The Effect of Exchange Value on the Stock Index Listed in Indonesia Stock Exchange during Covid-19 Pandemic

Zahra Zhafira[1], Einde Evana[1], Ratna Septiyanti[1]

[1]Accounting Science, Faculty of Economics and Business, University of Lampung, Indonesia

Corresponding Author: Zahra Zhafira
Email: zahrazha07@gmail.com

Abstract

This study aims to examine the effect of exchange rates on the stock index during the Covid-19 pandemic. This research was conducted using secondary data. The population in this study were all stock indices listed on the Indonesia Stock Exchange with a sample size of 89 and a total stock index of 34. The study period was 4 months, 17 January 2020 to 20 May 2020. The sample data collection of this study used the purposive method. Sampling with world economic conditions and Indonesia which are weakening due to the Covid-19 pandemic and based on the phenomenon that the exchange rate is experiencing a continuous movement even every year the exchange rate depreciates IDR against the US Dollar. One of the causes of the high fluctuation of the rupiah exchange rate against the dollar came from economic factors such as inflation, the interest rate on Bank Indonesia certificates during the Covid-19 pandemic. This study uses a simple linear regression analysis method using SPSS V.26. The results of simple linear regression analysis show that exchange rates have a negative and significant effect on all stock indices listed on the Indonesia Stock Exchange, these results have similarities or differences with the results of research in other emerging market countries.

Keywords: Stock Index, Rupiah Exchange Rate, Dollar Exchange Rate, BEI, Covid-19

Introduction

The rupiah exchange rate or the exchange rate against foreign currencies, especially the United States dollar, is an important indicator in analyzing the Indonesian economy, because of its wide-ranging impact on the national economy. Therefore, the movement of the exchange rate is a serious concern by the Government and Bank Indonesia as the monetary authority to monitor and control it, especially with regard to factors that affect the rupiah hexchange rate. This has become increasingly important especially since Indonesia adopted a free floating exchange rate system since the economic crisis of the late 1990s. In this system, the rupiah exchange rate is determined by the market mechanism (the strength of demand and supply of foreign currency on the money market).

The rupiah exchange rate against the United States (US) dollar has the potential to weaken to 20,000 IDR per US dollar due to the COVID-19 outbreak. For a moderate estimate, it is in the range of IDR 17,500 per US dollar. This is part of one of the 2020 macro assumption scenarios

which have all undergone changes, such as economic growth which is estimated at 2.3 percent to minus 0.4 percent. In addition, inflation of 5.1 percent and the price of Indonesian crude oil fell to USD 31 per barrel. Another reason for the weakening of the rupiah is that investors panic, resulting in what is called a capital outflow. During the period of this pandemic between January and March 2020 there was a capital outflow in Indonesia's investment portfolio, which amounted to 167.9 trillion IDR, which resulted in a decrease in the Rupiah exchange rate against the US dollar.

The exchange rate is experiencing a continuous movement, even every year the exchange rate depreciates IDR against the US Dollar. One of the causes of the high fluctuation of the rupiah exchange rate against the dollar comes from macroeconomic factors. Macroeconomic factors include inflation, interest rates on Bank Indonesia certificates, money supply, and gross domestic product (Angelina & Nugraha, 2020; Hossain, 2005).

The Corona virus, known as Covid-19, which is present and hit the world in 2020, is a nightmare for countries in the world. The impact is not only affecting the health of the world's population, but also for the country's economy. The corona virus pandemic (COVID-19) is putting heavy pressure on the economy in Indonesia and has become a bad dream that came true for the Indonesian currency. When the Indonesian Government announced the first Covid-19 patient, the rupiah was under intense pressure. As a result of the pandemic, many countries implemented regional quarantine (lockdown) policies to reduce its spread. As a result, economic activity declined sharply, and the recession came back (Mutz & Gerke, 2020; Barichello, 2020).

The Covid-19 pandemic has an impact on the Indonesian economy. The rupiah exchange rate against the United States dollar fell from around IDR 13,000 to IDR 16,000 per US dollar during the last week of March 2020 (Anggoro, 2020). This weakening is related to the pessimistic attitude of business and economic actors towards Indonesian government policies in dealing with Covid-19. To reassure business and economic actors, the Indonesian government has issued a number of economic stimuli. Bank Indonesia has also provided policies in the monetary sector to strengthen the rupiah.

Various industrial sectors were affected, such as the financial sector, tourism sector, manufacturing sector, food and beverage sector. The financial sector has been affected long before COVID-19 hit Indonesia. The sell-off on the stock market and bond market occurred since February, and got even more massive in March when the first case of Covid was announced in Indonesia and added foreign funds were still leaving the Indonesian market. BI Governor, Perry Warjiyo said, there was an outflow of foreign funds of up to 145.1 trillion IDR, of which 131.1 trillion IDR in the SBN market and 9.9 trillion IDR in the stock market (Warjiyo, 2020). The following is the exchange rate data for the period January 17, 2020 to May 20, 2020.
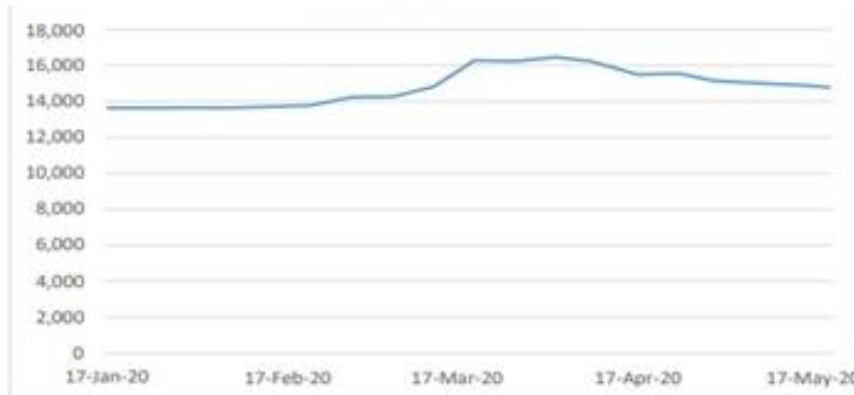
Figure 1. Exchange Rate of Rupiah against US Dollar

Based on the background of the problem above, the researcher wants to examine the effect of exchange rates on stock indexes listed on the Indonesia stock exchange during the Covid 19 pandemic. During the Covid 19 pandemic. Therefore, this study aims to determine the effect of exchange rates on stock indexes listed on the Indonesia Stock Exchange (IDX) during the Covid 19 pandemic.

Methods

This type of research is a quantitative study that uses numerical or numeric data. The data used in this study are secondary data, data in the form of stock indices listed on the Indonesia Stock Exchange. This data can be obtained by accessing the website www.idx.co.id. In this study, the object of research is the stock indices listed on the Indonesia Stock Exchange. The data source used in this research is obtained from the official website of the Indonesia Stock Exchange (BEI), namely www.idx.co.id. Central Bureau of Statistics (BPS) www.bps.go.id, and the official website of Bank Indonesia www.bi.go.id.

Population is a generalization area consisting of objects and subjects that have certain qualities and characteristics that are applied by researchers to study and then draw conclusions (Sugiyono, 2012). The data collected is data related to published financial data, namely stock indices listed on the Indonesia Stock Exchange (BEI). The population used in this study are all stock indexes listed on the Indonesia Stock Exchange (BEI).

The sampling technique or sampling technique in this study used purposive sampling technique, namely the technique of selecting or taking samples with certain considerations and criteria (Kaplan et al., 2020). The criteria for sampling from this index are as stock index listed on the Indonesia Stock Exchange for the period 2019-2020. Stock index data taken is the development of exchange rates as well as developments in the latest stock indices (audits). The stock index sampled between before and during the Covid-19 pandemic must be the same. The research period during the Covid-19 pandemic is January 17, 2020 to May 20, 2020.

Result and Discussion

The results of descriptive statistical testing of the variable exchange rate (X) and Stock Index (Y) during the Covid-19 pandemic (17 January 2020 to 20 May 2020) are presented in the table below.

Table 1. Descriptive Analysis

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Exchange rate	85	18994.86	31175.28	25188.2198	3563.22069
Stock Index	85	13543.94	16657.30	14718.8620	1002.01267
Exchange rate	85	18994.86	31175.28	25188.2198	3563.22069

Source: Primary data, 2020.

Based on table 4.1 above, it shows the results of descriptive analysis which can be concluded that the Stock index has a minimum value of 18994.86 on 24/03/2020, while the maximum value is 31175.28 on 17/01/2020. The average value is 25188.2198, where the standard deviation value is smaller than the average value, which is 3563.22069. KURS (IDR / USD) has a minimum value of 13543,940 on 27/01/2020, while the maximum value is 16657,300 on 08/04/2020. The average value is 14718.86200, where the standard deviation value is smaller than the average value, namely 1002.012665

Classic Assumption Test

Normality Test

The normality test aims to determine whether in the regression model the confounding or residual variables have a normal distribution (Indra & Suresh 2014). There are several ways to detect whether the residuals are normally distributed or not, one of which is by using graph analysis. Graph analysis is used by looking at the histogram and pp plot in normality testing. If the residual on the histogram forms a bell and the residual on the pp plot follows the diagonal line, it can be assessed that the research data is normally distributed. The results of normality testing for each research variable are as follows:
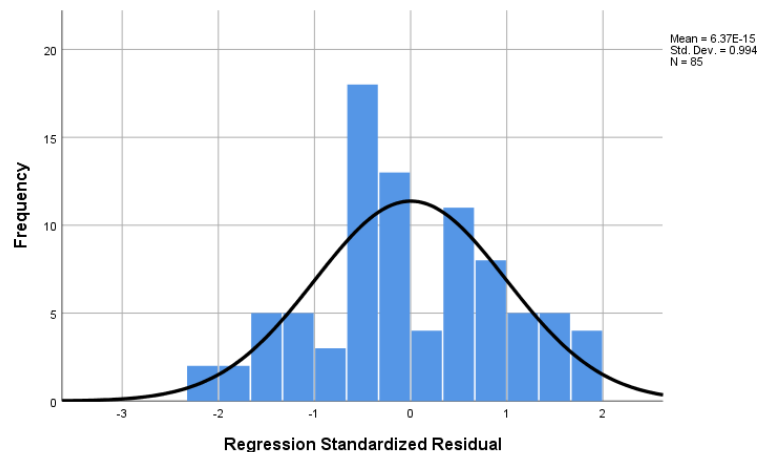

Figure 2. Histogram
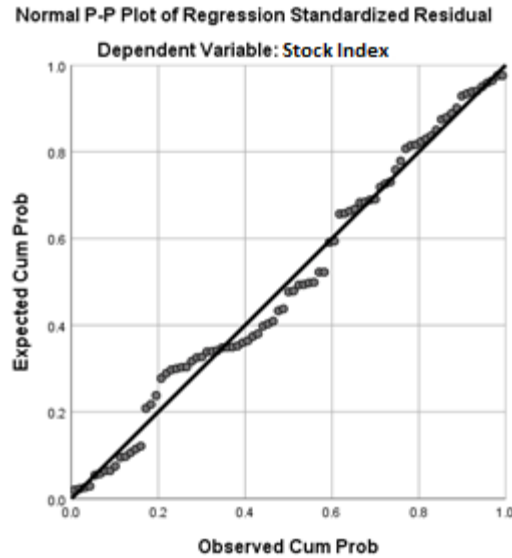
Source: Primary data, 2020.

Figure 3. P-P Plot

Source: Primary data, 2020.

Based on the results of normality testing using the histogram graph analysis method and the P P-Plot above, it is known that all variables have residuals on the histogram to form a bell and the residuals on the P P-Plot follow the diagonal line, which means that the research data is all variables are normally distributed.

Multicolonierity Test

The multicollinearity test aims to test whether the regression model determines the correlation between the independent variables (independent). A good regression model should not have a correlation between the independent variables. To detect the presence or absence of multicollinearity in the regression model by looking at the tolerance value> 0.10 and the opposite of variance inflation factor (VIF) <0.10, it means that the data has no multicollinearity problem.

The multicollinearity test results can be seen in the effect of exchange rates on each stock index.

Table 2. Multicolonierity Test of Exchange Rates Against COMPOSITE

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Kurs	1.000	1.000

Source: Primary data, 2020.

Based on the results of the multicollinearity test of the effect of exchange rates on each stock index shown in the table above, it is known that all the tolerance values for the independent variable are> 0.10 and the VIF value is <10.00. So it can be concluded that there is no correlation between the independent variables and it means that the regression model of this study is considered good.

Heteroscedasticity Test

The heteroscedasticity test aims to test whether the regression model is not unequal in variance from one observation to another. There are several ways that can be done to perform the heteroscedasticity test, namely the plot graph test, Park test, Glejser test, and white test. The test in this study used a plot graph between the predictive value of the dependent variable, namely ZPRED and its residual SRESID. There is no heteroscedasticity if there is no clear pattern, and the dots spread above and below the 0 on the Y axis.
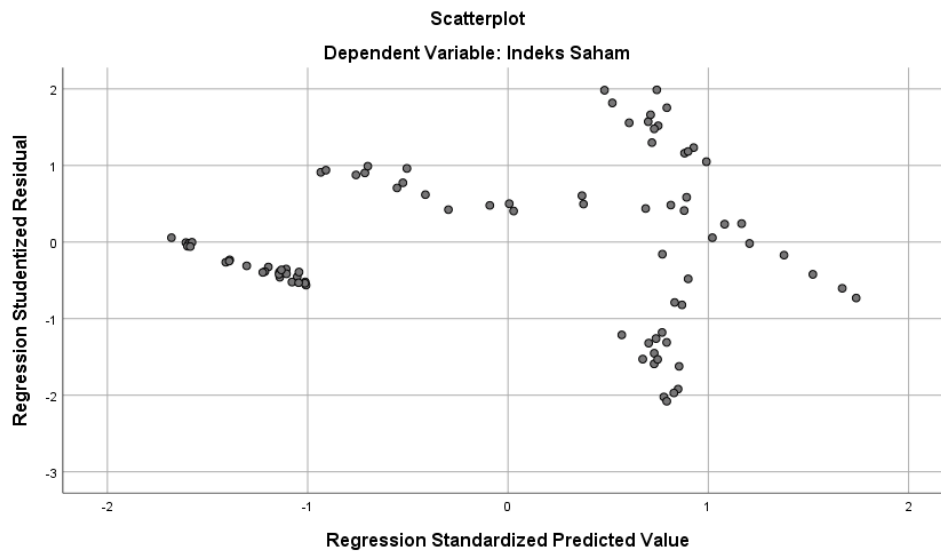

Figure 4. Scatterplot

Source: Primary data, 2020.

Based on the results of the heteroscedasticity test above, it is known that the residuals spread and do not form a pattern on the scatterplot. So it can be concluded that this research data fulfills the heterkedasticity testing criteria.

Autocoleration Test

Autocoleration can be defined as the correlation that occurs between the members of a series of observations over a time series when the data is time series (if it is cross sectional). The test that can be used to detect deviations from this classic assumption is the Durbin Watson test (DW stat) with conditions that include positive autocorrelation, if the DW value is below -2 (DW <-2), there is no autocorrelation, if the DW value is Between -2 and +2 or -2 ≤ DW ≤ +2, there is negative autocorrelation if the DW value is above +2 or DW> +2, while the autocorrelation test results influence the exchange rate on each stock index.

Table 3. Exchange Rate Autocoleration Test Against COMPOSITE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.700ᵃ	0.491	0.484	719.49251	0.083

Based on the table above, it is known that the durbin-Watson value is 0.083, where the DW value is at -2 and +2 or -2 ≤ DW ≤ +2, which means that there is no autocoleration.

Hypothesis Testing

Simple Linear Regression Analysis

The simple linear regression formula is as follows:

$$Y = \alpha + b1X + e$$

The results of simple linear regression testing and t-statistical test (partial), the effect of exchange rates on each stock index are as follows.

Table 4. Simple Linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19679.846	560.395		35.118	0.000
	Exchange rate	-0.197	0.022	-0.700	-8.940	0.000

Based on the table above, it explains that the constant value (a) is 19679.846, for the IDR / USD exchange rate variable (X) is -0.197, so the regression equation can be written as follows.

$$Y = 19679,846 - 0,197X + e$$

Based on the results above, this equation can be translated in the following way:

A constant of 19679,846 states that if the value of the exchange rate variable is constant (0) then the stock index is 19679,846. The exchange rate regression coefficient is -0.197 means that if the value of the exchange rate variable increases by 1, it will have an impact on the decline in the stock index by -0.197.

Partial Test (t test)

The t test is used to determine the effect of the independent variables on the dependent variable. In the significance test, there are two criteria to be measured, namely the calculated t value compared to the t table value and the significance value compared to the significance standard. If the t value is more> t table value and the significance value is <0.05, it is stated that the independent variables have a significant effect on the dependent variable. The formula for getting the t table value is using Microsoft Excel.

$$t = (\sqrt{n} - 2)(\sqrt{1 - r2})$$

Description:

t = t count 0.05
r = correlation coefficient (85)
n = nth sum (2 variables)

then;

0,05   = 85 − 2
= 83 Microsoft excel with formula =TINV (0,05;83) = 1,988
t-table= 1,998

Based on table 4.4 of simple linear regression analysis, it is known that the t value of the IDR / USD exchange rate variable (X) is -8,940> 1,988 and the significance value is 0,000 <0.05, it can be concluded that there is a negative and significant influence between the IDR / USD exchange rate variable. USD (X) with the Stock Index listed on the Indonesia Stock Exchange during the Covid-19 pandemic period from January 17, 2020 to May 20, 2020.

The Effect of Exchange Rates on Stock Indices Listed on the Indonesian Stock Exchange during the Cocid-19 Pandemic. The results show that exchange rates have a negative and significant effect on all stock indices listed on the Indonesian stock exchange during the Covid-19 pandemic. This means that if the purchase price of US Dollar against the rupiah rises, it will have an effect on the decline in the stock index on the Indonesia Stock Exchange during the Covid-19 pandemic. and vice versa, if the purchase price of the US Dollar exchange rate against the rupiah will have an increase in the stock index on the Indonesia Stock Exchange during the Covid-19 pandemic. Based on signal theory, according to Fahmi (2012) signaling theory is a theory that discusses the ups and downs of market prices, so that it will have an influence on investors. The results of this study provide a signal to investors that during the Covid-19 pandemic, if the purchase price of the US Dollar exchange rate hagainst the rupiah is considered a negative signal because the stock index on the Indonesia Stock Exchange has experienced a decline in impact. and vice versa it will be a positive signal if the purchase price of the US Dollar exchange rate against the rupiah decreases, it will have an impact on the increase in stock index prices on the Indonesian Stock Exchange. This finding is supported by the opinion According to Putri (2016), the factors that affect stock prices can come from internal factors. and external to the company. Where the fluctuation of the exchange rate of the US Dollar against the rupiah is an external factor that can affect the stock price index on the Indonesia Stock Exchange. Meanwhile, in the face of stock market turmoil as a result of the Covid-19 pandemic, the IDX has implemented an asymmetric auto rejection policy and trading halt for 30 minute. This policy can provide time for investors to be more rational in dealing with market fluctuations. So that investors do not get carried away in observing market developments. One proof of the success of this policy in preventing the decline in the JCI, especially by the halt trading policy, the JCI did not close down more than 5% even in the green zone. Since its implementation until now, the Exchange has stopped trading on the stock market 6 times for 30 minutes because the JCI fell 5%.

Conclusion

Based on the results of the analysis and discussion of research that has been stated, the conclusions in this study are as follows Exchange Value has a negative and significant effect on the stock index listed on the Indonesia Stock Exchange during the Covid-19 pandemic period 17 January 2020 to 20 May 2020 with a value sign. 0.000 <0.05.

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