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DETERMINANTS FACTORS OF STOCK PRICE IN OIL AND GAS SECTOR (INDONESIA STOCK EXCHANGE 2011-2016)

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Abstract

The purpose of this study is to examine the factors that affect the stock prices of oil and gas sub-sector companies (oil and gas). These factors are Oil Price, Debt to Equity Ratio (DER), and Exchange Rate. The research design used is comparative causal research. Sampling in this research is done by using purposive sampling method technique. The analysis technique used is panel data regression analysis. The result of the study by using f-statistic test shows that the variable of Oil Price, DER and Exchange Rate simultaneously have a significant effect on Stock Price. While the result of the t-statistic test shows that the variable of Oil Price has a significant positive impact, while DER and Exchange Rate have a significant negative effect to a stock price of oil and gas listed in Indonesia Stock Exchange period 2011-2016.

Keywords: Oil Price, Debt to Equity Ratio (DER), Exchange Rate and Stock Price

1. Introduction

Competition in the oil and gas industry encourages each oil and gas company to improve its performance to achieve the goals set by stakeholders. The purpose of the company is to maximize the prosperity of shareholders by optimizing the value of the company (Doukas and Travlos, 1988; Lazonick and O'sullivan, 2000). The current phenomenon of oil and gas companies faces the challenge of decreasing crude oil prices to maintain profits. Referring to West Texas Intermediate (WTI) data, the average annual price of petroleum has a downward trend since 2010, even though in 2011 it had touched the highest level but afterward, there was a decline in prices again. The current decline in petroleum prices is caused by the countries of petroleum producers such as Saudi Arabia, and the United States continue to increase production, creating excess supply while demand decreases.

Also, the capital structure can also affect the fair price of oil and gas companies; this is because if the capital structure is dominated by debt, there will be more burden of the company. The greater the company's liability, the higher the company's expenses used to pay off debt and interest costs so that it can reduce its opinion significantly (Bhandari, 1988; Hovakimian *et al.* 2001). Therefore, an appropriate policy is needed in determining the composition of the capital structure so that the company's stock price can be stable in the capital market.

Currency exchange rates can also affect stock prices; the strength or weakness of the Rupiah exchange rate against foreign currencies is often the cause of the ups and downs of stock prices on the exchange. The consequences of these exchange rate fluctuations can have a positive or negative impact on specific companies, especially companies that have foreign currency debt. The exchange rate is a factor that needs to be considered by capital market players, the increase or decrease that occurs in this factor can result in changes in the capital market related to the increase or decrease in stock prices (Garman and Kohlhagen, 1983; Ajayi and Mougouė, 1996). The contribution of this research, for researchers, to increase knowledge and insight concerning internal and external factors influences stock prices, especially in oil and gas sector companies. Besides, it also provides information to potential investors to support decision making and can be used as a reference for further research. Therefore, the purpose of this paper is as follows:

- To find out whether oil prices have a significant influence on stock prices in oil and gas sector companies;
- To find out whether the debt to equity ratio (DER) has a significant influence on stock prices in oil and gas sector companies.
- To find out whether the rupiah exchange rate against the dollar has a significant influence on stock prices in oil and gas sector companies.

The structure in this paper includes: literature review of the variables used in this research; conceptual framework and methodology used in research; analysis and discussion from the results of the research; and the conclusion.

2. Literature Review

Fluctuations in stock prices are a common thing. The stock price is determined by the relationship between the strength of the buyer and the seller, in other words, demand, and supply. Therefore, stock prices always change, when demand increases, then stock prices tend to rise. Conversely, when the supply increases, stock prices tend to fall. Some fundamental factors can cause stock prices to rise or fall. In general, these factors are classified into internal factors and external factors (Riyadi *et al.* 2018). Internal factors are factors that arise from within the company. While external factors originate from outside the company, external factors will be more difficult to control such as macroeconomic conditions. Nevertheless, external factors are more dominant in influencing stock prices (Mirza and Javed, 2013; Campbell and Cochrane, 1999; Utami, 2016).

2.1. Oil Prices

According to Hammoudeh *et al.* (2008) and AlMadi and Zhang (2011), the crude oil benchmark, also known as an oil marker, was first introduced in the mid-1980s. Benchmarks are used because there are many different varieties or types and levels of crude oil. The use of benchmarks provides a type of oil reference, making it easy for sellers and buyers to set transaction prices. There are three main benchmarks as follows:

- West Texas Intermediate (WTI): West Texas Intermediate (WTI) is widely used in the United States. WTI is crude oil in the light category and has a low sulfur content making it ideal for raw materials from fuels such as low sulfur and diesel gasoline with low sulfur content.
- Brent: Brent crude is used throughout the world, especially in the European market. The reference to the price of crude oil is a mixture of crude oil from fifteen oil fields in the northern sea.
- Dubai and Oman crude: Dubai crude is produced in the Dubai emirate which is also part of the United Arab Emirates. The Dubai oil refinery is located in Jabel Ali which takes condensate as

raw material. Therefore, all crude oil production from the Dubai refinery is exported. Also, there is also a market for buying and selling crude oil in Oman. Therefore, the price of crude oil produced by Dubai and Oman is used as a benchmark price for oil producers in the Middle East.

2.2. Capital Structure

The source of the company's use consists of capital and debt that will be used to finance the company's operations and purchase company assets. Therefore, related to the theory of optimization of firm value, the shareholders have an interest in obtaining optimal returns from the capital that has been placed on the company (Fama and French, 1998). Furthermore, in this study, the proxy of structural capital is a Debt to equity ratio (DER). DER is a ratio calculated by dividing total debt by total assets. Debt to equity ratio (DER) is a comparison between total debt to total shareholders equity owned by the company.

Total debt here is total short-term debt and total long-term debt. Whereas shareholders equity is own total capital (total paid-up capital and retained earnings) owned by the company (Chatterjee *et al.* 1992). Nevertheless, if the capital structure is linked to stock prices in a conservative financial perspective, then shareholders want the company not to have a debt that is greater than the amount of its capital. On the other hand, the concept of the cost of capital states that the company will try to obtain a capital structure that can minimize the cost of using the average capital (Jensen, 1986; Hermuningsih, 2013).

2.3. Exchange Rate

According to Permana (2017), exchange rates are one of the other measuring instruments used in assessing the strength of an economy. The exchange rate shows how much domestic money is needed to buy a unit of foreign currency. The relationship between stock prices and exchange rates has the opposite results and mechanization. Theoretically, the difference in the direction of the relationship between exchange rates and stock prices can be explained by traditional approaches and balanced portfolio models (Granger *et al.* 1998).

This approach assumes that there is a negative relationship between stock prices and exchange rates, with the direction of causality from the stock market to the money market, by very fast financial market interactions. This is in line with the research conducted by Wongbangpo and Sharma (2002) which states that there is a significant negative relationship between the exchange rate and stock prices in Singapore and Thailand.

2.4. Stock Prices

Shares is evidence of participation or ownership of a person or entity in a company or limited liability company. Stock is a certificate that states that the holder of the share is an investor of the company that issued the securities. The portion of ownership is determined by how much investment is invested in the company (Weiser *et al.* 1988; Blume *et al.* 1974; Loderer and Martin 1997). However, the determination of stock prices on the stock market is influenced by market participants related to the demand and supply of the shares in the stock market.

Fluctuations in stock prices are a common thing. Some fundamental factors can cause stock prices to increase or decrease. In general, these factors are classified into internal factors and external factors. Internal factors arise from within the company. Furthermore, external factors are factors caused by conditions from outside the company. Therefore, if viewed from the perspective of which elements can be controlled or not, the external factors are more difficult to control compared to the internal factors of the company (Utami and Nugroho, 2017; Kurniasih *et al.* 2011). The external factors include (1) corporate action; (2) prospects of company performance in the future; (3) exchange rate fluctuations; and (4) fundamental conditions of macroeconomics.

3. Conceptual Framework and Methodology

3.1. Conceptual Framework of Research

Stock prices can be an indicator of shareholder welfare. Therefore, the management of a company or organization seeks to increase the value of the company which will have an impact on the excellent price of shares in the capital market so that it can boost investor confidence. In connection with this, then if there is an increase in oil prices, it will have an impact on increasing income for companies in the oil sector so that the company's profits will also increase. Increasing company profits will affect rising stock prices and even the trust of the people who invest their capital in the company (Bergstresser and Philippon, 2006; Hendricks and Singhal, 2005).

However, investors are not only oriented towards profit, but also consider the level of risk of the company to decide the investment activities (Miller and Modigliani, 1958; Hutchinson, 1995). The level of company risk is reflected in the ratio of debt to equity ratio (DER), which shows how much capital is owned by the company in fulfilling the obligations of the company. Every investor naturally avoids investing in companies that have a high debt to equity ratio (DER) because they reflect a high level of risk (Nugroho, Villaroel, & Utami, 2018).

Exchange rates are another measure used to assess the strength of an economy. The exchange rate indicates the amount of money in the country needed to buy one unit of a particular foreign currency. Furthermore, in this study, the exchange rate used is the Rupiah exchange rate against the American Dollar (Mark, 1995; Engel and West, 2005).

Previous research conducted by Suharno and Indarti (2014) states that oil prices have a positive effect on stock prices and exchange rates have no effect. While the study conducted by Darwati and Santoso (2014) indicates that oil prices have no significant impact, and the exchange rate has a significant adverse effect. Furthermore, Kewal (2012) also says that the exchange rate has a negative and significant impact on stock prices. Besides, Dewi and Wirajaya (2013) stated that the capital structure and stock price indicated that it has a negative and significant influence on stock prices. Thus, based on previous research, the conceptual research framework can be seen in Figure 1:

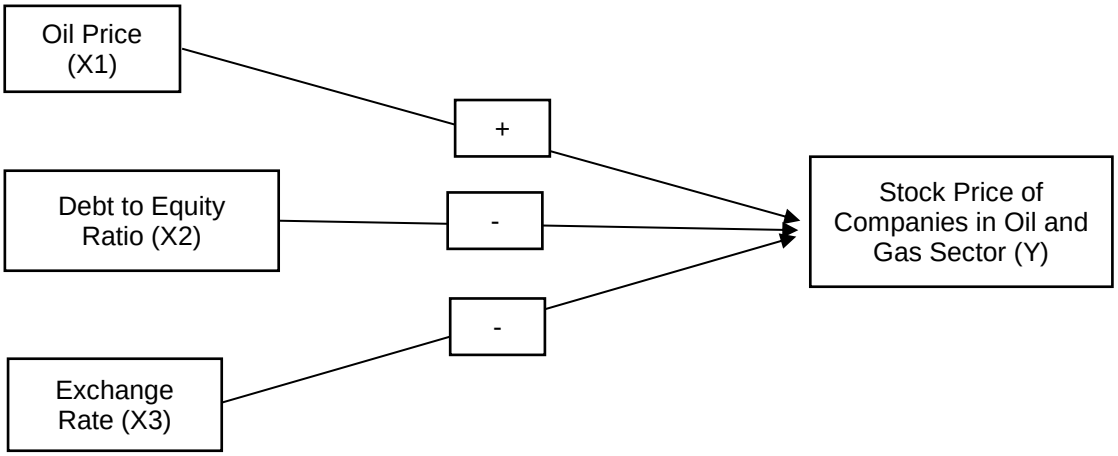

Figure 1. Conceptual Framework

Therefore, based on the conceptual framework above of Figure 1, the hypotheses of this study are as follows:

- H_1: Oil prices have a positive effect on the price of shares of oil and gas companies listed on the Indonesia Stock Exchange (2011-2016 period);
- H_2: Debt to Equity Ratio have a negative effect on the share price of oil and gas companies listed on the Indonesia Stock Exchange (2011-2016 period);
- H_3: Exchange rate has a negative effect on the stock price of oil and gas companies listed on the Indonesia Stock Exchange (2011-2016 period).

3.2. Population and Sample

The research population is all the subjects of observation that are the focus of the study. Furthermore, the research sample is part of the study population that will be used as the basis for conducting the analysis. The population criteria in this study are all oil and gas sector companies that have been listed on the Indonesia Stock Exchange (IDX) in the period 2011 to 2016. The sampling technique in this study was a purposive sampling method that is selecting samples that fit the determined. The criteria used to determine the sample are as follows:

- Oil and gas sector companies that publish financial statements in the study period, 2011-2016.
- Oil and gas sector companies that fully inform stock price data during the 2011-2016 period.

Based on the total population of the oil and gas sub-sector companies listed on the Indonesia Stock Exchange (IDX) during the 2011-2016 period, 6 (six) companies were found to meet the criteria. The criteria of the six companies are shown in Table 1 below:

Table 1. Sample Selection

Description	Total
The number of oil and gas sector companies that listed on the Indonesia Stock Exchange during the 2011-2016 period	7
The number of oil and gas sector company that was just listed in the Indonesia Stock Exchange only in 2012	-1
Research Sample	**6**

Referring to Table 1 regarding the selection of samples, the list of oil and gas companies that were sampled in this study was obtained as shown in Table 2. Furthermore, the number of observation of the research during 2011-2016 period are 36.

Table 2. List of Companies as Sample

No.	Company Name	Code
1	PT.Ratu Prabu Energi Tbk	ARTI
2	PT.Benakat Integra Tbk	BIPI
3	PT.Elnusa Tbk	ELSA
4	PT.Energi Mega Persada Tbk	ENRG
5	PT.Medco Energi Internasional Tbk	MEDC
6	PT.Radiant Utama Interinsco Tbk	RUIS

3.3. Research Variable

Table 3 shows the operational variables contained in the research.

Table 3. Operational Variable

Variable Symbol	Variable	Indicator or Formula
X1	Oil Prices	Oil prices at the end of period
X2	Debt to Equity Ratio	$\frac{\text{Total Liabilities}}{\text{Shareholders' Equity}}$
X3	Exchange Rate	Exchange rate issued by the Indonesia central bank
Y	Stock Price	Stock prices are the closing position of the stock market

Based on the variable that stated in Table 3, the equations in this study are as follows:

$$Y = \alpha + \beta 1 + \beta 2 + \beta 3 + \varepsilon \quad (1)$$

where:
Y = Stock prices
α = Constant
β1 = oil price
β2 = debt equity ratio
β3 = exchange rate
ε = Error

3.4. Data and Methodology

This research is a causal study. Causal analysis is research to determine the effect of one or more independent variables (independent variables) on the dependent variable (dependent variable). The independent variables in this study consist of oil prices (x1), capital structure (DER) (x2), and exchange rates (x3). The dependent variable in this study is the stock price of oil and gas companies (Y). The purpose of this research is to test the hypothesis of an independent variable on the dependent variable that uses parametric statistical tests with panel data regression analysis.

4. Analysis and Discussion

The descriptive statistical analysis describes a summary of research data such as the mean, minimum, maximum and standard deviations of each variable contained in this study. Table 4 shows the results of a descriptive statistical analysis that have been obtained:

Table 4. Descriptive Statistic

	Stock Prices	Oil Prices	DER	Exchange Rate/Kurs
Mean	490.028	72.1933	1.7611	11766.33
Median	200.500	72.7900	1.8200	12314.50
Maximum	3800.000	98.8300	4.0000	13795.00
Minimum	50.000	37.1300	0.1900	9068.000
Std. Dev.	804.171	25.1537	1.1063	1814.766
Observations	36	36	36	36

The maximum share price is in the shares of MEDC (PT. Medco Energi Internasional Tbk) in 2014 which amounted to 3800, while the minimum share price was in ARTI (PT. Ratu Prabu Energi Tbk) in 2016, BIPI (PT. Benakat Integra Tbk) in in 2015, and ENRG (PT. Energi Mega Persada Tbk) in 2015 and 2016. The standard deviation value of stock prices in 2011-2016 was 804, and the mean was 490.

The maximum value of oil prices in 2011 is 98.83, while the minimum value of oil prices is in 2015, which is 37.13. Furthermore, the value of the standard deviation of oil prices is 25.15, and this value is smaller than the amount of 72.19 so that the spread of the data shows standard and unbiased results.

The maximum DER is in the shares of ENRG (PT Energi Mega Persada Tbk) in 2016 amounting to 4.00, while the minimum DER is in BIPI (PT Benakat Integra Tbk) shares in 2012 of 0.2. Then for the standard deviation value of DER that is equal to 1.10, the amount and value are smaller than the average value (mean) which is equal to 1.76, so that indicates standard and unbiased data.

The maximum exchange rate is in 2015 which is equal to 13,795, while the minimum exchange rate is in 2011, which is equal to 9,068. The standard deviation of the exchange rate is 1,814; the value is smaller than the amount of 11,766 so that it indicates standard data unbiased data. Furthermore, to find out the relationship and the effect of the independent variables, namely oil prices, DER, and exchange rates on the dependent variable, namely the stock price, then the data is processed with statistical tools with the following results in Table 5:

Table 5. Model (1) Using The Regression Test

Variable	Coefficient
Constant	8.7371***
	(7.5598)
Oil Prices	0.2185**
	(0.2933)
DER	-0.3438***
	(0.1252)
KURS/EXCHANGE	-0.439**
RATE	(0.6981)
R-squared	0.31

Note: Standard errors are in parentheses. *, ** and *** represent 10%, 5% and 1% significance level respectively.

Independent variables namely oil price, DER, and Exchange rate have an effect of 24.46% on stock prices, while the rest is due to other variables not used in this research. Furthermore, oil prices have a positive and significant effect on the stock prices of oil and gas companies listed on the Indonesia Stock Exchange, therefore investors who will invest in companies in the oil and gas sector will need trend information and oil price projections before they decide to buy the shares (Prasetiono, 2012; Kilian and Park, 2009). The increase in oil prices will increase the selling price of oil so that the company's revenue will also increase. So, with the increase in the amount of income, it will increase the company's profits which will also have an impact on the high investor confidence in the company so that it has an effect on the increase in stock prices. However, this result can also be an indication that oil-producing countries must have a joint commitment to regulate the amount of supply and demand to stabilize oil prices in the world

Regarding Table 5, it is also found that DER has a negative and significant influence on stock prices. Therefore, the company must have the ability to manage the composition of its capital. If the company has a composition of the majority capital structure that comes from debt, the company must provide a substantial capital cost in the form of interest payments and principal installments of the debt (Stewart, 1993; Harnovinsah and Marlita, 2017). The amount of capital expenditure will certainly reduce income and have an impact on low profits. Also, investors also use DER as a financial indicator key for investing. Investors consider the DER of a company because investors can analyze the company's ability to pay dividends. The higher the debt it has, the less the ability of the company to pay its shareholder dividends is. Thus, the higher the DER, it will have an impact on reducing stock prices. Companies must have a strategy on how to manage the amount of debt and capital ratios they have (DER). Furthermore, to maintain the number of DERs so as not to burden the company is to consider the operational costs of the company with the company's investment costs. According to the way for reducing the amount of DER, it is attempted if the proposed debt is intended to cover the shortfall of the company's operational costs while the long-term investment needs can be derived from shareholder capital.

The exchange rate has a negative and significant effect on stock prices so that if the exchange rate of the dollar against the Rupiah increases, it will reduce the share price. An increase in exchange rates can increase the amount of expenditure in paying interest on debt and installments of foreign loans of a company (Smirlock and Kaufold, 1987; He and Ng, 1998). If the company has an enormous foreign debt, then the impact of spending on debt costs will also be

higher if there is an increase in exchange rates. Furthermore, the rise in debt expense will have an effect on the decline in corporate profits so that the impact of reducing the level of investor confidence. Thus with the low investor interest in these shares, it will have an effect on the decline in stock prices. However, according to Calvo *et al.* (1993) and Balaguer and Cantavella (2002), exchange rates are a remote external factor of the company, therefore in preparing the company's strategy special attention is needed regarding the future projections of exchange rates because external factors from the company such as exchange rate can determine between supply and demand in the petroleum market in the world.

5. Conclusion

The investors who want to invest in oil and gas sector companies, are expected to be able to analyze what factors can affect stock prices. Also, they are expected not only to focus on internal factors such as financial performance. Many factors can influence the company's stock price both internal factors such as financial performance, as well as external factors such as oil prices and exchange rates as in this study. Based on this study, oil prices and exchange rates affect stock prices. Furthermore, the economy in developing countries such as Indonesia is very dependent on the Rupiah exchange rate against the US Dollar, and the exchange rate at this time is very volatile. Therefore, investors must always monitor the movements of the exchange rate. However, further research is expected to increase the observation period and use different financial ratios of companies that have not been included in this research model. Nevertheless, companies should keep financial performance well and more carefully in determining financial decisions. The business decision can reflect the company's internal financial condition because there are still many factors outside the variables in this study that can be used as a source of information for making investment decisions so that it can help investors in making investment decisions in oil and gas sector companies. Based on the results of the discussion and research questions, the following conclusions are concluded in this study:

- Oil prices affect positively and significantly on the stock prices of companies engaged in the oil and gas sector. Therefore, cooperation and communication are needed between companies and oil-producing countries to manage supply and demand so that world oil prices can be stable.
- The company must be able to manage its capital structure to maintain an adequate debt ratio so as not to cause the risk of payment of high-interest installments in the future.
- Currency exchange is one of the external remote factors that is very important for the company. Therefore, in preparing a business plan, currency exchange rates must be taken into consideration by companies in the oil and gas sector, so that there are no mistakes in making decisions in determining the amount of production and determining the maximum amount of debt.

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