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The Effect of Inflation, Indonesian Interest Rate and the Rupiah Exchange Rate on the Movement of the Indonesia Stock Exchange

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Abstract

This study aims to determine the effect of inflation, Indonesian interest rates, and the rupiah exchange rate simultaneously and partially on the movement of the Composite Stock Price Index on the Indonesia Stock Exchange (IDX). The theory and previous research that revealed that the IDX movement was influenced by several factors such as the global stock exchange index, the trend of foreign oil price movements, the trend of foreign gold prices, the exchange rate of the country's currency against other countries, interest rates and inflation that was happening in the country. country. In this study, the composite stock price index used is from January 1, 2016 to December 31, 2020. This study uses a causal form and quantitative data. In analyzing the data, the researcher used multiple regression analysis. The error rate used is 5 percent. The researcher also tested the classical assumptions before doing the regression analysis. All data analysis was performed using SPSS version 21 program. From the results of the analysis that has been carried out, it can be concluded that 1) The inflation rate, the Indonesian interest rate and the rupiah exchange rate simultaneously have a significant influence on the movement on the IDX as seen from the calculation significance value of 0.000 which is less than the research significance of 0.05 . 2) Partially, inflation has a significant effect on the IDX based on the calculation significance value of 0.021 which is smaller than the research significance value of 0.05. 3) Partially, the Indonesian interest rate has a significant influence on the movement of the IDX as seen from the calculation significance value of 0.018 which is smaller than the research significance value of 0.05. 4) Partially the rupiah exchange rate has a significant influence on the movement of the IDX with the results of the calculation of the significance value of 0.036 which is less than the significance value of 0.05. 5) The coefficient of determination (Adjusted R2) is 0.405, which means that 40.5 percent of the IDX can be explained by the three independent variables, namely the inflation rate, the Indonesian interest rate and the rupiah exchange rate simultaneously and the rest is explained by other factors outside the research variables.

Keywords: *Inflation; Indonesian Interest Rate; Rupiah Exchange Rate; IDX*

Introduction

Currently the development of investment in a country is influenced by economic growth in that country. The better the level of economic growth in the country, the better the level of welfare of its people. People who live in prosperity are usually marked by an increase in their income level. When

people have a high level of opinion, people will tend to have more funds that can be used to invest in financial and non-financial instruments. In financial instruments, the public can invest in bonds, time deposits, and stocks. In non-financial instruments, people can invest in property, precious stones, and so on.

In the discussion of this journal, the researcher places more emphasis on the shares of companies listed on the Indonesia Stock Exchange, especially on the movement of the IDX (Indonesian Stock Exchange). Where the IDX is not only influenced by the business activities of each company, it is also influenced by other factors such as changes in exchange rates, inflation, Bank Indonesia interest rates, movements in world oil prices, movements in world gold prices, and so on.

Inflation is a condition that describes changes in the price level in an economy. The high rate of inflation can reduce people's purchasing power and also increase the price of production factors. Where if the inflation rate rises then the movement of the stock price index will tend to fall and vice versa.

In addition to inflation, the impact of another variable is the interest rate. In theory, interest rates and stock prices have a negative relationship (Tandelilin, 2010). Changes in the SBI interest rate will also be followed by changes in the deposit interest rate because the SBI interest rate is used as a reference for state, national and foreign private banks in determining the interest rates for savings, time deposits and loans to their respective customers.

In addition, there are other investment alternatives that can also affect stock transactions on the stock exchange, namely investing in foreign exchange in this case the dollar (USD). If when the dollar exchange rate is weakening against the rupiah and can be predicted to strengthen again in the future, and also when other investment alternatives are deemed less promising, investors may tend to invest their funds in dollars in the hope that when the dollar exchange rate against the rupiah returns increases, he will sell it back into rupiah, so that he gains from the difference in the exchange rate. Therefore, if the rupiah exchange rate weakens, the IDX tends to move up.

Formulation of the Problem

From the description of the background that has been stated above, the problem in this study is "Does the inflation variable, SBI interest rate and the rupiah exchange rate (US Dollar) have an influence on the Indonesia Stock Exchange in 2016 - 2020?"

Research Objectives

The objectives of this research are:

1. To find out whether the inflation variable has a significant effect on the Indonesia Stock Exchange in 2016 - 2020;
2. To find out whether the SBI interest rate variable has a significant influence on the Indonesia Stock Exchange 2016 - 2020;
3. To find out whether the rupiah exchange rate variable (IDR/USD) has a significant influence on the Indonesia Stock Exchange 2016 – 2020.

Significance of the Research

The benefits of this research are:

1. For Researchers: broaden the horizons of thinking, and as a consideration to what extent the application of theories obtained during lectures can be implemented in everyday life.

2. For Investors and Issuers: The results of this study can assist investors and issuers in making decisions about their shares, which are related to movements in world oil prices, inflation, and Indonesian interest rates so that they are able to make the right investment decisions in the capital market.
3. Students: Can provide insight, knowledge, add reference information, and provide evidence about the effect of inflation, interest rates and exchange rates on the IDX and useful for future research.

Literature Review

Review of Previous Research Results

Novianto (2008) Using multiple regression analysis where the rupiah exchange rate, the SBI interest rate, have a positive effect on the IDX. Meanwhile, interest rates and money in circulation have a negative effect on the IDX.

In contrast to Tobing (2009) in his research, the results of the short-term regression of the rupiah exchange rate have a negative effect, inflation has a positive effect, the SBI interest rate and inflation have a positive but not significant effect.

Pasaribu, et al (2009) in their research using a regression model with the results, inflation, SBI interest rates and the rupiah exchange rate have no effect on the IDX, while the Hangseng Index has a significant effect on the IDX.

Tobing (2009) in his research concluded that the factor of the USD/Rp exchange rate had a significant negative effect on the IDX movement in the period 2004-2008. Even from the results of this study, among the variables of the USD/Rp exchange rate, the SBI interest rate, and inflation, the most influential is the exchange rate variable.

Tri Susilo Anggoro (2011) conducted a study using a regression model with the results that inflation had no significant effect on the IDX, while the SBI interest rate and exchange rate had a significant and negative effect on the IDX.

While the research conducted by Kesuma (2012) with the research title Analysis of the Effect of Rupiah Exchange, World Gold Prices and World Oil Prices on the IDX Mining Sector on the IDX by Putri Niti Kesuma in 2012 using statistical analysis concluded that the variable Rupiah exchange rate per US Dollar, World Oil Prices and World Gold Prices have a positive influence on the Composite Stock Price Index (IDX).

Theoretical Foundation

Inflation

The definition of inflation put forward by Bodie Kane Marcus (2014:141) is the rate of increase in prices in general. High inflation rates are often associated with an “too hot” economy, ie an economy where the demand for goods and services is higher than production capacity, resulting in an increase in prices. According to Blanchard and Johnson (2016, 39), inflation is defined as a gradual increase in the general price level and the inflation rate is defined as an increasing price level.

According to Sukirno (2013:339), the factors that trigger inflation are:

a. Demand pull inflation occurs when the corporate sector is unable to quickly serve public demand for tangible goods in the market.
b. Cost push inflation, is the problem of rising prices in the economy caused by increased production costs.

Exchange Rate

The opinion expressed by Mankiw-Quah Wilson (2014: 32), the exchange rate is divided into two, namely the nominal exchange rate is defined as the value used by a person when exchanging the currency of a country with the currency of another country. While the real exchange rate is defined as the value used by a person when exchanging goods and services from one country for goods and services from another country.

According to Hamdy in the book Economics, Introduction to Micro/Macro, Iskandar Putong (2013:366) states that foreign exchange/foreign exchange is foreign currency or other means of payment used to conduct or finance international financial economic transactions and which has a record exchange rate official at the central bank.

The factors that can affect the exchange rate according to Sukirno (2013) are as follows:

a. Changes in people's tastes will change the pattern of their consumption of goods produced at home and abroad. Improving the quality of domestic goods causes a decrease in the desire to import and can also increase exports.
b. Changes in the prices of export and import goods. Domestic goods that can be sold at relatively cheap prices will increase exports and if the price increases, exports will decrease. Reducing the price of imported goods will increase the number of imports and an increase in the price of imported goods will reduce imports. Thus changes in the prices of exported and imported goods will cause changes in the demand and supply of foreign exchange.
c. General price increase (inflation). Inflation has a very large influence on foreign exchange rates. Inflation generally tends to reduce the value of foreign exchange.
d. Changes in interest rates and investment returns. Interest rates and low rates of return on investment tend to cause domestic capital to flow out of the country, while high interest rates and returns on investment will cause foreign capital to enter the country.
e. Economic growth of a country. The effect that economic progress will have on the value of its currency depends on the economic growth that occurs. If economic progress is caused by the development of exports, the demand for foreign currency will increase faster than the supply so that the currency will rise.

Interest

According to Kasmir (2014:114) bank interest can be interpreted as remuneration provided by banks based on conventional principles to customers who buy or sell their products. Interest can also be interpreted as the price that must be paid to the customer and that which must be paid by the customer to the bank.

Meanwhile, according to Ross (2015:68) interest rates are distinguished between real interest rates and nominal interest rates. Nominal interest rates have not been adjusted for inflation, real interest rates have been adjusted for inflation.

Kasmir (2014:115) says the factors that influence the rise and fall of interest rates include:

a. Bank Fund Needs. If the bank is short of funds, while the loan application is increasing, then what the bank does so that it can be fulfilled quickly is to increase the loan interest rate. However, an increase in deposit interest rates will also increase loan interest rates. On the other hand, if there are a lot of funds in bank deposits, while the loan application is small, the deposit interest will fall.
b. The desired profit target is in accordance with the target of investors, if the desired profit is large, the loan interest will also be large and vice versa.
c. Quality Assurance is also reserved for interest. The more liquid the collateral (easily disbursed) is given, the lower the loan interest charged and vice versa.

d. Government Policy. In a sense, both for deposit and loan interest, we must not exceed the interest set by the government.
e. Term of Deposit. For both deposit interest and loan interest, the time period is very decisive. The longer the term of the loan, the higher the interest. Vice versa. This is due to the large and small risk of traffic jams in the future. However, for deposit interest, the opposite applies, the longer the period, the lower the deposit interest and vice versa.

Share Price

Based on the Guide to Investments in the Indonesian Capital Market, the price of a stock is strongly influenced by the law of supply and demand. The stock price tends to rise when the stock price is in excess of demand and tends to fall when there is an excess supply.

According to R. Agus Sartono in the Investment management book (2017:177), the stock price is the present value or present value of the cash flow that is expected to be received. Meanwhile, according to Maurice Kendall in the Investment Management book (2017:177), stock prices are unpredictable or have an uncertain pattern. It moves following a random walk so that investors must be satisfied with normal returns with the level of profit provided by the market mechanism. There are two types of analysis that are widely used to determine stock prices, namely as follows:

a. Technical analysis, which is determining stock prices using market data from stocks, such as stock prices, transaction volume and market index.
b. Fundamental analysis or company analysis, namely determining stock prices using fundamental data, namely data originating from company finances such as profits, dividends paid, sales, company growth and prospects as well as company industry conditions.

Relationships Between Variables

Effect of Inflation Rate with Stock Prices

Inflation has a negative effect on stock prices because inflation increases the cost of a company. If the increase in costs is higher than the company's revenue, the profitability of the company will decrease. The decline in company profits will cause investors to be not interested in investing in the company, this will result in a decrease in stock prices and an impact on stock prices decline (Tandelilin, 2010:343). Seeing conditions like this means that the inflation rate has a negative effect on stock prices.

Effect of Interest Rates on Stock Prices

According to Tandelilin (2010:214) the interest rate is a proxy for investors in determining the level of return required for investment letters. The higher the interest rate, the higher the return required by investors will then affect stock prices in the market. Changes in interest rates that increase will make investors withdraw their investment in stocks and switch to other investments in the form of savings or time deposits.

Effect of Exchange Rate with Stock Prices

The depreciation of the domestic currency against foreign currencies can increase the volume of exports. This can increase the company's profitability which then increases the company's stock price if the demand on the international market is elastic enough and affects the return that will be received by investors (Kewal, 2012).

The Effect of Inflation, Interest Rates and Exchange Rates on Stock Prices

According to Maurice Kendall in the Investment Management book (2017:177), stock prices are unpredictable or have an uncertain pattern. It moves following a random walk so that investors must be satisfied with normal returns with the level of profit provided by the market mechanism. Stock returns can be influenced by inflation, interest rates and exchange rates. Partially, inflation, interest rates and

exchange rates influence each other and are related to stock prices. Meanwhile, simultaneously, inflation, interest rates and exchange rates influence each other and are related to stock prices.

Research Type

The type of research used by the author is a quantitative research method. According to Iskandar (2008:17): Quantitative or positivistic research is research conducted to obtain answers to problems or a general description of a phenomenon or symptom based on theories, assumptions or mainstays, in this case it can be interpreted as a mindset that shows the relationship between the variables to be studied, as well as reflect the type and number of problem formulations that need to be answered through research, the theory used is to formulate hypotheses, and statistical analysis techniques to be used.

In this study, the authors used data collection methods with a documentary study, namely by collecting data and studying written data in the form of company financial statements, stock price lists, and other data needed and relevant to this research.

According to Fathoni (2011: 112): "Documentary study is a data collection technique by studying records regarding the respondent's personal data, as is done by a psychologist in researching the development of a client through his personal records."

The data used in this research is secondary data. Secondary data is data obtained indirectly through intermediaries (obtained and recorded by other parties). In this study, secondary data were obtained from financial statements published by the company and the average share price every week per year. These data can be obtained via the internet by *website http://www.bps.go.id, website http://id.investing.com,* and *website http://bi.go.id.*

Population and Sample

According to Ferdinand (2014:171), population is "a combination of all elements in the form of events, things or people who have similar characteristics that are the center of attention of a researcher." The population used in this study were all companies that went public in Indonesian companies from 2016-2020 where all populations were sampled (saturated samples).

Research Variables

Variables are defined as everything that will be the object of research observation. Usually, research variables are also referred to as factors that play a role in the events or symptoms to be studied. The variables in this study include the dependent variable and the independent variable.

According to its function, variables can be divided into:

Dependent Variable

According to its function, this variable is influenced by other variables, therefore it is also called the affected variable or the affected variable or the dependent variable.

Independent Variables

The independent variables are the conditions or characteristics that the authors use to explain their relationship to the observed phenomena. Therefore, this variable is also called the influence variable, because it functions to influence other variables, so it can freely influence other variables.

The author describes that the variables contained in this study consist of the dependent variable and the independent variable. The dependent variable in this study is the movement of the Composite Stock Price Index on the Indonesia Stock Exchange. Meanwhile, the independent variables that affect the dependent variable, namely the IDX are inflation, and Indonesian interest rates and the rupiah exchange rate.

Research Instrument

The data used in this research is ratio data. The data collection carried out in this study was obtained from several data collection methods by means of time series. The data used are primary and secondary data obtained either directly or indirectly and obtained through:

a. Primary data through Field Research (field research) is this data obtained by research through the Media Indonesia Daily and the internet, especially the website https://id.investing.com/.
b. Secondary data is data obtained through library research and the Central Bureau of Statistics (BPS), as well as Bank Indonesia (BI).

Technique Data Analysis

In this study, the data analysis method used was to use multiple linear regression statistical tests to see whether there was a significant effect of the independent variables Inflation, SBI Interest Rates, and Rupiah Exchange Rate on the IDX dependent variable.

Model Formulation

To determine the level of influence between the independent variables Inflation, SBI Interest Rate, and the Rupiah Exchange Rate with the dependent variable (stock profit rate), multiple linear regression techniques are used. To facilitate the implementation of calculations, this research uses the SPSS (Statistical Package for the Social Science) tool which is then interpreted as Statistical Product and Service Solutions.

The multiple linear regression equations are as follows:

$$\mathbf{Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + e}$$

Where:

Y	=	Monthly Composite Stock Price Index on shares for companies
a	=	Constant
X_1	=	Monthly investments for the company
X_2	=	SBI interest rate per month for companies
X_3	=	Rupiah Exchange Rate per month for companies
e	=	Error Term
b_1,b_2, b_3	=	Variable regression coefficient X_1, X_2, X_3

The effect of the independent variable on the dependent variable was tested with a 95% confidence level or a Significant Level (α) equal to 5%. Hypothesis testing is done by looking at the significant value of the results of the regression analysis. The hypothesis can be accepted if the significant value of each tested variable shows a value less than and equal to 0.05 (P 0.05; = 5%). If the significant value is 0.05, it means that the research hypothesis can be accepted.

Testing Classic Assumptions

Normality Testing

According to Agus Widarjono (2015:78) one of the assumptions of the regression model is that the residuals have a normal distribution. The consequence if the model is not normally distributed, it can be seen the significance of the t test that the independent variable on the dependent cannot be applied.

Linearity Test

According to Sugiyono and Susanto (2015:323) linearity test can be used to determine whether the dependent variable and the independent variable have a linear relationship or not significantly. Linearity test can be done through a test of linearity. The criterion that applies is that if the significance

value of linearity is 0.05, it can be interpreted that there is a linear relationship between the independent variable and the dependent variable.

Multicollinearity Test

According to Agus Widarjono (2015:59) Multicollinearity test is a linear relationship between independent variables in multiple regression. A good regression model should be free of multicollinearity or there should be no correlation between the independent variables.

Autocorrelation Test

According to Agus Widarjono (2015:78) Autocorrelation is a correlation between the disturbance variable of one observation and the variant of the disturbance of another observation. This autocorrelation often appears in time series data. Thus there is autocorrelation, the estimator does not produce an estimator that has a minimum variance or in other words it is no longer BLUE.

Heteroscedasticity Test

Agus Widarjono's opinion (2015: 67) Heteroscedasticity means that the variance of the disturbance variable is not constant. The problem of heteroscedasticity thus appears more often in cross section data than in time series data. One of the assumptions of the OLS method is that the variance of the disturbance variables is the same.

Hypothesis Testing

Hypothesis testing in regression can be based on two things, the level of significance (α) and the level of confidence are used to determine the magnitude of the influence of the independent variable on the dependent variable partially or simultaneously.

Partial Hypothesis Testing The steps for partial hypothesis testing are as follows:

Formulating a Hypothesis

H0 : β123 < 0 (Simultaneously there is no positive influence and the significance of inflation/ interest rates / exchange rates on stock prices.

Ha : β123 ≥ 0 (Simultaneously there is a positive influence and significance of inflation / interest rates / exchange rates on stock prices)

1) Determine the level of significance or the level of confidence (1-) the real rate (α) used is 5% with a confidence level of 95%.
2) Calculate the value of sig. t
3) Determine the critical area (rejection area H0) H0 is rejected, if sig. F < (0.05) H0 is accepted, if sig. F (0.05).

Simultaneous Hypothesis Test Steps – the steps of simultaneous hypothesis testing as follows:

Formulating a Hypothesis

H0 : β123 < 0 (Simultaneously there is no positive influence and the significance of inflation/ interest rates / exchange rates on stock prices

Ha : β123 ≥ 0 (Simultaneously there is a positive influence and significance of inflation / interest rates / exchange rates on stock prices)

a. Determine the significance level or confidence level (1- α) the real rate (α) used is 5% with a 95% confidence level.
b. Calculates sig value. t
c. Determining the critical area (H0 rejection area) H0 is rejected, if sig. F < α (0.05) H0 accepted, if sig. F ≥ α (0,05)

Results and Discussions

Company Overview

Indonesia Stock Exchange

The place where the sale and purchase of securities takes place is called a stock exchange. Stock exchange is the meaning of the physical capital market. According to the Capital Market Law No. 8 of 1995 defines that a stock exchange is a party that organizes and provides a system and means to bring together offers of buying and selling securities of other parties with the aim of trading their securities.

History of the Company

The capital market existed before Indonesia's independence. The activity of buying and selling stocks and bonds began in the 19th century. Around the beginning of the 19th century the Dutch colonial government began to build plantations on a large scale in Indonesia so that on December 14, 1912 in Batavia (Jakarta) a capital market was established. The capital market at that time was established by the Dutch East Indies government for the benefit of the VOC government. A year after the Dutch government recognized the sovereignty of the Republic of Indonesia, namely in 1950, the bonds of the Republic of Indonesia were issued by the government. The Indonesian government reopened the stock exchange in Jakarta on June 31, 1952.

Business Aspects

The products offered by PT Bursa Efek Indonesia are:

Stocks are one of the most popular financial market instruments. Issuing shares is one of the steps companies take when deciding to fund a company. Derivative securities are derivative securities of the main securities, both equity and debt. Mutual funds are an alternative investment for investors, especially small investors who do not have much time and expertise to calculate the risk of their investment. Indonesia is a very large market for the development of the Islamic finance industry. This is because Indonesia is a country with the largest Muslim population in the world.

Discussion

Descriptive Statistics

Descriptive Statistics

Table 4.1: Descriptive Statistical Analysis
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Inflation	60	1,32	4,45	3,1250	,74756
Interest Rate	60	3,75	7,25	5,1083	,88701
Rupiah Exchange Rate	60	13047,00	16300,00	13924,1333	618,77329
Composite Stock Price Index	60	4538,93	6605,63	5705,6550	580,06946
Valid N (listwise)	60				

Based on Table 4.1, the number of samples in this study is 60 samples with a total of five years of data, namely from 2016 to 2020. The inflation rate variable has the lowest value of 1.32 percent, namely in August 2020. While the highest value of inflation is 4 .45 percent in March 2016. The average value for the inflation variable is 3.1250 percent with a standard deviation of 0.74756.

Indonesia's interest rate variable has a minimum value of 3.75 percent while the maximum value is 7.25 percent. When related to the data, it can be seen that the lowest value of Indonesian interest rates

occurred in November 2020 to December 2020 while the highest period occurred in January 16. The mean value for this variable is 5.1083% with a standard deviation of 0.88701.

The data for the rupiah exchange rate variable has the lowest value of IDR 13,047 in September and October 2016 while the highest value of IDR 16,300 in March 2020. The average value for the rupiah exchange rate variable is IDR 13,924,1333 with a standard deviation amounted to 618,77329.

The lowest value in the IDX movement was Rp4,538.93 which occurred in March 2020 and the highest value in January 2018 was Rp6,605.63. The average value of the IDX was IDR 5,705.6550 with a standard deviation of 580,06946.

Classic Assumption Test

Normality Test

The purpose of this test is to test that the existing data is normally distributed or not. This method is to test the normality of the data of independent and dependent variables using the Kolmogorov-Smirnov test. If the value is significant > the level of significance (0.05), then the assumption of normality will be fulfilled.

The results of the normality test for this study can be displayed as follows: Based on the table below, the results of the Kolmogorov-Smirnov Normality Test on the dependent variable, namely the Joint Stock Price Index of companies, a significance value of 0.562, which means the significance value is greater than 0.05, so from the test results Normality test that the data used in this study were normally distributed.

Table 4.2. Normality Test Results
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		60
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	,07855372
Most Extreme Differences	Absolute	,102
	Positive	,077
	Negative	-,102
Kolmogorov-Smirnov Z		,789
Asymp. Sig. (2-tailed)		,562

a. Test distribution is Normal.
b. Calculated from data.

Autocorrelation Test

The purpose of this test is to find out whether in the linear regression model there is a correlation between the confounding error in period t and the confounding error in the previous period. A good regression model is a regression model that is free from autocorrelation. The results of the tests carried out by the authors are as follows:

Table 4.3. Autocorrelation Test Results
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,660[a]	,435	,405	,08063	,409

a. Predictors: (Constant), Rupiah Exchange Rate, Interest Rate, Inflation
b. Dependent Variable: Composite Stock Price Index

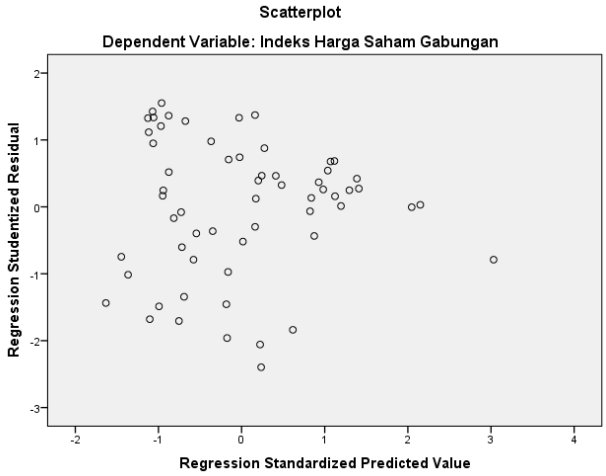
To detect the presence or absence of autocorrelation, the Durbin-Watson test (DW-Test) was carried out. Based on the table above, it can be seen that the Durbin-Watson value is 0.409. This shows that the DW value is between -2 and +2 or -2 < 0.409 < +2, so it can be concluded that the research data does not experience autocorrelation.

Heteroscedasticity Test

The purpose of this test is to see whether the regression model has an inequality of variance from the residuals of one observation to another observation. A good regression model is one that does not occur heteroscedasticity. To identify the presence or absence of heteroscedasticity in this study, by looking at the scatterplot between SPRESID and ZPRED.

If there is a certain pattern, such as the existing dots forming a certain regular pattern (wavy, widening and then narrowing), then the research indicates that there is heteroscedasticity. While there is no clear pattern, and the points spread above and below the number 0 on the Y axis, then there is no heteroscedasticity.

Figure 4.1. Heteroscedasticity Test Results With Scatterplot Graph



Multicollinearity Test

The purpose of this test is to test whether the regression model in this study found a correlation between the independent variables. A good regression model is one that does not occur multicollinearity. To detect the presence of multicollinearity, it can be seen from the value of VIF (Variance Inflation Factor) < 20 or Tolerance value > 0.05, meaning that there is no multicollinearity. The test results from this study can be seen as follows:

Table 4.4. Multicollinearity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Itself.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	BRIGHT
1	(Constant)	2,782	2,648		1,051	,298		
	Inflation	-,091	,038	-,303	-2,372	,021	,619	1,615
	Interest Rate	,155	,064	,263	2,432	,018	,865	1,156
	Rupiah Exchange Rate	,598	,278	,290	2,149	,036	,554	1,805

a. Dependent Variable: Composite Stock Price Index

Based on the table above, the results of the multicollinearity test show that all the independent variables in this study have a tolerance value greater than 0.05 and a VIF value less than 20, it can be concluded that the data used in this study does not occur multicollinearity.

Multiple Linear Regression Analysis

Multiple linear regression analysis was used to measure the effect of more than one independent variable (independent) on the dependent variable. Multiple linear regression analysis is a linear relationship between two or more independent variables (X_1, X_2,….X_n) with dependent variable (Y). This analysis is to determine the direction of the relationship between the independent variable and the dependent variable whether each independent variable is positively or negatively related.

Table 4.5. Multiple Linear Regression Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Itself.
		B	Std. Error	Beta		
1	(Constant)	2,782	2,648		1,051	,298
	Inflation	-,091	,038	-,303	-2,372	,021
	Interest Rate	,155	,064	,263	2,432	,018
	Rupiah Exchange Rate	,598	,278	,290	2,149	,036

a. Dependent Variable: Composite Stock Price Index

Based on the results of the calculations in Table 4. 9, the following multiple linear regression equation is obtained:

$$Y = 2.782 – 0,091X_1 + 0,155X_2 + 0,598X_3 + Ɛ$$

The interpretation of the regression model above is:

1. The constant shows a number of 2,782 which means that mathematically the IDX during the 2016 – 2020 observation period is Rp.2,782, - if the value of Inflation, Interest Rates and Exchange Rates is 0 (zero).
2. b1 of 0.091 means that if inflation increases by 1%, the IDX will decrease by Rp. 0.091 assuming a constant interest rate and exchange rate
3. b2 of 0.155 means that if interest rates increase by 1%, the IDX will increase by Rp. 0.155 with the assumption that inflation and exchange rates are constant
4. b3 of 0.598 means that if the exchange rate increases by Rp. 1/$, then the stock index rose by Rp. 0.598 assuming inflation and interest rates.

Coefficient of Determination (R^2)

The coefficient of determination (adjusted R^2) is used to measure how far the model's ability to explain variations in the dependent variable is. The value of the coefficient of determination (adjusted R^2) is between zero (0) and one (1). A small value of adjusted R2 means that the ability of the independent variable in explaining the independent variable is limited.

A value close to one means that the independent variable provides almost all the information needed to predict the variation of the independent variable. The results of the coefficient of determination in the study can be seen as follows:

Table 4.6. Determination Coefficient Test Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,660[a]	,435	,405	,08063

a. Predictors: (Constant), Rupiah Exchange Rate, Interest Rate, Inflation

Based on the table above shows the Adjusted R Square value of 0.405. This can be interpreted that the effect of inflation, interest rates and exchange rates on the IDX in 2016-2020 is 40.5% or if interpreted in other words 40.5% the variation of variables is explained by inflation, interest rates and exchange rates. While 59.5% is influenced by variables other than inflation, interest rates and exchange rates.

Hypothesis Testing

Partial Test (T Test)

The t test is used to see the effect of the independent variables individually having an influence on the dependent variable. This test was carried out using a significance level of 0.05 (α = 5%). The results of calculations in this study are:

Table 4.7. Partial Test Results **(T Test)**

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Itself.
		B	Std. Error	Beta		
1	(Constant)	2,782	2,648		1,051	,298
	Inflation	-,091	,038	-,303	-2,372	,021
	Interest Rate	,155	,064	,263	2,432	,018
	Rupiah Exchange Rate	,598	,278	,290	2,149	,036

a. Dependent Variable: Composite Stock Price Index

The explanation for each variable is as follows:

1. The first hypothesis testing in this study is to test whether inflation has an effect on the IDX. From the results obtained in this study, it is explained that the regression coefficient for the inflation variable has a significance t of 0.021. Thus Ha is accepted and H0 is rejected because the significance of t is smaller than (0.021 < 0.05) which means that inflation has a significant effect on the IDX.
2. The first hypothesis testing in this study is to test whether interest rates have an effect on the IDX. From the results obtained in this study, it is explained that the regression coefficient for the interest rate variable has a significance t of 0.018. Thus Ha is accepted and H0 is rejected because the significance of t is smaller than (0.018 < 0.05) which means that interest rates have a significant effect on the IDX.
3. The first hypothesis testing in this study is to test whether the exchange rate has an effect on the IDX. From the results obtained in this study, it is explained that the regression coefficient for the interest rate variable has a significance t of 0.036. Thus Ha is accepted and H0 is rejected because

the significance of t is smaller than (0.036 < 0.05) which means that the Exchange Rate has a significant effect on the IDX.

Simultaneous Test (Test F)

F test (simultaneous test) is used to determine how much influence the independent variables simultaneously (simultaneously) on the dependent variable. The test was carried out using a significance level of 0.05 (α = 5%). The results of this F test calculation can be seen in the following table:

Table 4.8. Simultaneous Test Results (Test F)
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Itself.
1	Regression	,280	3	,093	14,372	,000[b]
	Residual	,364	56	,007		
	Total	,644	59			

a. Dependent Variable: Composite Stock Price Index
b. Predictors: (Constant), Rupiah Exchange Rate, Interest Rate, Inflation

Based on the F test in the table above, the F significance value is 0.000. These results can be concluded that the significance value is less than 0.05, so that inflation, interest rates and exchange rates have a significant effect on the IDX. In other words, that H0 is rejected and Ha is accepted.

Discussion

Effect of Inflation, Interest Rates and Exchange Rates on IDX

Inflation, interest rates and exchange rates together have a significant effect on the IDX. These results are indicated by a significance value of 0.000, which when compared to a lag of 0.05, the significance of t is smaller than (0.000 > 0.05).

Effect of Inflation on IDX

Inflation has a significant effect on the IDX. These results are indicated by a significance value of 0.021, which, when compared to a alpha of 0.05, means that the significance of t is less than (0.021 < 0.05).

Inflation occurs as a result of rising prices as a whole and a decrease in the purchasing power of low consumers for products. High and low inflation affects the rise and fall of the IDX. This is because the declining purchasing power of the people can lower the standard of living, so that people reduce investment in the capital market.

Effect of Interest Rates on IDX

Interest rates have a significant effect on the IDX. These results are indicated by a significance value of 0.018, which, when compared to a alpha of 0.05, means that the significance of t is less than (0.018 < 0.05).

The decline and increase in interest rates can have a significant effect on the IDX, this is because interest rates are a type of investment without risk when compared to the capital market. The higher the interest rate of Bank Indonesia, the lower the stock price and vice versa.

Effect of Exchange Rate on IDX

The exchange rate has a significant effect on the IDX. These results are indicated by a significance value of 0.036, which, when compared to a alpha of 0.05, means that the significance of t is smaller than (0.036 <0.05).

A high exchange rate is a negative signal to stock prices. This is in accordance with research conducted by Tobing in 2009 that there is an effect of the rupiah exchange rate on the movement of the IDX. The movement of the IDX is very vulnerable to changes in the increase in the rupiah exchange rate that occur in the country.

Conclusions and Suggestions

Conclusion

Partially inflation, interest rates, and exchange rates have a significant effect on the IDX for the 2016 – 2020 period. Simultaneously, inflation, interest rates and exchange rates affect the IDX for the 2016 – 2020 period. Adjusted R Square value is 0.405. This means that the effect of inflation, interest rates and exchange rates on the IDX for the 2016 – 2020 period is 40.5% and the other 59.5% is influenced by other variables outside of inflation, interest rates and exchange rates.

Suggestion

For further authors, other variables other than the variables in this study (inflation rate, Indonesian interest rates and rupiah exchange rates) are suspected to have an influence on the movement of the Composite Stock Price Index on the Indonesia Stock Exchange so that they can get more accurate results. Investors and issuers should pay attention to information on inflation rates, interest rates and the rupiah exchange rate that can influence the IDX movement on the IDX to be used as a reference in making investment decisions. The government should pay attention to economic factors that are able to be controlled by the government, such as inflation and interest rates through the policies implemented so as to attract investors in the Indonesia Stock Exchange.

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