

## The Effect of Exchange Rates and Interest Rates on Sharia Stock Index in Indonesia: Before and During the Covid-19 Pandemic

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### ABSTRACT

*The Islamic Stock Market is starting to take on a role in Indonesia's developing Islamic finance sector. One of the stock price indicators can be seen from the combined sharia stock index, which currently has four types of stock indexes. Previous research found several factors that influence the fluctuations in the sharia stock index, both from internal company factors and macroeconomic conditions. However, little research still compares the effects of exchange rates before and during the Covid-19 pandemic. This study aims to provide new empirical data on the conditions of the Islamic stock market in Indonesia before and during the Covid-19 pandemic. Practically, this research analyses the Islamic capital market and regulators in formulating financial policies. What used the linear regression method to process secondary data in daily data on the JII stock index, JII 70, exchange rates, and interest rates. The study results show that exchange rates and interest rates affect ISSI, JII, and JII70 before and during the pandemic.*

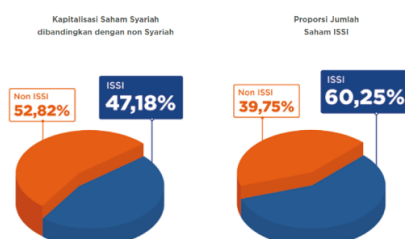
**Keywords:** stock prices, exchange rates, sharia stock index, covid-19 pandemic

### INTRODUCTION

The Indonesian stock market is starting to stabilize and strengthen compared to early March 2020 at the start of the COVID-19 pandemic. It is indicated by the increase in the Composite Stock Price Index (JCI) approaching its pre-covid-19 position. Furthermore, the Islamic stock index in line with the JCI movement also grew positively. The ISSI index at the level of 171.95 increased 48.30% after reaching its lowest point on March 24, 2020, at 115.95.

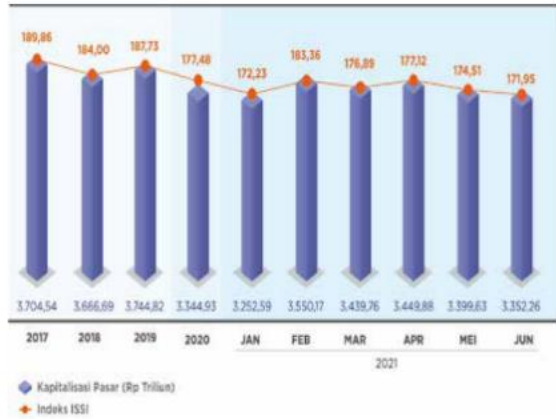
The sharia stock index positioned on June 30, 2021, decreased compared to the position at the end of 2020 of 3.12%. However, in terms of stock capitalization, it increased by 0.22%. Meanwhile, the JII and JII70 indexes decreased by 13.66 % and 12.09%, respectively, decreasing share capitalization by 13.53% and 9.17%, respectively. However, the current Sharia stock index is increasing compared to the lowest index value on March 24, 2020.

**Figure 1.** Comparison of Share Capitalization of Sharia and Non-Sharia Shares



The movement of the Sharia Stock Index can be seen in Figure 2, as following:

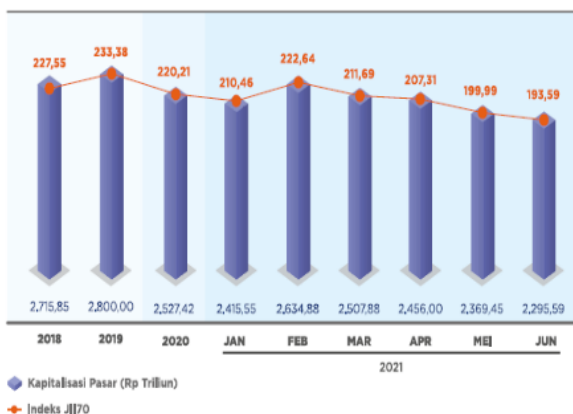
**Figure 2.** ISSI Index & Market Capitalization



**Figure 3.** JII Index & Market Capitalization



**Figure 4.** JII70 Index & Market Capitalization



The movement of the sharia stock index above fluctuates and, of course, is influenced by many variables. Based on the research conducted, it was (Alam, Anggraeni, & A.G.T. Anas, 2020) found that for long-term analysis, ISSI is negatively and significantly affected by the Central Bank's interest rates. Meanwhile, for short-term study, ISSI is negatively and

significantly affected by the Central Bank's interest rate and the exchange rate. This is in line with research. Based on analysis using (Yahya, 2020) cointegration and ECM tests, there are long-term and short-term effects between inflation, Bank Indonesia interest rates, exchange rates and money supply with JII in the period January 2015 to August 2019.

Other studies have found that exchange rates and Bank Indonesia Syariah Certificates (SBIS) affect the Islamic stock index in the short term. Meanwhile, interest rates, SBIS and oil prices have affected the sharia stock index for a long time (Ardana, 2016). Furthermore, the study results (M R P Sakti, 2013) found that there was cointegration between sharia stock prices and macroeconomic variables. Specifically, the Indonesian Islamic stock market is driven more by domestic factors. Therefore, these macroeconomic factors need to be emphasized as government policy instruments to stabilize sharia stock prices.

This is also in line with research with the results that there can be short-term and long-term relationships between macroeconomic (Endri, 2009) variables and stock returns. Meanwhile, in the study (Erdogan, 2020), it is stated that there is an abundance of volatility from the Islamic stock market to the foreign exchange market in Turkey. Based on time-varying tests, the volatility is at least one-way between the exchange rate and a specific stock market.

Based on the above background, the purpose of this paper is to determine the effect of macroeconomic variable movements in terms of Bank Indonesia 7 days reverse reporting (BI 7DRR) interest rates and exchange rates on Indonesian sharia stock indexes, namely the Indonesian Sharia Stock Index (ISSI), Jakarta Islamic Index (JII) and Jakarta Islamic Index 70 (JII70). Before and during the covid-19 pandemic. To capture this influence, we use daily data with a period from June 2018 to September 30, 2021, divided into two periods before the COVID-19 pandemic, namely the position of June 29, 2018-February 28, 2020 and during the pandemic from March 2, 2020 – September 30, 2021.

## METHOD

The method used in this research is quantitative by testing specific theories to determine the effect between variables. In this study, the independent variables are interest rates and exchange rates, while the dependent variable is the sharia share price contained in ISSI, JII and JII70. The two variables are inserted into the following linear regression equation:

$$ISSI = \alpha + \beta_1 ExchangRate + \beta_2 BIRate$$

$$JII = \alpha + \beta_1 ExchangRate + \beta_2 BIRate$$

$$JII70 = \alpha + \beta_1 ExchangRate + \beta_2 BIRate$$

ISSI	= the price of sharia shares contained in ISSI
JII	= price of sharia shares included in JII
JII70	= price of sharia shares contained in JII70
$\alpha$	= constant
$\beta_{1,2}$	= value of the regression coefficient
<i>ExchangRate</i>	= exchange rate
<i>BIRate</i>	= Interest rate

This study uses secondary data in daily BI 7DRR data exchange rates using the moderate pace of Bank Indonesia, ISSI, JII and JII70 daily stock indexes. The data used is from June 2018 to September 30, 2021, divided into two periods: before the COVID-19 pandemic position June 29, 2018-February 28, 2020 and during the COVID-19 pandemic starting March 2 2020 - September 30 2021.

The hypotheses in this paper are:

H1 The Exchange Rate and BI7DRR have a significant effect on ISSI before the covid-19 pandemic

H1 The Exchange Rate and BI7DRR had a substantial impact on JII before the covid-19 pandemic

H1 The Exchange Rate and BI7DRR had a significant effect on JII70 before the covid-19 pandemic

H1 The Exchange Rate and BI7DRR have a substantial impact on ISSI during the covid-19 pandemic

H1 The Exchange Rate and BI7DRR have a significant effect on JII during the covid-19 pandemic

H1 Exchange rate and BI7DRR have a substantial impact on JII70 during the covid-19 pandemic.

## RESULT AND DISCUSSION

### Result Before the Covid-19 Pandemic

#### ISSI

The test results obtained from the ISSI index before the pandemic are as follows:

**Table 1.** ISSI Test Results Before the Pandemic

Sample: 6/29/2018 2/28/2020

Included observations: 412

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	320.4723	10.91891	29.35020	0.0000
EXCHANGE_RATE	-0.012853	0.000811	-15.85331	0.0000
BI_RATE	823.8827	71.92720	11.45440	0.0000
R-squared	0.418390	Mean dependent var		182.9620
Adjusted R-squared	0.415546	S.D. dependent var		7.331648
S.E. of regression	5.605017	Akaike info criterion		6.292456
Sum squared resid	12849.23	Schwarz criterion		6.321735
Log likelihood	-1293.246	Hannan-Quinn criter.		6.304037
F-statistic	147.1100	Durbin-Watson stat		0.063217
Prob(F-statistic)	0.000000			

Table 1 shows the results of the coefficient of determination with the value of Adjusted R square is 0.415. The exchange rate variable and BI 7DRR can explain the ISSI variable of 41.5%. Other variables outside the study can justify the additional 58.5%. In addition, the results of the F test also produced a significant value, namely prob (F-statistic) 0.000 ( $< 0.05$ ). The results of this F test show that water has a substantial effect on the variable exchange rate and BI 7DRR on the ISSI variable simultaneously.

Based on the results obtained, the equation model in this study is:

$$ISSI = 320,472 - 0.012 \text{ ExchangRate} + 823.883 \text{ BI 7DRR}$$

Based on the first hypothesis testing results before Covid-19, from June 29 2018 to February 28 2020, the exchange rate variable has a regression coefficient of -0.012 with a significance level of 0.000 ( $< 0.05$  ). This shows that the exchange rate had a negative and significant effect on the ISSI variable before the pandemic at a significance level of 5%. Therefore, the conclusion obtained is that the first hypothesis is accepted.

For the results of testing the second hypothesis, who can say that the interest rate variable has a regression coefficient of 823,882 with a significance level of 0.000 ( $< 0.05$  ). This shows that before the pandemic, interest rates have a positive and significant effect on the ISSI variable, 5%. Then the conclusion obtained is that the second hypothesis is accepted.

## JIM

The test results obtained from the JII index before the pandemic are as follows:

**Table 2.** JII Test Results Before the Pandemic

Sample: 6/29/2018 2/28/2020  
Included observations: 412

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1150.961	40.92365	28.12460	0.0000
EXCHANGE_RATE	-0.045298	0.003039	-14.90793	0.0000
BI_RATE	3064.363	269.5803	11.36716	0.0000
R-squared	0.396184	Mean dependent var		675.2780
Adjusted R-squared	0.393231	S.D. dependent var		26.96871
S.E. of regression	21.00738	Akaike info criterion		8.934879
Sum squared resid	180495.8	Schwarz criterion		8.964159
Log likelihood	-1837.585	Hannan-Quinn criter.		8.946461
F-statistic	134.1791	Durbin-Watson stat		0.110960
Prob(F-statistic)	0.000000			

Table 2 shows the coefficient of determination using the Adjusted R square value is 0.393. who can see that the exchange rate variable and BI 7DRR can explain the JII variable of 39.3 %? Other variables can explain the additional 60.7 %. In addition, the results of the F test also showed significant results, namely prob (F-statistic) 0.000 ( $< 0.05$  ). The results of this F test show that water has a substantial effect on the variable exchange rate and BI 7DRR on the JII variable simultaneously.

Based on the results obtained, the equation model in this study is:

$$JII = 1150,961 - 0.045 \text{ ExchangRate} + 3064,363 \text{ BI 7DRR}$$

Based on the results of the first hypothesis testing before Covid-19, from June 29, 2018, to February 28, 2020, who can say that the exchange rate variable has a regression coefficient of -0.045 with a significance level of 0.000 ( $< 0.05$  ). who can see that before the pandemic the exchange rate had a negative and significant effect on the JII variable at a significance level of 5%. Then the conclusion obtained is that the first hypothesis is accepted.

For the results of testing the second hypothesis, who can say that the interest rate variable has a regression coefficient of 3064,363 with a significance level of 0.000 ( $< 0.05$ ). This shows that before the pandemic, interest rates have a positive and significant effect on the JII variable by 5%. Then the conclusion obtained is that the second hypothesis is accepted.

### JII70

The test results obtained from the JII70 index before the pandemic are as follows:

**Table 3.** JII70 Test Results Before the Pandemic

Sample: 6/29/2018 2/28/2020  
Included observations: 412

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	409.6417	14.72879	27.81231	0.0000
EXCHANGE_RATE	-0.016245	0.001094	-14.85436	0.0000
BI_RATE	861.3416	97.02438	8.877579	0.0000
R-squared	0.367885	Mean dependent var	225.7923	
Adjusted R-squared	0.364794	S.D. dependent var	9.486532	
S.E. of regression	7.560746	Akaike info criterion	6.891072	
Sum squared resid	23380.44	Schwarz criterion	6.920351	
Log likelihood	-1416.561	Hannan-Quinn criter.	6.902653	
F-statistic	119.0173	Durbin-Watson stat	0.078985	
Prob(F-statistic)	0.000000			

Table 3 shows the coefficient of determination using the Adjusted R square value is 0.364. This indicates that the exchange rate variable and BI 7DRR can explain the JII70 variable of 36.4 %. Other variables can explain the additional 63.6 %. In addition, the results of the F test also showed significant results, namely prob (F-statistic) 0.000 ( $< 0.05$ ). The results of this F test show that water has a substantial effect on the exchange rate variables and the BI 7DRR interest rate on the JII70 variable simultaneously.

Based on the results obtained, the equation model in this study is:

$$JII70 = 409,64 - 0.016 \text{ ExchangRate} + 861,341 \text{ BI 7DRR}$$

Based on the results of the first hypothesis testing before Covid-19, from June 29, 2018, to February 28, 2020, the exchange rate variable has a regression coefficient of -0.016 with a significance level of 0.000 ( $< 0.05$ ). This shows that before the pandemic, the exchange rate had a negative and significant effect on the JII70 variable at a significance level of 5%. Then the conclusion obtained is that the first hypothesis is accepted.

For testing the second hypothesis, the tomb variable interest rate has a regression coefficient of 861.341 with a significance level of 0.000 ( $< 0.05$ ). This shows that before the pandemic, interest rates had a positive and significant effect on the JII70 variable at a significance level of 5%. Then the conclusion obtained is that the second hypothesis is accepted.

### *During the Covid-19 Pandemic*

#### ISSI

The test results obtained from the ISSI index during the pandemic are as follows:

**Table 4. ISSI Test Results During a Pandemic**

Sample: 3/02/2020 9/30/2021  
Included observations: 382

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	447.8555	10.75570	41.63891	0.0000
EXCHANGE_RATE	-0.011901	0.000846	-14.06814	0.0000
BI_RATE	-2878.188	108.9557	-26.41613	0.0000
R-squared	0.821765	Mean dependent var	163.1634	
Adjusted R-squared	0.820825	S.D. dependent var	16.79183	
S.E. of regression	7.107829	Akaike info criterion	6.768093	
Sum squared resid	19147.55	Schwarz criterion	6.799078	
Log likelihood	-1289.706	Hannan-Quinn criter.	6.780386	
F-statistic	873.7054	Durbin-Watson stat	0.106296	
Prob(F-statistic)	0.000000			

Table 4 shows the coefficient of determination using the Adjusted R square value is 0.820. Therefore, the exchange rate variable and BI 7DRR can explain the ISSI variable of 82.00 %. Other variables can explain the remaining 18.00 %. In addition, the results of the F test also showed significant results, namely prob (F-statistic) 0.000 (< 0.05 ). Therefore, the results of this F test show that water has a substantial effect on the variable exchange rate and BI 7DRR on the ISSI variable simultaneously.

Based on the results obtained, the equation model in this study is:

$$ISSI = 447,855 - 0.011 \text{ ExchangRate} - 2878,188 \text{ BI 7DRR}$$

Based on the results of the first hypothesis testing before Covid-19, from March 2, 2020, to September 30, 2021, the exchange rate variable has a regression coefficient of -0.011 with a significance level of 0.000 (< 0.05 ). This shows that the time of the exchange rate pandemic has a negative and significant effect on the ISSI variable at a significance level of 5%. Then the conclusion obtained is that the first hypothesis is accepted.

Who can say that the interest rate variable has a regression coefficient of -2878 .188 with a significance level of 0.000 (<0.05)? This shows that before the pandemic, interest rates have a negative and significant effect on the ISSI variable at a significance level of 5%. Then the conclusion obtained is that the second hypothesis is accepted.

## JIM

The test results obtained from the JII index during the pandemic are as follows:

**Table 5. JII Test Results During a Pandemic**

Sample: 3/02/2020 9/30/2021  
Included observations: 382

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1497.078	50.57358	29.60199	0.0000
EXCHANGE_RATE	-0.058598	0.003978	-14.73123	0.0000
BI_RATE	-2083.846	512.3127	-4.067527	0.0001
R-squared	0.515603	Mean dependent var	563.8173	
Adjusted R-squared	0.513046	S.D. dependent var	47.89369	
S.E. of regression	33.42120	Akaike info criterion	9.864081	
Sum squared resid	423334.2	Schwarz criterion	9.895066	
Log likelihood	-1881.039	Hannan-Quinn criter.	9.876373	
F-statistic	201.7077	Durbin-Watson stat	0.085655	
Prob(F-statistic)	0.000000			

Table 5 shows the coefficient of determination using the Adjusted R square value is 0.513. This indicates that the exchange rate variable and BI 7 DRR can explain the JII variable of 51.30 %. At the same time, the remaining 48.70% can be explained by other variables outside the study. In addition, the results of the F test also showed significant results, namely prob (F-statistic) 0.000 (< 0.05 ). The results of this F test show that water has a substantial effect on the variable exchange rate and BI 7 DRR on the JII variable simultaneously.

Based on the results of the multiple regression analysis, the equation model in this study is:

$$JII = 1497,078 - 0.058 \text{ ExchangRate} - 2083,846 \text{ BI 7DRR}$$

Based on the results of the first hypothesis testing before Covid-19, from March 2, 2019, to September 30, 2021, who can say that the exchange rate variable has a regression coefficient of -0.058 with a significance level of 0.000 (<0.05). This shows that the exchange rate had a negative and significant effect on the JII variable before the pandemic at a significance level of 5%. Then the conclusion obtained is that the first hypothesis is accepted.

Who can say that the interest rate variable has a regression coefficient of -2083 .846 with a significance level of 0.000 (<0.05)? Before the pandemic, interest rates had a negative and significant effect on the JII variable at a significance level of 5%. Then the conclusion obtained is that the second hypothesis is accepted.

### JII70

The test results obtained from the JII70 index during the pandemic are as follows:

**Table 6. JII70 Test Results During a Pandemic**

Sample: 3/02/2020 9/30/2021  
Included observations: 382

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	561.9376	17.59901	31.93007	0.0000
EXCHANGE_RATE	-0.020292	0.001384	-14.65959	0.0000
BI_RATE	-1859.993	178.2788	-10.43306	0.0000
R-squared	0.634481	Mean dependent var	194.6340	
Adjusted R-squared	0.632552	S.D. dependent var	19.18618	
S.E. of regression	11.63018	Akaike info criterion	7.752907	
Sum squared resid	51263.99	Schwarz criterion	7.783892	
Log likelihood	-1477.805	Hannan-Quinn criter.	7.765200	
F-statistic	328.9404	Durbin-Watson stat	0.079160	
Prob(F-statistic)	0.000000			

Table 6 explains the coefficient of determination using the Adjusted R square value is 0.632. Therefore, the exchange rate variable and Bi 7DRR can define the JII70 variable of 63.20 %. Other variables can explain the additional 36.8 %. In addition, the results of the F test also showed significant results, namely prob (F-statistic) 0.000 (< 0.05). Therefore, the results of this F test show that water has a substantial effect on the variable exchange rate and BI 7DRR on the variable JII70 simultaneously.

Based on the results obtained, the equation model in this study is:

$$JII70 = 561,93 - 0.020 \text{ ExchangRate} - 1859,993 \text{ BI 7DRR}$$



Based on the results of the first hypothesis testing before Covid-19, from March 2, 2020, to September 30, 2021, who can say that the exchange rate variable has a regression coefficient of -0.020 with a significance level of 0.000 ( $<0.05$ ). This shows that before the pandemic, the exchange rate had a negative and significant effect on the JII70 variable at a significance level of 5%. Then the conclusion obtained is that the first hypothesis is accepted.

It can be said that the interest rate variable has a regression coefficient of -1859.993 with a significance level of 0.000 ( $<0.05$ ). This shows that before the pandemic, interest rates had a positive and significant effect on the JII70 variable at a significance level of 5%. Then the conclusion obtained is that the second hypothesis is accepted.

Based on the above analysis, a description of the effects of the exchange rate and BI 7 DRR can be concluded in the following table:

**Table 7.** the effects of the exchange rate and BI 7 DRR

Before (June 29, 2018-February 28, 2020)						
	ISSI		JIM		JII70	
Variable	CoefRegression	Prob	Korf Regression	Prob	Korf Regression	Prob
Exchange rate	-0.012	0.000	-0.045	0.000	-0.016	0.000
Interest rate	823,882	0.000	3064,363	0.000	861,342	0.000
constant	320,472	0.000	1150,961	0.000	409,641	0.000
Adjusted R Square	0.415		0.396		0.364	
F-Statistics	147,111		134,179		119,017	
Prob (F-Statistic)	0.000		0.000		0.000	
After (March 2 2020-September 30 2021)						
	ISSI		JIM		JII70	
Variable	CoefRegression	Prob	CoefRegression	Prob	CoefRegression	Prob
Exchange rate	-0.011	0.000	-0.058	0.000	-0.020	0.000
Interest rate	-2878,188	0.000	-2083,846	0.000	-1895,993	0.000
constant	447,855	0.000	149,078	0.000	561,937	0.000
Adjusted R Square	0.820		0.513		0.632	
F-Statistics	873,705		201,707		328,940	
Prob (F-Statistic)	0.000		0.000		0.000	

## CONCLUSION

The company's internal factors and macroeconomic conditions have more or less influenced the fluctuations in sharia share prices, both at ISSI, JII and JII70. Especially during the Covid-19 pandemic, which also affects stock price fluctuations. Even though the Islamic

stock market is starting to take on a role as part of the developing Islamic finance in Indonesia. Before the Covid-19 pandemic, the exchange rate and interest rate variables explained the ISSI, JII and JII70 variables in the range of 36.40 % to 41.50%. Therefore, the exchange rate variable has a negative and significant effect on the ISSI, JII and JII70 movements. Meanwhile, the interest rate variable positively and significantly impacts the ISSI, JII and JII70 indexes.

Of 63.20 % to 82.20%. The exchange rate variable has a negative and significant effect on the ISSI, JII and JII70 movements. Likewise, the interest rate variable has a negative and significant impact on the ISSI index. There is an increasing influence of exchange rate and interest rate variables during the COVID-19 pandemic. Based on this research, monetary policy management in Central Bank interest rates and exchange rates is necessary because they significantly affect ISSI, JII and JII70 both before and during the Covid-19 pandemic.

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