



The Fed's Rate Hike Impact on Stock Volatility: A Comparison of Shariah and Conventional Banks

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Abstract

This study investigates the impact of The Fed's rate hikes on the stock price volatility of conventional and Shariah-compliant banks in Indonesia, with a focus on comparing their responses to global monetary shocks. The research employs GARCH(1,1) models to analyze daily data from January 6, 2021, to August 30, 2024, for BBRI (conventional) and BRIS (Shariah-compliant). Macroeconomic factors such as inflation, BI Rate, and The Fed's rate hike (dummy variable) are included as external regressors. The results reveal that The Fed's rate hikes significantly increase the volatility of conventional banks like BBRI, while reducing volatility in Shariah-compliant banks like BRIS. This contrasting behavior reflects the structural differences between the two banking models, with Shariah-compliant banks showing greater resilience due to their reliance on risk-sharing mechanisms and avoidance of interest-based operations. The findings offer valuable insights for investors, policymakers, and financial institutions. For investors, Shariah-compliant banks provide a more stable investment during global monetary tightening. Policymakers can use these insights to develop targeted strategies to enhance financial stability in Indonesia's dual banking system. This study contributes to the literature by providing a comparative analysis of how conventional and Shariah-compliant banks respond to global monetary policy shocks, highlighting the unique resilience of Islamic financial principles.

Keywords:

GARCH model; The Fed's rate hikes; stock price volatility; conventional banks; Shariah-compliant banks

Abstrak

Penelitian ini mengkaji dampak kenaikan suku bunga The Fed terhadap volatilitas harga saham bank konvensional dan bank syariah di Indonesia, dengan fokus pada perbandingan respons mereka terhadap guncangan moneter global. Penelitian ini menggunakan model GARCH(1,1) untuk menganalisis data harian dari 6 Januari 2021 hingga 30 Agustus 2024 untuk BBRI (bank konvensional) dan BRIS (bank syariah). Faktor makroekonomi seperti inflasi, BI Rate, dan kenaikan suku bunga The Fed (variabel dummy) dimasukkan sebagai variabel regresor eksternal. Hasilnya menunjukkan bahwa kenaikan suku bunga The Fed secara signifikan meningkatkan volatilitas pada bank konvensional seperti BBRI, sementara pada bank syariah seperti BRIS, volatilitas justru berkurang. Perbedaan perilaku ini mencerminkan perbedaan struktural antara dua model perbankan tersebut, di mana bank syariah menunjukkan ketahanan yang lebih

Kata Kunci:

Model GARCH; kenaikan suku bunga The Fed; volatilitas harga saham; bank konvensional; bank syariah

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1. Introduction

The Federal Reserve (The Fed) plays a pivotal role in shaping global monetary policies, with its decisions significantly influencing financial stability worldwide. In particular, rate hikes by The Fed often trigger volatility in financial markets, especially in emerging economies where market resilience is highly dependent on external shocks (Bekaert & Hoerova, 2014). The implications of these rate hikes are profound for stock markets, where the banking sector is especially vulnerable due to its inherent sensitivity to interest rate movements (Tabash et al., 2024).

In the context of Indonesia, the dual banking system presents a compelling case study for examining the effects of global monetary policy changes (Ernaningsih et al., 2024; Wardhani et al., 2024). Conventional banks operate on an interest-based model, aligning closely with traditional monetary mechanisms. Meanwhile, Shariah-compliant banks adopt unique principles such as profit-sharing and risk-sharing frameworks, which may insulate them to some extent from direct monetary shocks (Ernaningsih et al., 2024). This distinction becomes critical during periods of global financial tightening, as the two banking systems may exhibit divergent responses in terms of risk and volatility.

The Fed's rate hikes have historically been linked to capital outflows and increased market volatility in emerging markets. This phenomenon underscores the interconnectedness of financial systems and the ripple effects of monetary decisions in advanced economies (Shaghil et al., 2015). For Indonesia, these effects are magnified due to its open financial system and reliance on foreign investment, making the banking sector particularly susceptible to external shocks. Understanding these dynamics is vital for policymakers and market participants aiming to navigate the complexities of a globalized economy (Wardhani et al., 2024). Indonesia, as a major emerging market, is no exception to these dynamics. Its stock market, heavily reliant on the banking sector, reflects the country's susceptibility to global monetary fluctuations. The dual banking system in Indonesia, comprising conventional and Shariah-compliant banks, offers a unique context for analyzing the impact of The Fed's rate hikes (Ernaningsih et al., 2024; Wardhani et al., 2024). Conventional banks, which depend on interest-based operations, are directly affected by changes in interest rates. In contrast, Shariah-compliant banks, which operate based on profit-sharing principles and avoid *riba* (interest), may exhibit a different sensitivity to such changes (Hassan et al., 2018). This dichotomy underscores the importance of examining how each type of bank responds to global monetary shocks, particularly in terms of stock price volatility.

Previous studies have extensively explored the relationship between interest rate changes and stock market volatility (Ahmad et al., 2024; Dhingra et al., 2024; Tan et al., 2012). For instance, Glebocki & Saha (2024) highlight the heightened volatility in emerging markets due to global monetary tightening. However, limited research has focused on the comparative analysis of Shariah compliant and conventional banks in this context. While studies like those by Safiullah (2021) suggest that Islamic financial institutions might offer greater stability during financial crises, empirical evidence on their behavior during global monetary shocks remains sparse. This research aims to fill this gap by investigating the differential impacts of The Fed's rate hikes on stock price volatility of conventional and Shariah-compliant banks in Indonesia.

To address this gap, the study focuses on three key research questions: How do The Fed's rate hikes affect the stock price volatility of conventional banks in Indonesia? How do these rate hikes influence the stock price volatility of Shariah-compliant banks? Is there a significant difference in the

response of these two types of banks to such monetary shocks? By answering these questions, the study seeks to provide a nuanced understanding of the resilience and risk profiles of conventional versus Shariah-compliant banks in a globally interconnected financial system.

The primary objective of this research is to identify the impact of The Fed's rate hikes on the stock price volatility of conventional and Shariah-compliant banks in Indonesia. Additionally, it aims to compare the sensitivity of these banks to such global monetary shocks, providing insights into their relative stability. This analysis is particularly relevant for investors seeking to optimize their portfolios during periods of global monetary tightening and for policymakers aiming to enhance financial stability in the banking sector.

The theoretical implications of this study are significant. By adding to the literature on global monetary policy's impact on emerging markets, it sheds light on the unique dynamics of dual banking systems. It also contributes to the growing body of research on the stability of Islamic finance during economic uncertainties (Safiullah, 2021). Practically, the findings can guide investors in making informed decisions about asset allocation and risk management. Furthermore, they can assist regulators in formulating policies to bolster the stability of the financial sector, particularly in light of Indonesia's ambitions to strengthen its position as a global hub for Islamic finance (Hassan et al., 2018).

In ultimate, this research not only addresses an important gap in the literature but also provides actionable insights for stakeholders. By analyzing the volatility dynamics of conventional and Shariah-compliant banks in response to The Fed's rate hikes, it contributes to a deeper understanding of how global monetary policies intersect with the intricacies of dual banking systems in emerging markets.

2. Literature Review

Global Monetary Policy and Financial Market Volatility

Global monetary policy, particularly the decisions made by The Federal Reserve (The Fed), plays a critical role in shaping financial market dynamics. The Fed's rate hikes are often linked to increased volatility in global financial markets, as they lead to capital outflows from emerging economies and heightened uncertainty (Bekaert & Hoerova, 2014). Studies by Ahmad et al. (2024) highlight that such policy changes disrupt financial stability in emerging markets, where reliance on foreign investment is significant. Furthermore, monetary tightening can influence equity markets by increasing borrowing costs and reducing liquidity, ultimately amplifying market volatility (Lyu & Hu, 2024).

Emerging economies are particularly vulnerable to monetary tightening due to their dependency on external capital and export-driven growth models. Capital outflows triggered by rate hikes in advanced economies can lead to currency depreciation, higher inflation, and increased cost of external debt servicing (Fisera et al., 2021). These factors collectively exacerbate market volatility, as seen in previous episodes of global financial shocks. Indonesia's open financial system makes it highly susceptible to these spillover effects, with significant implications for its banking sector and broader capital markets (Dhingra et al. 2024; Tan et al. 2012).

Additionally, the uncertainty associated with The Fed's monetary policy decisions often results in speculative behavior among investors, further heightening volatility in financial markets. Haase et al. (2016) observe that speculative trading intensifies during periods of monetary tightening, as investors attempt to hedge against perceived risks. Such dynamics underline the need for comprehensive analyses of how monetary policies from advanced economies influence the stability of financial markets in emerging nations.

Empirical research consistently finds a strong connection between global monetary tightening and market responses in emerging economies. For instance, Haase et al. (2016) demonstrate that

policy shocks from advanced economies exacerbate market fluctuations in developing nations. This interconnectedness underscores the importance of understanding how monetary policies affect individual sectors, especially the banking sector, which is sensitive to interest rate changes due to its direct linkage with financial markets and credit channels (Ahmad et al. 2024; Lyu & Hu, 2024; Tan et al. 2012).

Dual Banking Systems: Conventional vs. Shariah-Compliant Banks

Indonesia's dual banking system, comprising conventional and Shariah-compliant banks, offers a unique perspective on financial resilience (Ernaningsih et al., 2024; Wardhani et al., 2024). Conventional banks rely heavily on interest-based mechanisms, making them more susceptible to global monetary shocks. In contrast, Shariah-compliant banks, which avoid *riba* (interest) and operate on profit-sharing principles, may exhibit different sensitivities to such shocks (Aliyu et al., 2017). This distinction raises questions about the relative stability of these two banking systems during periods of economic uncertainty.

Shariah-compliant banks, by their nature, adopt risk-sharing principles that align with Islamic ethical frameworks. These principles often make them less prone to excessive risk-taking behaviors, which are common in conventional banking. For instance, Hasan and Dridi (2010) argue that Islamic banks' reliance on asset-backed financing mechanisms enhances their resilience during financial crises. This resilience was particularly evident during the 2008 global financial crisis, where Shariah-compliant banks demonstrated relatively stable performance compared to their conventional counterparts.

In addition to risk-sharing, the avoidance of speculative activities in Shariah-compliant banking provides an additional layer of stability. Bouri et al. (2017) note that the prohibition of speculative practices, such as short-selling and excessive leverage, helps Islamic banks maintain financial discipline. These factors collectively contribute to the lower volatility observed in Islamic banking stocks during periods of economic distress. However, these stabilizing factors may also limit the growth potential of Shariah-compliant banks, particularly in competitive and rapidly changing financial markets.

Despite their inherent stability, Shariah-compliant banks are not entirely immune to global monetary shocks. Aliyu et al. (2017) highlight that the interconnectedness of financial systems exposes even Islamic banks to indirect effects of global monetary tightening. For example, fluctuations in commodity prices and foreign exchange rates, often driven by changes in The Fed's policies, can impact the profitability and risk profiles of these banks. Therefore, understanding the nuanced differences in how conventional and Shariah-compliant banks respond to monetary shocks is critical for both policymakers and market participants.

Stock Market Volatility and Macroeconomic Factors

Macroeconomic variables such as inflation, domestic interest rates, and global monetary policy are significant drivers of stock market volatility. Inflation, for instance, erodes corporate earnings and increases uncertainty, which can amplify market fluctuations (Güzel & Demir, 2021). Meanwhile, domestic interest rates, like Indonesia's BI Rate, directly impact the cost of borrowing and investment, influencing stock market performance.

The interaction between macroeconomic variables and stock volatility is particularly pronounced in the banking sector due to its role as a financial intermediary. Conventional banks are more sensitive to interest rate changes, as these directly affect their cost of funds and lending rates. In contrast, Shariah-compliant banks, which avoid interest-based transactions, may experience volatility through indirect channels such as changes in asset values or market perceptions of risk (Beck et al., 2013).

Global monetary policy further complicates this dynamic by adding external shocks to the mix. Studies by Ahmad et al. (2024) show that shifts in global interest rates can exacerbate the impact of domestic macroeconomic variables, creating a compounded effect on financial stability. For Indonesia, where both conventional and Shariah-compliant banks play a vital role, these interactions necessitate a deeper analysis to understand their implications for stock market volatility.

Empirical research also highlights sector-specific responses to macroeconomic variables. For example, Safiullah (2021) find that banking stocks are among the most volatile during periods of economic uncertainty, driven by fluctuations in credit risk and liquidity. This underscores the importance of considering both global and domestic factors in analyzing stock market dynamics, particularly in dual banking systems where operational frameworks differ significantly.

Research Gap and Theoretical Framework

Despite extensive research on global monetary policy's impact on financial markets, there remains a significant gap in understanding how The Fed's rate hikes affect the stock price volatility of conventional and Shariah-compliant banks. Most studies focus on advanced economies or examine only one type of banking system. For example, Hassan et al. (2018) provide insights into the stability of Islamic finance but do not compare its performance with conventional banking during monetary shocks. Similarly, previous study discuss the impact of interest rate changes on emerging markets without delving into sector-specific responses (Ahmad et al., 2024; Tan et al., 2012).

Theoretical frameworks such as the Efficient Market Hypothesis (EMH) offer a foundation for analyzing stock market reactions. According to Fama (1970), stock prices reflect all available information, including macroeconomic variables and monetary policy changes. This suggests that any deviation in stock volatility may stem from market inefficiencies or unique characteristics of specific sectors, such as banking.

Additionally, the use of advanced econometric models like GARCH enables a more granular analysis of volatility dynamics. GARCH models account for time-varying volatility and can incorporate external regressors, making them particularly suitable for studying the interplay between global monetary policy and stock market performance (Engle, 1982). By employing these theoretical and methodological approaches, this research aims to bridge the gap in the literature and provide actionable insights for investors and policymakers.

The research also seeks to explore the implications of dual banking systems on financial stability. While conventional banks are often viewed as more vulnerable to interest rate shocks, the unique operational principles of Shariah-compliant banks may offer a natural hedge against certain risks. However, as Dhingra et al. (2024) caution, the interconnectedness of global financial systems means that no institution is entirely immune. This study aims to address these complexities, offering a comparative perspective on how monetary policy shocks influence stock market volatility in Indonesia's dual banking framework.

Hypothesis Development

The impact of The Fed's rate hikes on financial markets has been extensively analyzed, particularly in emerging economies. Conventional and Shariah-compliant banks in Indonesia provide an ideal context to examine their differing responses to global monetary shocks. This study formulates hypotheses grounded in established theories and empirical findings. Conventional banks, like BBRI, are highly sensitive to global monetary policy changes due to their reliance on interest-based mechanisms. Monetary tightening by The Fed increases borrowing costs and triggers capital outflows, amplifying volatility in conventional banks' stocks (Bekaert & Hoerova, 2014; Shaghil et al., 2015). Thus:

H₁: The Fed's rate hikes significantly increase the stock price volatility of conventional banks in Indonesia.

Shariah-compliant banks, such as BRIS, operate under Islamic principles that avoid riba (interest) and speculative activities, relying instead on risk-sharing and asset-backed financing. These features often provide stability during monetary shocks (Hassan et al., 2018). Therefore:

H₂: The Fed's rate hikes have a minimal or negative effect on the stock price volatility of Shariah-compliant banks in Indonesia.

Given the operational differences, the responses of conventional and Shariah-compliant banks to The Fed's rate hikes are expected to differ significantly. Previous studies highlight contrasting reactions in dual banking systems, driven by their structural and financial principles (Beck et al., 2013). Thus:

H₃: There is a significant difference in the response of conventional and Shariah-compliant banks to The Fed's rate hikes, with conventional banks experiencing higher volatility.

These hypotheses aim to deepen the understanding of how global monetary policy impacts dual banking systems, providing theoretical contributions and practical insights for financial stability in emerging markets like Indonesia.

3. Method

This study employs a quantitative time-series approach to analyze stock price volatility in Indonesia's conventional and Shariah-compliant banks using the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model. The daily data spans from January 6, 2021, to August 30, 2024, capturing the impact of The Fed's rate hike on March 16, 2022. This period was chosen to encompass sufficient pre- and post-shock data, allowing for a detailed examination of volatility dynamics influenced by global monetary policy shifts (Ahmad et al., 2024; Bekaert & Hoerova, 2014; Shaghil et al., 2015; Wardhani et al., 2024).

The dependent variable is stock price volatility, while independent variables include inflation, BI Rate, and a dummy variable (1 after March 16, 2022, and 0 before the fed hike). The mean equation is specified as:

$$y_t = \mu + \phi_1 y_{t-1} + \theta_1 \epsilon_{t-1} + \beta_1.inflation_t + \beta_2.birate_t + \beta_3.dummy_t + \epsilon_t$$

The conditional variance equation, which captures time-varying volatility, is modeled as:

$$h_t = \omega + \alpha \epsilon_{t-1}^2 + \beta h_{t-1} + \gamma_1.inflation + \gamma_2.bi\ rate + \gamma_3.dummy_t$$

Here, h_t represents the conditional variance, while α and β capture the effects of past shocks and volatility persistence, respectively. These equations allow the model to incorporate external macroeconomic factors, a critical component when analyzing markets exposed to global and domestic influences (Asteriou & Hall, 2021; Engle, 1982; Gujarati, 2004).

The reasoning for using the GARCH(1,1) model lies in its ability to estimate time-varying volatility while incorporating external regressors. This is particularly relevant for banking stocks, which are highly sensitive to macroeconomic fluctuations. The comparison between conventional and Shariah-compliant banks is grounded in their operational differences: conventional banks are directly influenced by interest rates, whereas Shariah-compliant banks, which operate without riba (interest), may exhibit distinct volatility patterns (Hassan et al., 2018; Safiullah, 2021).

The analysis is conducted using EViews, a robust statistical software for time-series modeling, and includes diagnostic tests to validate model assumptions. This study contributes to the literature by providing insights into the differential impacts of global monetary policy on dual banking systems,

offering practical implications for investors and policymakers seeking to enhance financial stability in emerging markets.

4. Result and Discussion

Descriptif Analysis

The descriptive statistics (table 1) indicate distinct patterns in the data for BBRI, BRIS, Inflation, and BI Rate across 955 observations. The mean stock price for BBRI is 4.705, significantly higher than BRIS at 1.894, highlighting a notable disparity between the conventional and Shariah-compliant banks. Inflation and BI Rate have mean values of 2.93 and 4.28, respectively, reflecting prevailing macroeconomic conditions. Standard deviations reveal that inflation (1.37) is the most volatile variable, followed by BI Rate (0.86), BBRI (0.602), and BRIS (0.470), suggesting relatively stable stock prices compared to macroeconomic indicators.

Skewness values are positive for all variables, indicating distributions skewed to the right. Kurtosis values close to 3 for most variables suggest near-normal distributions, except for BI Rate, which shows a flatter distribution with a kurtosis of 1.91. The Jarque-Bera test strongly rejects normality for all variables (p-values = 0.000), confirming non-normal distributions. These insights underline the variability and non-normality of the data, which are essential considerations for time-series and volatility modeling, such as GARCH analysis (Asteriou & Hall, 2021; Engle, 1982; Gujarati, 2004).

Table 1. Descriptive Statistic

| | BBRI | BRIS | INFLATION | BIRATE |
|--------------|--------|--------|-----------|--------|
| Mean | 4.705 | 1.894 | 2.93 | 4.28 |
| Median | 4.610 | 1.710 | 2.86 | 3.75 |
| Maximum | 6.400 | 3.677 | 5.95 | 5.75 |
| Minimum | 3.570 | 1.100 | 1.42 | 3.50 |
| Std. Dev. | 0.602 | 0.470 | 1.37 | 0.86 |
| Skewness | 0.459 | 0.747 | 0.77 | 0.67 |
| Kurtosis | 2.574 | 2.897 | 2.55 | 1.91 |
| Jarque-Bera | 40.755 | 89.191 | 101.53 | 119.62 |
| Probability | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 955 | 955 | 955 | 955 |

Source: Data Processed (2024)

Unit Root Test

The results of the Augmented Dickey-Fuller (ADF) test (table 2) indicate mixed stationarity levels for the variables analyzed. At the level, the test statistic for BBRI (-1.019874) has a p-value of 0.7479, which is greater than the critical values at all significance levels, indicating that the BBRI series is non-stationary. In contrast, BRIS shows a test statistic of -3.873588 with a p-value of 0.0023, which is lower than the 1%, 5%, and 10% critical values, indicating stationarity at level. However, after first differencing, both variables become stationary, with test statistics for D(BBRI) (-9.934274) and D(BRIS) (-20.38375) significantly lower than the critical values and p-values of 0.0000. This suggests that while the BBRI series is integrated of order one (I(1)), BRIS exhibits mixed properties but achieves stationarity upon differencing, validating its suitability for further time-series modeling (Asteriou & Hall, 2021; Engle, 1982; Gujarati, 2004).

Table 2. ADF Test

| Index | ADF Test Statistic | p-value | Critical Value (1%) | Critical Value (5%) | Critical Value (10%) |
|----------------------------|--------------------|---------|---------------------|---------------------|----------------------|
| Level | | | | | |
| BBRI | -1.019874 | 0.7479 | -3.437130 | -2.864422 | -2.568357 |
| BRIS | -3.873588 | 0.0023 | -3.435263 | -2.864364 | -2.568326 |
| 1 st Difference | | | | | |
| D(BBRI) | -9.934274 | 0.0000 | -3.437145 | -2.864429 | -2.568361 |
| D(BRIS) | -20.38375 | 0.0000 | -3.437012 | -2.864370 | -2.568330 |

Source: Data Processed (2024)

Model Identification and Heteroskedasticity Test

The heteroskedasticity test results (table 3) at the first difference level support the use of the GARCH model, particularly for the BBRI series. The F-statistic of 11.78482 with a p-value of 0.0006, along with the Obs*R-squared value of 11.66517 and a p-value of 0.0006, indicate significant heteroskedasticity. This confirms that the error variance in the BBRI series is not constant and varies over time, a key characteristic that GARCH models are designed to capture (Engle, 1982).

For the BRIS series, the F-statistic of 2.934087 and its p-value of 0.0871, together with the Obs*R-squared value of 2.931217 and a p-value of 0.0869, suggest no strong evidence of heteroskedasticity. However, financial time series data often exhibit volatility clustering and time-varying variance, which GARCH models can effectively capture even in the absence of strong statistical heteroskedasticity indications (Bollerslev, 1986).

In conclusion, the BBRI series strongly supports the application of GARCH due to significant heteroskedasticity, while the BRIS series can also benefit from GARCH modeling to account for potential conditional volatility in financial data. These results align with prior studies demonstrating the suitability of GARCH models in analyzing stock price volatility in financial markets (Bollerslev, 1986).

Table 3. Heteroskedasticity Test (1st Difference)

| Index | F-statistic | Prob. F(1,952) | Obs*R-squared | Prob. Chi-Square(1) |
|-------|-------------|----------------|---------------|---------------------|
| BBRI | 11.78482 | 0.0006 | 11.66517 | 0.0006 |
| BRIS | 2.934087 | 0.0871 | 2.931217 | 0.0869 |

Source: Data Processed (2024)

GARCH (1,1) Modelling Result

The GARCH(1,1) model for BBRI (table 4) indicates that current returns are significantly influenced by past returns and residuals. The AR(1) term has a coefficient of 0.7451 (p-value = 0.0000), highlighting the strong positive relationship with prior returns, while the MA(1) term, with a coefficient of -0.9576 (p-value = 0.0000), shows a significant negative relationship with past residuals. In the variance equation, the ARCH term RESID(-1)² is significant, with a coefficient of 0.6312 (p-value = 0.0000), indicating that recent shocks have a strong impact on current volatility. However, the GARCH term GARCH(-1) is not significant, with a coefficient of -0.0113 (p-value = 0.3605), suggesting that volatility persistence is minimal and current volatility is primarily driven by new shocks, consistent with the findings of Engle (1982) and Bollerslev (1986).

$$y_t = 0.7451y_{t-1} - 0.9576\epsilon_{t-1} - 0.00628.inflation_t + 0.0102.birate_t + 0.0245.dummy_t + \epsilon_t$$

$$h_t = -0.0158 + 0.6312\epsilon_{t-1}^2 - 0.0113h_{t-1} + 0.00628.inflation + 0.0102.bi\ rate + 0.0245.dummy_t$$

External variables play a crucial role in influencing volatility. Inflation exhibits a significant negative impact on volatility, with a coefficient of -0.00628 (p-value = 0.0000), suggesting that higher inflation reduces market uncertainty for BBRI stocks. Conversely, the BI Rate has a significant positive effect, with a coefficient of 0.0102 (p-value = 0.0000), indicating that domestic interest rate hikes increase volatility. The dummy variable representing The Fed's rate hike also shows a significant positive effect, with a coefficient of 0.0245 (p-value = 0.0000), highlighting the substantial influence of global monetary policy on BBRI's stock volatility. These findings align with prior research on financial market dynamics in emerging economies, such as (Bekaert & Hoerova, 2014), emphasizing the importance of external shocks and macroeconomic factors in shaping market behavior. The results underscore the relevance of using GARCH models to analyze volatility driven by new information and external macroeconomic variables.

Table 4. GARCH (1,1) Model 1 (BBRI)

| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|-------------------|-------------|------------|-------------|--------|
| AR(1) | 0.745057 | 0.025138 | 29.63915 | 0.0000 |
| MA(1) | -0.95762 | 0.007798 | -122.809 | 0.0000 |
| Variance Equation | | | | |
| C | -0.01581 | 0.006002 | -2.63348 | 0.0085 |
| RESID(-1)^2 | 0.631199 | 0.067263 | 9.384033 | 0.0000 |
| GARCH(-1) | -0.01132 | 0.01238 | -0.91443 | 0.3605 |
| INFLATION | -0.00628 | 0.00067 | -9.37531 | 0.0000 |
| BIRATE | 0.010161 | 0.001442 | 7.047512 | 0.0000 |
| DUMMY | 0.024466 | 0.002272 | 10.76695 | 0.0000 |

Source: Data Processed (2024)

The GARCH(1,1) model for BRIS (table 5) reveals significant relationships in both the mean and variance equations, highlighting the dynamics influencing its stock price volatility. The AR(1) term has a coefficient of 0.7643 (p-value = 0.0000), indicating a strong positive dependence on prior returns, while the MA(1) term has a coefficient of -0.9686 (p-value = 0.0000), reflecting a strong negative relationship with past residuals. These results suggest that BRIS returns are highly influenced by past performance and error adjustments, a typical characteristic in financial time series data (Bollerslev, 1986; Engle, 1982).

$$y_t = 0.7643y_{t-1} - 0.9686\epsilon_{t-1} + 0.000454.inflation_t + 0.0017.birate_t - 0.0271.dummy_t + \epsilon_t$$

$$h_t = 0.0241 + 0.7207\epsilon_{t-1}^2 + 0.0030h_{t-1} + 0.000454.inflation + 0.0017.bi\ rate - 0.0271.dummy_t$$

In the variance equation, the ARCH term RESID(-1)^2 is significant, with a coefficient of 0.7207 (p-value = 0.0000), indicating that recent shocks play a dominant role in driving current volatility. However, the GARCH term GARCH(-1), with a coefficient of 0.00298 and a p-value of 0.8174, is not significant, suggesting minimal persistence in volatility over time. Among the external variables, inflation positively impacts volatility, with a coefficient of 0.000454 (p-value = 0.0084), albeit at a relatively small magnitude. The BI Rate has a more pronounced positive effect on volatility, with a coefficient of 0.001701 (p-value = 0.0000), indicating that interest rate hikes increase market uncertainty. Interestingly, the dummy variable representing The Fed's rate hike shows a significant negative effect on volatility, with a coefficient of -0.02706 (p-value = 0.0000), suggesting that global monetary tightening reduces BRIS's volatility, possibly due to its Shariah-compliant nature and risk-averse financial structure (Hassan et al., 2018; Safiullah, 2021).

The GARCH(1,1) models highlight distinct volatility dynamics for BBRI and BRIS. Both show significant ARCH effects, indicating sensitivity to recent shocks, but minimal GARCH effects suggest limited volatility persistence. BBRI's volatility increases with BI Rate and The Fed's rate hike,

reflecting its reliance on interest-based operations, while inflation reduces its volatility. Conversely, BRIS's volatility is positively influenced by BI Rate and inflation, but The Fed's rate hike reduces it, reflecting its Shariah-compliant structure's stability. These results emphasize BBRI's higher vulnerability to external shocks compared to BRIS's relative resilience.

Table 5. GARCH (1,1) Model 2 (BRIS)

| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|-------------------|-------------|------------|-------------|--------|
| AR(1) | 0.764346 | 0.019124 | 39.96775 | 0.0000 |
| MA(1) | -0.96861 | 0.00339 | -285.685 | 0.0000 |
| Variance Equation | | | | |
| C | 0.024109 | 0.001454 | 16.57536 | 0.0000 |
| RESID(-1)^2 | 0.720739 | 0.059413 | 12.13094 | 0.0000 |
| GARCH(-1) | 0.00298 | 0.012907 | 0.230899 | 0.8174 |
| INFLATION | 0.000454 | 0.000172 | 2.636869 | 0.0084 |
| BIRATE | 0.001701 | 0.000311 | 5.470325 | 0.0000 |
| DUMMY | -0.02706 | 0.000917 | -29.5266 | 0.0000 |

Source: Data Processed (2024)

Discussion

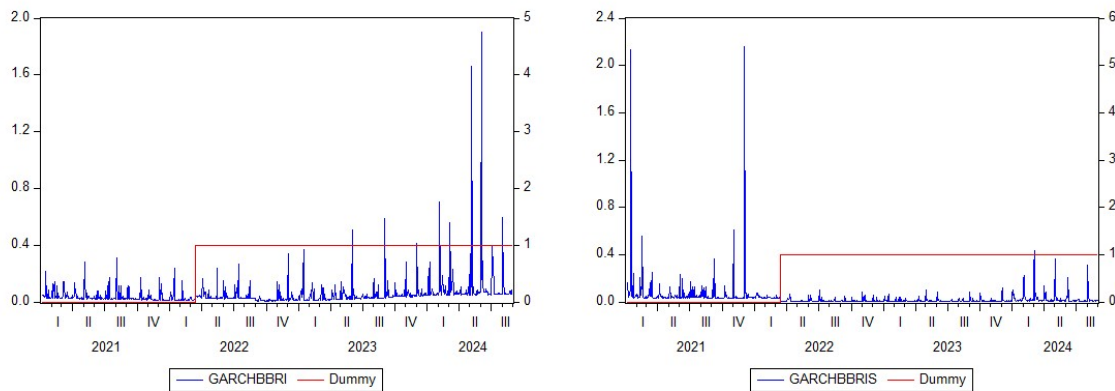
The GARCH(1,1) models for BBRI and BRIS reveal significant differences in how conventional and Shariah-compliant banks respond to The Fed's rate hikes, shedding light on the comparative advantages of each banking model in handling global monetary shocks. For BBRI, the results demonstrate a significant increase in volatility following The Fed's rate hikes, driven by its reliance on interest-based operations. This heightened sensitivity reflects the conventional banking sector's inherent vulnerability to global monetary policy changes, which directly impact borrowing costs, funding stability, and market confidence (Ahmad et al., 2024; Bekaert & Hoerova, 2014; Shaghil et al., 2015). Conversely, BRIS, as a Shariah-compliant bank, exhibits a reduction in volatility during The Fed's rate hikes. This finding highlights the stability offered by Shariah-compliant financial practices, including the avoidance of interest, speculative activities, and the reliance on risk-sharing mechanisms, which collectively provide a buffer against global market disruptions (Hassan et al., 2018; Safiullah, 2021).

When evaluating which model performs better under monetary tightening, BRIS clearly demonstrates superior stability compared to BBRI (figure 1). The reduced volatility observed in BRIS stocks suggests that Shariah-compliant banks are better equipped to weather periods of global monetary tightening, aligning with the risk-averse nature of Islamic finance. This resilience can attract investors seeking stability during uncertain economic periods, further enhancing the appeal of Shariah-compliant banks in volatile markets. In contrast, BBRI's increased volatility underscores the challenges faced by conventional banks, which are more exposed to interest rate changes and global economic shifts. These findings align with prior studies highlighting the structural differences between conventional and Islamic banks in their responses to economic shocks (Izzeldin et al., 2021; Jarbou et al., 2024; Saeed et al., 2023).

The findings have important theoretical implications, as they enrich the literature on the differential impacts of global monetary policy on dual banking systems. The results confirm that

Shariah-compliant banks, with their distinct operational principles, offer a unique form of stability that contrasts with the heightened sensitivity of conventional banks to global monetary shocks. This supports existing theories on the relative resilience of Islamic finance during economic crises and contributes to the broader understanding of how structural differences in banking models influence market behavior (Hassan et al., 2018; Saeed et al., 2023; Safiullah, 2021). Theoretically, this research underscores the importance of incorporating global monetary dynamics into models analyzing financial stability in dual banking systems.

Figure 1. Comparison between Conditional Variance and The Fed Hike Effect



Source: Data Processed (2024)

From a practical perspective, the findings provide actionable insights for investors, policymakers, and banking institutions. For investors, Shariah-compliant banks like BRIS emerge as a safer option during periods of global monetary tightening, offering lower volatility and reduced risk exposure. For policymakers, understanding the distinct responses of conventional and Shariah-compliant banks can guide the formulation of targeted regulations to enhance financial sector stability. For instance, measures to reduce the sensitivity of conventional banks to global monetary policy, such as promoting diversification and reducing dependency on foreign funding, could mitigate the risks associated with external shocks (Athari et al., 2023; Shabir et al., 2024). Additionally, promoting the adoption of Shariah-compliant financial practices might strengthen the resilience of the overall banking system, particularly in countries with dual banking structures like Indonesia. These insights highlight the practical relevance of this study in addressing the challenges posed by global monetary tightening and ensuring the stability of financial markets.

5. Conclusion

In conclusion, this study highlights the contrasting responses of conventional and Shariah-compliant banks in Indonesia to The Fed's rate hikes, revealing critical insights into their volatility dynamics. Conventional banks, represented by BBRI, experience a significant increase in volatility following global monetary tightening due to their reliance on interest-based operations and sensitivity to external shocks. In contrast, Shariah-compliant banks, exemplified by BRIS, demonstrate reduced volatility under similar conditions, reflecting the stability inherent in their risk-sharing and interest-free financial structures. These findings emphasize the superior resilience of Shariah-compliant banks during periods of global monetary uncertainty, aligning with their risk-averse operational principles.

Theoretical implications underscore the importance of incorporating the structural differences between these banking models into frameworks analyzing financial stability, especially in dual banking systems. Practically, the results suggest that Shariah-compliant banks offer a safer

investment option during economic uncertainty, while conventional banks require strategies to mitigate their vulnerability to external monetary shocks. Policymakers can leverage these insights to develop targeted regulations that enhance financial system stability, ensuring resilience against global economic disruptions in emerging markets like Indonesia.

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