

The Effect of Exchange Rate, Interest Rate, Inflation and World Oil Prices on Composite Index

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Abstract

This study aims to analyze the influence of macro economy between composite stock prices index. The dependent variable in this study was represented by the composite stock price index, while the independent variables consist of exchange rate, interest rate, inflation and oil price. The sampling used in this research observation period were 6 years during 2010-2015, then the data was analyzed by Multiple Linear Regression Test. The results of this study indicate that there were three variables that affect the composite stock price index, it's a exchange rate, interest rate and oil prices, while inflation have no effect on composite stock price index. Anova test result indicates exchange rate, interest rate, inflation and oil price simultaneously influence the composite stock price index. The test result show that these variables have significant positive impact on stock prices, i.e 0,000.

Keywords: exchange rate, interest rate, inflation, oil price, composite index

1. Introduction

The rapid development and development in the economic field that has occurred from year to year shows the great enthusiasm of investors and ordinary people to be able to experience a more prosperous life in society. The capital market is also growing along with the rapid development of all publicly listed companies because the capital market is seen as a vehicle that can raise the movement of long-term funds from the public to be deposited with productive issuers. The capital market is also a representation for assessing the condition of companies in a country, because almost all industries in a country are represented by the capital market. Capital markets that have experienced an increase (bullish) or decreased (bearish) can be seen from the rise and fall of listed stock prices which are reflected through an index movement or better known as the Composite Index. The condition of the capital market in Indonesia this year is inseparable from the economic slowdown, both at the global and domestic levels. Composite Stock Price Index (IDX) year to date in 2015 (2 January to August 7) saw a decline of -9,01% or in levels 4.770,30. However, when viewed over the last five years, the performance of the Indonesian Capital Market is still growing. There was an increase in the JCI by 29% in 2015 compared to 2010 which was recorded at the level of 3,203.51. Then, judging from the number of companies listed on the Indonesia Stock Exchange (IDX), there was a growth of 23%, from 420 companies in 2010 to 516 companies on August 7 2015. Then, in the value of stock market capitalization there was an increase of 52% for five last year. The share capitalization value reaches Rp 4,932.29 trillion as of August 7 2015. Meanwhile, at the end of 2010 it was recorded at IDR 3,247.10 trillion. (marketers.com).

2. Literature Review

According to Nurhaida, Chief Executive of the Capital Market Supervision of the Financial Services Authority (Marketeers.com, 11 August 2005) In the last five years, the JCI in Indonesia is still relatively better than the development of indices in several global exchanges. Indonesia is still better than Australia (ASX), Malaysia (KLIC), Singapore (STI), and others whose JCI growth rates are below Indonesia in the past five years.

Based on the chart, the trend of stock price movements on the stock exchange is very fluctuating and tends to increase from year to year. This depends on the strength of supply and demand for stocks. In the capital market, fluctuations in stock prices make the stock exchange attractive to several groups of investors. On the other hand, increases and decreases in stock prices can occur due to fundamental, psychological, and external factors.

The movement of the index is of course influenced by investors' expectations of state and global fundamental conditions. Various events and changes in macroeconomic indicators also play a role in a country's economic growth, which directly or indirectly influence the development of the capital market. Capital market performance is influenced by macroeconomic conditions such as exchange rates, interest rates, inflation and world oil prices. These macroeconomic conditions will greatly affect the ability of investors to understand and predict macroeconomic conditions in the future useful in making profitable investment decisions. Tandelilin (2001).

The value of the rupiah exchange rate against the US dollar is one of the factors that also influences the movement of the stock index in the Indonesian capital market. The stability of exchange rate movements is very important, especially for companies that are active in export-import activities that cannot be separated from the use of foreign currencies, namely the United States dollar as a transaction tool or a currency that is often used in trade. Exchange rate risk is closely related to fluctuations in domestic currency exchange rates with other countries' currencies. For a company that is export-import oriented, depreciation of the value of foreign currencies will result in imported goods being expensive. If most of the company's raw materials use imported materials, this will automatically result in an increase in production costs. This increase in production costs will certainly reduce the company's profit level. The decline in the company's profit rate will certainly affect investors' buying interest in the company's shares. In general, this will lead to a weakening of the stock price index in that country.

An increase in interest rates can increase the burden on companies (issuers) which can further reduce share prices. This increase also has the potential to encourage investors to divert their funds to the money market or savings and time deposits so that investment on the stock exchange floor decreases and can further reduce share prices.

Inflation is the tendency of goods to increase in general and within a certain period of time (Case and Fair, 1999). The unidirectional relationship between inflation and stock prices is that the higher the inflation, the higher the goods and services, which in turn increases the company's profit and its stock price. Aziz (2013).

The fluctuating movement of world crude oil prices is an indication that affects a country's capital market. The increase in world crude oil prices will indirectly impact the export and import sectors of a country. For oil-exporting countries, the increase in world crude oil prices is a distinct advantage for the company. Because oil prices are currently high,

investors tend to invest their funds in various oil and mining commodity sectors. However, if oil prices are falling, investors tend to seek profits by selling their shares.

As stated above, there are many factors that influence the capital market. Fluctuations in macroeconomic variables such as exchange rates, interest rates, inflation and world oil prices have played a vital role in the movement of the Jakarta Composite Index. Of course, these variables will also be a benchmark for investors to participate in making important decisions in investing in the capital market. Here is complete data. When interest rates fall, the JCI also falls. This happened during the 2014-2015 period. Meanwhile, when interest rates rise, the JCI also rises. this happened in the period 2012-2014. This is of course contrary to what has been described above, that interest rates have a negative influence on the JCI. Meanwhile, when the inflation rate fell from 6.96 to 3.79 in 2011, this did not cause the JCI to fall. JCI even increased sharply from 3,096.13 to 3,746. It can also be seen that when world oil prices fall, the JCI increases. This happened in 2013-2014. This condition is certainly not in accordance with the description above that world oil prices have a positive influence on the JCI.

Hypothesis. Allegedly the Exchange Rate, Interest Rate, Inflation and World Oil Prices affect the Composite Stock Price Index. Allegedly the Exchange Rate affects the Jakarta Composite Index. It is suspected that interest rates have an effect on the Jakarta Composite Index. It is suspected that inflation has affected the Jakarta Composite Index. It is suspected that world oil prices have an effect on the Jakarta Composite Index.

3. Research Method

Given the breadth of discussion that can be carried out on macroeconomic factors, the authors limit the use of these macroeconomic factors only in the form of Exchange Rates, Interest Rates, Inflation and World Oil Prices which are considered to represent macroeconomic factors in researching listed stock prices of the Jakarta Composite Index. on the Indonesian Stock Exchange. The research conducted is descriptive in nature, namely research that describes a phenomenon that occurs in research, in which the sequence of stages is in the form of collecting data, processing data, and analyzing data. Priyatno (2008). The data collected is secondary data, namely primary data that has been further processed and presented either by the primary data collector or by other parties, for example in the form of tables or diagrams. Umar (1998, p. 69). The type of data is quantitative data, namely data in the form of numbers or numbers. In accordance with the criteria, quantitative data can be processed or analyzed using statistical and mathematical calculation techniques. The data used in this study is monthly data for the 2010-2015 period in the form of: The closing price of the manufacturing sector stock price index is obtained from www.finance.yahoo.com; Prices for SBI exchange rates and interest rates are obtained from www.bi.go.id; The inflation rate is obtained from www.bps.go.id; World oil prices are obtained from www.economagical.com; Reading materials sourced from print media, electronic media, internet and books and other literature. The population used in this study is all data on the JCI, exchange rates, BI interest rates, inflation and world oil prices (based on West Texas Intermediate standards). Meanwhile, the data used as a sample in this study are JCI data, exchange rates, SBI interest rates, inflation and world oil prices (based on West Texas Intermediate standards) which are limited to closing data at the end of each month during the observation period between 2010- 2015. The reason for choosing the year period used is to get more accurate results

according to the current situation. The selection of monthly data is to avoid bias that occurs due to market panic in reacting to information, so that using monthly data is expected to obtain more accurate results.

4. Findings and Discussions

Multiple regression analysis techniques are used to predict the dependent variable if the independent variable is increased or decreased. The regression equation can be seen from the *coefficient* test table based on the SPSS version 16 output shown in the following table:

Table 1. Multiple Linear Regression Output

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-113.388	761.150		-.149	.882
EXCHANGE VALUE	.501	.055	1.191	9.044	.000
LEVEL_SBI	-32262.653	10707.898	-.355	-3.013	.004
INFLATION	59.704	92.706	.049	.644	.522
OIL	15.819	3.694	.413	4.282	.000

a. Dependent Variable: JCI

Based on the calculations through the SPSS program shown in Table 1 above, a regression equation model is obtained to determine how macroeconomic variables affect the Composite Stock Price Index as follows: $IHSG = -113.388 + 0.501 X_1 - 32262.653 X_2 + 59.704 X_3 + 15.819 X_4 + e$

From the results of the multiple linear regression equation, the following analysis can be done: The constant value of -113.388 means that if the value of the independent variables X_1 , X_2 , X_3 and X_4 is equal to zero, then the JCI value will be -113.388. X_1 regression coefficient of 0.501 means that if the x_1 variable increases by 1 point, it will increase the JCI by 0.501. The x_2 regression coefficient of -32262.653 means that if the x_2 variable increases by 1 point, it will reduce the JCI by -32262.653. The x_3 regression coefficient of 59.704 means that if the x_3 variable increases by 1 point, it will increase the JCI by 59.704. The x_4 regression coefficient of 15.819 means that if the x_4 variable increases by 1 point, it will increase the JCI by 15.819.

The F statistical test basically shows whether all independent variables included in the model have a simultaneous influence on the dependent variable. The results of this F test calculation using SPSS version 16 can be seen in the table below:

Table 2. F Test Output

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	2.281E7	4	5702773.434	26.017	.000a
Residuals	1.469E7	67	219196.331		
Total	3.750E7	71			

Predictors: (Constant), OIL, INFLATION, RATE_SBI, EXCHANGE RATE

Dependent Variable: JCI

Based on the SPSS results in table 2, it is known that the F sig value of 0.000 is smaller than the significance level of 0.05. These results indicate that the variables of Exchange Rate, Interest Rate, Inflation and World Oil Price simultaneously has a significant influence on the JCI.

The t test aims to test the effect of the independent variable (partially on the dependent variable). The results of the *coefficients* regression analysis test using SPSS version 16 are shown in the table below:

Table 3. T Test Output

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-113.388	761.150		-.149	.882
EXCHANGE RATE	.501	.055	1.191	9.044	.000
LEVEL_SBI	-32262.653	10707.898	-.355	-3.013	.004
INFLATION	59.704	92.706	.049	.644	.522
OIL	15.819	3.694	.413	4.282	.000

a. Dependent Variable: JCI

By looking at table 3 with a significance level of 0.05, the regression equation above when associated with the hypothesis test that the author proposes has the following meaning: Hypothesis Test of the Effect of Exchange Rate on JCI. The Exchange Rate variable has a positive and significant effect on the Composite Stock Price Index. This is indicated by the t sig value of 0.000 which is smaller than the significance level of 0.05. Thus the hypothesis H_0 which states the Exchange Rate has no significant effect on the Composite Stock Price Index is rejected and which states that the Exchange Rate has a significant effect on JCI is accepted.

Hypothesis Test of the Effect of Interest Rate on JCI. The Interest Rate variable has a negative and significant effect on JCI. This is indicated by the t sig value of 0.004 which is less than the significance level of 0.05. Thus the hypothesis H_0 which states the Interest

Rate has no significant effect on JCI is rejected and H_a which states the Interest Rate has a significant effect on JCI is accepted.

Hypothesis Test of Inflation Effect on JCI. Inflation variable has a positive and insignificant effect on JCI. This is indicated by the t sig value of 0.522 which is greater than the 0.05 significance level. Thus the hypothesis H_0 which states Inflation has no significant effect on stock prices is accepted and H_a which states Inflation has a significant effect on the JCI is rejected.

Test Hypothesis Effect of World Oil Price to JCI. Variable Price Oil Price variable. has a positive and significant effect on price stock price. this is indicated by the t sig value of 0.000 more smaller from significance level of 0.05. Thus the hypothesis H_0 which states Inflation does not have a significant effect to the stock price is rejected and which states Inflation has a significant effect on JCI is accepted.

The analysis of the coefficient of determination (R^2) is used to determine how much percentage of the contribution of the influence of the independent variables simultaneously on the dependent variable (Priyatno, 2013: 56). The results of the calculation of the coefficient of determination can be seen in the following table:

Table 4. Regression Coefficient Output

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.780a	.608	.585	468.18408

Predictors: (Constant), OIL, INFLATION, RATE_SBI, EXCHANGE RATE

Dependent Variable: JCI

Table 4 shows the R value which explains the level of influence between the independent variable and the dependent variable. From the processed data obtained the coefficient of determination of 0.585, meaning that this value indicates that the effect of independent variables, namely changes in Exchange Rates, Interest Rates, Inflation and World Oil Prices on JCI explained by this equation model is 58.5% and the remaining 41.5% is influenced by other factors not included in this regression model.

In simultaneous hypothesis testing, the variables of Exchange Rate, Interest Rate, Inflation and World Oil Price showed that there was a strong and significant influence on the JCI. While from the partial hypothesis test, from the variables of Exchange Rate, Interest Rate, Inflation and World Oil Prices, only Inflation did not show a significant influence on the JCI. The discussion of the hypothesis test results is as follows:

The results showed that the variables of Exchange Rate, Interest Rate, Inflation and World Oil Price have a strong and significant effect on JCI. Simultaneously the Exchange Rate, Interest Rate, Inflation and World Oil Price variables have a strong and significant influence on the Composite Stock Price Index. This can be seen from the results of the F

test obtained with an F sig of 0.000 which is smaller than the significance level of 0.005. The magnitude of the influence of the independent variables Exchange Rate, Short Interest Rate, Inflation and World Oil Prices on JCI explained by this equation model is 58.5% and the remaining 41.5% is influenced by other factors not included in this study. The large and strong influence of Exchange Rate, Interest Rate, Inflation and World Oil Price on JCI which reached 58.5% is in accordance with the theory which says that theoretically the factors that influence the price of oil and gas are the same as those that influence the price of oil. External factors (macro environment), which in this study are the variables of Exchange Rate, Interest Rate, Inflation and World Oil Price.

The results showed that the Exchange Rate variable had a positive and significant effect on JCI. From the t test results (partial) obtained t sig of 0.000 smaller than the significance level of 0.05. These results indicate that the Exchange Rate variable has a positive and significant effect on JCI. Thus the hypothesis H_0 which states the Exchange Rate has no significant effect on the JCI is rejected and H_a which states the Exchange Rate has a significant effect on the JCI is accepted. The value of the regression coefficient that occurs in this study is positive. This indicates that the higher the Exchange Rate the higher the JCI. The results of this study are in accordance with the theory that the exchange rate and stock prices have a unidirectional relationship, where the stronger the rupiah against the dollar (the lower the rupiah per dollar) causes increased capital inflows into Indonesia which ultimately increases national income and stock prices. This study is consistent with those conducted by Witjaksono (2010), Thobarry (2009), Suyanto (2007) and Hasibuan (2009) which state that the Exchange Rate has a significant effect on JCI.

The results showed that the Interest Rate variable has a negative and significant effect on JCI. From the t test results (partial) obtained t sig of 0.004 is smaller than the significance level of 0.05. These results indicate that the Interest Rate variable has a negative and significant effect on JCI. Thus the hypothesis H_0 which states the Interest Rate has no significant effect on stock prices is rejected and H_a which states the Interest Rate has a significant effect on the JCI is accepted. The regression coefficient in this study is negative. This indicates that the higher the Interest Rate the lower the JCI. The results of this study are in accordance with the theory that the Interest Rate has a negative relationship with the JCI, where when interest rates rise, stock prices will decline. An increase in interest rates will result in an increase in lending rates. An increase in deposit interest rates results in an increase in lending rates by banks, so that the interest costs borne by debtors who are mostly in the business sector become greater, this results in a decrease in profit levels and even companies can lose money. Companies that experience interest rate risk, their stock prices will fall because investors see the company as having poor prospects. This research is consistent with that conducted by Suyanto (2007) which states that the level of interest rate risk is not good. Interest rate has a significant influence on JCI.

The results showed that the Inflation variable had a positive and insignificant effect on stock prices. From the t test results (partial) obtained t sig of 0.522 greater than the significance level of 0.05. These results indicate that the Inflation variable has a positive and insignificant effect on JCI. Thus the hypothesis H_0 which states Inflation has no significant effect on JCI is accepted and H_a which states Inflation has a significant effect

on JCI is rejected. The results of this study are not in accordance with the theory that has been previously stated. The absence of a significant effect indicates that the ups and downs of inflation in the 2010-2015 period did not have a major impact on stock price movements. These results indicate that inflationary conditions cause investors not to want to speculate or tend to wait so that inflation conditions are more stable, so that the risk of loss experienced by investors is not large. This research is consistent with Azis (2013) and Maryanne (2009) who state that Inflation has no significant effect on stock prices.

The results showed that the World Oil Price variable has a positive and significant effect on JCI. From the t test results (partial) obtained t sig of 0.000 less than the significance level of 0.05. These results indicate that the World Oil Price variable has a positive and significant effect on JCI. Thus the hypothesis H_0 which states that World Oil Prices have no significant effect on JCI is rejected and H_a which states that World Oil Prices have a significant effect on JCI is accepted. The results of this study are in accordance with the theory that indirectly the increase in world crude oil prices will affect the export and import sectors of a country. For oil exporting countries, the increase in world oil prices is an advantage for the company because high prices make investors tend to invest their funds in various oil and mining commodity sectors, so that demand for these shares increases and causes the composite stock price index to rise. This research is consistent with that conducted by Witjaksono (2010) which states that World Oil Prices have a significant influence on the JCI.

5. Conclusion

This study aims to obtain empirical evidence regarding the effect of exchange rates, interest rates, inflation and world oil prices on the Composite Stock Price Index. Based on the test results that have been carried out on the sample during 2010-2015, the conclusions are as described in the following section: From the results of simultaneous testing, it is shown that there was a significant influence between Exchange Rates, Interest Rates, Inflation and World Oil Prices on the Composite Stock Price Index. From the partial test results, it is shown that there was a significant influence between the Exchange Rate and the Composite Stock Price Index. From the partial test results, it is shown that there was a significant influence between the Interest Rate on the Composite Stock Price Index. From the partial test results, it is shown that there was no significant influence between Inflation on the Composite Stock Price Index. From the partial test results, it is shown that there was a significant influence between the World Oil Price and the Composite Stock Price Index.

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