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Effects of the Dow Jones Index and Rupiah Exchange Rate on the 2013-2017 Composite Stock Price Index

Amanah⊠

Jurusan Ekonomi Pembangunan, Fakultas Ekonomi, Universitas Negeri Semarang

Abstract

This study aims to examine the effect of the Dow Jones Index (X1) with the Composite Stock Price Index (Y) in Indonesia and the influence between the rupiah exchange rate (X2) on the Composite Stock Price Index (Y) in Indonesia in the period 2013-2017. In statistical testing, the number 0.2212 was obtained related to the influence of X1 and Y, which means that every change in one unit of X1 can lead to changes in Y by 22 %, and means there is a weak influence between variables X1 and Y partially, while for the purpose of X2 and Y obtained the number 0.6531, which means that every change in unit X2 can result in a change in Y by 65 %, which means there is a high influence between variables X2 and Y partially. In the F test, P Value is generated 0.00000 <0.05, which means there is a simultaneous influence between the two independent variables on the dependent variable, while the Determination Coefficient results in R-Squared value of 0.975966, which means a set of predictor variables in the model can explain the response variable 97 %, while the rest is explained by other variables outside the model under study.

Keywords: Dow Jones Index, Exchange Rate, Composite Stock Price Index

Abstrak

Penelitian ini bertujuan untuk menguji pengaruh Indeks Dow Jones (X1) dengan Indeks Harga Saham Gabungan (Y) di Indonesia dan pengaruh antara nilai tukar rupiah (X2) terhadap Indeks Harga Saham Gabungan (Y) di Indonesia pada periode 2013-2017. Dalam pengujian statistik, angka 0,2212 diperoleh terkait dengan pengaruh X1 dan Y, yang berarti bahwa setiap perubahan dalam satu unit X1 dapat menyebabkan perubahan Y sebesar 22%, dan berarti ada pengaruh yang lemah antara variabel X1 dan Y sebagian, sedangkan untuk keperluan X2 dan Y diperoleh angka 0,6531, yang berarti bahwa setiap perubahan dalam unit X2 dapat menghasilkan perubahan Y sebesar 65%, yang berarti ada pengaruh yang tinggi antara variabel X2 dan Y secara parsial. Dalam uji F, Nilai P dihasilkan 0,00000 <0,05, yang berarti ada pengaruh simultan antara dua variabel independen pada variabel dependen, sedangkan Koefisien Determinasi menghasilkan nilai R-Squared 0,975966, yang berarti satu set variabel prediktor dalam model dapat menjelaskan variabel respon 97%, sedangkan sisanya dijelaskan oleh variabel lain di luar model yang diteliti.

Kata Kunci: Indeks Dow Jones, Nilai Tukar, Indeks Harga Saham Gabungan

⊠ Alamat Korespondensi :
 Alamat: Gedung L2 Lantai 2 FE Unnes
 Kampus Sekaran, Gunungpati, Semarang, 50229
 E-mail : amanahep@gmail.com

INTRODUCTION

Capital markets hold an important role in the economic development of a country because it is a market aimed for various long-term financial instruments that can be traded both in form of debt and equity. The financial instruments traded on the capital market are such as stocks and bonds (Ernayani, 2015).

Capital markets run two functions, namely as a means for business funding and as a means for companies to get funds from investors. The funds obtained from capital markets can be used for the development of expansion efforts to increase working capital and others. Second, capital markets are means for people to invest financial instruments. In this way, public can place the risk of each financial instrument (Amin, 2012).

In Indonesia capital market trading is conducted on the Indonesia Stock Exchange. The Indonesia Stock Exchange drives economic growth because cheap funds can be obtained from capital markets although the performance is dynamic. The stock price on the stock exchange is not always stable, sometimes it can increases and can also decrease depending on the strength of demand and supply. In capital markets, fluctuations in stock prices result the stock exchange attractive to several investors. The flow of stock prices can be seen from the stock price index in the stock exchange as information needed by investors as a basis for their decisions in investment. One index in the exchange is the Composite Stock Price Index (CSPI).

Anoraga and Pakarti (2006) in Astuti et al. (2013), state that Composite Stock Price Index in an index showing the flow of stock prices which is generally recorded in the stock exchange and becomes a basis for the development of activities occurred in the capital market. Through this index, investors can examine the overall stocks available in the exchange. For more, for companies which actively carry out export and import activities, the stability of dollar exchange rate against rupiah is important. It is because when the rupiah value is depreciated by US dollar, the imported goods would be expensive. In relation to this, when the majority of the raw materials used by a company is obtained through import, automatically the depreciation would increase the production cost. This increase would certainly reduce the level of company profit. This reduction would surely influence investors' buying interest in the company stocks.

Commonly, this phenomenon will drive the weakening of stock price index in the country. Another economic variable available to use for examining the economic performance of a country is the country's stocks index itself. It is possible because when the country has a bright economic outlook, automatically investors will be attracted to invest their funds in the capital market of the country concerned. This will encourage bullish periods that will drive the flow of the stock index. Conversely, when the country's economic atmosphere looks dull, it will be known by the decrease in the stocks index. Other than that, in United States of America, the index that can be used as a proxy is the Dow Jones Index. The Dow Jones Index is the oldest stock market index in the United States and is a representation of the most important industrial performance in the United States.

Companies listed on the Dow Jones Index are generally multinational companies. Their operations are spread throughout the world. Companies like Coca-Cola, ExxonMobil,

Citigroup, Procter & Gamble are some example of companies listed in Dow Jones and operating in Indonesia. These companies generally operate directly in Indonesia. When the Dow Jones index goes up, it means that the economic performance of the United States in general is in a good position. With good economic conditions, the Indonesian economy realized through export activities and the capital market will be driven (Sunariyah, 2006).

Based on the description above, a research question for this study was "Do Dow Jones Index and Rupiah Exchange Rate affect the Composite Stock Price Index (CSPI)?" Meanwhile, the aim of this study was to obtain empirical evidence whether the variables of Dow Jones Index and the Value of Rupiah Exchange of influence the Composite Stock Price Index.

RESEARCH METHODOLOGY

This study used correlational study, namely a study carried out to find the existence of relationship and how significant the relationship is as well as whether the relationship is significant or not (Arikunto, 2002: 239). In this case, the correlational study was aimed at investigating either partial or simultaneous influence of inflation, exchange rate, and Dow Jones, and net exports to the Composite Stock Price Index (CSPI).

Suharyadi and S.K., (2009: 7) argue that population is a collection of all possible people, objects, and other sizes involved as an object of concern or all objects of concern. The population in this study were all companies listed on the Indonesia Stock Exchange from January 2013 - December 2015.

According to Sugiyono (2011: 62), sample is a part of number and characteristics owned by population. The sampling technique used in this study was by using saturated sampling technique. This is a technique used when all population members are involved as samples (sugiyono, 2011: 68). The sample in this study were all companies registered in Indonesia Stock Exchange from January 2013-December 2015.

This study used ne dependent variable, and three independent variables. Dependent variable is a variable influenced or act as a cause of the existence of independent variable (Sugiyono, 2011:4). Meanwhile, independent variable in this study was Composite Stock Price Index (CSPI), which was the closing price of the monthly CSPI stocks in Indonesia Exchange Stock occurred between 2013 and 2015 (in rupiah).

Independent variable (X), According to Sugiyono (2011: 4), is a variable that influences or is the cause of the change or the emergence of the dependent variable. The independent variable in this study was the level of Indonesia year-end inflation determined by Bank Indonesia ranging from 2013 until 2017 (in percentage).

Classical Assumption Test is used to find out whether the results of the model analysis in the study are free from classical assumptions deviations. In this study, the classical assumption test used covered multicollinearity test, heteroscedasticity test, autocorrelation test, and normality test.

In a good regression model, there should be no correlation between independent variables. To detect the presence or absence of multicollinearity in the regression model, several ways can be used such as (1) tolerance value and the opposite (2) variance inflation factor (VIF). Both of these measures indicate which

independent variables explained by other independent variables.

Further, heteroscedasticity test is a test used to assess whether there is an inequality of variants from residuals for all observations in the linear regression model.

Auto Correlation test is carried out to determine whether or not there is a classical deviation of autocorrelation, namely the correlation between the residuals at the time of observation and other observations in the regression model. In this study, auto correlation test was done by using the Durbin-watson test (DW Test).

According to Ghozali (2013: 160) normality test has a purpose to test whether in the regression model, the residual confounding variable has a normal distribution. There are two ways to detect whether the residual is normally or not normally distributed.

The basis for decision making to accept or reject Ho and Ha was by using the value of significance probability by considering if t test is negative, the hypothesis is rejected (the regression coefficient is not significant). It means that partially, the independent variables do not have significant influence on the dependent variable. For more, when the f test results positive value, the hypothesis is accepted (the regression coefficient is significant). It means that partially the independent variables have significant influence on dependent variables.

The F test aims to determine whether or not there is a simultaneous effect (together) given by independent variables (X) on dependent variables (Y). Alternatively, determination coefficient serves to find out the number of percentage of influence given by variable X simultaneously to variable Y. The data

source used in this study were secondary data. Secondary data is data in the form of documentation or report (Azwar, 2015: 91).

In this study the researchers used data from the publication of the Central Bureau of Statistics (www.bps.go.id), Bank Indonesia (www.bi.go.id), the Indonesia Stock Exchange published by yahoo finance website (finance.yahoo.com), Bank Indonesia published by kontan website (sentraldata.kontan.co.id).

RESULTS AND DISCUSSION

The model in this study was tested by covering classic assumption tests and statistical tests. The followings were the results:

Table 1. Multicollinearity Test Results

Variance Inflation Factors
Date: 08/27/18   Time: 03:18
Sample: 2013-2017
Included observations: 5

Variables	Uncentered VIF	Centered VIF
C	423.5439	NA
EXCHANGE_RATE	533.4169	1.281425
INDEKS_DJ	67.10553	1.281425

Source: Research Data (E-Views 9.0)

The table above shows that the Centered VIP values for Dow Jones Index and the Exchange Rate was 1. 281425 where the value was less than 10. Therefore, it can be said that there was no multicollinearity problem in the prediction model. The heteroscedasticity test was a test used to assess the presence of an inequality of variance from the residual for all observations in the linier regression model. The result of this test can be seen in table 3. Table 3

shows that the value of P was showed by the Chi-square probability value of 0.1402. Therefore, p value 0.1402> 0.05, then Ho was accepted or the regression model was homoscedastic or there was no problem on the assumption of non-heteroscedasticity.

Table 2. Heteroscedasticity Test Results

Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.668238	Prob. F(2,2)	0.2142
Obs*R-squared	3.928932	Prob. Chi-Square(2)	0.1402
Scaled explained SS	0.413434	Prob. Chi-Square(2)	0.8132

Source: Research Data (E-Views 9.0)

Auto correlation test was done to know whether there is a deviation of autocorrelation classical assumption, namely a correlation happens between residual in an observation and in other observations in regression model. In this study, this test was conducted by the use of Durbinwatson test (DW test), and the results are in the table 3 in the appendix.

Normality test is done with the aim of examining data distribution in a group of data or variable. It is whether the data are normally distributed or not. Based on figure 1, the value of jarque bera was 0.306681 with p value of 0.857838> 0.05. Therefore, it can be said that the residual was normally distributed.

T test was conducted with the aim of knowing whether the independent variable (X) partially has a significant influence on the dependent variable (Y). Whereas, F test or known as the simultaneous test / ANOVA test is a test to see how the all variables are jointly influenced on the dependent variable.
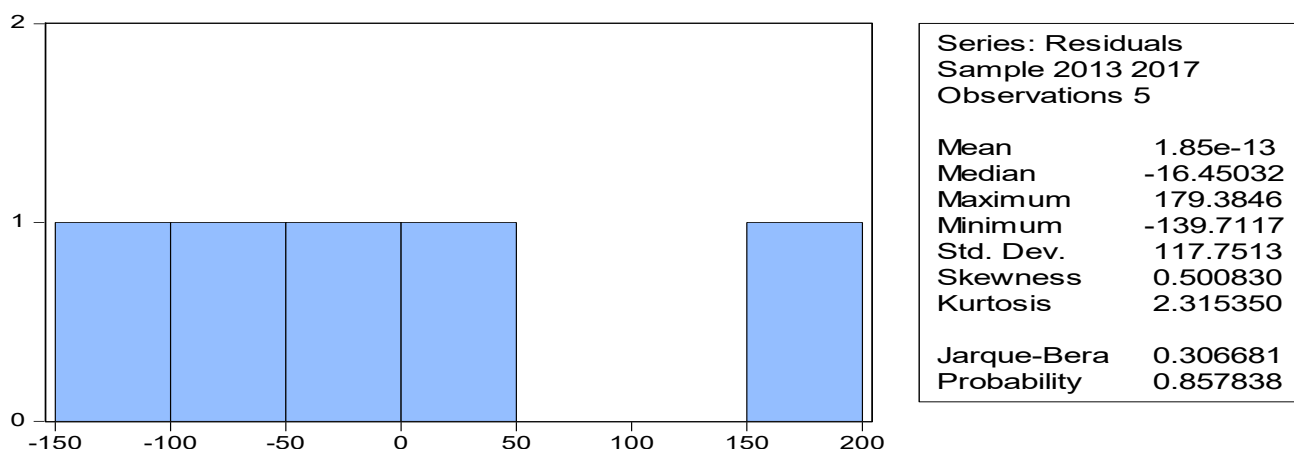

Series: Residuals	
Sample 2013 2017	
Observations 5	
Mean	1.85e-13
Median	-16.45032
Maximum	179.3846
Minimum	-139.7117
Std. Dev.	117.7513
Skewness	0.500830
Kurtosis	2.315350
Jarque-Bera	0.306681
Probability	0.857838

Figure 1. The results of the normality test.

Source: Research Data (E-Views 9.0)

The following table 4 shows that the P value was 0.021679 where <0.05. It can be concluded that H1 was accepted. The acceptance of H1 means that the independent variable simultaneously influenced the dependent variable. Further, determination coefficient functions to find out the percentage of influence given by variable X simultaneously to variable Y.

Based on table 4, it can be seen that the determination coefficient value or R-Squared was 0.978321, meaning that a set of predictor variables in the model could explain the response variable by 97%, while the rest was explained by other variables outside the investigated model.

Table 4. Test Statistics

Variables	Coefficients	Std. Error	t-Statistic	Prob.
C	855.6683	1532.657	0.558291	0.6328
EXCHANGE_RATE	-0.070398	0.131325	-0.536063	0.0000
INDEKS_DJ	0.782818	0.090705	8.630358	0.0000
R-squared	0.978321	Mean dependent var		5149.300
Adjusted R-squared	0.956642	S.D. dependent var		799.7395
S.E. of regression	166.5255	Akaike info criterion		13.35188
Sum squared resid	55461.49	Schwarz criterion		13.11755
Log likelihood	-30.37971	Hannan-Quinn criter.		12.72295
F-statistic	45.12810	Durbin-Watson stat		2.305178
Prob(F-statistic)	0.021679			

Source: Research Data (E-Views 9.0)

CONCLUSION

Based on the findings and discussion on the influence of the Dow Jones index and the rupiah exchange rate on the Composite Stock Price Index, the researchers draw several conclusions, namely first, the Dow Jones Index has a positive influence of 22%, meaning that there is a weak correlation with the Composite Stock Price Index. Second, the rupiah exchange rate has a positive effect of 65% on the Composite Stock Price Index, meaning that there is a strong influence between the exchange rate and the Composite Stock Price Index, and based on the F Test, there is no simultaneous effect between the two independent variables on the dependent variable.

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APPENDIX

Table 3. The Results of Autocorrelation Test

Dependent Variable: IHSG

Method: Least Squares
Date: 08/27/18   Time: 03:29
Sample: 2013 2017
Included observations: 5

R-squared	0.978321	Mean dependent var	5149.300
Adjusted R-squared	0.956642	S.D. dependent var	799.7395
S.E. of regression	166.5255	Akaike info criterion	13.35188
Sum squared resid	55461.49	Schwarz criterion	13.11755
Log likelihood	-30.37971	Hannan-Quinn criter.	12.72295
F-statistic	45.12810	Durbin-Watson stat	2.305178
Prob(F-statistic)	0.021679		

Source: Research Data (E-Views 9.0)