likely to cause stock prices to fall. Investors can choose a low DER because investors' interests will be better protected if there is a decline in business at the company concerned.

(Gitman, 2012) said DER is a ratio that measures the proportion of liabilities and equity in financing the company's assets.

Based on several definitions that have been described, it can be said that DER should be able to measure how much debt the company finances and the company's performance to meet its obligations with the equity owned by the company.

According to (Kasmir, 2014) The formula for finding DER :

$$DER = \frac{Total\ Debt}{Total\ Equity}$$

### **EPS**

EPS is also known as earnings per share. That is the amount of net income (after tax) obtained from per share outstanding (Alwi, 2008). If the EPS ratio makes a big profit for shareholders

then the management of the company is considered successful, the greater the profit provided by a company will certainly make investors more interested in investing in the company which means the more demand investors have to buy shares (Adhitira, A. T., & Yustina, 2017). In essence, Investors or potential stock investors use EPS to analyze the company's financial value to profit from the shares owned.

(Sunariyah, 2006) said EPS is a ratio calculated from stock market price divided by earnings per share. The higher this ratio, the better the company's performance. However, if the EPS is too high, this indicates that the price of the shares being offered is very high or very irrational.

According to (Brigham, E. F., & Houston, 2011), the formula for looking for EPS :

$$EPS = \frac{\text{Net Profit After Interest and Tax}}{\text{Number of Shares Outstanding}}$$

### **Framework for Thinking**

A framework of thought is an explanation that provides a concept or description of a theory - theories related to all the factors that have been identified as the object of the problem. The independent variables tested in this study were ROA (X1), DER (X2), and EPS (X3) and the dependent variables were Stock Price.

### **Effect of ROA on Stock Prices**

Based on the test results by (Khoir, V. B., Handayani, S. R., & Zahroh, 2013), it was found that a positive and significant influence of ROA value on the share price which means there is a direct relationship between ROA and share price. The growing ROA shows that the total assets used for the company's operations are able to increase the value of the share price and provide profit for the company (Martalena, 2011).

The point is that ROA with high value shows the company is able to generate profit from investments invested by shareholders is also high. This encourages the formation of a positive image that affects the increasing share price and is in line with the increase in the company's ROA. The conclusion is:

H1: ROA has a positive and significant effect on stock prices.

### **Effect of DER on Stock Prices**

According to research conducted by (Marfuatun, S. & Indarti, 2012), it shows that the DER has a positive but insignificant effect on stock prices. So that the more costs of borrowing or debt to a company can increase the risk burden borne by the company (Muksal, 2016).

The high DER will greatly affect the decline in the share price and the decision of investors in funding the company. The conclusion is:

H2: DER has a positive but insignificant effect on stock prices.

### **Effect of EPS on Stock Prices**

According to research conducted by (Munggaran, A., Mukaram, & Sarah, 2017) likewise, it shows that the existence of EPS has a positive and significant effect on stock prices.

The greater the value of a company's EPS, the greater the probability of dividend value that the company will distribute to investors. This also underlies the influence of positive investor

opinion on companies with high EPS values. The positive opinion ultimately helps lift the company's share price in the stock market. The conclusion is:

H3: EPS has a positive and significant effect on stock prices.

### **Effect of ROA, DER, EPS on Stock Prices**

It can be concluded that the simultaneous relationship between ROA, DER and EPS can have a significant influence on the share price. The fourth hypothesis in this study is:

H4: ROA, DER, and EPS have a simultaneous significant effect on the Share Price.

## **3. Research Methods**

### **Data Sources**

This research uses a quantitative approach which is a deductive process from research by looking at general to specific patterns. The research method used in this study uses a hypothesis through processing and statistical data testing, namely by descriptive-verification analysis, the results of the research will be processed and conclusions drawn. The descriptive research method is carried out in which the research interprets the data obtained based on the facts that appear in the research period, so that a clear picture of the object under study will be obtained (Octavia, D., & Nugraha, 2020; Susanti, N., Widajatun, V. W., Aji, M. B., & Nugraha, 2020). This study uses The Data Panel. Panel data is a combination of time series and cross-section (Ayunitha, 2020; Sugiyono, 2017). Data collection techniques from library research and internet research by collecting data from financial statements, annual reports, and other reports obtained through the IDX website.

### **Sample and Population**

Analysis of this research is a company in the mining sector in the IDX research period 2015 to 2019. With a population of 48 banks and using purposive sampling (the desired criteria) there were only 32 samples of mining companies in this study. According to (Nuryaman & Veronica, 2015; Zulganef, 2018) that: "Purposive Sampling is a sampling technique of data sources with certain considerations". The reason the researchers used the technique was purposive sampling because not all samples had criteria that matched the phenomenon being studied. Criteria for the banks sampled:

- a. Mining companies listed on the IDX during the 2015-2019 research period
- b. Mining companies that have complete financial reports during the 2015-2019 research period
- c. Mining companies that do not do stock split shares during the 2015-2019 research period

### **Hypothesis Testing Design**

The research data used multiple linear regression analysis aimed at measuring the intensity of the relationship between two or more variables and making predictions of estimated Y values over X. Data is processed using SPSS. There is a multiple linear regression model:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

Information:

- Y = Stock Price  
 $\alpha$  = Constant

- $\beta_{1,2,3}$  = Coefficient of Variables
- $X_1$  = ROA
- $X_2$  = DER
- $X_3$  = EPS

Classical assumption testing was also carried out in this study to determine whether the regression model is a good regression model or not (Ghozali, 2011; Nugraha, N. M., Puspitasari, D. M., & Amalia, 2020; Widajatun, V. W., Rahmadzikrishafira, T. F., Nugraha, N. M., & Susanti, 2020).

The first hypothesis testing aims to determine whether ROA, DER and EPS jointly affect the stock price. The second hypothesis testing aims to determine whether ROA affects stock prices. The third hypothesis testing aims to determine whether the DER affects stock prices. The fourth hypothesis testing aims to determine whether EPS affects stock prices.

#### 4. Result and Discussion

##### Multicollinearity Test Results

According to (Ghozali, 2011; Nariswari, T. N., & Nugraha, 2020; Widajatun, V. W., Nugraha, N. M., & Ichسانی, 2019) there are no multicollinearity symptoms, if the value Tolerance > 0.10 and the VIF value < 10.00.

**Table 1.** Multicollinearity Test

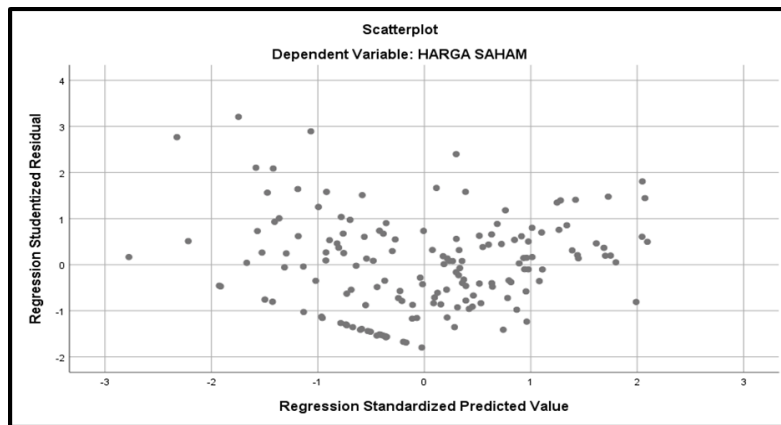
Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1500.551	263.264		5.700	.000		
	ROA	.323	.089	.290	3.620	.000	.666	1.501
	DER	.058	.054	.070	1.065	.289	.992	1.008
	EPS	.022	.005	.365	4.570	.000	.670	1.492
a. Dependent Variable: STOCK PRICE								

Source: Data SPSS (2020)

$X_1$  is 0.666,  $X_2$  is 0.992, and  $X_3$  is 0.670 greater than 0.10. Meanwhile, the VIF value of variable  $X_1$  is 1,501,  $X_2$  is 1,008, and  $X_3$  is 1,492 less than 10.00. **In conclusion there is no multicollinearity.**

##### Results of the Heteroscedasticity Test

According to (Ghozali, 2011; Susanti, N., Widajatun, V. W., Aji, M. B., & Nugraha, 2020) there is no heteroscedasticity, if there is no clear pattern in the scatterplots image, and the dots spread over and below the number 0 on the Y axis.

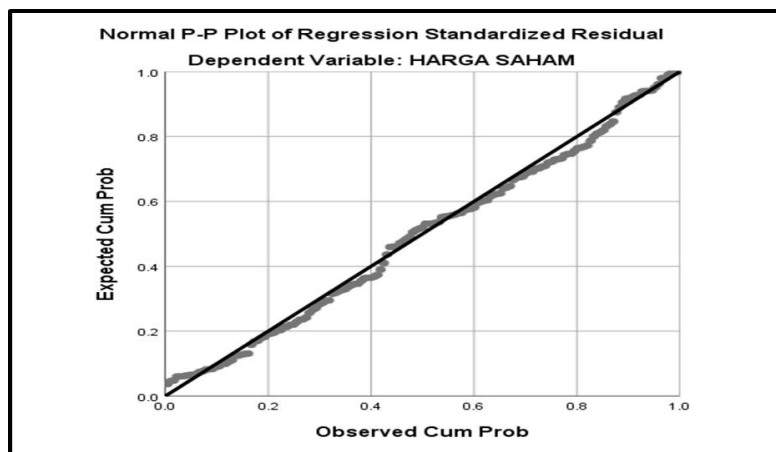


**Figure 2.** Scatterplot Heteroscedasticity Test  
 Source: Data SPSS (2020)

Judging by the pattern of irregularly spread points at the top and below the number 0 on the Y axis, **heteroscedasticity does not occur.**

### Normality Test

**Table 2.** Normality Test



**Figure 3.** Histogram  
 Source: Data SPSS (2020)

It is known that the data follows the direction of the diagonal line indicating a normal distributed pattern, **so the regression model meets the assumption of normality.**

### Autocorrelation Test Results

**Table 3.** Autocorrelation Test

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.581 <sup>a</sup>	.338	.325	3057.675	.773
a. Predictors: (Constant), EPS, DER, ROA					
b. Dependent Variable: STOCK PRICE					

Source: Data SPSS (2020)

Known value dU (1.7792) is greater than DW value (0.773) and less than  $4 - 1.7792 = (4 - dU) = (2.2208)$ . **This regression model has autocorrelation.**

### Results of Partial t Test (Multiple Linear Regression)

According to (Amalia, S., Fadjriah, N. E., & Nugraha, 2020; Wijaya, J. H., & Nugraha, 2020) If the value is Sig. < 0.05, it means that the independent variable (X) partially affects the dependent variable (Y).

**Table 4.** Partial t Test

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1500.551	263.264		5.700	.000		
	ROA	.323	.089	.290	3.620	.000	.666	1.501
	DER	.058	.054	.070	1.065	.289	.992	1.008
	EPS	.022	.005	.365	4.570	.000	.670	1.492

a. Dependent Variable: STOCK PRICE

Source: Data Processed (2020)

It is known that the t value of the variable ROA ( $X_1$ ) is greater than the t table ( $3,620 > 1,975$ ) with a significance level below 0.05, namely 0.000, the t value of the variable DER ( $X_2$ ) is smaller than the t table value ( $1.065 < 1.975$ ) with a significance level above 0.05, namely 0.289, and the t value of the variable EPS ( $X_3$ ) is greater than the t table value ( $4.570 > 1.975$ ) with a significance level below 0.05, namely 0,000.

**This means that ROA ( $X_1$ ) affects the Stock Price (Y), DER ( $X_2$ ) has no effect on stock prices (Y), and EPS ( $X_3$ ) affects stock prices (Y).**

### Simultaneous F Test Results (Multiple Linear Regression)

According to (Ghozali, 2011; Nugraha, N. M., & Susanti, 2019) If the value is Sig. < 0.05, it means that the independent variable (X) partially affects the dependent variable (Y).

**Table 5.** Simultaneous F Test

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	740291194.021	3	246763731.340	26.394	.000 <sup>b</sup>
	Residual	1449153667.134	155	9349378.498		
	Total	2189444861.155	158			

a. Y : STOCK PRICE

b. X1,X2,X3 : EPS, DER, ROA

Source: Data SPSS (2020)

Known results significance value of ROA ( $X_1$ ), DER ( $X_2$ ), and EPS ( $X_3$ ) **simultaneously affect the Share Price (Y)**

### Coefficient of Determination ( $R^2$ ) Test

**Table 6. Model Summary<sup>b</sup>**

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.581 <sup>a</sup>	.338	.325	3057.675	.773
a. Predictors: (Constant), EPS, DER, ROA					
b. Dependent Variable: STOCK PRICE					

Source: Data SPSS (2020)

In this case, variable X has an effect either partially or simultaneously on variable Y **by 33.8%**.

## 5. Conclusion

This study aims to analyze the effect of ROA, DER, and EPS on stock prices in com

This study aims to analyze the influence of ROA, DER, and EPS on the share price of companies in the IDX period 2015-2019. The first hypothesis indicates that ROA has a positive and significant effect on the share price. ROA that shows positive and significant results makes investors have to take that into account and make decisions easier in investing in the company.

DER in the second hypothesis is stated to have a positive but insignificant effect on the share price. This indicates that the good solvency performance of the company is not the main determining factor that can attract investors in the capital market.

EPS has a hypothesis of having a positive and significant effect on the share price. The positive coefficient value indicates that EPS positively affected the share price of the company listed in the IDX period 2015 – 2019. Thus the third hypothesis stating that EPS has a positive and significant influence on the share price is acceptable.

The fourth hypothesis states that variable X (ROA, DER, and EPS) simultaneously has a significant effect on the share price. From the calculation of the summaryb model table, it is known that variable X has a simultaneous effect on variable Y of 33.8% with a positive value. The remaining 66.2% were influenced by other factors not included in this regression model.

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