The Influence Of Macroeconomic Factors And World Commodity Prices On The Volatility Of The Indonesian Sharia Stock Index

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Abstract.

The Indonesia Sharia Stock Index (ISSI) serves as a key indicator of sharia-compliant stock performance on the Indonesia Stock Exchange. This study investigates the impact of macroeconomic factors—interest rates, exchange rates, inflation, oil prices, and gold prices—on ISSI volatility from January 2015 to December 2024. Utilizing a quantitative approach with multiple regression analysis, the findings reveal that interest rates significantly negatively affect volatility (coefficient -0.509, significance 0.001), indicating that higher interest rates reduce market volatility. In contrast, the exchange rate and inflation show no significant effects (coefficients -0.308 and 0.144). World oil prices have a marginal negative impact (coefficient -0.200), while gold prices are not significant (coefficient 0.045). ANOVA results confirm that all independent variables collectively influence ISSI volatility significantly (significance 0.005). This research underscores the importance of macroeconomic factors in investment decision-making within the sharia market and suggests future studies incorporate sectoral analysis and additional control variables for deeper insights.

Keywords: *Volatility;Interest Rates;Macroeconomic Factors;Global commodity Prices and Standard Deviation.*

I. INTRODUCTION

The Indonesia Sharia Stock Index (ISSI) serves as an indicator of the performance of the sharia stock market in Indonesia, consisting of sharia-compliant stocks listed on the Indonesia Stock Exchange (IDX). High volatility on the IDX reflects challenges for exchange management and investors, particularly in unstable economic conditions. History shows that the IDX faced significant shocks in 1998 and the global financial crisis in 2008, leading to sharp declines in the stock market, including the Composite Index (IHSG) dropping by over 50%. External factors, such as global oil prices and the degree of trade openness, significantly impact market volatility [13]. Additionally, stock prices are influenced by various macroeconomic factors, such as interest rates and inflation, as well as internal company conditions. Investors generally expect higher returns as risks increase, in line with the principle of "high risk, high return". Previous research has shown that stock volatility can be influenced by macroeconomic variables, such as inflation and interest rates [14]. Additionally, macroeconomic volatility also impacts the financing of sharia commercial banks, which needs to be considered in investment decision-making [21]. Understanding the interaction between these factors is crucial for investors to make better decisions.

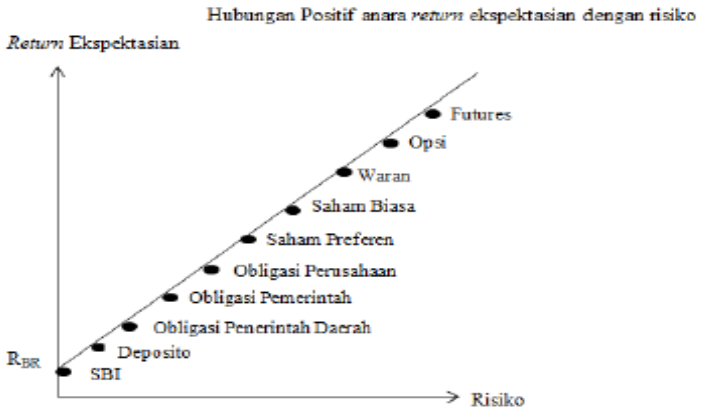

Fig 1.1. Positive Relationship Between Expected Return and Risk
Source: Hartono (2016)

Figure 1.1 illustrates a positive relationship between risk and expected return, where higher risk associated with an asset correlates with higher expected returns by investors [7]. The global financial crisis of 2008 significantly impacted the Indonesian stock market, including the Composite Index (IHSG), leading to foreign investment withdrawals and increased volatility. External factors such as oil prices and trade openness emerged as critical determinants during the crisis [13]. This study examines the influence of macroeconomic factors and global commodity prices on the volatility of the Indonesia Sharia Stock Index (ISSI), utilizing standard deviation as an analytical method, distinguishing it from previous research that focused solely on specific variables [21].In investment activities, risk and return are interrelated, with a linear relationship indicating that the higher the risk of an asset, the greater the expected return [5]. Understanding stock volatility is essential for investors as it directly relates to the returns they receive.

This study aims to investigate the impact of macroeconomic variables—Bank Indonesia's interest rates, the exchange rate of the rupiah, inflation rates, oil prices, and gold prices—on the volatility of the Indonesia Sharia Stock Index (ISSI). An increase in interest rates can raise borrowing costs, while fluctuations in exchange rates and inflation create uncertainty in the market. Additionally, changes in oil and gold prices affect operational costs and market sentiment. The findings are expected to provide in-depth insights into the factors influencing stock market volatility and practical information for investors and policymakers. This research formulates several issues to be analyzed, including the effects of Bank Indonesia's interest rates, the exchange rate of the rupiah, inflation rates, oil prices, and gold prices on the volatility of the ISSI, both individually and simultaneously. Theoretically, this research contributes a conceptual study for the development of financial management and investment knowledge, serving as a reference for future research. Practically, it is expected to provide useful information for investors to aid their decision-making in the capital market.

II. LITERATURE REVIEW

Investment involves deferring current consumption to gain future benefits, entailing a trade-off between risk and return. Factors such as inflation, interest rates, and economic conditions influence investment performance. According to Sumanto (2006), investment is a commitment of funds for future income, while Husnan [1]. defines investment as the activity of putting money to gain profit. Invested assets vary, including both physical and financial assets. Risk is the possibility of a difference between actual returns and expected returns [20]. Risk is divided into systematic risk, which cannot be avoided through diversification [7], and unsystematic risk, which can be minimized through diversification [8]. Systematic risk is measured by beta, while unsystematic risk can be measured through variance [4]. Return is the reward for investors for taking on investment risk. Returns are distinguished between actual return and expected return. Two important aspects are capital gain, which is the difference between selling and buying prices, and yield, which is the regular income from an investment. The higher the risk, the greater the expected return [12]. Macroeconomics studies the behavior of the economy as a whole, including aggregate economic variables such as national income and interest rates [10]. Macroeconomics provides insights for policymakers to address recessions and encourage economic growth. It also explains the impact of policy changes on the economy.

Bank Indonesia's interest rate is a short-term rate announced monthly, serving as a signal in monetary policy. Interest rates influence investment decisions and economic growth, as well as play a role in economic stability [3]. The exchange rate is the amount of money of one currency that can be exchanged for another currency. The exchange rate is influenced by interest rates, inflation, and central bank interventions [9]. The exchange rate system consists of fixed, floating, and pegged. Inflation is the persistent increase in prices, caused by excessive demand. Inflation can be categorized as moderate, intermediate, or hyper. The Consumer Price Index (CPI) is used to measure inflation. Price reflects the value of goods or services in monetary terms, indicating consumer satisfaction. Commodities are primary goods, either raw materials or products that can be exported. World oil prices are determined by quality and source, with West Texas Intermediate (WTI) serving as a benchmark [2]. Various factors influence oil prices, including supply and economic conditions. Gold serves as a hedge against inflation and is an important asset in a portfolio. Gold

prices are determined in the London Gold Market, with a pricing system known as London Gold Fixing [6]. Volatility is a measure of price fluctuations that reflects risk. High volatility attracts speculative investors, while low volatility indicates limited price movement.In this context, the framework of thought highlights that the Bank Indonesia (BI) interest rate does not have a significant impact on the volatility of the Indonesia Sharia Stock Index (ISSI) due to strict sharia compliance criteria that minimize the influence of interest rates.

In contrast, fluctuations in exchange rates significantly affect investments in Indonesia; appreciation of the domestic currency can deter foreign investors, negatively impacting demand for ISSI stocks confirm. Inflation is another critical factor, as rising inflation increases production costs and diminishes corporate profits, leading to a negative effect on sharia indices, as demonstrated by Antonio et al. (2013) in both Indonesia and Malaysia. Additionally, increasing oil prices raise production costs, potentially lowering investor interest and stock prices within the ISSI, as supported by Antonio et al. (2013). Gold prices, which often rise during economic instability, act as a hedge against inflation and can indicate market uncertainty, thereby reducing stock index volatility; this is corroborated by studies from Adjasi (2009) and Soucek (2013). Ultimately, the volatility of the ISSI is influenced by a complex interplay of BI interest rates, exchange rates, inflation, oil prices, and gold prices illustrating how these interrelated variables collectively shape the movements of the Composite Stock Price Index (IHSG) and ISSI, reflecting broader domestic and global economic conditions.

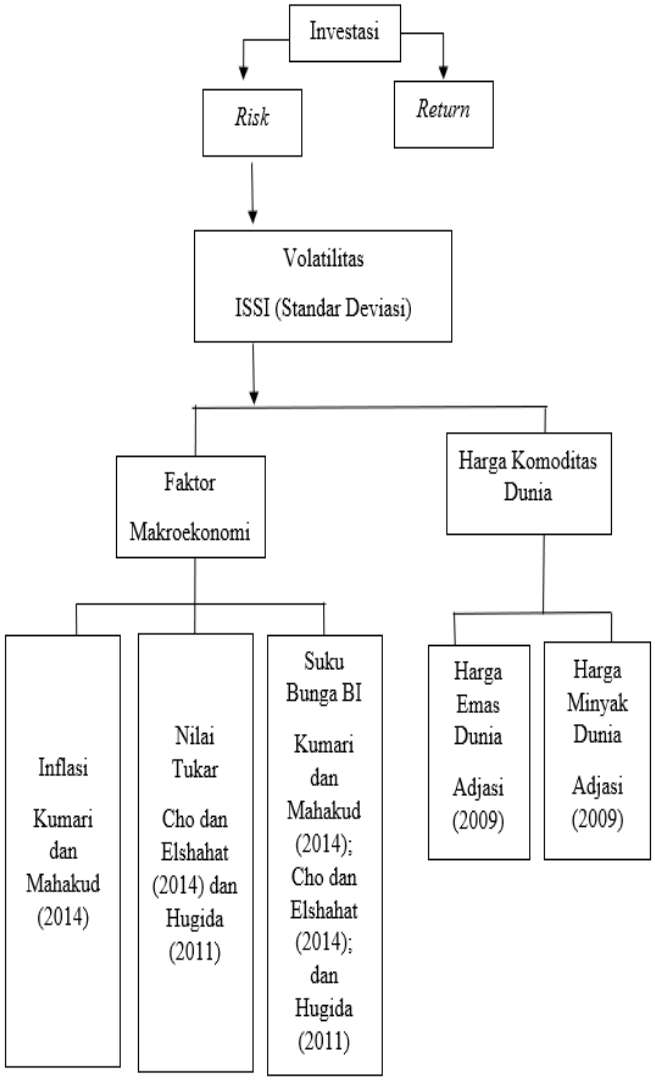

Fig 2.1. Framework of Thought on the Volatility of the Indonesia Sharia Stock Index (ISSI)
Source: Purpasari (2017)

Based on the framework of thought that has been outlined, the following conceptual model is obtained:

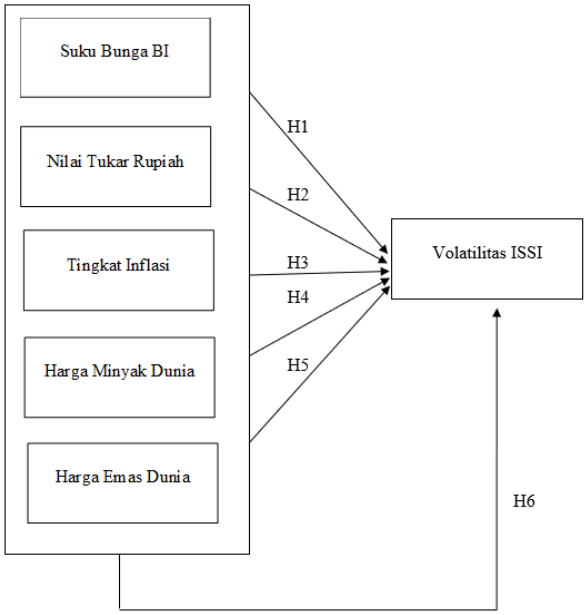

Fig 2.2. Conceptual Model
Source: Purpasari (2017)

III. METHODS

This research employs a quantitative method aimed at testing hypotheses through statistical data analysis, as explained by Sugiyono [16]. Based on positivist philosophy, this study defines reality as something measurable and observable, investigating causal relationships among phenomena. Using a deductive approach, the researcher formulates hypotheses, collects, and analyzes quantitative data. This study falls into the explanatory category, where independent variables—Bank Indonesia's interest rates, inflation, exchange rates, oil prices, and gold prices—affect the dependent variable, which is the volatility of the Indonesia Sharia Stock Index (ISSI). Volatility is measured using the standard deviation of daily returns, providing insight into risk for investors. Through this approach, the research aims to deepen the understanding of the factors influencing stock volatility in Indonesia.

This research operationalizes several key variables from January 2015 to December 2024, starting with the Bank Indonesia Interest Rate, which uses monthly data from the official Bank Indonesia website (www.bi.go.id). Next, the Exchange Rate of the Rupiah is measured using the midpoint rate, which is the average of the selling and buying rates of the Rupiah against the US Dollar, also sourced from Bank Indonesia, to identify patterns in exchange rate fluctuations. The Inflation Rate is assessed through the Consumer Price Index (CPI), which includes nine essential goods, with monthly data obtained from the Central Statistics Agency (BPS) to analyze the impact of inflation on economic variables. Additionally, World Oil Prices are analyzed using data on West Texas Intermediate (WTI) crude oil prices from the U.S. Energy Information Administration (EIA) to explore correlations with other economic variables. World Gold Prices are sourced from Kitco, aimed at evaluating trends that influence investment decisions in the gold market. Finally, the Volatility of Returns on the Indonesia Sharia Stock Index (ISSI) is estimated using the standard deviation of monthly ISSI returns, obtained from the Indonesia Stock Exchange (BEI), to provide insights into the dynamics of the sharia stock market in Indonesia and assist investors in making investment decisions.

The population in this study includes all stock indices listed on the Indonesia Stock Exchange (IDX), such as the Composite Stock Price Index (IHSG), LQ45, Jakarta Islamic Index (JII), and the Indonesia Sharia Stock Index (ISSI). This research focuses on these indices to provide insights into the dynamics of the stock market in Indonesia. The sample is taken using a non-probability sampling technique, specifically purposive

sampling, which selects based on specific criteria [15]. The criteria for sample selection include indices that reflect the performance of all stocks on the IDX and indices that represent the performance of sharia stocks during the period from January 2015 to December 2024. Therefore, the sample used is the Indonesia Sharia Stock Index (ISSI).In this study, secondary data is utilized, obtained from various official sources, including the Bank Indonesia website (www.bi.go.id) for interest rates and exchange rates, the Central Statistics Agency (BPS) for inflation data www.bps.go.id, the U.S. Energy Information Administration (EIA) for world oil prices www.eia.gov, and Kitco for gold prices (www.kitco.com).

Additionally, data on the Indonesia Sharia Stock Index (ISSI) is sourced from the Indonesia Stock Exchange www.idx.co.id for the period from January 2015 to December 2024. Data collection techniques involve literature research, including reading and noting relevant literature on the topic being studied. Time series data is used for more in-depth analysis [11].Analysis is conducted using classical assumption tests, including normality testing with the Jarque-Bera (JB) test to evaluate the distribution of residuals [5]. Multicollinearity is examined through the correlation values among independent variables and the Variance Inflation Factor (VIF) to ensure there are no strong relationships between [11]. Multiple regression analysis is applied to assess the influence of independent variables on the dependent variable, with hypothesis testing using the t-test for evaluating partial effects and the F-test for assessing the overall significance. Decision-making based on the calculated t-value and t-table determines the significance of the variables, while the F-test employs the coefficient of determination (R^2) to examine the simultaneous effect of independent variables on the dependent variable.

IV. RESULTS AND DISCUSSION

Dependent Variable (Y) Volatility of ISSI Returns. Descriptive statistics are used to depict the collected data without making generalizations [18]. In this study, this method provides an overview of the variables examined through data analysis in the form of absolute values, such as mean, median, range, and standard deviation. The purpose of descriptive statistics is to transform raw data into more comprehensible information, presented in tables and graphs, and includes measurements such as kurtosis and skewness. The results of the analysis are displayed in Table 4.2.

Table 4.1. Descriptive Statistical Analysis

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Volatilitas Return ISSI (%)	1650	,01	11,92	2,8859	2,41464
Interest Rate (BI Rate %)	1650	3,50	7,75	5,2456	1,22404
Exchange Rate (ER)	1650	12516,24	16247,74	14285,7791	874,69562
Inflasi (%)	1650	,01	,07	,0334	,01467
Harga Minyak Dunia (USD)	1650	18,38	122,71	66,3418	19,38887
Harga Emas Dunia (USD)	1650	808,34	1982,78	1391,7682	348,71422
Valid N (listwise)	1650				

Source: Data Processed by the Researcher (2025)

Based on the data analysis in Table 4.1, the volatility of returns on the Indonesia Sharia Stock Index (ISSI) shows a minimum value of 0.01% and a maximum of 11.92%, with an average of 2.89% and a standard deviation of 2.41%, indicating significant fluctuations in the sharia stock market. The Bank Indonesia interest rate (BI Rate) has a minimum value of 3.50% and a maximum of 7.75%, with an average of 5.25% and a standard deviation of 1.22%, reflecting stable monetary policy. The exchange rate of the Rupiah against the US Dollar recorded a minimum of Rp12,516.24 and a maximum of Rp16,247.74, with an average of Rp14,285.78 and a standard deviation of Rp874.70, showing considerable fluctuations.

The inflation rate shows low values, with a minimum of 0.01% and a maximum of 0.07%, an average of 0.0334%, and a standard deviation of 0.0147, indicating inflation stability during the observation period. World oil prices vary significantly, with a minimum of USD18.38 and a maximum of USD122.71, an average of USD66.34, and a standard deviation of USD19.39. World gold prices have a minimum of USD808.34 and a maximum of USD1,982.78, with an average of USD1,391.77 and a standard deviation of

USD348.71. The high variation in oil and gold prices reflects the global market dynamics that influence the sharia capital market in Indonesia.The volatility of ISSI returns measures the changes or fluctuations in the return value of the Indonesia Sharia Stock Index (ISSI) over a specific period. Before conducting regression analysis, the researcher calculates the return value based on monthly index price changes. Volatility, which reflects the risk of the sharia stock market, is calculated using the standard deviation of monthly returns, which is then converted into an annual figure for a more representative analysis. Stock price data can be accessed through Yahoo Finance. The results of the return and volatility calculations for ISSI are presented in Table 4.2.

Table 4.2. Results of ISSI Return Volatility Calculations

Tahun	Bulan	AALI_Price	AALI_*Return*	AALI_STD
2014	12	23.106,64	0,04	0,82
2015	1	22.153,79	-0,06	2,05
2015	2	23.487,78	0,01	2,97
2015	3	23.154,28	0,19	3,04
2015	4	19.390,52	-0,18	2,72

Source: Data Processed by the Researcher (2025)

The calculation of stock returns in this study is conducted on a monthly basis using the formula:

$$R_{i-t} : \frac{P_t - P_{t-1}}{P_{t-1}}$$

$$R_{01-2015} : \frac{P_{01-2015} - P_{12-2014}}{P_{12-2014}}$$

$$= \frac{\text{Rp } 22.153{,}79 - \text{Rp } 23.106{,}64}{\text{Rp } 23.1066{,}64}$$

$$= -0{,}06$$

Meanwhile, the volatility of the stock is calculated based on the standard deviation of monthly returns, which is then converted into annual volatility using the formula:

Annual Volatility = σ_Monthly × √252

Annual Volatility = σ_January × √252

= 0.129 × √252

= 2,05

Note:

√252 = Average number of trading days in a year.

The annual volatility of stock AALI in January is 2.05, indicating a relatively high level of fluctuation (risk) at the beginning of 2015. This reflects the instability in return movements that can affect investors' investment decisions.Independent Variables (X) Interest rate is the percentage yield or cost paid for the use of money over a specific period. The benchmark interest rate is set by Bank Indonesia to control inflation, stabilize the exchange rate, and promote economic growth. This interest rate influences investment decisions, consumption, and borrowing in the financial sector. Data on interest rates can be accessed through the official Bank Indonesia (BI) website at bi.go.id.

Table 4.3. Interest Rate Data

Tahun	Data BI *Rate*											
	Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
2015	7,75	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5	7,5
2016	7,25	7	6,75	6,75	6,75	6,5	6,5	5,25	5	4,75	4,75	4,75
2017	4,75	4,75	4,75	4,75	4,75	4,75	4,75	4,5	4,25	4,25	4,25	4,25
2018	4,25	4,25	4,25	4,25	4,75	5,25	5,25	5,5	5,75	5,75	6	6
2019	6	6	6	6	6	6	5,75	5,5	5,25	5	5	5
2020	5	4,75	4,5	4,5	4,5	4,25	4	4	4	4	3,75	3,75
2021	3,75	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5
2022	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,75	4,25	4,75	5,25	5,5
2023	5,75	5,75	5,75	5,75	5,75	5,75	5,75	5,75	5,75	6	6	6
2024	6	6	6	6,25	6,25	6,25	6,25	6,25	6	6	6	6

Source: Bank Indonesia (2025)

Exchange rate atau kurs adalah nilai tukar antara mata uang suatu negara dan mata uang negara lain, menunjukkan berapa banyak mata uang domestik diperlukan untuk mendapatkan satu unit mata uang asing, seperti rupiah terhadap dolar AS. Perubahan nilai tukar memengaruhi perdagangan internasional, investasi, dan kestabilan ekonomi makro. Data kurs dapat diakses melalui situs resmi Bank Indonesia di bi.go.id.

Table 4.4. Exchange Rate Data

Tahun	Bulan	*Exchange Rate* (ER)
2015	1	12.516,24
2015	2	12.686,16
2015	3	13.001,55
2015	4	12.882,90
2015	5	13.074,79
2015	6	13.246,52
2015	7	13.307,79
2015	8	13.712,80
2015	9	14.324,19
2015	10	13.726,95
2015	11	13.604,19
2015	12	13.785,45

Source: Bank Indonesia (2025)

Inflation is the general increase in prices of goods and services over a period, indicating a decrease in the purchasing power of money. The higher the inflation, the fewer goods can be purchased with the same amount of money. This affects consumption behavior, investment, and monetary policy. Inflation data is obtained from the Central Statistics Agency (BPS) through the official website bps.go.id.

Table 4.5. Inflation Data

Tahun	Data Inflasi											
	Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
2015	6.96 %	6.29 %	6.38 %	6.79 %	7.15 %	7.26 %	7.26 %	7.18 %	6.83 %	6.25 %	4.89 %	3.35 %
2016	4.14 %	4.42 %	4.45 %	3.6 %	3.33 %	3.45 %	3.21 %	2.79 %	3.07 %	3.31 %	3.58 %	3.02 %
2017	3.49 %	3.83 %	3.61 %	4.17 %	4.33 %	4.37 %	3.88 %	3.82 %	3.72 %	3.58 %	3.3 %	3.61 %
2018	3.25 %	3.18 %	3.4 %	3.41 %	3.23 %	3.12 %	3.18 %	3.2 %	2.88 %	3.16 %	3.23 %	3.13 %
2019	2.82 %	2.57 %	2.48 %	2.83 %	3.32 %	3.28 %	3.32 %	3.49 %	3.39 %	3.13 %	3%	2.72 %
2020	2.68 %	2.98 %	2.96 %	2.67 %	2.19 %	1.96 %	1.54 %	1.32 %	1.42 %	1.44 %	1.59 %	1.68 %
2021	1.55 %	1.38 %	1.37 %	1.42 %	1.68 %	1.33 %	1.52 %	1.59 %	1.6 %	1.66 %	1.75 %	1.87 %
2022	2.18 %	2.06 %	2.64 %	3.47 %	3.55 %	4.35 %	4.94 %	4.69 %	5.95 %	5.71 %	5.42 %	5.51 %
2023	5.28 %	5.47 %	4.97 %	4.33 %	4%	3.52 %	3.08 %	3.27 %	2.28 %	2.56 %	2.86 %	2.61 %
2024	2.57 %	2.75 %	3.05 %	3%	2.84 %	2.51 %	2.13 %	2.12 %	1.84 %	1.71 %	1.55 %	1.57 %

Source: Badan Pusat Statistik (2025)

The world oil price is the selling price of crude oil in the international market, determined by the global supply and demand mechanism. This price is influenced by geopolitical conditions, production levels of OPEC countries, energy crises, and demand from developed countries such as the U.S. and China. Data on world oil prices can be accessed through official websites such as the U.S. Energy Information Administration (EIA) at eia.gov and other commodity market sites.

Table 4.6. World Oil Price Data

Tahun	Europe Brent Spot Price FOB (Dollars per Barrel)											
	Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
2015	47,76	58,1	55,89	59,52	64,08	61,48	56,56	46,52	47,62	48,43	44,27	38,01
2016	30,7	32,18	38,21	41,58	46,74	48,25	44,95	45,84	46,57	49,52	44,73	53,31
2017	54,58	54,87	51,59	52,31	50,33	46,37	48,48	51,7	56,15	57,51	62,71	64,37
2018	69,08	65,32	66,02	72,11	76,98	74,41	74,25	72,53	78,89	81,03	64,75	57,36
2019	59,41	63,96	66,14	71,23	71,32	64,22	63,92	59,04	62,83	59,71	63,21	67,31
2020	63,65	55,66	32,01	18,38	29,38	40,27	43,24	44,74	40,91	40,19	42,69	49,99
2021	54,77	62,28	65,41	64,81	68,53	73,16	75,17	70,75	74,49	83,54	81,05	74,17
2022	86,51	97,13	117,25	104,58	113,34	122,71	111,93	100,45	89,76	93,33	91,42	80,92
2023	82,5	82,59	78,43	84,64	75,47	74,84	80,11	86,15	93,72	90,6	82,94	77,63
2024	80,12	83,48	85,41	89,94	81,75	82,25	85,15	80,36	74,02	75,63	74,35	73,86

Source: EIA Data (2015)

The world gold price is the price of precious metal that applies in the international market, usually calculated per troy ounce (approximately 31.1 grams). This price is influenced by global economic conditions, inflation, interest rates, the value of the U.S. dollar, and geopolitical tensions. Gold is considered a safe-haven asset, a relatively secure investment during unstable economic times. Data on world gold prices can be accessed through official websites such as the World Gold Council at gold.org as well as other commodity market sites like Investing.com and Kitco.com.

Table 4.7. World Gold Price Data

Tahun	Bulan	Harga Emas Dunia (USD)
2015	1	1.173,18
2015	2	1.190,22
2015	3	1.675,53
2015	4	1.565,07
2015	5	1.864,66
2015	6	1.366,66
2015	7	943,51
2015	8	1.655,89
2015	9	1.712,94
2015	10	1.473,53
2015	11	1.725,16
2015	12	1.392,55

Source: World Gold Council Data (2025)

The classical assumption test is an important step before multiple linear regression analysis, aimed at ensuring that the data meets the basic assumptions so that the estimation results are not biased. In this study, two tests were conducted: the Normality Test and the Multicollinearity Test. The normality test aims to determine whether the residuals of the regression model follow a normal distribution, which is important for assessing the model's suitability. The method used is the One Sample Kolmogorov-Smirnov Test, with the criterion that if the probability value (p-value) is greater than 0.05, the data is considered normally distributed; if it is less than 0.05, the data is not normally distributed. The results of the normality test are presented in Table 4.8.

Table 4.8. Normality Test Results

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		1761
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	1,184617
Most Extreme Differences	Absolute	,031
	Positive	,029
	Negative	-,031
Kolmogorov-Smirnov Z		1,314
Asymp. Sig. (2-tailed)		,063

a. Test distribution is Normal.

b. Calculated from data.

Source: Data Processed by Researcher (2025)

Based on the results of the normality test using the Kolmogorov-Smirnov method presented in Table 4.8, a significance value of 1.314 was obtained. This value indicates that the data in this study is normally distributed, as the significance figure is greater than the significance threshold of 0.05.The multicollinearity test aims to identify the presence of a very strong relationship between independent variables in the regression model. The goal is to ensure that the independent variables are not highly correlated, as an ideal regression model requires variables that are independent or orthogonal, meaning they have zero correlation. One way to detect multicollinearity issues is by using the Variance Inflation Factor (VIF). A model is

considered free of multicollinearity if the VIF value is less than 10 and the tolerance value is greater than 0.1. The conclusions regarding multicollinearity assessment are as follows: If the tolerance value < 0.10 or VIF > 10, then multicollinearity is present, If the tolerance value > 0.10 and VIF < 10, then multicollinearity is not present.

Table 4.9. Multicollinearity Test Results

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	X2	,615	1,627
	X5	,989	1,011
	X4	,644	1,553
	X1	,634	1,577
	X3	,562	1,780

a. Dependent Variable: Y

Source: Data Processed by Researcher (2025)

All independent variables in this model have Variance Inflation Factor (VIF) values below 10 and Tolerance values above 0.1, indicating the absence of multicollinearity symptoms. Specifically, the Exchange Rate (X2) has a Tolerance of 0.615 and a VIF of 1.627; World Gold Price (X5) has a Tolerance of 0.989 and a VIF of 1.011; World Oil Price (X4) has a Tolerance of 0.644 and a VIF of 1.553; Interest Rate (X1) has a Tolerance of 0.634 and a VIF of 1.577; and Inflation (X3) has a Tolerance of 0.562 and a VIF of 1.780. Therefore, this regression model is valid for analyzing the effect of independent variables on the Volatility of ISSI Returns.Multiple linear regression analysis is used to explain the linear relationship between two or more independent variables (X_1, X_2, etc.) and one dependent variable (Y), aiming to understand and predict the influence of independent variables on the dependent variable [5]. In this study, testing was conducted at a significance level of 0.05 (α = 5%) to estimate changes in the dependent variable due to changes in independent variables. This regression serves as a tool to model the combined effects of several independent variables on the dependent variable, with the analysis results presented in Table 4.10.

Table 4.10. Multiple Linear Regression Analysis Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,625	5,236		1,074	,283
	Interest Rate	-,509	,149	-,102	-3,411	,001
	Exchange Rate	-,308	,591	-,016	-,521	,603
	Inflasi	,144	,085	,054	1,700	,089
	Harga Minyak Dunia	-,200	,112	-,053	-1,776	,076
	Harga Emas Dunia	,045	,110	,010	,407	,684

a. Dependent Variable: Volatilitas Return ISSI

Source: Data Processed by Researcher (2025)

Based on Table 4.10 above, the multiple regression obtained is as follows:

Y = 5,625 – 0,509 (X1) – 0,308 (X2) + 0,144 (X3) – 0,200 (X4) + 0,45 (X5)

In this regression model, the constant 5.625 indicates that if all independent variables—BI Rate (X1), Exchange Rate (X2), Inflation (X3), World Oil Price (X4), and World Gold Price (X5)—are at zero, the Volatility of ISSI Returns is estimated to be 5.625 percent. The regression coefficient for BI Rate (X1) is -0.509, meaning that a 1 percent increase in the BI Rate will decrease the volatility of ISSI returns by 0.509 percent. Meanwhile, the coefficient for Exchange Rate (X2) is -0.308, indicating that an increase in the exchange rate by one unit will decrease volatility by 0.308 percent. Conversely, Inflation (X3) has a positive

coefficient of 0.144, suggesting that an increase in inflation will raise return volatility. The World Oil Price (X4) has a regression coefficient of -0.200, indicating that an increase in world oil prices tends to lower return volatility, while the World Gold Price (X5) with a coefficient of 0.450 shows that a one-unit increase in gold prices will increase ISSI return volatility by 0.450 percent.In this study, the validity and reliability of the model were tested using the F-test and T-test. The F-test is used to determine whether all independent variables simultaneously have a significant effect on the dependent variable, while the T-test examines the effect of each independent variable individually. Through these two tests, the research can validate the proposed hypotheses and assess the strength and relevance of the relationships among variables in the regression model.The F-test is used to evaluate the collective influence of independent variables on the dependent variable and to assess the feasibility of the regression model in predicting the dependent variable [5]. According to Sugiyono [17], the significance testing of multiple correlation coefficients can be conducted using specific formulas as follows:

$$A = \frac{R^2/k}{(1-R^2)/(n-k-1)}$$

The F-test can be conducted by comparing the calculated F value with the table F value at a 95% confidence level and degrees of freedom *df = (n - k - 1)*, where *R* is the multiple correlation coefficient, *k* is the number of independent variables, and *n* is the sample size [18]. The null hypothesis (*Ho*) is accepted if the calculated F value ≤ table F value indicating that the moderating variable does not have a significant effect. Conversely, Ho is rejected if the calculated F value > table F value, which indicates a significant influence from the moderating variable. The results of the statistical F test based on the research data can be seen in Table 4.11 below.

Table 4.11. F-Test Statistical Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23,760	5	4,752	3,377	,005[b]
	Residual	2469,838	1755	1,407		
	Total	2493,598	1760			

a. Dependent Variable: Volatilitas Return ISSI

b. Predictors: (Constant), Harga Emas Dunia, Inflasi, Harga Minyak Dunia , Interest Rate , Exchange Rate

Source: Data Processed by Researcher (2025)

Based on the ANOVA test, the calculated F value is 3.377 with a significance (Sig.) of 0.005, which is less than α = 0.05. This indicates that the regression model is significant simultaneously, meaning that the independent variables—Interest Rate (X1), Exchange Rate (X2), Inflation (X3), World Oil Price (X4), and World Gold Price (X5)—have a significant effect on the Volatility of the Indonesia Sharia Stock Index (ISSI). The combination of these five factors can explain the variation in ISSI return volatility, making the regression model suitable for further analysis, including the T-test for the impact of each variable individually.The T-test is used to examine the effect of each independent variable partially on the dependent variable in the regression model, showing the contribution of each variable in explaining changes in the dependent variable [5]. This testing is important to identify which variables significantly influence the dependent variable. According to [15], the T-test is calculated using specific formulas, and the results are compared with critical values at a significance level (e.g., 5%) to determine the significance of the variable's influence. Thus, the T-test serves to test partial hypotheses regarding the relationship of each independent variable with the dependent variable. The results of the testing can be seen in Table 4.12.

Table 4.12. T-Test Statistical Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,625	5,236		1,074	,283
	Interest Rate	-,509	,149	-,102	-3,411	,001
	Exchange Rate	-,308	,591	-,016	-,521	,603
	Inflasi	,144	,085	,054	1,700	,089
	Harga Minyak Dunia	-,200	,112	-,053	-1,776	,076
	Harga Emas Dunia	,045	,110	,010	,407	,684

a. Dependent Variable: Volatilitas Return ISSI

Source: Data Processed by Researcher (2025)

Based on Table 4.7, the effects of each independent variable on the Volatility of ISSI Returns indicate that the Interest Rate has a negative and significant effect (coefficient -0.509, significance 0.001), while the Exchange Rate has a negative but insignificant effect (coefficient -0.308, significance 0.603). Inflation shows a positive but insignificant effect (coefficient 0.144, significance 0.089), and the World Oil Price also has a negative insignificant effect (coefficient -0.200, significance 0.076), while the World Gold Price has no significant effect (coefficient 0.045, significance 0.684). The ANOVA test shows that all five variables significantly affect the Volatility of ISSI Returns with a significance level of 0.005.The results of the T-test indicate that the Interest Rate has a regression coefficient of -0.509 and a significance of 0.001, meaning it has a negative and significant effect on ISSI volatility, where an increase in interest rates reduces investment interest and market volatility, consistent with economic theory and previous studies, although contrary to the findings of Jabar & Cahyadi.

The Exchange Rate has a coefficient of -0.308 and a significance of 0.603, indicating that the exchange rate does not significantly affect ISSI volatility; stability in the exchange rate and monetary interventions may lead to non-significant impacts, consistent with findings by Saputra et al. (2021) but differing.Inflation shows a coefficient of 0.144 and a significance of 0.089, indicating a positive effect approaching significance, where inflation may create uncertainty that increases volatility, supporting Fisher's theory, and is important for investors. The World Oil Price has a coefficient of -0.200 and a significance of 0.076, indicating a marginally significant effect, where rising oil prices may reduce volatility through improved performance in related sectors, although further study is needed, consistent. The World Gold Price shows a coefficient of 0.045 and a significance of 0.684, indicating that its effect on ISSI volatility is not significant, as gold, being a safe-haven asset, does not directly influence the performance of sharia stocks, consistent but contrary to Ali et al. (2019).The F-test shows a calculated F value of 3.377 and a table F value of 2.21 with a significance of 0.005, indicating a significant simultaneous effect of all independent variables on ISSI return volatility. Thus, the regression model developed is suitable for analyzing the relationship between macroeconomic factors and the performance of sharia stock markets in Indonesia.

V. CONCLUSION

The conclusion of this study shows that the Interest Rate has a significant negative effect on the volatility of the Indonesia Sharia Stock Index (ISSI), while the Exchange Rate, Inflation, World Oil Price, and World Gold Price do not have a significant effect. An increase in interest rates tends to lower volatility as investors prefer fixed-income instruments, whereas fluctuations in the exchange rate and gold prices do not directly affect the sharia market. Inflation shows a positive effect that is close to significance, creating economic uncertainty, and the World Oil Price negatively impacts through positive effects on the energy sector. Simultaneously, all these macroeconomic variables have a significant effect on ISSI volatility, reflecting the importance of these factors in explaining movements in the sharia stock market in Indonesia. For future research, it is recommended to conduct sectoral analyses to understand the sensitivity of each sector, as well as to include additional control variables such as market sentiment and fiscal policy. Investors are also advised to consider sector-based strategies, monitor macroeconomic indicators, and enhance their understanding of the impact of macroeconomic variables on the market to make better investment decisions.

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