Analysis Effect of BI *Rates*, Inflation and Exchange Rates on the Composite Stock Price Index on the Indonesia Stock Exchange 2016-2021

Vivin Hanitha[1]

vivin.hanitha@ubd.ac.id

Toni Yoyo[2]

toni.yoyo@ubd. ac.id

Diana Silaswara[3]

diana.silaswara@ubd. ac. id

[1][2][3]Universitas Buddhi Dharma

Abstrack

The important role of the capital market today affects the economy of a country. Capital market performance can be measured in shares which are based on an index called the Composite Stock Price Index. By using the index, investors can find out the level of economic growth and investment development in a country. This study uses macroeconomic variables, namely interest rates (BI *rates*), inflation rates, and exchange rate movements. The data used is secondary data with 72 observations. The sampling method used *purposive sampling method* for the period 2016-2021 at Jakarta Composite Index that processed using Eviews 10. The results for this study conclude that the BI *rate*, inflation rate, and exchange rate have a negative value and significant effect on the Jakarta Composite Index. BI *rates*, inflation rate, and the exchange rate IDR/USD have no effect simultaneously with the R^2 value is 0.06427 or 6.47%. The otherside is influence by variables that not examined in this research.

Keywords: BI *Rates*, Exchange Rate, Inflation, JCI.

INTRODUCTION

The role of the capital market is very important to the economy of a country. Investing in the capital market makes a special attraction for everyone who wants to invest in the stock exchange trading called the Indonesia Stock Exchange (IDX). Investment is a means of raising funds to generate future profits. In addition to saving money or investing in banks, investors can invest in stocks in the capital market.

Securities are part of the financial instruments traded in the Capital Market where the Indonesia Stock Exchange (IDX) is the capitalization of the Indonesian market. To trade stocks on the IDX, investors need to have historical data on stock movements. Information about stock price performance is summarized into a special index called the Composite Stock Price Index (JCI).

Stock prices reflected in the JCI are influenced by several variables, including BI *rates* or BI interest rates, fluctuations in inflation, and the movement of the Rupiah against the US dollar.

Figure 1.
Development of Composite Stock Price Index

Source: http://www. id.investing.com

Capital market index is useful as a benchmark for market developments. In short, stock indexes have the ability to evaluate current market conditions whether they are active or not. The downward trend of the stock index indicates that most of the stock prices are in a downward trend. On the other hand, the rising trend of the stock index indicates that most of the stock prices are in an uptrend.

Jakarta Composite Index
Composite Stock Price Index or Jakarta Composite Index is one of Indonesia's stock exchange. According to Tandelin in (Zatira & Hanitha, 2021), this index is an index that lists all traded stocks in the calculation of the stock price index. If this index shows an

increase, it indicates that the Indonesian economy is improving, and vice versa. JCI movements continue to change. Figure 1 shows fluctuations in the JCI from 2016 to 2021.

Bank Indonesia Interest Rates (BI *Rates*)
Interest rates are issued by Bank Indonesia to serve as the basis for recording interest for loans and deposits at banks or finance in Indonesia. Stock prices can be influenced by deposit interest rates because investors will choose investment instruments that provide greater profits. If interest rates change, the desire of a person or one party to make an investment can be affected. (Wismantara, 2017).

Inflation Rate Inflation
Inflation is defined as the overall level of price increase. This is a condition where demand is lower than production capacity so that it affects the demand for goods and services. This condition affect to the increasing of products prices and services (Melyani, 2021). Economic problems will not occur if inflation is accompanied by the availability of demand commodities and is accompanied by an increase in income levels that are greater than the inflation rate that occurs. Only when the cost of producing a commodity increases, will the selling price be high as well.

Rupiah to US Dollar Exchange Rate The
exchange rate is defined as a condition of comparison between foreign and domestic currencies, called the foreign exchange rate (Hanitha, 2020). fluctuations in the exchange rate of the rupiah against foreign currencies such as the USD will have an impact on the economy in Indonesia. This is because the USD currency is often used as the basis for exchange rates for export and import payment transactions for production materials and business transactions on an international scale.

Research conducted by (Melyani, 2021) found that the JCI was not affected by the inflation variable. The interest rate variable has a negative effect and the USD IDR exchange rate has a positive effect on the JCI.

Research Hypothesis The
Effect of Interest Rates on the JCI
Investment shifts that occur from stocks to deposits or to other fixed-income investments can be caused by an increase in interest rates. This will then have an impact on prices and costs for the company. According to Tandelilin in (Marselia Purnama et al., 2021) the decline in interest rates can cause an increase in stock prices. The assumption is that if there is an increase in interest rates, it will have an impact on increasing stock fluctuations, and will affect the increase in deposits.
H1: Interest rates have a negative effect on the JCI.

The Effect of Inflation on the JCI
In general, an increase in inflation affects the economic condition towards an overheated condition. Because inflation that is too high can cause a decrease in people's purchasing power and money becomes non-dominant (Melyani, 2021). Rising inflation is a negative signal for investors so that they are very likely to release shares that were previously held.

The goal is to avoid risk due to the uncertainty that exists in the market. This could result in a decline in the JCI.
H2: The inflation rate has a negative effect on the JCI.

The Effect of the IDR USD Exchange Rate on the JCI
Exchange rate can affects the profits of companies, especially companies that carry out import-export transactions between countries (Hanitha, 2020). The investment made by investors is also greatly affected by the movement of the Rupiah exchange rate against the US Dollar Value. If the capital market is seen as less attractive than the foreign exchange (forex) market, it is very likely that investors will shift their investment to the foreign exchange market.
H3: The Rupiah-USD exchange rate has a negative effect on the JCI.

Research Object
The variables that are the object of this research consist of BI *Rates*, Inflation Rate, and IDR USD Exchange Rate for the period 2016-2021, as well as one dependent variable, namely the movement of the Composite Stock Price Index value in 2016-2021.

Data Collection Techniques
The data source of this research is secondary data. The sample of the population in this study is the IHSG data every month from 2016 to 2021, totaling 72 months.

Data Analysis Techniques
The technique used is the analytical test method with descriptive statistics to determine the magnitude of the relationship between the variables X and Y. Then proceed with the stationarity test of the data. Then, the classical assumption test was used in the form of normality test, heteroscedasticity test, multicollinearity test, and autocorrelation test.multiple linear regression analysis using eviews 10.

The formula for the equation of the multiple linear regression
$Y = a + \beta1SB + \beta2INF + \beta3NTR + e$

Where:
Y	= IHSG
α	= constant
β1, β2, β3	= regression coefficient value
INF	= inflation rate
SB	= interest rate
NTR	= IDR exchange rate against USD
e	= *error* atau residual

Results and Discussion

Descriptive Analysis

The results of this descriptive statistical tests, for each variable are described in the following table: (Martha & Simbara, 2021)

Table 1. Descriptive Analysis

|	IHSG	SBI	INF	KURS
Mean	5.744,115	4,8437	2,8604	13.989,00
Median	5.943,755	4,7500	3,1300	14.050,00
Maximum	6.605,630	7,2500	4,4500	16.300,00
Minimum	4.538,930	3,5000	1,3200	13.047,00
Std Dev	570,5769	1,0047	0,896023	585,497
Observations	72	72	72	72

Source: Processed Data

On the JCI variable the Mean data obtained of 5,744,115, the median of 5,943,755, the Minimum Result of 4,538,930 and the maximum of 6,605, with a standard deviation of Rp. 70,5769. In the BI Rate variable, the mean value is 4.8437, the median is 4.7500, while the minimum value is 3.5 and the maximum is 7.25 and the standard deviation is 1.0047. For the inflation variable, the mean value is 2.8604, the median is 3.130, the maximum is 4.45 and the minimum is 1.32. The standard deviation is 0.896023.
The mean value of the exchange rate variable is 13,989, the median 14,050 the maximum value is 16,300 and the minimum is 13,047 with a standard deviation of 585,497

The ADF test is used to find the average number of data variances that are fixed during the specified period. If *the Augmented Dickey-Fuller* (ADF) shows the value of the statistical test value is greater than the critical value, then the data is considered to be stationary or vice versa. We can see the results below:

Figure 2 . Normality Test Results
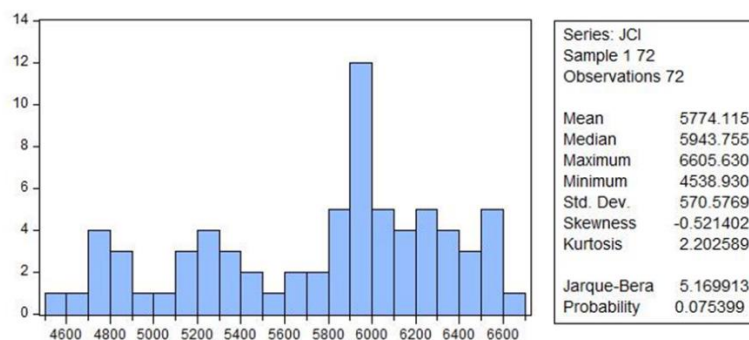
Source : data processing

The value *Jarque-Bera* from the normality test can be seen in the picture above where the value of JB is 5.169913 with a probability value of 0.075399. So if the probability value is 0.075399 > 0.05, it is assumed that the data has a normal distribution.

Table 2. Multicollinearity Test Results

Variance Inflation Factors
Date: 04/21/22   Time: 23:57
Sample: 2016M01 2021M12
Included observations: 72

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	4282293.	969.3495	NA
BI_RATE	7776.562	43.05297	1.752489
INFLASI	13169.58	26.75143	2.360154
NILAI_TUKAR	0.019271	855.1210	1.474619

Sumber : Data diolah

Table 2 shows the results of the multicollinearity test in the *Centered VIF*. The VIF value for the BI *Rate* is 1.752489, the Inflation variable is 2.360154, and the Exchange Rate variable is 1.474619. (Handiani, 2014) Because the VIF value of the three variables is below < 5, so we can concluded that there is no multicollinearity in the dependent variables.

Table 3. Heteroscedasticity Test Results

Heteroskedasticity Test: White

F-statistic	3.896093	Prob. F(9,62)	0.0641
Obs*R-squared	8.20448	Prob. Chi-Square(9)	0.1554
Scaled explained SS	9.06142	Prob. Chi-Square(9)	0.3045

Source: Data Processed

From the table display the results of the heteroscedasticity test conclude that the value of the p *value* equal to the probability value shown in the Obs*R*squared* is greater than the alpha level 8.20448 > 0.05 so it can be concluded that there is no symptom of heteroscedasticity in this study.

Figure 3. *Scaterplot*
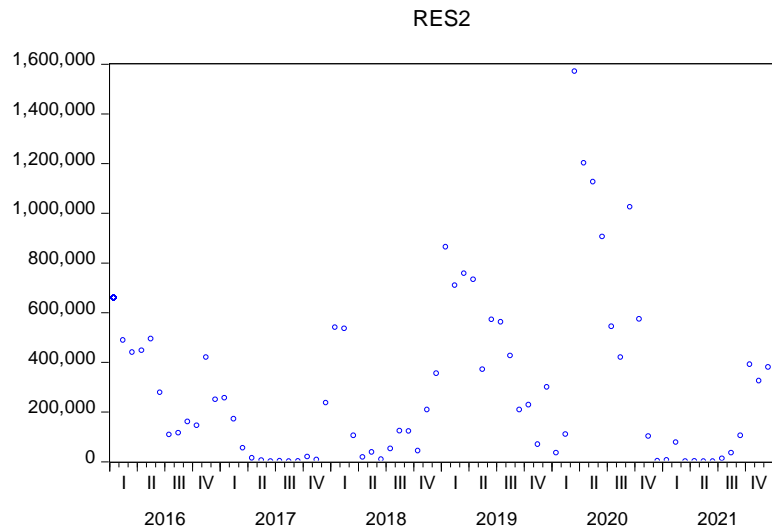
Source: Processed Data

We seen in Figure 3 that the *scatterplot* has spread and does not form a pattern because it spreads around the value 0 both above and below. So it can be said that there is no heteroscedasticity problem in this study.

Table 4. Autocorrelation Test

Dependent Variable: JCI
Method: Least Squares
Date: 04/21/22   Time: 23:51
Sample: 2016M01 2021M12
Included observations: 72

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6681.217	2069.370	3.228624	0.0019
BI_RATE	-147.3752	88.18482	-1.671209	0.0993
INFLASI	2.903967	114.7588	0.025305	0.9799
NILAI_TUKAR	-0.014408	0.138819	-0.103793	0.9176

R-squared	0.064270	*Mean dependent var*	5774.115
Adjusted R-squared	0.022988	*S.D. dependent var*	570.5769
S.E. of regression	563.9807	*Akaike info criterion*	15.56187
Sum squared resid	21629046	*Schwarz criterion*	15.68835
Log likelihood	-556.2273	*Hannan-Quinn criter.*	15.61222
F-statistic	1.556841	*Durbin-Watson stat*	0.157880
Prob(F-statistic)	0.207879		

Source: Processed Data

From the resulting output, it is known that the value is 0.157880 for the DW-stat value, dL is 1.5323, and the dU value is 1, 7054. Thus the value of 4 minus dL is 2.477 and 4 minus dU is 2.2946. So it can be concluded that 0 < 0.157880 < 1.5323 which means that there is no autocorrelation symptom.

Table 5. Multiple Linear Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6681.217	2069.370	3.228624	0.0019
BI_RATE	-147.3752	88.18482	-1.671209	0.0993
INFLASI	2.903967	114.7588	0.025305	0.9799
NILAI_TUKAR	-0.014408	0.138819	-0.103793	0.9176

Source: Processed Data

Regression formula :
Y = 6.681,217 – 147,3752 BI RATE + 2,903967 INF - 0.014408 NTR + e

The value of the constant is IDR 6,681.217, meaning that if the BI *Rates*, inflation rate, and movement of the IDR USD exchange rate are considered constant or constant, the JCI is IDR 6,681.217. The BI *Rates* -147.3752, meaning that if the BI *Rates* increase by 1 unit, the JCI will decrease by 147.3752 with the assumption that other variables are constant. The value of 2.903967 for the inflation rate means that if the inflation rate variable increases by 1 unit, it affects the JCI variable by 2.903967 units with the assumption that the other variables do not change. Meanwhile, for the USD IDR exchange rate of -0.014408, it means that if the IDR USD exchange rate has increased by 1 unit, the JCI variable will have an effect of decreasing by 0.014408 units, the assumption is that it does not change for other variables.

Hypothesis Test

Because the number of n is 72, the t table value is n minus k by 68. In table 6 for the BI *rates* , the t arithmetic value is -1.671209 < 1.99547 or the probability is 0.0993 > 0.05, so H a is rejected. and Ho is accepted. The inflation variable shows the t-count value of 0.025305 <2.0369 or a probability of 0.9799> 0.05, then Ha is rejected and Ho is accepted. For the variable of the Rupiah exchange rate against the US Dollar, the t-count value is -0.103793 < 2.0369 or a probability of 0.9176 > 0.05, so Ho is rejected and H1 is accepted. It can be concluded that BI *rates*, inflation and the Rupiah exchange rate have no significant effect on the Composite Stock Price Index.

From the regression and hypothesis testing, the regression coefficient value was -147.3752, the t-statistic was -1.671209, and the probability value was 0.0993, with significant data 0.0993 > 0.05. It can be concluded that the BI *rates* has an insignificant

negative effect on the Composite Stock Price Index listed on the Indonesia Stock Exchange. So it can be concluded that Ho is rejected and on the other hand H1 is accepted.

It is same statement from research (Martha & Simbara, 2021) that state for the BI Rate have no effects on the Composite Stock Price Index, it is of course concluded that the increase in the BI *Rate* does not have a strong influence on the growth of the Jakarta Composite Index.

The results of the Regression and Hypothesis Testing produce a regression coefficient value of 2.903967, a $ts_{0.025305}$, and a probability value of 0.9799, so that it becomes 0.9799 > 0.05. So it can be concluded that the inflation variable has a partial negative effect on the Composite Stock Price Index listed on the Indonesia Stock Exchange.

The results of the study that inflation has no effect on the Composite Stock Price Index explain that inflation has no effect on the growth of the Composite Stock Price Index. Therefore, H0 is rejected and H2 is accepted. The relationship of inflation to the Composite Stock Price Index is the same in (Martha & Simbara, 2021) finding that inflation has no effect on the Composite Stock Price Index, so that the increase that occurs in inflation has no effect on the growth of the Composite Stock Price Index. (Jayanti, 2014) argues that inflation has no significant effect on the Composite Stock Price Index.

From the results of the regression test, the regression coefficient value is -0.014408, the t-statistic is -0.103793, and the probability value is 0.9176, with a significance value of 0.9176 > 0.05. This means that the exchange rate of USD/IDR partially has no significant negative effect on the JCI. So H0 $_{is}$ rejected and H3 is accept. This result is in line with (Martha & Simbara, 2021) that the exchange rate has no effect on the Composite Stock Price Index where the exchange rate has no effect on the growth of the Composite Stock Price Index. Also according to research (Marcelina Purnama & Hanitha, 2021) which states that the IDR exchange rate against USD has a partially negative effect on the Composite Stock Price Index listed on the IDX.

CONCLUSION

Partially, the BI *rates* has an insignificant negative affect on the jakarta composite index that listed on the IDX. The results shows that the regression coefficient value is -147.3752, the t-statistic is -1.671209, and the probability value is 0.0993, where the significant value is 0.0993 > 0.05. This is also partially found in the inflation variable which also has an insignificant negative effect on the JCI listed on the IDX. Based on the results of the regression and hypotheses, the regression coefficient value is 2.903967, the t-statistic is 0.025305, and the probability value is 0.9799, where the significance is 0.9799 > 0.05. The exchange rate of IDR USD variable partially has a significant negative effect on the JCI listed the IDX. Based on testing the hypothesis, the regression coefficient value is -0.014408, the t-statistic is -0.103793, and the probability value is 0.9176, which is a significant value of 0.9176 > 0.05. BI *rates*, inflation rate, and the exchange rate IDR/USD

have no effect simultaneously with the R2 value is$^{0.06427}$ or 6.47%. The otherside is influence by variables that not examined in this research.

REFERENCES

Bery, D., & Worokinasih, S. (2018). Pengaruh Indeks Harga Saham Global Terhadap Indeks Harga Saham Gabungan (IHSG). *Jurnal Administrasi Bisnis*, *64*(1), 126–135.

Handiani, S. (2014). Pengaruh Harga Emas Dunia, Harga Minyak Dunia dan Nilai Tukar Dolar Amerika/Rupiah Terhadap Indeks Harga Saham Gabungan Pada Periode 2008-2013. *E-Journal Graduate Unpar*, *1*(1), 85–93. http://journal.unpar.ac.id/index.php/unpargraduate/article/view/552

Hanitha, V. (2020). The Effect of Excellent Services and Corporate Images to Customer Satisfaction on Financial Banking Sectors. *ECo-Buss*, *2*(3), 44–57. https://doi.org/10.32877/eb.v2i3.138

Martha, L., & Simbara, B. (2021). Pengaruh Inflasi, Suku Bunga BI 7-Day (Reverse) Repo Rate Dan Nilai Tukar Rupiah Terhadap Indeks Harga Saham Gabungan. *Jurnal Pundi*, *05*(01), 169–180. https://doi.org/10.31575/jp.v5i1.349

Melyani, I. E. M. A. (2021). PENGARUH INFLASI, SUKU BUNGA, DAN NILAI TUKAR TERHADAP INDEKS HARGA SAHAM GABUNGAN PERIODE 2016 – 2018. *Jurnal Ilmiah Manajemen Dan Bisnis*, *6*(1).

Perencanaan, K., Nasional, P., & Indonesia, B. R. (2020). Dampak Covid-19 terhadap Pergerakan Nilai Tukar Rupiah dan Indeks Harga Saham Gabungan (IHSG). *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning*, *4*(2), 151–165. https://doi.org/10.36574/jpp.v4i2.114

Purnama, Marcelina, & Hanitha, V. (2021). Effect of Gold Price, Nickel Price, Used Exchange, Dow Jones Industrial Average, and FTSE Malaysia KLCI on Sharia Share Price Index (Sharia Ida) on The Indonesia Stock ExchangeIn the Period of January 2020 - December 2020. *E-Co Buss*, *4*(1), 159–175. https://jurnal.kdi.or.id/index.php/eb/article/view/211

Purnama, Marselia, Purnama, O., & Hanitha, V. (2021). Pengaruh Harga Emas, Harga Minyak, Kurs Tengah Bank Indonesia, dan Suku Bunga Acuan Bank Indonesia Terhadap Indeks Harga Saham Gabungan (IHSG) di Bursa Efek Indonesia Pada Periode Juli 2020 - Desember 2020. *E-Co Buss*, *3*(3). https://jurnal.kdi.or.id/index.php/eb/article/view/198

Syahrani, D. N., Soegiarto, H. E., & Tandirerung, B. (2019). *DAN TINGKAT INFLASI TERHADAP INDEKS HARGA SAHAM GABUNGAN (IHSG) Periode Januari 2014 – Februari 2019*. 1–9.

Wibowo, F. A. R. R. K. (2016). ANALISIS PENGARUH TINGKAT INFLASI, SUKU BUNGA SBI, NILAI TUKAR US DOLLAR PADA RUPIAH, JUMLAH UANG BEREDAR, INDEKS DOW JONES, INDEKS NIKKEI 225, DAN INDEKS HANGSENG TERHADAP PERGERAKAN INDEKS HARGA SAHAM GABUNGAN (IHSG) PERIODE TAHUN 2010-2014. *Journal Of Accounting*, *2*(2).

Wismantara, S. Y. N. P. A. D. (2017). *PENGARUH NILAI TUKAR, SUKU BUNGA DAN INFLASI TERHADAP INDKES HARGA SAHAM GABUNGAN DI BURSA EFEK INDONESIA*. *6*(8), 4391–4421.

Zatira, D., & Hanitha, V. (2021). Pengaruh Current Ratio , Debt To Equity Ratio Dan Renturn On Equity Terhadap Harga Saham Perusahaan Manufaktur Subsektor Food And Beverage Tahun 2016-2020 Yang Terdaftar Dalam BEI. *Akuntoteknologi*, *1*, 1–13.

http://www.id.investing.com