An Influence of Oil Prices and Inflation on Stock Price at Crude Oils Corp in 2012-2021

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Abstract: The research aims to find out and empirical evidence whether the oil price and inflation affects the stock price at Crude Oils Corp. in 2012-2021 as simultaneously and partially. This study uses quantitative methodology, with causality type. The sample used includes data from 2012 to 2021 on oil prices, inflation, and stock market at crude oils Corp. Data analysis uses multiple linear regression techniques with the support of IBM SPSS Ver25 program. In this study, the proceeds is reinforced by the results of the joint test of the two variables producing significance and also a strong contribution to the variable with a determination score of 79.3 percent. The highest influence on stock prices at Crude Oils Corp. is the inflation variable with a t-count of 5,524 while the oil price variable only produces a t-count of 2,627. Both variables above have significant positive results from the proceeds of the regression test. Companies can make policies when facing falling oil prices so that companies can still make a profit, then potential investors should use other information that can be used as a reference in making investment decisions, especially about Stock Price of Crude Oils.

Keywords: Oil Prices, Inflaction, Stock Price

Introduction

In the era of indusry 4.0, economic growth is currently growing very rapidly. This is due to the increasingly developing information technology and also about firm's value (Sarwani & Husain, 2021). One way for companies not to lose in competition is to expand their business and provide interesting innovations. Firms certainly need large amounts of funds to realize this. The solution for companies is to seek external sources of funds through the capital market, namely 'stocks' (Frank & Goyal, 2008). Stock prices are not always constant,

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sometimes they increase and sometimes they decrease. When demand is high, stock prices will increase. As quoted from BMEB (2009), Indonesia presents an interesting case, being an exporter as well as an importer of crude oil and partly refined petroleum.

One of the public companies observed and analyzed in the early stages of this research since the last decade is MEI Corp (hereinafter referred to as a 'Crude Oils Corp.'). Conversely, high supply will cause stock price to fall. As is the case with fluctuating stock price since 2012 (Figure 1).

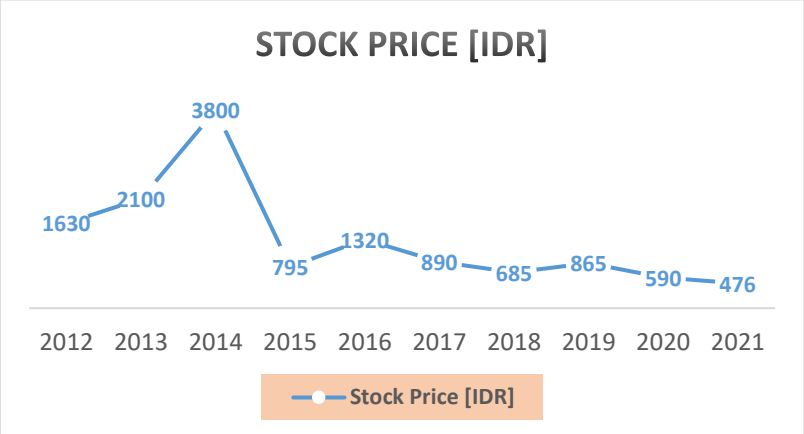

Figure 1 Stock Price (IDR), Crude Oils Corp.

Especially for oil and gas companies, stock price are influenced by crude oil prices. The increase and decrease in crude oil prices depend on the supply and demand that occurs in the market. Stock price that experience significant increases and decreases will be a problem for the company, to the lowest price in 2021. This is because high stock price will increase the value of the firm and investor prosperity will be higher (Balke & Wohar, 2001). However, stock price that are considered too high by the market will result in a decrease in the ability to buy shares by investors which will continue to decrease the volume of stock trading. Until finally the company may lose investors when investors finally withdraw shares from the company. Factors that can affect stock prices are the company's fundamentals, issues circulating in the market, corporate actions of companies, and the interests of certain investors, economic conditions, and government policies.

According to Yusuf et al. (2021) study, civil will tend to save if stock price are high and will be reluctant to invest when there is a decline in stock price, which can be seen in the Composite Stock Price. But, Prasada and Pangestuti (2022) in these research concluded that world crude oil prices, coal prices and inflation do not affect the IHSG in either the short or long term. This inflation will cause a decrease in investor interest in investing and there will be a decrease in stock prices". Because inflation is a condition that lowers the value of a country's currency and also increases the price of goods. This will allow investors to stop or wait until conditions begin

to stabilize, because it can affect stock prices. Therefore, this was identified as an initial research gap.

Based on this background, the researcher is interested in taking a study entitled. Based on the previous discussion, the formulation of the research problem that will be studied and discussed in this final research is: (1) is there any influence of oil prices on the stock price of Crude Oils Corp. in 2012-2021? (2) is there any influence of inflation on the stock price of Crude Oils Corp. in 2012-2021? (3) is there any influence of oil prices and inflation on the stock price of Crude Oils Corp. in 2012-2021?. The research aims to find out and empirical evidence whether the oil price and inflation affects the stock price at Crude Oils Corp. in 2012-2021 as simultaneously and partially. This research is expected to be an important reference for re-examining the oil price and inflation factors as Crude Oils Corp.

Literature Review

Financial Management, Stocks and Stock Price

According to Kasmir (2021), financial management can be interpreted into 3 (three) main activities, namely: (1) Obtain funds to finance the firm. (2) Manage funds as efficiently as possible to achieve firm goals. (3) Manage company assets effectively and efficiently. One of the financial management concepts used to manage a collection of stocks so that risk can be controlled and desired results achieved using portfolio management. In the context of modern financial theory, it is classified into 2 (two), namely pricing and portfolio design. Pricing is the determination of a fair (predicted or fair) asset price. Portfolio design is the determination of the best portfolio at a certain price or a forecast of a future price (Luenberger, 2002). This theory can be used in analysis to understand how changes in certain variables (such as interest rates, inflation, or commodity prices) can affect stock price.

A sign of capital participation of a person or party (business burden) in a company or limited liability company. By including their capital, the party has a claim on the company's income, a claim on the company's assets, and the right to attend the General Meeting of Shareholders (GMS) (Rachmany & Tajudin, 2022). The types of shares are Common Stock and Preferred Stock. Stock price is the present value of income that will be received by investors in the future (Damodaran, 2011). In raising capital in Indonesia, the form of shares will issue changes in the share price in IDX which is in the Composite Stock Price Index (Yusuf, Ichsan, & Suparmin, 2021).

Inflation

According to Murni (2016), the definition of inflation is an event that shows a general increase in price levels and occurs continuously". A condition can be said to be inflation if it meets 3 (three) criteria, namely: price increase, happened in general, and occurs continuously over a certain period. To control the amount of money in circulation (JUB) in the community in Indonesia, Bank Indonesia's reference interest rate is a guideline. In relation to inflation, it will certainly increase when the JUB in the community is high, so Bank Indonesia will take a policy to increase interest rates to return to normal and inflation can be suppressed on JUB in the community (Yusuf, Ichsan, & Suparmin, 2021).

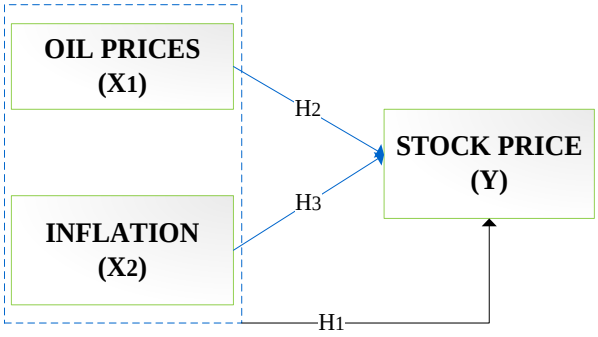

Figure 2 Hypothesis Model

- H1: It is suspected that there is a significant influence among oil prices and inflation on stock price at Crude Oils Corp simulaneously
- H2: It is suspected that there is a significant influence among oil prices on stock price at Crude Oils Corp
- H3: It is suspected that there is a significant influence among inflation on stock price at Crude Oils Corp

Research Method

A quantitative method used in this research. A type of research that uses relationships that have a causal nature (Sugiyono, 2023). The research was conducted at one of Crude Oils Firms in public companies at Indonesia Stock Exchange (IDX) indexing. The period used is 2012-2021. The research object was conducted due to the fluctuating Firms of Stock Price movements in the last 10 years, with involved Oil Prices and Inflation as independent variables. The population used was all annual data on world crude oil prices, inflation, and stock price in Crude Oils Corp in this study. The samples determined were all of object research which were limited to annual data has release in corporate website in this study. The reason for choosing the year used was to obtain and focus more accurate results in accordance with

the current situation. The data collection technique in this study was observe of secondary data.

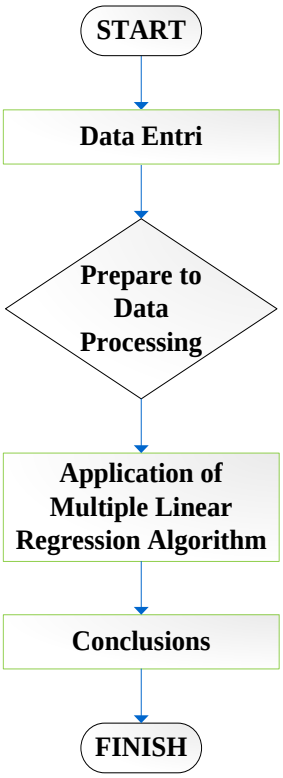

Figure 3 Flowchart of Multiple Linear Regression Method

Modified by Simbolon (2021)

The phases of the multipe linear regression method are as follows:

- Determine the purpose of Multiple Linear Regression Analysis
- Identify independent variables and dependent variables
- Collect data in the form of a table
- Calculate X^2, XY and the total of each using application aids
- Gathering α and β from the output programs

The data analysis technique used in this study was quantitative with the support of the SPSS 25 application, because this study aims to know the relationship between independent variables and dependent variables. An Equation of algorithm in this study is computed as follows:

$$Y = \alpha + \beta 1.X1 + \beta 2.X2 + e \quad (1)$$

The next phases of the multipe linear regression is F-test and t-test and determining the level of significant probability. Then, then carry out the Determination of Coefficients to find out how close the relationship and strength of the contribution that explains the independent variable to the dependent variable.

Result and Discussion

The descriptive yield is:

Table 1 Descriptive from Output SPSS Ver25

	Min-Max Scoring	**Mean**	**Deviation**
Oil Prices	38.6 until 97.61	65.699	21.60429
Inflation	1.68 until 8.38	4.042	2.40638
Stock Price of Crude Oils	IDR 476 until IDR 3,800	1,315.1	1,009.437

Source: Output Program (2023)

The Oil Prices (variable – X1) from the data can be described minimum value of 38.6 while the maximum is 97.61, the average score of the prices is 65.699 and the standard deviation is 21.60429. The Inflation (variable – X2) from the data can be described minimum value of 1.68 while the maximum is 8.38, the average score of the inflation 4.042 and the standard deviation is 2.40638. The stock price (variable Y) of Crude Oils Corp. from the data can be described minimum value of 476 while the maximum value is 3,800, the average stock price is 1,315.1 and the standard deviation is 1,009.437.

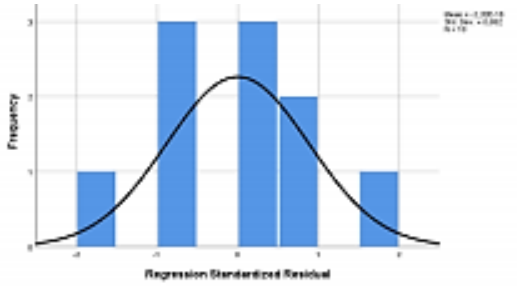

Figure 4 Normality from SPSS Ver25

In Figure 4 above, it can be seen that the data is normal and meets the assumption of normality because the line formed looks like a 'bell shape'.

Table 2 Normality Test using the Kolmogorov-Smirnov Test

	Test Statistics	**Sig (Prob)**
Score	0.169	0.200

Source: Output Program (2023)

Based on Table 2, it can be seen that the results of the normative test using the Kolmogorov-Smirnov test show a figure of 0.200 > 0.05. This means that the data is normally distributed.

Table 3 Summary of Multicolinearity and Autocorrelation Yields

	VIF | Tolerance	dW Scoring
Reached Score	2.576 | 0.388	3.346
Threshold limit provisions	Less than 10 | more than 0,1	dU < dW < 4-dU
Conclusion	No Multicolinearity	has autocorrelation

Source: Author elaborate's (2023)

Based on Table 3 regarding the results of the multicollinearity test using VIF and Tolerance criterion above it appears that: (1) Each of Oil Prices and Inflation variable has a tolerance value of 0.388 and a VIF score is 2.576. (2) Both of variable means that there is no multicollinearity among independent variables. The dW score is greater than 4-dU (2.511) (Ghozali, 2021), after the basis for making the decision of the autocorrelation test, then dW > 4-dU (3.346> 2.511), then Ho is rejected because autocorrelation occurs. Because autocorrelation occurs, a Run Test is needed:

Table 4 Runs Test from SPSS Ver25

	Test Value	The Asymp. Sig (2 tailed)
Score	23.49338	0.314

Source: Output Program (2023)

Based on Table 4, the Asymp. Sig. (2 tailed) value is 0.314 > 0.05, so there are no symptoms of autocorrelation.

Multiple Linear Analysis

Table 5 Regression of Yields Y = α + β1 + β2 + e

	Regression Coefficient	Sig (Prob)
[Constant] Oil Prices (X1) Inflation (X2)	-130.288 -1.711 385.399	0.831 0.898 0.013

Source: Output Program (2023)

Based on Table 5 above, the yield of the multiple linear analysis test are as follows:

$Y = \alpha + \beta1.X1 + \beta2.X2 + e$

$= -130,288 + -1,711\ X1 + 385,399\ X2$

It means:

- The score of a is -130.288, if X1 and X2 are 0 (zero)
- β1 (regression coefficient score X1) of -1.711, indicates that the oil prices variable has a negative influence on stock price at Crude Oils Corp., meaning that ever 1 unit increase in the oil prices variable will affect stock price by -1.711, assuming that other variables are not examined in this study.

- β2 (regression coefficient score X2) of 385.399, shows that the inflation variable has a positive influence on stock price at Crude Oils Corp., which means that ever 1 unit increase in the inflation variable will affect stock price by 385.399, assuming that other variables are not examined in this study.

F-Test and t-Test, Determination of Coefficients

Table 6 F and t-Test, Determination of Coefficients of Yields

	F and t-Score	**Sig (Prob)**	**Hypothesis Yield**
Oil Prices and Inflation Oil Prices (X1) Inflation (X2)	13.393 2.637 5.524	0.004 0.003 0.001	Accepted H1 Accepted H2 Accepted H3
R-Score	0.890	**R^2 Score**	0.793

Source: Output Program (2023)

This yield of hypothesis stated as:

1. The significance for probability both of Oil Prices (X1) and Inflation (X2) on Stock Price at Crude Oils Corp. (Y) is 0.004 < 0.05 and F-Statistics is 13.393 > F table 4.74, this proves that H1 is accepted. This means that there is a significant influence of Oil Prices and Inflation on Stock Price at Crude Oils Corp. simulaneously.
2. The significance for probability of Oil Prices (X1) on Stock Price at Crude Oils Corp. (Y) is 0.003 < 0.05 and t-score is 2.637 > t table 2.364 (Ghozali, 2021, hal. 463), this proves that H2 is accepted. This means that there is a significant influence of Oil Prices on Stock Price at Crude Oils Corp.
3. The significance for probability of Inflation (X2) on Stock Price at Crude Oils Corp. (Y) is 0.001 < 0.05 and t-score is 5.524 > t table 2.364 (Ghozali, 2021, hal. 463), this proves that H3 is accepted. This means that there is a significant influence of Inflation on Stock Price at Crude Oils Corp.
4. The correlation coefficient score of Oil Prices and Inflation is 0.890. Based on the guidelines for interpreting the correlation score, this score is in the range of "0.80 - 1,000". It means that the level of linkage among prices and inflation on stock price at Crude Oils Corp. is at a very high level.

The correlation coefficient score of Oil Prices and Inflation is 0.890. Based on the guidelines for interpreting the correlation score, this score is in the range of "0.80 - 1,000". It means that the level of linkage among oil prices and inflation on stock price at Crude Oils Corp. is at a very high level. The R-Square (R^2) is 0.793, which means the influence of Oil Prices (X1) and Inflation (X2) on Stock Price (Y) is 79.3 percent. So it can be concluded that stock price at Crude Oils Corp. are explained by 79.3 percent from major in Oil Prices and Inflation variable. The remaining 20.7 percent is explained by other variables.

Discussions

The proceeds of the regression coefficient test show that all variables in this study have a positive effect on the stock price at Crude Oils Corp. The variable that has the largest positive relationship is inflation with a t-statistic score of 2.637, while oil prices only have a t-statistic score of 2.637. Based on the results of the F-statistic calculation, a probability value of 0.004 is obtained, so the F-test in this study is declared significant simultaneously because it produces a score of less than 0.05. The results of the first hypothesis (H1) in this study are declared accepted, indicating that the oil prices and inflation variables have a significant effect on the stock price variable at Crude Oils Corp. similarly. This finding is also supported by research conducted by Yusuf et al. (2021) has concluded that the influence of inflation is the largest, compared to the BI Rate and FED Rate on the Composite Stock Price Index (JCI), but in a negative direction. Meanwhile, Prasada and Pangestuti (2022) in these research concluded that world crude oil prices, coal prices and inflation do not affect the IHSG in either the short or long term. This difference in findings may have arisen due to the stock prices chosen as the object of previous research which may have been different, and also because this research only focused on a case study of one company listed on the IDX.

Based on the results of the t-test calculation, a probability value of 0.003 is obtained, so the t-test in this study is declared significant because it produces a score of less than 0.05, t- value is 2.627. The yield of the second hypothesis (H2) in this study are declared accepted, indicating that the oil prices variable has a significant influence on the stock price variable at Crude Oils Corp. This finding is no supported by research conducted by Musawa and Mwaanga (2017), which a negative influence as oil prices on Stock Market Performance in Lusaka Stock Market, Zambia, with insignificant probability. Meanwhile, Endri et al. (2021) in these research concluded that world oil prices (WTI) has influence on the Composite Stock Price Index (JCI), Indonesia.

Based on the results of the t-test calculation, a probability value of 0.001 is obtained, so the t-test in this study is declared significant because it produces a score of less than 0.05, t-value., 5.524. The yield of the third hypothesis (H3) in this study are declared accepted, indicating that the inflation variable has a significant influence on the stock price variable at Crude Oils Corp. This finding is no supported by research conducted by Mangere (2022), which a negative influence as inflation on stock returns of the index under review (FTSE/JSE Precious Metals and Mining Index). Meanwhile, Ogbebor et al. (2021) in a study using Fisher's postulate approach, the results of the analysis stated that common stocks are a good hedge against inflation in Nigeria. The difference in the research results lies in the stock price that is the object of the research and also this research only takes a case study of one company listed on the IDX. Overall, the IDX index includes companies that are driven by consumer consumption,

so that when inflation is high, consumer goods prices increase, and this has an impact on increasing business profits.

Conclusions

This study aims to find out and provide empirical evidence that oil prices and inflation are two very important things to determine their influence on stock prices at Crude Oils Corp. In this study, this is reinforced by the results of the joint test of the two variables producing significance and also a strong contribution to the variable with a determination score of 79.3 percent. The highest influence on stock prices at Crude Oils Corp. is the inflation variable with a t-count of 5,524 while the oil price variable only produces a t-count of 2,627. Both variables above have significant positive results from the results of the regression test.

The results of this study are important in providing knowledge and empirical evidence as the main factors, namely oil prices and inflation, are used to predict Stock Price at Crude Oils, especially in this subject "Corp." with a contribution of determinant as 79.3 percent. The limitations of this study are too specific and only use time series data so that the results cannot be generalized in general, although the results have a strong contribution but there are still 20.7 percent of other important factors that are not included.

Some research suggestions from the findings of this study include: (1) Companies can make policies when facing falling oil prices so that companies can still make a profit, then companies are also required to prepare strategies, such as hedging to reduce the risk of rising crude oil prices and inflation. (2) Potential investors should use other information that can be used as a reference in making investment decisions because of course there are still other factors that influence the movement of the stock price index as evidenced by 20.7 percent of the determination results influenced by other factors.

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