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The Determinants of Stock Price: Fundamental and Technical Variable

Akbar Rulloh*, Amelia, Adela Sayida N, Adhiyudha Catur Kartawijaya, Siti Komariah
Faculty of Economic and Business, Widyatama University, Jl. Cikutra No.204A Bandung, Indonesia
*barzg7@gmail.com

Abstract

Indonesia is known as a rich country in natural resources, especially in the mining sector. The mining sector provides a high contribution to the sustainability of the country's economy and is also a major contributor to state revenue, especially non-tax revenue. However, market performance as measured by the mining industry's stock price is currently experiencing a downward trend. For this reason, the purpose of this study is to examine the factors that affect stock prices seen from the fundamental and technical approaches. Sampling was carried out by purposive sampling method and those that met the sample selection criteria were 37 companies engaged in the mining sector and were always listed on the Indonesia Stock Exchange (BEI) during the 2015-2019 period. The analysis technique used in this research is panel regression. Hypothesis testing uses the F-test and hypothesis testing uses the T-test. The results showed that only the variable Earning Per Share (EPS) and world oil prices have an effect on stock prices. Meanwhile, the variable Return on Assets (ROA), and Debt to Assets Ratio (DAR), and Trading Volume Activity (TVA) have no effect on stock prices.

Keywords: *Fundamental, Technical, Stock Price, Earning Per Share (EPS), Return On Assets (ROA), Debt to Assets Ratio (DAR), Trading Volume Activity (TVA), World Oil Price.*

I. INTRODUCTION

The currently rising world economy is a reflection of the acceleration of development in every country, including Indonesia. The initial capital for the recovery of the Indonesian economy can be seen clearly from the acceleration of exports that occurred in major commodities (www.bps.go.id/2017). Economic growth can also be measured by the amount of state income. State revenue consists of several components, namely Tax Revenue, Non-Tax State Revenue (PNBP), and Grant Revenue. Non-Tax State Revenue (PNBP) is dominated by the mining sector industry. Indonesia is known as a country rich in natural resources, especially in the mining sector. The potential for the mining sector is so great that it is one of the main contributors to PNBP. Mining Industry Contribution to State Revenues Reaches IDR 46.6 Trillion (www.wartaekonomi.co.id/2019).

However, the mining industry's contribution to the capital market in 2019 is not good. The mining sector index (mining) is one of the obstacles to the steps of the Jakarta Composite Index (IHSG) throughout 2019. The mining sector index grew negatively by 12.83% in 2019 (https://invest.kontan.co.id/2019). The selling price of several mineral and coal commodities is at an unfavorable level, a matter of compliance with occupational safety and health regulations,

environment, reclamation, post-mining, social responsibility, business continuity and market performance.

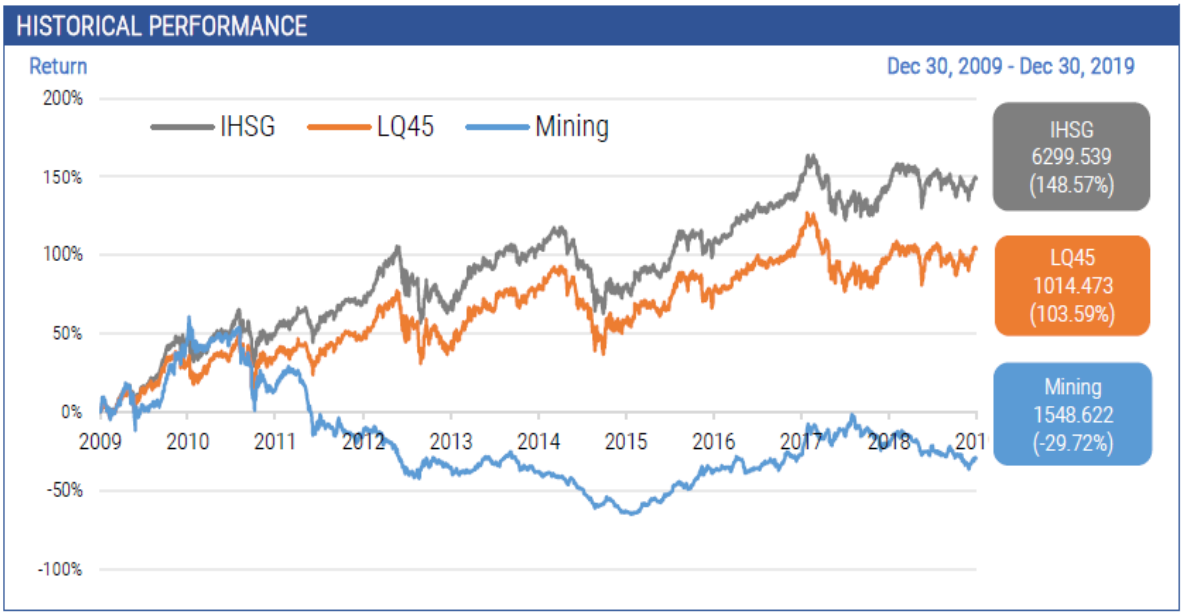

Figure 1. Performance of the Mining Sector Index

Source: www.idx.co.id

When viewed from the chart above, the mining industry's stock performance is experiencing a downward trend, far below the Jakarta Composite Index and the LQ-45 Index. If it continues, of course it will have a negative impact on the performance of the mining industry market. For this reason, it is necessary to examine the factors causing the decline in the mining industry's stock performance.

The stock price is an important factor in investing, this is because the stock price shows the performance of the issuer, in other words, the stock price movement will be in line with the issuer's performance. Good performance has an impact on profits which can affect stock prices. It needs a variety of information that comes from the company and outside the company so that investors and companies also know what factors can influence stock price movements in the market.

Stock prices can be influenced by various factors, some of which are fundamental and technical factors. Sharma (2011) states that there are two approaches, namely a fundamental approach and a technical approach for predicting stock prices. In this study, the fundamental approach uses several company financial ratios consisting of Earning Per Share (EPS), Return On Assets (ROA), and Debt to Assets Ratio (DAR). While, the technical approach uses the Trading Volume Activity (TVA). In addition, this study also uses world oil prices as a variable that affects stock prices because the mining sector will be greatly influenced by developments in world oil prices.

Research on fundamental and technical factors on stock prices has been studied by several previous researchers, but yielded different results. Narayan (2010) examined modeling the impact of oil prices on Vietnam's stock prices, and the result was that oil prices had an effect on stock prices. Pelita (2017) examines the fundamental factors on stock prices in Indonesia and

Malaysia, the result is that only liquidity and profitability have an effect on stock prices in Indonesia, while on the Malaysia Stock Exchange, only the activity and dividend ratios affect stock prices. The empirical results from Gregoriou (2008) show that market liquidity is one of the factors driving the asymmetry between block purchases and sales on the London Stock Exchange. Yang et al. (2020) examined The impacts of day trading activity on market quality: evidence from the policy change on the Taiwan stock market, the results show that daily trading increases the bid-ask spread, price depth and stock volatility. Since early 2014, the Taiwan stock market has experienced distinct trading volume growth after releasing day trading; However, the results show that the impact of stock day trading on market quality is not all positive.
Based on the phenomena, problems and GAP research described above, the researchers are interested in reexamining the factors that affect stock prices in terms of fundamentals and technicalities in stocks in the mining industry for the period 2015 to 2019.

II. LITERATURE REVIEW

In an efficient capital market all securities are traded at market prices. The stock market price is the price determined by investors through a meeting of supply and demand. This meeting can occur because investors agree on the price of a share. The stock price is very important for the company, because the stock price reflects the value of the company and a measure of the company's performance in the market. There are many factors that influence stock prices, both fundamental and technical factors. Fundamental analysis is a stock analysis technique that studies the fundamental financial and economic facts of a company as a measure of the company's stock price. Meanwhile, technical analysis is an attempt to estimate stock prices by observing changes in stock prices in the past. The stock price in this study uses the closing price or closing price.

The Effect of Earning per Share (EPS) on Stock Prices

Earning per share (EPS) analysis is conducted to determine the performance of a share, whether it is profitable based on the income it earns or not. To find out, the calculation is used in the form of earnings per share performance or known as Earning Per Share (EPS). According to Darmadji and Fakhrudin (2012), Earning Per Share (EPS) can be calculated with the following formula:

$$Earning\ Per\ Share = \frac{Earning\ After\ tax}{Number\ of\ Stock\ Shares}$$

The bigger the EPS number means that the financial performance is getting better and it is suitable as an investment option (Guinan, 2009). The higher the value of Earning Per Share (EPS) a company has, the greater the profit the company has for each share. Thus, more and more investors will pay for the company's shares. This of course will increase the share price. Based on this explanation, the first hypothesis of this study is:

H_1: Earning per Share (EPS) Affects Stock Prices

The Effect of Return On Assets (ROA) on Stock Prices

Return on Asset (ROA) is used to determine the company's performance based on the company's ability to use the number of its assets. The amount of the value of Return On Assets according to (Zaki & Rofikoh, 2020) can be calculated by:

$$\boldsymbol{ROA} = \frac{Earning\ After\ Tax}{Total\ Assets} \times \mathbf{100}\%$$

A higher ROA reflects better company performance and will attract investors to invest in the company. This will result in an increase in the company's share price due to increased demand for shares by investors (Parwati & Sudiartha, 2016). Based on this explanation, the second hypothesis of this study is:

H_2: Return On Asset (ROA) Affects Stock Prices

The Effect of Debt to Asset Ratio (DAR) on Stock Prices

Debt to Asset Ratio (DAR) is the ratio used to assess debt to total assets. This ratio is sought by comparing all debt, including current debt, and all assets (Kasmir 2012). The formula for calculating the Debt to Equity Ratio (DER) is as follows:

$$DAR = \frac{Total\ Debt}{Total\ Assets} x\ 100\ \%$$

The greater the DAR indicates that the capital structure makes more use of debt than equity. It can be concluded, if a company has a high amount of debt or a high DAR level, then this has the potential to lower the share price. According to Ang (1997), investors will see that the greater the company's debt, the higher the risk faced by the company, so that investors tend to avoid companies that have high leverage. Based on the description above, changes in DAR will result in market reactions and have an impact on changes in Share Prices. This is supported by research conducted by Fendi Hudaya (2017) that the Debt to Equity Ratio (DER) has a negative and significant effect on share prices of mining companies. As well as research by Lukita (2017) that Debt to Equity Ratio (DER) and Earning Per Share (EPS) have an effect on stock prices. Based on this explanation, the third hypothesis of this study is:

H_3: Debt to Asset Ratio (DAR) Affects Stock Prices

The Effect of Trading Volume Activity (TVA) on Stock Prices

Trading volume is a reflection of the intensity of buying interest and the pressure behind price movements that occur. The volume of shares can also predict market conditions that occur. Stock trading activities can be seen through the trading volume activity indicator. The very high trading volume activity on the exchange would be interpreted as a sign of an improving market. The calculation result of Trading Volume Activity (TVA) reflects the ratio between the number of shares traded and the number of shares outstanding in a certain period. TVA is measured by the following formulation:

$$Total\ Volume\ Activity = \frac{\text{Number of shares traded}}{\text{The number of shares outstanding}}$$

If a stock has a large trading volume, it is stated as a stock that is actively trading. Stocks that are actively traded are sure to have large volumes and stocks with large volumes will produce high stock returns. This is in accordance with the research of Imelda (2013) which states that stock trading volume has a significant positive effect on stock prices. The increasing volume of stock trading shows the increasing demand by investors. This has an impact on rising share prices

(Sutrisno in Kurniyanti et al., 2016). Based on this explanation, the fourth hypothesis of this study is:

H_4: Trading Volume Activity (TVA) Affects Stock Prices

The Influence of World Oil Prices on Stock Prices

The World Oil Price (Crude oil price) is a commodity that plays a vital role in all world economic activities. Industries around the world still rely on crude oil, which is a product of crude oil as raw material for production factors. Likewise, mining industry companies in Indonesia rely on oil as the main fuel in the company's operations and as one of the main traded commodities. The World Crude Oil Price is measured from the spot price of the world oil market, generally used as standards are West Texas Intermediate and Brent.

Qianqian (2011) states that oil prices can affect every aspect of the national economy, production and consumption, costs and prices, trade and investment, all of this will be influenced by oil price fluctuations, so it can be concluded that the increase in World Crude Oil Prices is thought to have an effect on conditions economy of a country. Furthermore, these theories state that the World Crude Oil Price has a role in the movement of the share price of mining sector companies listed on the IDX. Rahmanto et al. (2014) stated that in the agricultural sector index, an increase in world oil prices will cause a side demand effect that allows commodity consumers to choose alternative agricultural commodities to use. With the side demand effect on agricultural commodities, it will increase the demand for stocks in the agricultural sector. Based on this explanation, the fifth hypothesis of this study is:

H_5: World Oil Prices Influence Stock Prices

III. METHOD

The research methodology used in this research is descriptive and verification methods with this type of explanatory research using a quantitative approach. Based on the analytical approach, this research can be classified into quantitative research. The sample in this study used non-probability sampling, which is a non-random sampling method with a purposive sampling technique. According to Sugiyono (2014) purposive sampling is a technique of determining the sample with certain considerations. The criteria or considerations is:

1. Mining sector companies listed on the IDX during the 2015-2019 period.
2. Mining sector companies that remain listed on the IDX during the study period, namely 2015-2019.
3. Mining sector companies that include the required data in full during the 2015 - 2019 research period.

Based on the above criteria, of the 45 mining sector companies during the 2015 to 2019 period, only 37 companies were selected as research samples. The type of data used in this study is secondary data which provides information related to the research problem. The secondary data used in this study were obtained from the website www.bi.go.id, www.idx.co.id and www.bps.go.id.

Before testing models and hypotheses, the study carried out a classic assumption test consisting of normality test, heteroscedastic test, autocorrelation test and multicollinearity test. This study uses panel data regression which is processed using statistical software Eviews 10. Panel data regression is a combination of time cross data (cross section) and time series data, where the same cross section unit is measured at different times (Basuki & Yuliadi, 2015). To estimate

model parameters with panel data, there are several techniques for estimating panel data parameters, namely by performing the Chow test, Hausman test and Lagrange-Multiplier (LM) test. The regression model in this study is as follows:

$$\mathbf{PRICE = a + \beta_1 EPS + \beta_2 ROA + \beta_3 DAR + \beta_4 TVA + \beta_5 OIL + e}$$

The analysis technique in this study uses descriptive statistical analysis and inferential statistics in testing the hypothesis, which consists of the coefficient of determination, model testing using the F test, and hypothesis testing using the T test.

IV. RESULTS AND DISCUSSION

Results

The classical assumption test is conducted to obtain accurate research. In this study, the classic regression assumption test used was the normality test, multicollinearity test, heteroscedaticity test and autocorrelation test. The test as follows:

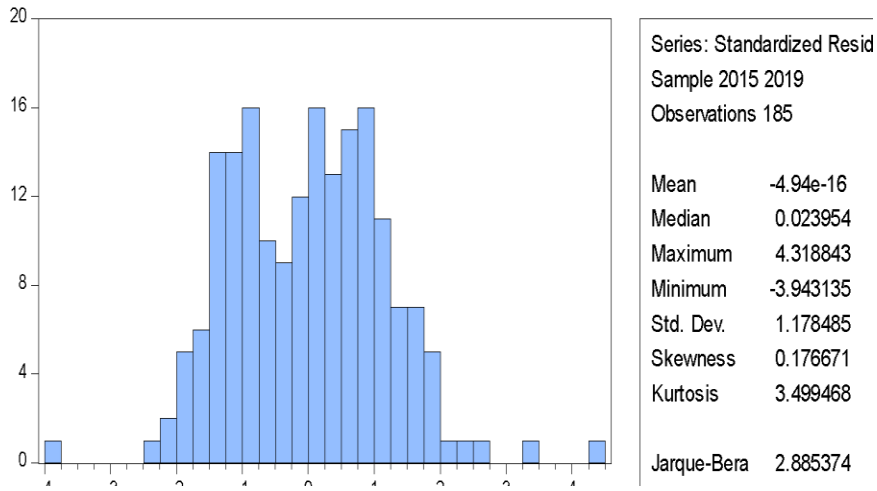

Figure 2. Normality Testing

Source: eviews data processing output 10

The probability value or significance value obtained from the Jarque-Bera test is 0.236292. Because the probability value in the Jarque-Bera test is greater than the error rate of 5% (0.05), it can be concluded that the regression model is normally distributed, where the residual data distribution forms a normal distribution curve.

Table 1. Multicollinearity Testing

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1443599.	36.86000	NA
EPS	0.184267	1.334407	**1.209382**
ROA	255.0657	1.374911	**1.354295**
DAR	693566.4	5.698647	**1.216639**
TVA	26676.35	1.371756	**1.075096**
PRICEOIL	493.6816	34.53560	**1.064053**

Source: eviews data processing output 10

Based on Table 1, it can be seen that all VIF values are smaller than the specified critical values (VIF <10). Thus there is no multicollinearity between independent variables. Or it can be said, all independent variables in the regression model of this study are mutually independent and tend to be orthogonal.

Table 2. Heteroscedasticity Testing

Heteroskedasticity Test: Glejser

F-statistic	1.635501	Prob. F(6,124)	0.1428
Obs*R-squared	**9.606717**	**Prob. Chi-Square(6)**	**0.1422**
Scaled explained SS	9.676654	Prob. Chi-Square(6)	0.1389

Source: eviews data processing output 10

Based on Table 2, showing the results of the heteroscedasticity test, the R-Squared value is 0.1422. Where this value is above α (0.05), so it can be concluded that there is no heteroscedasticity problem in this study.

Table 3. Autocorrelation Testing

R-squared	0.377492	Mean dependent var	4.88E-16
Adjusted R-squared	0.349196	S.D. dependent var	1.178485
S.E. of regression	0.950712	Akaike info criterion	2.784214
Sum squared resid	159.0781	Schwarz criterion	2.940880
Log likelihood	-248.5398	Hannan-Quinn criter.	2.847707
F-statistic	13.34091	**Durbin-Watson stat**	**1.869273**
Prob(F-statistic)	0.000000		

Source: eviews data processing output 10

Based on Table 3, the autocorrelation test shows that the Durbin-Watson number is 1.869273. This value will be compared with the DW table with the number of observations (n) = 185 samples, the number of independent variables (k) = 6 and a significance level of 0.05, the value of dL = 1.6930 and the value of dU = 1.8267. Therefore, the DW value is 1.869273 above the dU value but below the 4-dU value = 2.1733 or (1.8267 <1.869273 <2.1733), because the DW value is between the dU and 4-dU values (dU <dW <4-dU) then the hypothesis that there is no positive and negative autocorrelation in the regression model cannot be rejected.

After the classical assumption test is carried out, the next step is testing the model. The results of the model test are as follows:

Table 4. Regression Model Test Results

No	Test	Result	Selected Models
1	Chow	CommonEffect><Fixed Effect	Fixed Effects
2	Hausman	FixedEffect><Random Effect	Random Effect
3	Lagrange Multiplier	RandomEffect><Common Effect	RandomEffect

Source: eviews data processing output 10

Based on Table 4, it can be concluded that the random effect model was chosen twice out of the three tests that have been carried out so that the model used for this study is the random effect.

Table 5. Research Test Result

Dependent Variable: STOCKPRICE
Method: Panel EGLS (Cross-section random effects)
Date: 11/27/20 Time: 17:53
Sample: 2015 2019
Periods included: 5
Cross-sections included: 37
Total panel (balanced) observations: 185
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	836.3562	480.0142	1.072232	0.2567
EPS	2.123193	0.327075	7.008163	0.0000
ROA	4.547186	11.25700	0.383511	0.6548
DAR	-255.3012	305.9370	-1.186571	0.5470
TVA	-87.44666	116.5604	-0.850189	0.4964
PRICEOIL	30.31023	12.43216	1.656333	0.0497

R-squared	0.464155	Mean dependent var	529.7865
Adjusted R-squared	0.480582	S.D. dependent var	1815.454
S.E. of regression	1572.060	Sum squared resid	4.46E+08
F-statistic	10.71565	Durbin-Watson stat	1.133060
Prob(F-statistic)	**0.000000**		

Unweighted Statistics

R-squared	0.355662	Mean dependent var	1632.600
Sum squared resid	1.58E+09	Durbin-Watson stat	0.318525

Source: eviews data processing output 10

Based on Table 5, it can be concluded that the regression model in this study is as follows:

PRICE = 836.3562 + 2.123193EPS + 4.547186ROA - 255.3012DAR - 87.44666TVA + 30.31023OIL + e

R2 value of 0.464155 means that EPS, ROA, DAR, TVA and oil prices have an effect on stock prices by 46.42% while the remaining 53.58% is influenced by other variables not explained in this study.
To test the model with the F statistical test in the above calculation, it produces an F value of 10.71565 with a significant value of 0.000000, so this research model is fit.
Partial testing is done with the t-test which shows the results that the EPS variable and oil price have a significant effect on stock prices, with a probability-value of 0.0000 and 0.0497 (probability value <0.05). While, the variables ROA, DAR and TVA have no effect on profitability because the probability value is more than 0.05.

Discussion

The Effect of Earning per Share (EPS) on Stock Prices

The results of this study indicate that EPS has a positive effect on stock prices. This shows that the higher the EPS will increase the stock price. The higher the EPS, the higher the company's ability to generate earnings per share, so that the possibility of shareholders to gain profits in the future will be even higher. This of course will attract investors to invest in the company's shares and will increase the share price. This is because investors tend to make an investment in making a profit (gain). Therefore, the company's ability to make a profit is very important for investors to consider. Companies that are able to generate high profits can also produce high EPS, so that EPS can be used as a consideration ratio in investing funds. The results of this study are in accordance with research conducted by Idawati and Wahyudi (2015) which states that EPS has a significant effect on stock prices. This is supported by the statement of Widoatmodjo (1996) which states that in stock trading, Earnings Per Share is very influential on the share price. The higher the EPS, the more expensive a stock is. In reverse, because EPS has a positive relationship with stock prices.

The Effect of Return On Assets (ROA) on Stock Prices

The results of this study indicate that ROA has no effect on the share price of companies in the mining sector. It shows that the level of ROA will not affect the amount of stock prices. ROA is a ratio to measure the level of company profitability. ROA reflects how efficiently a company uses its assets to generate profits. When doing fundamental analysis, not all investors see the company's profitability factor, in this case ROA in making decisions, because ROA is not directly related to the income that investors will receive. Investors tend to see the company's ability to generate earnings per share because this can provide the possibility of income that investors will receive in the future. These results are consistent with research conducted by Rorong et al. (2017), Tamuntuan (2015), Idawati and Wahyudi (2015), Hutabarat and Flora (2015), Haryuningputri and Widyarti (2012) where ROA has no significant effect on stock prices.

The Effect of Debt to Asset Ratio (DAR) on Stock Prices

The test results show that the Debt to Asset Ratio (DAR) has no and insignificant effect on stock prices. The absence of the influence of DAR on stock prices indicates that most investors want short-term profits in the form of capital gains so that when considering the purchase of shares, they do not consider the company's DAR, but follow trends in the market. This is because most of the investor orientation is capital gain oriented not dividend oriented. Investors in investing do not see the importance of using debt or returning interest and principal debt, which ultimately

does not affect investors' perceptions of future profits. In other words, investors put aside the risks to be faced and focus more on the profitability of a company to reap profits. The results of this study contradict the opinion of Kasmir (2008) which states that the Debt to Asset Ratio (DAR) is a ratio used to determine each rupiah of own capital which is used as debt collateral. Companies with high Debt to Asset Ratio (DAR) have very large debt and will reduce the level of company solvency. However, this research is in line with the results conducted by Rida (2009), Subalno (2009) and Muksal (2017) who say that the Debt to Asset Ratio (DAR) has no effect on stock prices.

The Effect of Trading Volume Activity (TVA) on Stock Prices

The results of this study indicate that TVA has no effect on the share price of companies in the mining sector. This shows that the level of TVA will not affect the level of stock prices. In making technical decisions, investors tend to see the historical development of stock prices through historical data chart patterns. Few investors see the development of TVA because it is not directly related to the profits that investors will get, especially in obtaining capital gains.

The Influence of World Oil Prices on Stock Prices

The results of this study indicate that the price of oil has a positive effect on stock prices. This shows that the higher the price of oil, the higher the stock price. The increase in oil prices will indeed have an impact on increasing company production costs. However, for companies engaged in mining, increasing oil prices will increase sales, because oil is one of the commodities produced by several companies in the mining sector. This result is consistent with the results of research by Kilian and Park (2007) who found that world oil prices have a positive impact on stock exchange index movements. This means that the increase in world oil prices will push up the share prices of mining companies and will also push up the stock price index. According to Wang et al. (2010), changes in world oil prices tend to rise, the economy and the stock market also tend to decline. However, the effect will be different for oil exporting countries and oil importing countries, because for oil exporting countries the increase in world oil prices indicates a transfer of welfare from oil importing countries to oil exporting countries. On the other hand, what happened to oil importing countries. This shows that the price of oil can affect a country's economy, so the price of oil is a reflection of changes in economic conditions and changes in the stock market. This result is also consistent with the research of Handiani (2014) which states that the World Oil Price has a positive effect on the Composite Stock Price Index.

V. CONCLUSION

Based on the results of data processing in the previous section, it can be seen that Earning Per Share (EPS) and world oil prices affect the stock prices of companies engaged in the mining sector. However, Return On Assets (ROA), Debt to Assets Ratio (DAR), and Trading Volume Activity (TVA) have no effect on stock prices. The results of this study provide advice to the property and real estate industry and further researchers. (1) For issuers, the need for sales and cost management is very important, due to fluctuating world oil prices which will greatly affect the issuer's sales and production costs and this will affect the company's share price. (2) Investors who will invest or are currently investing in the Indonesia Stock Exchange, especially in the mining sector, are advised to consider Earning Per Share (EPS), as a ratio that affects share prices. The company's performance in making profit can be seen from its EPS. The higher the profit, the higher the EPS and the possibility of investors to get income in the future is also high,

(3) For further researchers who are interested in taking a title such as researchers, it is suggested to add variables such as world gold price, money supply, GDP, exchange rate, BI Rate and others. In this study, the stock price used is the share price of the mining sector, therefore further research can use the composite stock price index, LQ45 index, or even stock prices in other sectors. These things are important so that new research can provide new and broad knowledge about macroeconomic factors. It is hoped that this research can be a comparison or reference for the next researcher.

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