P-ISSN: 2088-9372 E-ISSN: 2527-8991

Jurnal Manajemen dan Organisasi (JMO),
Vol. 15 No. 3, September 2024, Hal. 281-292
DOI: 10.29244/jmo.v15i3.56464

Comparison of Volatility of Jakarta Islamic Index with LQ45 Stock in Indonesia

Komparasi Volatilitas Saham Islamic Index dengan Saham LQ45 di Indonesia

Alvin Sugeng Prasetyo*
Ekonomi Pembangunan, Fakultas Ekonomi dan Bisnis, Universitas Trunojoyo Madura
E-mail: alvin.prasetyo@trunojoyo.ac.id
Norita Vibriyanto
Ekonomi Pembangunan, Fakultas Ekonomi dan Bisnis, Universitas Trunojoyo Madura
E-mail: norita.vibriyanto@trunojoyo.ac.id
Rini Wulandari
Magister Ilmu Ekonomi, Fakultas Ekonomi dan Bisnis, Universitas Airlangga
E-mail: rwulandari92@gmail.com

ABSTRACT

This research aims to compare and analyze the volatility of Jakarta Islamic Index shares and LQ45 shares. The methods used are ARMA and ARCH-GARCH. The data used is time series data with the daily period 2020-2024. The unit root test results show that the Jakarta Islamic Index with LQ45 shares is stationary at level or I(0), then the lag for autoregressive is 1, and the lag for moving average is 3. Therefore, the model formed is ARMA. The estimation results show that the volatility of LQ45 shares is higher than that of the Jakarta Islamic Index shares. This means that the LQ45 share price experienced large and rapid fluctuations in a relatively short period compared to the Jakarta Islamic Index share price. This condition is often exploited by short-term traders to gain profits. The contribution of this research is to provide empirical results related to the volatility of conventional shares and sharia shares, so that it can be seen which shares have high risk. The policy recommendation given is that investors must be careful with stocks that have high volatility, but for investors who already understand market conditions it can be an opportunity for profit.

***Keywords**: Jakarta Islamic Index, LQ45, ARMA, ARCH-GARCH.*

ABSTRAK

Tujuan penelitian ini membandingkan dan menganalisis volatilitas saham *Jakarta Islamic Index* dan saham LQ45. Metode yang digunakan yaitu ARMA dan ARCH-GARCH. Data yang digunakan yaitu data *time seris* dengan periode harian tahun 2020-2024. Hasil uji unit root menunjukkan bahwa *Jakarta Islamic Index* dengan saham LQ45 stasioner pada tingkat level atau I(0), kemudian lag untuk *autoregressive* sebesar 1, dan lag untuk *moving average* sebesar 3. Oleh sebab itu, model yang terbentuk yaitu ARMA. Hasil estimasi menunjukkan bahwa volatilitas saham LQ45 lebih tinggi dibandingkan dengan saham *Jakarta Islamic Index*. Hal ini berarti harga saham LQ45 mengalami fluktuasi yang besar dan cepat dalam jangka waktu yang relatif singkat dibandingkan dengan harga saham *Jakarta Islamic Index*. Kondisi tersebut bagi *trader* jangka pendek sering dimanfaatkan untuk mendapatkan keuntungan. Kontribusi penelitian ini yaitu memberikan hasil empiris terkait dengan volatilitas saham konvesional dengan saham syariah, sehingga bisa diketahui saham mana yang memiliki risiko tinggi. Rekomendasi kebijakan yang diberikan yaitu investor harus berhati-hati pada saham yang memiliki volatilitas tinggi, namun bagi investor yang sudah paham kondisi pasar bisa menjadi peluang keuntungan.

Kata Kunci: *Jakarta Islamic Index,* LQ45, ARMA, ARCH-GARCH.

Corresponding author

INTRODUCTION

Research topics related to the stock market continue to be empirically developed by financial researchers. The stock market is a topic that continues to be developed because the stock market continues to evolve, and stock market performance can influence macroeconomic performance. Therefore, the more empirical research related to the stock market, the more findings there will be for stock market development (Wandira & Saputra, 2023).

The comparison of the Jakarta Islamic Index stock market with LQ45 shares is not in price, but using volatility. Volatility is an uncertain condition, which occurs quickly and on a large scale so that it is difficult to identify. Volatility is also defined as relatively unstable changes so they are sometimes unpredictable (Antonio *et al*., 2013). Volatility is important because it is often used as a risk indicator. More volatile stocks are considered riskier because prices can fluctuate more sharply. Volatility-related analysis can help investors and traders make better decisions according to their investment objectives and risk tolerance, so in choosing a stock or investment strategy, it is important to consider volatility and how it fits the investor's risk profile and investment objectives (Situngkir & Nugraha, 2021).

The volatility that occurs in JII shares and LQ45 shares is certainly different. You need to know volatility because it provides information about which risk is lower between JII and LQ45, so you can get maximum profits and not make a mistake in placing your funds. If a stock has very high volatility, it will be difficult to predict the risks that will arise (Abduh, 2020). Therefore, investors and researchers need to analyze the volatility that occurs in stock prices which is used to determine current decisions in the future.

The development of JII shares with LQ45 shares during 2020 to 2024, fluctuated. Historically, between 2020 and 2022, the entire world experienced economic turmoil due to the COVID-19 pandemic, which is a global outbreak. The impact of COVID-19 is greater on LQ45 shares, compared to JII, so the sharia index is more crisis-resistant. In 2020 the Jakarta Islamic Index (JII) experienced a decrease of 20.7 percent, while the LQ45 index experienced a decrease of 22 percent. Much research on the stock market uses samples of shares in Indonesia. This is because Indonesia is a country that has many companies going public. More and more companies are going public, meaning the supply side gives positive confidence to the Indonesian stock market, while the demand side has many choices to buy shares. These conditions can affect the performance of the Indonesian stock market.

The case in this study compares the Jakarta Islamic Index stock market with LQ45 shares. The aim of comparing the two stocks can provide valuable insight for investors and other stock researchers because the two indices represent various aspects of the Indonesian stock market, thereby helping investors make the right decisions. The Jakarta Islamic Index consists of stocks that comply with Islamic Sharia principles, meaning companies involved in activities such as gambling, alcohol, and conventional banking are excluded. This is important for investors who want to adhere to Islamic ethical investment principles, then LQ45 is included in the 45 most liquid and well-performing stocks on the Indonesian Stock Exchange, without considering Sharia compliance. Jakarta Islamic Index and LQ45 may have different sectoral compositions. For example, Jakarta Islamic Index may have a higher concentration in sectors such as consumer goods, energy, and telecommunications, but avoid sectors such as conventional banking and finance that are prominent in LQ45 (Ghallabi *et al*., 2024).

The problem in comparing the Jakarta Islamic Index with the LQ45 is related to differences of opinion between those who support an ethical attitude in investing and those who are against an ethical attitude in investing. In Indonesia, the JII index (Jakarta Islamic Index) represents ethical investment, because it has sharia criteria based on the MUI. Proponents of ethical investment argue that ethics can be a source of strength for a company because it has good corporate governance while opposing opinions on ethical investment represented by the LQ45 index argue that it can increase costs, for example, monitoring costs so that the application of ethical or unethical criteria limits opportunities. investment, and result in opportunities to obtain less than optimal profits. Determining these criteria will also narrow investment diversification opportunities so that the risk-return profile becomes less than optimal.

The theory used to strengthen this study is the signaling theory. This theory explains the importance of information released by companies to investors and business people. This information provides information, notes, or descriptions of past, present, and future conditions for the survival of a company. Complete, relevant, accurate, and timely information is needed by investors in the capital market as an analytical tool for making investment decisions (Pranata & Nurzanah, 2015). Signals can be financial or non-financial information which states that the company is better than other companies. An increase in share prices or the high share price of a company so that it has high volatility is an indication that the company has high firm value. Therefore, company value can provide prosperity for shareholders as share prices increase. Signal theory is related to the value of the company, if the company fails or cannot convey a good signal regarding the value of the company, the value of the company will experience a mismatch with its position, meaning that the value of the company can be above or below its true value.

This study also explains empirical results from several researchers relevant to the topic of the comparison of JII shares and LQ45 shares. Indarningsih dan Hasbi (2022) researched to compare the level of risk associated with sharia and conventional price indications traded on the Indonesian Stock Exchange. After that, the ARMA/ARIMA model is used, and after that, it is continued with the ARCH/GARCH volatility model. These two models are used to determine volatility and compare them, Jakarta Islamic Index (JII) and LQ45 index. The results of the research are that the volatility of the Sharia capital market is relatively lower, so it is more resistant to crises when compared to conventional capital markets, so the results of the research show that the volatility risk of the Sharia stock price index is lower than the volatility risk conventional stock price index. Tendean *et al*. (2019) researched to find out whether there is a difference between the stock risk of the Jakarta Islamic Index and the LQ45 Index. The population in this research is the Jakarta Islamic Index and LQ45 shares. The data analysis technique uses the Independent Sample T-test. The research results showed that there was no significant difference between the risks of the Jakarta Islamic Index shares and the LQ45 Index, meaning that the volatility of the two shares was relatively the same.

Pranata and Nurzanah (2015) the purpose study is to evaluate performance and volatility of Islamic and conventional stock indices along with their determinant factor variables in Indonesia. The study finds that JII is less volatile than LQ45, except in 2010. Research by Mukmin & Firmansyah (2020), compared the volatility of the IHSG and JII stock price indices using the GARCH approach. The research findings are the same as the findings of Arifin andQizam (2021), namely that Islamic and conventional shares have different volatility, with Islamic shares having low volatility, which means they have lower risk, while conventional shares have high volatility, meaning they have high risk.

Widodo and Suryanto (2021) conducted research on the return volatility of conventional stock price indices (IHSG and LQ45) and sharia (JII) for the period before the COVID-19 crisis between 1 January to 30 December 2018 and during COVID-19 from 1 January 2019 to 30 October 2021, then the model used is ARMA/ ARIMA which is then continued with the ARCH –GARCH volatility model. The results of this research show that there is a difference in the return volatility of the conventional stock price index (IHSG and LQ45) and (JII) before COVID-19 and during COVID-19. The return volatility of the Sharia stock price index is higher when compared to the conventional stock price index, both before and during the Crisis COVID-19. Sukma (2023) using daily data from January 2003 to December 2021, the research aims to examine the impact of structural changes on the volatility of sharia and conventional shares in Indonesia. By assuming there are two regimes (normal and turbulence) due to these structural changes and using the MS-GARCH model, it is found that the volatility of sharia and conventional shares in Indonesia has different patterns based on the regime. The volatility of sharia and conventional stocks tends to increase during periods of turbulence compared to normal periods.

Alghifary *et al.* (2023) study aims to compare Islamic and conventional stocks' performance amid a crisis. The performance was measured by analyzing the volatility of the Indonesian Sharia Stock Index (ISSI) and the Composite Stock Price Index (IHSG) during the COVID-19 pandemic. Based on the results of the different tests using the paired t-test and Wilcoxon rank test methods, it was uncovered that the ISSI and IHSG experienced significant changes before and after discovering the first case of COVID-19 in Indonesia. Significant changes in both values were also found when the Delta variance spread. Meanwhile, when the third wave occurred due to the presence of the Omicron variant, ISSI and IHSG could move more stable and did not experience significant shocks. Then, the estimation results of the GARCH model conclude that both Islamic and conventional stocks have an immense volatility power with an identical value of 0.94 or close to 1. The volatility is also significantly influenced by the previous volatility and the squared error, representing other previous events outside the model. Moreover, the volatility in Islamic and conventional stocks is not much different, even though both stocks have different characters in the debt and income ratio. Fundamental factors also cause this high volatility in the form of shocks in several macroeconomic variables, including the rupiah exchange rate, gold prices, and world oil prices. Besides, the contagion effect that occurred during the COVID-19 crisis also contributed to the spread of systemic risk in global stock indexes on stock volatility in Indonesia.

Abduh (2020) this research aims to determine the volatility of conventional and sharia indices and explore the impact of the global financial crisis on the volatility of the two markets in Malaysia. The data consist of financial times stock exchange group (FTSE) Bursa Malaysia Kuala Lumpur Composite Index and FTSE Bursa Malaysia Hijrah-Shari'ah Index covering the period January 2008-October 2014. Generalized autoregressive conditional heteroskedasticity is used to find the volatility of the two markets and an ordinary least square model is then used to investigate the impact of the crisis toward the volatility of those markets. Interestingly, the result shows that Islamic index is less volatile during the crisis compared to the conventional index. Furthermore, the crisis is proven to significantly affect the volatility of conventional index in the short run and Islamic index in the long run. Hussin *et al*. (2024) research investigates the symmetric GARCH and EGARCH to analyze the volatility behavior of five shariah-compliant stocks return in the FTSE Bursa Malaysia and its conventional counterparts

from year 2009 to year 2019. The results indicate that 7 out of 10 stocks found EGARCH model showing a better estimate in describing stock return volatility. Most Shariah compliant stocks are more unstable than conventional stocks. Furthermore, the results of EGARCH models reveal the existence of asymmetric effects that is, difference in response when there is good news and bad news associated to the 10 stocks.

The research gaps in this study include knowledge gaps and empirical gaps. The knowledge gap lies in the differences in researchers' opinions about those who are pro-ethical investments and those who are not pro-ethical investments. Pro-ethical investing, also known as sustainable or socially responsible investing is an investment approach that considers environmental, social, and governance factors in addition to financial returns. Investments that are not pro-ethical do not take social, environmental, or governance impacts into account in making investment decisions, instead focusing only on financial returns. The empirical gap lies in the differences in research results, such as Indarningsih and Hasbi (2022) who found that the volatility risk of the Sharia stock price index is lower than the volatility risk of conventional stock price index, then Tendean *et al*. (2019) there was no significant difference between the risks of the Jakarta Islamic Index shares and the LQ45 Index, meaning that the volatility of the two shares was relatively the same. Widodo & Suryanto, (2021) The return volatility of the Sharia stock price index is higher when compared to the conventional stock price index, both before and during the COVID-19 Crisis. The novelty in this study is the latest period until 2024 so that we can see the difference in the volatility of the two stocks, when exposed to shocks, conventional stocks or sharia stocks are more resistant.

RESEARCH METHODS

The data used in this study is time series data. Time series data are observations based on time sequence, and research data used is based on time measurements. This study uses the Black Swan event period that occurred in Indonesia. Some parties call the health crisis caused by COVID-19 a "black swan" event, considering that this condition is difficult to predict, has a global impact, and is unprecedented (Yarovaya *et al.*, 2020). This study uses daily data on JII and LQ45 shares for the period 2020 to mid-June 2024. The objects used in this study are JII and LQ45. The method used is ARMA and continues with the ARCH/GARCH method. Data source obtained from Yahoo Finance.

The first stage before entering ARMA then continues to ARCH/GARCH, namely the unit root test process. This method is used to determine stationary variables at the level or the first difference, namely ADF. If it is at level then I(0), but if it is stationary at first difference then I(1) (Roza *et al*., 2022). The stationarity test equation with ADF analysis is as follows:

$$\Delta Y_t = \alpha_0 + \gamma Y_{t-1} + \beta_i \sum_{i=1}^{p} \Delta Y_{t-i+1} + \varepsilon_t \quad \text{..... (1)}$$

Dimana

ΔY_t = *first difference*
α_0 = Intercept
Y = Variables tested for stationarity
p = The lag length used in the model
ε = *Error term*

Whether data is stationary or not can be seen via the ADF Prob. If the ADF Prob is less than one percent, five percent, or 10 percent, then the null hypothesis (H0) which

indicates the presence of a unit root can be rejected, so it does not reject the alternative hypothesis (H1), namely that there is no unit root, but if the ADF Prob is more than one percent, five percent, or 10 percent, then the null hypothesis (H0) indicating that there is a unit root cannot be rejected, so it rejects the alternative hypothesis (H1), namely that there is no unit root.

The general forms of the ARMA model are Autoregressive and Moving Average. The Autoregressive (AR) model is a model that assumes that data in the current period is influenced by data in the previous period, while the Moving Average (MA) model is a model that assumes that the dependent variable is influenced by current period errors and previous period errors (Isiaka *et al*., 2021). The following are the AR and MA models:

Model AR(p)

$$Y_t = \alpha + \beta_1 Y_{t-1} + \beta_2 Y_{t-2} + .. + \beta_p Y_{t-p} + e_t \quad \ldots(2)$$

Equation 2 shows that the AR model is p so that AR(p). AR(p) explains that the level of p is autoregressive. This means that Y in period t is influenced by the previous period during p.

Model MA(q)

$$Y_t = \gamma + \delta_1 e_t + \delta_2 e_{t-1} + .. + \delta_q e_{t-q} \quad \ldots\ldots (3)$$

Equation 3 shows the MA model is q so that MA(q). MA(q) explains that the moving average is level q. This means Y period t is influenced by the previous period q.

Model ARMA(p,q)

If it is assumed to have an AR(1) and MA(1) model, it means that variable Y in period t is influenced by lag 1 so that Y is in period t-1, and is influenced by error in period t-1. Mathematically it can be written as follows: ARMA equation (1,1):

$$Y_t = \alpha + \beta_1 Y_{t-1} + \delta_1 e_t + \delta_2 e_{t-1} \quad \ldots\ldots(4)$$

Model ARCH

The Autoregressive Conditional Heteroscedasticity (ARCH) model is an autoregressive model that occurs when the variance is not constant. The next step is to detect the ARCH effect on the residuals. This means detecting whether there are elements of heteroscedasticity in the time series data used. The ARCH effect test was carried out using ARCH-LM (ARCH-Lagrange Multiplier) (Antonio *et al*., 2013). In 1982 Engle demonstrated the ARCH (Autoregressive Conditional Heteroscedasticity) model to model and handle data with the assumption that the variance of the residuals is heteroscedastic. The basic concept of the ARCH model is the squared residual variance from several past periods. An ARCH model with order p is denoted ARCH(p) expressed in two equations: the average and variance. ARCH equation:

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^{p} \alpha_i \varepsilon_{t-i}^2 \;\; ; \; \alpha_0 > 0, \alpha_i \geq 0 \quad \ldots\ldots(5)$$

Model GARCH

For the first time, the ARCH model was introduced by Engle (1982), and in 1986 Bollorsev introduced the GARCH (Generalized Autoregressive Conditional Heteroscedasticity) model which was an extension of the ARCH model. GARCH is an approach to modeling time series with error conditions varying according to time (heteroscedasticity). GARCH provides simpler results because it uses fewer parameters, thereby reducing the error rate in calculations. The basic concept of GARCH is that variance is not only influenced by past residuals but also by the conditional variance lag itself. GARCH model:

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^{p} \alpha_i \varepsilon_{t-i}^2 + \sum_{j=1}^{q} \gamma_j \hat{\sigma}_{t-j}^2 \;\; ; \; \alpha_0 > 0, \alpha_i \geq 0, \gamma_j \geq 0 \quad \ldots\ldots(6)$$

Lag Criteria

To assess the quality of a good model, you can use the Akaike Information Criterion (AIC). AIC is a method that can be used to select a model discovered by Akaike which is based on the maximum likelihood estimation (MLE) method. By using the AIC method, the best model is the model that has the smallest AIC value. Bayesian Information Criterion (BIC) is an in-sample information criterion for selecting the best model from several possible candidate models. BIC is very effective for selecting the best model and can overcome model complexity because BIC provides a penalty for adding parameters and is suitable for large sample data. The best model is the model that has the smallest BIC value (Widodo & Suryanto, 2021).

ACF and PACF

Box and Jenkins have developed programs for model identification, model parameter estimation, model evaluation, and prediction or forecasting, but this research has not been used for modeling. First, use the ACF and PACF recognition models. The method commonly used for model selection is through the Corelogram autocorrelation function (ACF) and partial autocorrelation function (PACF). If the autocorrelation function coefficient (ACF) decreases exponentially (gradually), and the PACF coefficient decreases sharply with a certain lag, then the model is AR. If the ACF coefficient decreases sharply after a certain lag, and PACF decreases exponentially (gradually), the model is MA. If the ACF and PACF coefficients decrease exponentially (gradually), then the appropriate model is ARMA. Each lag in the ACF and PACF graph will be within the autocorrelation limit, but lags that exceed the limit (significant) are identified as AR and MA levels because they indicate the level of influence on the lag.

White Noise

The selected ARIMA model must then be tested to see whether it produces random residuals (white noise) so that it is a good model that can explain the data well. The diagnostic test will see whether the model is good through the residuals obtained which must be random (white noise). White noise (also called the Gaussian process) is a stricter stationarity condition where the autocovariance must be zero. However, if the selected ARIMA model is not white noise then the author needs to repeat the first step of model identification to select another ARIMA model that is better and has white noise characteristics (Samarawickrama & Pallegedara, 2023).

Volatility

To build a volatility model in asset return data, it is carried out in four stages as follows (Muslihin & Ruchjana, 2023): Determine the equation for the average (mean) of time series data (for example the ARMA / ARIMA model). Use the residuals from the average equation to test the ARCH effect. Determine the volatility model if the ARCH effect is statistically significant, and simultaneously estimate the mean equation and the volatility equation. Carrying out diagnostic tests to determine the suitability (suitability) of the model.

RESULT AND DISCUSSION

The first is identifying descriptive statistics for the JII and LQ45 stock variables during the research period. Statistics include average, standard deviation, minimum value, maximum value, and amount of data. The following are the results of descriptive statistics for these two variables:

Table 1. Descptive Statistic

Variable	Obs	Mean	Std. dev.	Min	Max
JII	1076	569	42	394	699
LQ45	1076	921	86	567	1085

Source: STATA 17

Table 1 shows the descriptive statistical results in this study. The amount of data used in this study was 1076. The average JII was 569 with a standard deviation of 42, then the minimum value was 394 and the maximum value was 699. The average LQ45 was 921 with a standard deviation of 86, the minimum value was 567 and The maximum value was 1085.

Table 2. ADF Test

Variable	Prob ADF	Note
JII	0,0234**	Stasionary Level
LQ45	0,0458**	Stasionery Level

Keterangan: ***, **, * stasioner pada 1%, 5%, atau 10%
Source: STATA 17

Table 2 shows the ADF estimation results. The ADF estimation results for both shares are stationary at level level. This is because the probability of the two variables has a probability of less than five percent. Therefore, it is integrated at I(0). The next stage is to determine the autoregressive lag and moving average:

Table 3. PAC and AC

Variable	JII	LQ45
PAC for AR	1	1
AC for MA	1	1

Source: STATA 17

One method for identifying the ARMA model is to use partial autocorrelation function (PAC) and autocorrelation function (AC) plots or what is known as the correlogram method. PAC and AC are used to determine AR (Autoregressive) and MA (Moving Average) in the ARMA model. Table 3 shows that JII shares have a PAC for the autoregressive lag of 1 while the lag for the moving average or AC is 1. LQ45 shares have a PAC for the autoregressive lag of 1 while the lag for the moving average or MA is 1. Therefore, the model was chosen for both variables. This is ARMA(1,1).

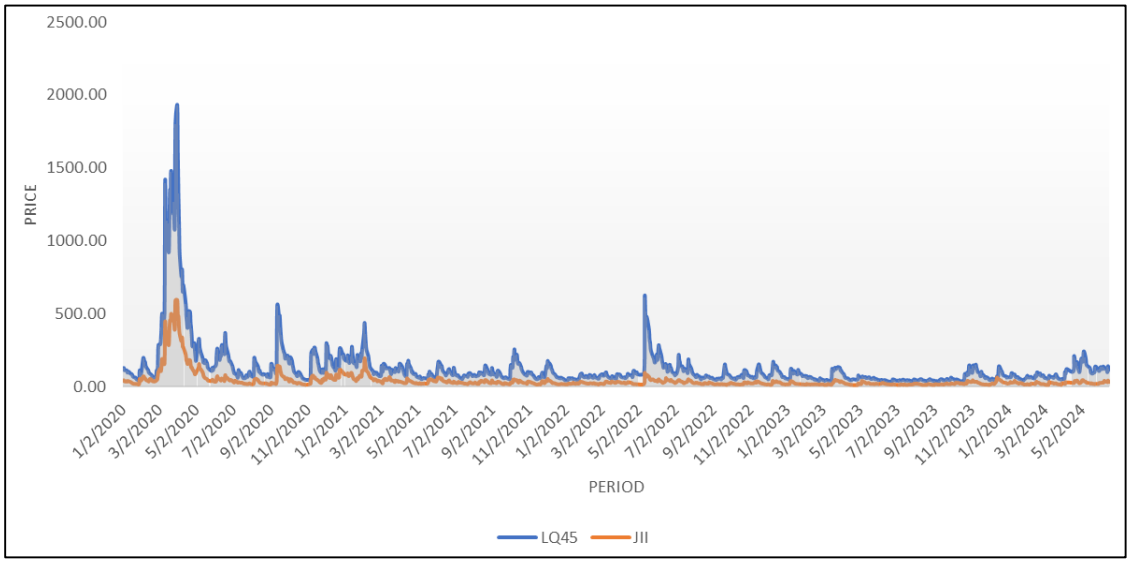
Table 4 shows that L1. AR and L1. MA has a significant effect on JII and LQ45. ARCH(1) and GARCH(1) also have a significant effect on JII and LQ45. The next stage is to identify whether there is a white noise process or not. After the ARMA model is determined, then check whether the selected model fits the data or not, perhaps another ARMA model is more suitable or as suitable as the selected model. One test that can be done is to observe whether the residuals from the estimated model are white noise or not. If the residual is white noise, it means that the selected model fits the data. On the other hand, if the residual is not white noise, it means that the selected model is not a suitable model. As a result, we have to make the choice again from the beginning. At the diagnostic examination stage, the model residuals must meet the white noise assumption. Based on Table 4 the probabilities are above 1 percent, 5 percent and 10 percent, so the null hypothesis is accepted, while the alternative hypothesis is rejected, meaning there is a white noise process. This means that the selected ARMA (1,1) model fits the data, so there is no need to re-select the model.

Table 4. Estimation of ARMA (1,1) and ARCH (1) GARCH (1)

Variable	JII		LQ45	
	ARIMA (1,1)	ARCH/GARCH (1,1)	ARIMA (1,1)	ARCH/GARCH (1,1)
L1.AR	0,8976*** (0,0045)	-	0,6657*** (0,0032)	-
L1.MA	0,7654*** (0,0022)	-	0,5234*** (0,0045)	-
ARCH(1)	-	0,9865*** (0,0067)	-	0,6189*** (0,0086)
GARCH(1)	-	0,7754*** (0,0012)	-	0,5433*** (0,0071)
White Noise	0,4567		0,5879	
ARCH LM test	0,0000		0,0000	
AIC	0,7265		0,7589	

Source: STATA 17

Next, to test whether there is an ARCH element, the ARCHLM test is carried out on the squared residuals in the ARMA (1,1) model. Table 4 is the result of ARCH effect estimation. Based on Table 4, the null hypothesis which states that there is no ARCH effect is rejected, while the alternative hypothesis which states that there is an ARCH effect is not rejected. This is because the probability (0.000) is less than one percent, five percent, and 10 percent. Next, you can calculate the volatility of JII and LQ45 shares.



Source: STATA 17

Figure 1. Comparison Volatility of JII and LQ45

The volatility in figure 1 is information for investors. This is in accordance with market efficiency theory which states that security prices in the capital market reflect all available information. This means that it is impossible for investors to obtain abnormal profits (above the market average) through the analysis of public information because all such information is already reflected in security prices. The estimation results show that the volatility of LQ45 shares is higher than JII shares. This means that LQ45 shares have a higher risk compared to JII. The difference in volatility is due to differences in stock composition. Find this study support of Indarningsih and Hasbi, (2022) the results of the research show that the volatility risk of the Sharia stock price index is lower than the

volatility risk conventional stock price index. Pranata and Nurzanah, (2015) study finds that JII is less volatile than LQ45, except in 2010. Research by Mukmin & Firmansyah, (2020), research findings are the same as the findings of Arifin andQizam, (2021), namely that Islamic and conventional shares have different volatility, with Islamic shares having low volatility, which means they have lower risk, while conventional shares have high volatility, meaning they have high risk.

LQ45 includes the 45 most liquid shares and has a large market capitalization on the Indonesian Stock Exchange. The shares in LQ45 include large companies with high trading activity. These share price fluctuations tend to be greater due to the large amount of trading activity. The Jakarta Islamic Index includes shares that meet sharia criteria, so it has a stricter selection and may include stocks with lower volatility because some stocks with high volatility do not meet sharia criteria.

Another cause is demand and supply conditions. Shares in LQ45 are often the main focus of large investors, both domestic and international, which causes sharper price movements due to large transaction volumes. JII may not have the same level of demand and has investors with a more conservative risk profile, leading to lower volatility. Policies and regulations can also cause differences in the volatility of the two stocks. Shares in LQ45 may be more affected by changes in government policy, regulatory changes, and global macroeconomic conditions which can cause significant price fluctuations. JII focuses on sharia principles, perhaps being better protected from some of these external factors because it tends to invest in more stable sectors. Liquidity and investor profile are factors that also cause differences in volatility. A higher level of liquidity in LQ45 can mean that share prices in this index can move faster and more sharply in response to market news and information. For JII, even though it also consists of liquid shares, it may have a slightly lower level of liquidity than LQ45, so the price movement is more stable. Investors investing in LQ45 may have higher growth expectations and be willing to take greater risks, which may lead to higher volatility. Investors in JII may focus more on long-term investment and stability, in accordance with sharia principles which prioritize fairness and balance, so that volatility is lower.

The COVID-19 pandemic in 2020 indeed caused the volatility of LQ45 and JII shares to increase significantly. The pandemic is causing great uncertainty regarding the global economic outlook. Lockdowns, travel restrictions, and business closures are affecting many sectors of the economy, leading to uncertainty regarding corporate earnings and economic growth (Alghifary *et al.*, 2023). Additionally, the Pandemic changed demand and supply patterns drastically. Sectors such as travel, hospitality and entertainment saw a sharp decline in demand, while other sectors such as technology and healthcare saw an increase in demand. Market sentiment is heavily influenced by news related to COVID-19, such as the increase in cases, vaccine development and the effectiveness of the public health response. Positive or negative news can cause sharp market reactions (Alajlani *et al*., 2024).

CONCLUSION

Based on the estimation results, the conclusion of this study is that the volatility of LQ45 shares is higher than the volatility of JII shares. The higher volatility in LQ45 compared to JII is caused by various factors including stock composition, sectors represented, market supply and demand, policies and regulations, liquidity, and investor profile. Understanding these characteristics is important for investors to select an index that suits their investment goals and risk tolerance. Policy recommendations for

companies, especially for LQ45, are to use derivative instruments such as futures and options to hedge market risk and volatility, as well as develop more diverse sources of income to reduce dependence on one particular market or product, thereby stabilizing the company's financial performance.

REFERENCE

Abduh, M. (2020). Volatility of Malaysian conventional and Islamic indices: Does financial crisis matter? *Journal of Islamic Accounting and Business Research*, 11(1), 1–11. DOI: https://doi.org/10.1108/JIABR-07-2017-0103.

Alajlani, S., Khan, M., Yesufu, L., & Khan, Y. (2024). The impact of COVID-19 on stock markets: A systematic literature review. *Journal of Governance and Regulation*, 13, 350–361. DOI: https://doi.org/10.22495/jgrv13i1siart9.

Alghifary, M. S., Kadji, D., & Hafizah, I. (2023). Indonesian Stocks' Volatility during COVID-19 Waves: Comparison between IHSG and ISSI. *International Journal of Islamic Economics and Finance (IJIEF)*, 6(1), Article 1. DOI: https://doi.org/10.18196/ijief.v6i1.14838.

Antonio, M. S., Hafidhoh, H., & Fauzi, H. (2013). The Islamic Capital Market Volatility: A Comparative Study Between in Indonesia and Malaysia, Buletin Ekonomi Moneter dan Perbankan. *Bulletin of Monetary Economics and Banking*, 15(4), 391-415.

Arifin, S., & Qizam, I. (2021). Quantitative Sharia-Screening Effect on Portfolio Performance and Volatility: Evidence from Indonesia. *Global Review of Islamic Economics and Business*, 9(1), Article 1. DOI: https://doi.org/10.14421/grieb.2021.091-04.

Ghallabi, F., Bougatef, K., & Mnari, O. (2024). Calendar anomalies and asymmetric volatility of returns in the Indonesian stock market: Conventional vs Islamic indices. *Journal of Islamic Accounting and Business Research*, *ahead-of-print*(ahead-of-print). DOI: https://doi.org/10.1108/JIABR-08-2023-0282.

Hussin, S. A. S., Latip, A. H. A., & Zahid, Z. (2024). Volatility modelling of Malaysia Islamic and conventional stock prices by using GARCH and EGARCH model. *AIP Conference Proceedings*, 2895(1), 090021. DOI: https://doi.org/10.1063/5.0192398.

Indarningsih, N., & Hasbi, H. (2022). Analisis Perbandingan Risiko Volatilitas Indeks Harga Saham Syariah dan Konvensional (Jakarta Islamic Indeks dan Indeks LQ45). *Jurnal Ekonomi Syariah Teori Dan Terapan*, 9, 694–709. DOI: https://doi.org/10.20473/vol9iss20225pp694-709.

Isiaka, A., Isiaka, A., & Isiaka, A. (2021). Forecasting with ARMA models: A case study of the exchange rate between the US Dollar and a unit of the British Pound. *International Journal of Research in Business and Social Science* (2147- 4478), 10, 205–234. DOI: https://doi.org/10.20525/ijrbs.v10i1.1005.

Mukmin, A., & Firmansyah, F. (2020). Analisis Perbandingan Volatilitas Indeks Harga Saham Ihsg Dan Jii. *Jurnal Ekonomi Dan Perbankan Syariah*, 3, 69–84. DOI: https://doi.org/10.46899/jeps.v3i1.155.

Muslihin, K. R. A., & Ruchjana, B. N. (2023). Model Autoregressive Moving Average (ARMA) untuk Peramalan Tingkat Inflasi di Indonesia. *Limits: Journal of Mathematics and Its Applications*, 20(2), Article 2. DOI: https://doi.org/10.12962/limits.v20i2.15098.

Pranata, N., & Nurzanah, N. (2015). Conventional and Islamic indices in Indonesia: A Comparison on Performance, Volatility, and the Determinants. *Indonesian Capital Market Review*, 7(2), 113–127. DOI: https://doi.org/10.21002/icmr.v7i2.5004.

Roza, A., Violita, E. S., & Aktivani, S. (2022). Study of Inflation using Stationary Test with Augmented Dickey Fuller & Phillips-Peron Unit Root Test (Case in Bukittinggi City Inflation for 2014-2019). *EKSAKTA: Berkala Ilmiah Bidang MIPA*, 23(02), Article 02. DOI: https://doi.org/10.24036/eksakta/vol23-iss02/303.

Samarawickrama, I., & Pallegedara. (2023). Sri Lankan Stock Market Volatility Analysis: An Arma- Garch Approach. *Sri Lankan Journal of Business Economics*, 12(1), Article 1. DOI: https://doi.org/10.31357/sljbe.v12.6442.

Situngkir, T. L., & Nugraha, N. (2021). Volatility of LQ45 Index Situation Before and After Eid al-Fitr. *International Journal of Social Science and Business*, 5(3), Article 3. DOI: https://doi.org/10.23887/ijssb.v5i3.34727.

Sukma, A. (2023). A Comparison of Time-Varying Volatility of Islamic and Conventional Stock Markets in Indonesia. *Buletin Studi Ekonomi*, 122. DOI: https://doi.org/10.24843/BSE.2023.v28.i02.p01.

Tendean, Y. P. J., Saerang, I. S., & Tulung, J. E. (2019). Analisis Perbandingan Risiko Saham Jakarta Islamic Index Dan Indeks Lq45 Di Bursa Efek Indonesia. *Jurnal EMBA : Jurnal Riset Ekonomi, Manajemen, Bisnis dan Akuntansi*, 7(3), Article 3. DOI: https://doi.org/10.35794/emba.v7i3.24206.

Wandira, M., & Saputra, W. (2023). Determinan Perubahan Stock Price Volatility Pada Perusahaan Lq45. *Jurnal Akuntansi Bisnis*, 16, 248. DOI: https://doi.org/10.30813/jab.v16i2.4328.

Widodo, P., & Suryanto, D. (2021). Pengujian Terhadap Volatilitas Return Indeks Saham Konvensional dengan Indeks Saham Syariah sebelum dan semasa COVID-19. *Jurnal Sosial Humaniora Terapan*, 4(1), 55–66.

Yarovaya, L., Matkovskyy, R., & Jalan, A. (2020). *The Effects of a "Black Swan" Event (COVID-19) on Herding Behavior in Cryptocurrency Markets: Evidence from Cryptocurrency USD, EUR, JPY and KRW Markets* (SSRN Scholarly Paper 3586511). DOI: https://doi.org/10.2139/ssrn.3586511.