

Analysis Of Factors Affecting Price Movements Of The Joint Stock Index On Indonesia Stock Exchange In 2015-2019

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ABSTRACT

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The study aims in determining and analyzing the effect of Inflation Rate, Exchange rate, Interest rate and Oil Prices on Indonesia Composite Index simultaneously and partially on the Indonesian Stock Exchange in 2015-2019. The population that is used in this study is Indonesia Composite Index on the Indonesian Stock Exchange (IDX) period in 2015 to 2019 which totaling 60 months. The sample selection uses a saturated sampling technique so all population are used as samples. This research used quantitative descriptive by testing classic assumption tests and multiple linear regression analysis using IBM SPSS Statistics 21 applications. Simultaneously Inflation Rate, Exchange rate, Interest rate and oil price have an effect on Indonesia Composite Index. Partially, Inflation Rate and Oil Price have a significant effect on Indonesia Composite Index while Exchange Rate, Interest Rate have no effect on Indonesia Composite Index in Indonesia Stock Exchange Period 2015-2019.

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1. Introduction

The capital market is a means for companies to obtain additional funds. The capital market plays a major role Indonesia Stock Exchange (IDX) is one of the Indonesian capital markets where investors can invest. The Indonesia Stock Exchange (IDX) provides complete information on the development of the stock exchange for investors through print and electronic media. Indonesia Composite Index (ICI) is the index most frequently observed by investors on the Indonesia Stock Exchange (IDX) because it contains data on all stocks on the IDX. ICI movement is very important for investors to see market conditions that are excited or sluggish. This difference in conditions occurs due to the different strategies of investors in investing.

In 2015, ICI has decreased by 12, 13 % to 4593.01. The Indonesia Stock Exchange (IDX) recorded the third lowest performance in the Asian region. This movement occurred due to the weakening world economy and the increase in the benchmark interest rate of the United States Central Bank (The Fed) which triggered the outflow of foreign funds from the IDX [1]. This increase in interest rates is a threat and negative sentiment for *emerging market markets*. The increase in the Fed's interest rate makes funds flow back to America. Investors also began to withdraw funds from *emerging markets*, so that stock prices fell and the Indonesian currency exchange rate fell to 14,000 per US dollar. [2] The price of Indonesian crude oil in December 2015 was US\$ 35.47 per barrel due to OPEC deciding not to restrict production until OPEC crude oil production increased in November by 0.23 million barrels.

In 2016 the ICI experienced an increase. The Indonesia Composite Index (ICI) at the end of 2016 recorded an increase to 5,296, up from 4,593 this was the fifth highest increase among the world's major exchanges [4] The improving Indonesian economy in 2016 was supported by controlled inflation. Inflation was recorded quite low at the level of 3.02% so that it continued its achievements in 2015 which was within the target range of $4.0 \pm 1\%$. This achievement was influenced by low commodity prices, controlled exchange rates, well-managed aggregate demand, and declining inflation expectations. [5]. Crude oil prices Indonesia (Indonesia Crude Price / ICP) rose to US \$ 51.09 per barrel. This was influenced by the increase in world benchmark oil prices such as Brent (ICE) which rose to US\$ 54.92 per barrel.

The ICI in 2017 was the highest increase in the IDX's all-time record. Stock index by 41,61 points or 66% to a level of 6355.65. In mid-March 2017, the ICI managed to break through the 5,500 level due to the impact of the post-US central or *Federal Reserve* which raised interest rates by 0.25% to 0.75-1% and the increase in economic growth rate of 5.01% to 5.06%.

ICI decreased by 8.75 % during the first half of 2018 compared to other stock exchanges in the Asian region. The decline in the index was due to negative domestic catalysts such as Indonesia's economic growth which had not yet moved from 5%. In 2018 the average exchange rate of the Rupiah depreciated by 6.05%, the trade balance deficit, to foreign sentiments such as the trade war and the increase in the *Fed Funds Rate (FFR)* of the US central bank. In the midst of the turmoil of the war, Inflation in 2018 remained under control at a low and stable level of 3.13 %. The increase in the benchmark interest rate by the *Federal Reserve*, the central bank of the United States (US). In May, the median of the *dot plots* were in 2,25 -2.5%, indicating an increase of 4 times the lead actors disconnect fitting risky instruments such as stocks.

The ICI in 2019 ended with a positive performance even though it did not break the 6,300 mark. In February the index touched its highest number at the level of 6,547.88 but the JCI experienced external pressure from the trade war between the US and China which escalated until the index figure decreased. The Consumer Price Index (CPI) inflation in 2019 was recorded at 2.72%, a decrease compared to 2018 which was 3.13%. Bank Indonesia cut its benchmark interest rate BI 7-DRR 25 basis points to 3 times to raise the index number that is in July, August and October of up to 5% and make the stock index by 0,9 % to 6288.32 levels from 6169 levels, 10. JCI continues to move positively until the end of the year and closed with a 1,69 % (year to date / ytd) at the level of 6299.54.

Based on the phenomenon of the increase and decrease that occurred in the Composite Stock Price Index (CSPI) was influenced by macro and micro economic factors. This research focuses on inflation rate, exchange rate, interest rate, and oil price.

2. Method

Research design

The type of research used in this research is descriptive quantitative research method. Descriptive quantitative research is one type of research that aims to describe systematically, factually and accurately about the facts and characteristics of a particular population, or try to describe phenomena in detail.

This study aims to analyze the causal relationship used to clarify the influence of the independent variable on the dependent variable. Data collection in this study uses secondary data that can be accessed through financial reports, books or certain official websites. In this research the data sourced from www.idx.co.id, www.bi.go.id.

The population used in this study is the Composite Stock Price Index (IHSG) on the Indonesia Stock Exchange (IDX). Based on data for all variables used in this study, data is available from 2015 - 2019. The sample in this study is using saturated sampling, which is a sampling technique where all members of the population are used as samples. The number of samples is 60 months during the 2015-2019 period.

Data analysis method

Normality test is a test that aims to test whether in the regression model, the independent variable and the dependent variable both have a normal distribution or not. This test uses the IBM SPSS Statistics 21 application. The method used to test the normality of this data is by using Histogram and Normal Probability Plots and statistically using the *Kolmogorov-Smirnov test*.

Multicollinearity test is a test used to test whether in the regression model there is a correlation (strong relationship) between independent variables. *Tolerance* measures the variability of the selected independent variable which is not explained by other independent variables. So a low *tolerance* value equals a high VIF value (because $VIF = 1 / Tolerance$). The *cutoff* value commonly used to indicate the presence of multicollinearity is the *Tolerance* value 0.10 or equal to n VIF value 10.

- If the value of *tolerance* > 0,10 and VIF < 10 it can be concluded that there is no multicollinearity between the independent variables in the regression model.
- If the value of *tolerance* < 0,10 and VIF > 10 it can be concluded that there multicollinearity between the independent variables in the regression model.

The heteroscedasticity test aims to test whether in the regression model there is an inequality of *variance* from the residual of one observation to another observation. If the *variance* from the residual of one observation to another observation remains, it is called homoscedasticity and if it is different it is called heteroscedasticity.

The autocorrelation test aims to test whether the linear regression model has a correlation between the confounding error in period t and the confounding error in period $t-1$ (previous). The way to detect the presence or absence of autocorrelation in this study is to use the *Run Test*. The basis for decision making is whether or not autocorrelation exists, as follows:

- If the value of the *Run Test* result is greater than the level of significance ($\alpha = 0.05$), then there is no auto correlation problem.
- If the value of the *Run Test* result is less than the level of significance ($\alpha = 0.05$), then there is an autocorrelation problem.

Multiple linear regression analysis is a general statistical method used to examine the relationship between variable X (independent) and variable Y (dependent). In this study, multiple linear analysis is used to determine whether there is an effect of the Inflation Rate (X_1), Exchange Rate (X_2), Interest Rates (X_3), and Oil Prices (X_4) on the Composite Stock Price Index (Y).

3. Results and Discussion

Statistic analysis

The research data is 60 data collected monthly for 5 years from 2015 to 2019. The inflation rate has a minimum value of 2.48% in March 2019 and a maximum value of 7.26% in June 2015. The exchange rate has a minimum value of 12 . 625.00 is in January 2015 and the maximum value is 15 . 227.00 which was found in October 2018. Interest rates have a minimum value of 4.25% which was found in September 2017 to April 2018 and a maximum value of 7.75% which was found in January 2015. Oil prices have a minimum value of 30.35 USD per barrels contained in February 2016 and a maximum value of 70.99 USD per barrel in July 2018. ICI has a minimum value of 4.223.91 in September 2015 and the maximum value is 6.605.63 in January 2018.

Simultaneous Test (F Test)

Tabel 1. F Test Result

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	25.370	4	6.343	76.247	.000 ^b
Residual	4.575	55	.083		
Total	29.946	59			

To see the effect of all the variables independent of the dependent variables simultaneously then obtained F value of that value $F_{arithmetic}$ shows the value of 76.247 with a value of F_{table} for the df numerator = 4, denominator df = 60 and a significance level of $\alpha = 0.05$ is 2.54. The sig value is $0.000 < 0.05$ and the value ($F_{count} = 76.247$) $>$ ($F_{table} = 2.54$), then H_a is accepted and H_o is rejected. So the results show that the variables of inflation, interest rates, exchange rates and oil prices have a significant effect on the JCI simultaneously on the Indonesia Stock Exchange (IDX) for the 2015-2019 period.

Partial Test (t Test)

Table 2. T Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.967	1.141		4.353	.000
Rate_Inflation	-.096	.042	-.186	-2.283	.026
Exchange Rate	.000	.000	.093	1.277	.207

The test results for the variable rate of inflation against ICI indicates the value ($t_{\text{count}} |2.283| > t_{\text{table}} 2.004$) and grades significantly by $0.026 < 0.05$, then we can conclude that H_0 is rejected and H_a is accepted, meaning that the inflation rate has a significant effect on ICI in Indonesia Stock Exchange in the 2015-2019 period.

The weakening of the ICI began during the US presidential election that won Donald Trump in November 2016. Trump's policy of neutralizing minorities and Trump's expansive fiscal policy which cut the tax ratio led to an increase in inflation in the US, which resulted in the depreciation of the rupiah which resulted in an increase in the price of imported goods and led to an increase in the price of imported goods. Inflation in Indonesia. The increase in the price of imported goods affects public consumption and causes investors to release their investment, especially in the consumer goods sector.

It is the same with Rini Astuti's study in 2015 which states that air inflation rate has a significant effect on ICI. However, this is not in line with the research of Suramaya Suci Kewal which states that the level of inflation has no effect on the ICI.

The exchange rate variable on the ICI shows a value ($t_{\text{count}} 1.277 < t_{\text{table}} \text{value of } 2.004$) and a significant value of $0.207 > 0.05$, so it can be concluded that H_0 is accepted and H_a is rejected, meaning that the exchange rate has no significant effect on the ICI on the Indonesia Stock Exchange in the 2015 period until 2019. The results of this study are not in line with previous research which stated that the exchange rate had an effect on the ICI entitled 'The Effect of Macroeconomic Factors on the Indonesia Composite Index (ICI) on the Indonesia Stock Exchange 2006-2015' by Rini Astuti. However, this is in line with research of the Suramaya Suci Kewal which states that interest rates have no significant effect on ICI in 2012.

Throughout 2017, the rupiah exchange rate against the US Dollar increased and decreased as follows in February increasing to 13347 and decreasing in March to 13321 then rising again in May to 13327 and so on until the end of 2017. The same is of 5296.71 becomes 6355.65. ICI at 2017 represents an all-time high due to the impact of post central BEI US Federal Reserve raised US interest rates and more stable economic growth that attracts investors.

The test results for the variable interest rate on CI indicates the value ($t_{\text{count}} 0.008 < t_{\text{table}} 2.004$) and the value of significance for $0.993 > 0.05$, we can conclude H_0 is accepted and H_a is rejected, meaning that the interest rate has no significant effect on ICI on the Indonesia Stock Exchange in the 2015-2019 period.

Indonesia uses the *BI rate* as a reference for interest rate targets. The *BI rate* is the policy interest rate that reflects the monetary policy stance or stance set by Bank Indonesia and announced to the public. The *BI rate* underwent significant changes indicating a change in monetary policy stance or attitude as reflected in the movement of the SBI discount rate around the *BI rate*. This change in the SBI discount rate, through the banking intermediation process, is expected to affect banking interest rates to the public, both deposit rates and loan or credit rates. In turn, changes in bank lending rates will affect consumption and investment and ultimately affect economic growth.

Interest rates did not significantly influence the Composite Stock Price Index as investors prefer to invest in capital markets which could dilute its shares when it deems unprofitable instead of investing in banks in the form of deposits for a certain period so that investors can not freely withdraw funds at the deposit savings. This shows that the rise and fall of interest rates does not affect the movement of the Composite Stock Price Index.

The test results for the variable price of oil on ICI is ($t_{\text{count}} |13.896| > \text{value } t_{\text{table}} 2.004$) and the value significantly for $0.000 > 0.05$, we can conclude H_0 is rejected and H_a is accepted, meaning that oil prices have a significant effect on ICI on Indonesia Stock Exchange in the 2015 - 2019 period.

World Oil Prices can affect a country's capital market. For companies in the mining sector on the IDX, the increase in World Oil Prices can provide benefits because the company's net profit will increase. This will attract investors to buy shares in mining companies so that the ICI will increase. However, the increase in World Oil Prices can cause losses for companies outside the mining sector on the IDX, such as the infrastructure sector and the consumption sector that use oil in their production process due to increased operational costs. Increased operating costs are an unrunnable profit.

It can be seen between February and May 2019 the price of oil has risen \$ 62.15 to \$ 69.89 while the ICI decreased from 6597.22 to 5983.59. The rise in prices in May was mainly driven by the trade agreement between the US and China and cuts made by the Organization of the Petroleum Exporting Countries with partners (OPEC+) and other countries, OPEC oil production fell by 280,000 barrels per day to 30.4 million barrels per day in the month of March. This is the lowest production level since 2015. [13] Increasing oil prices will give the effect of rising production costs in the company's goods or services

company that uses fuel, so the demand for goods will be dropped. This decrease in demand for goods and services will cause a decrease in investor income.

4. Conclusion

Based on the results of the research and discussion that have been described, the following conclusions are obtained : Simultaneously, the independent variables, namely the inflation rate, exchange rate, interest rates and oil prices have a significant effect on the JCI listed on the Indonesia Stock Exchange (IDX) for the 2015-2019 period. In partial, variable interest rates, oil prices have a significant effect on the JCI listed in Indonesia Stock Exchange (BEI) in the period from 2015 to 2019 while the variable exchange rate and interest rate did not affect the JCI listed in Indonesia Stock Exchange (BEI) for the period 2015-2019. From the value of the coefficient of determination (R^2) obtained, it can be concluded that the ability of the variable inflation rates, exchange rates, interest rates and oil prices explain the variable JCI amounted to 83.6% , while the remaining 16.4% of ICI is influenced by other variables not examined in this study.

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