

Sentiment vs. Fundamentals: GMM Analysis of Jakarta Islamic Index during the 2020–2024 Crisis

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Abstract

This study examines the impact of macroeconomic (BI Rate, Exchange Rate) and microeconomic factors (Current Ratio, Return on Equity) on the Jakarta Islamic Index (JII) during the 2020–2024 crisis period. Using System Generalized Method of Moments (GMM) on dynamic panel data, the study unexpectedly finds that all selected fundamental variables are statistically insignificant in explaining JII movements. These results indicate a "detachment" from fundamentals, where the Sharia market operated under a sentiment-dominated regime driven by systemic shocks, such as the COVID-19 pandemic and geopolitical tensions. The findings suggest that traditional fundamental analysis and conventional monetary instruments lose efficacy during periods of high collective psychological volatility.

Keywords: jakarta islamic index, GMM, fundamental analysis, investor sentiment, crisis.

Introduction

The Jakarta Islamic Index (JII), which comprises 30 Sharia-compliant stocks with high market capitalization and liquidity, serves as a primary benchmark for the Islamic capital market in Indonesia. Despite Indonesia being the country with the largest Muslim population in the world (world population review), this demographic potential has not been fully translated into optimal performance of the Sharia stock index, as its market capitalization remains relatively low compared to neighboring countries such as Malaysia (Candra Saputra). During the period 2020–2024, the JII experienced extraordinary volatility triggered by the COVID-19 pandemic and escalating global geopolitical tensions, both of which disrupted economic recovery momentum.



Figure 1. Showing the price fluctuations of the Jakarta Islamic Index (JII) during the period 2020–2024, influenced by various macroeconomic factors.

Source: Tradingview.com

From a theoretical perspective, movements in the JII are shaped by a complex interaction between macroeconomic variables and corporate financial fundamentals. At the macro level, the BI Rate is expected to exhibit a significant inverse relationship with the capital market, as increases in interest rates are commonly associated with heightened market volatility (Katembo, 2024a). This phenomenon encourages investors to shift their portfolios from equities to fixed-income instruments (Wang, 2025; Iqbal Ghazanvi & Usman Akram, 2025), while global monetary tightening – particularly interest rate hikes by the Federal Reserve – may trigger capital outflows from emerging markets (J. Kim, 2023). In addition, the exchange rate (KURS) constitutes a critical risk factor, as currency fluctuations exert a substantial influence on stock market volatility (Mroua & Trabelsi, 2020; Mahapatra & Bhaduri, 2019).

From a microeconomic perspective, corporate financial ratios function as fundamental signals for investors. Liquidity, as measured by the Current Ratio (CR), is often associated with strong financial performance and tends to attract investor interest (P. Yang et al., 2020), although its impact is not always consistent when compared to profitability indicators (Nur Billa Rahmawati & Agus Wahyudi, 2024). In contrast, profitability metrics such as Return on Equity (ROE) are widely recognized as key drivers of stock prices, as they signal managerial efficiency in generating returns. Empirical evidence demonstrates that higher ROE enhances investor confidence in both the Indonesian and broader ASEAN capital markets (Ono Tarsono, 2021; Clara & Kim, 2021).

The principal novelty of this study lies in its investigation of the “breakdown” of these fundamental relationships during the anomaly period of 2020–2024, which was characterized by systemic shocks. Under conditions of extreme volatility, market movements are often driven by non-fundamental and irrational factors, particularly investor sentiment. Behavioral finance literature suggests that cognitive biases and herd behavior can dominate traditional market dynamics, thereby weakening the explanatory power of conventional financial models (Caporale et al., 2021a).

To address these challenges, this study employs the Generalized Method of Moments (GMM) estimation technique. GMM is selected due to its superior capability in handling complex data characteristics, including endogeneity and heteroskedasticity, which frequently undermine traditional estimation methods (Wooldridge, 2001). Moreover, the distribution-free and adaptive nature of GMM makes it particularly suitable for dynamic financial models that incorporate lagged dependent variables (de Genaro & Astorino, 2022; Piatt & Price, 2019). Through this advanced GMM framework, the study aims to provide new insights and a deeper understanding of the factors shaping JII performance during crisis periods, thereby offering strategic implications for both investors and policymakers.

Research Methods

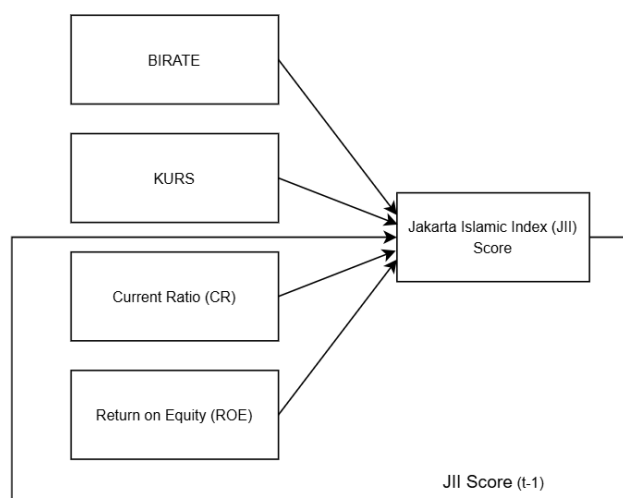


Figure 2. Theoretical Framework

This study employs a quantitative approach using secondary data obtained from the Financial Services Authority (OJK), Bank Indonesia (BI), the Indonesia Stock Exchange (IDX), and the annual financial statements of Sharia-compliant companies. The empirical analysis is based on a balanced panel data structure, where the cross-sectional units consist of 30 firms included in the Jakarta Islamic Index (JII) ($i = 1, \dots, 30$), and the time dimension comprises annual observations over the period 2020–2024 ($t = 2020, \dots, 2024$), yielding a total of 150 firm-year observations. The dependent variable is the annual closing value of the JII, while the independent variables include the BI Rate, the Rupiah/US Dollar exchange rate, the corporate liquidity ratio measured by the Current Ratio, and the corporate profitability ratio measured by Return on Equity.

This research employs total population sampling. Firms are included if they are listed in the JII at the annual market closing during the 2020–2024 period and have published complete and consistent annual financial reports. These criteria ensure data reliability and consistency while allowing the panel structure to capture both cross-sectional heterogeneity across firms and temporal dynamics over the observation period.

This study relies on data that is already available on many national and international trusted platforms. The initial step taken by the researchers in conducting this study was data collection for each variable. For the BI Rate, data was sourced from Bank Indonesia. Exchange Rate (KURS) variables, data was sourced from TradingView. Regarding the Current Ratio and Return on Equity, the researchers obtained data from the IDX for issuers included in the JII, specifically at the effective market closing day for each respective year. Current Ratio and Return on Equity data were collected from Its financial statement.

This study adopts the Generalized Method of Moments (GMM), a statistical method widely used for its ability to manage complex data characteristics and address various econometric challenges. GMM is highly effective for handling issues such as endogeneity, heteroskedasticity, and cross-sectional dependence, which often cannot be addressed by traditional estimation methods (Wooldridge, 2001). The main advantage of GMM lies in its flexibility; this method does not require specific data distribution assumptions, making it highly suitable for empirical problems where the model can only be partially specified, a common occurrence in financial analysis (de Genaro & Astorino, 2022).

GMM proves to be very effective for analyzing panel data, making it the right choice for dynamic models that include lagged dependent variables and individual-specific effects. This is achieved by utilizing a series of moment conditions to produce more efficient and consistent estimates (Piatt & Price, 2019). Its adaptive nature allows GMM to produce reliable parameter estimates even when the model specification is not fully known and can combine micro-level observations with aggregate data to enhance analytical accuracy (Wooldridge, 2001). Thus, its robustness in handling various data distributions and econometric issues provides a significant advantage over traditional methods like Ordinary Least Squares (OLS).

The validity of the System GMM estimation is assessed using two standard diagnostic tests. First, the Arellano–Bond test for autocorrelation is employed to examine serial correlation in the first-differenced residuals. While first-order autocorrelation (AR(1)) is expected as a mechanical consequence of differencing, the absence of second-order autocorrelation (AR(2)) is a necessary condition for estimator consistency. The AR(2) test yields a probability value greater than the 5 percent significance level, indicating no evidence of second-order serial correlation and supporting the validity of the moment conditions (Wooldridge, 2001).

Second, the Sargan test of over-identifying restrictions is used to evaluate the joint validity of the instrumental variables. The probability value of the J-statistic exceeds the conventional significance level, suggesting that the instruments are not correlated with the error term. Importantly, this test is interpreted strictly as a diagnostic for instrument validity and does not imply superior model performance or causal inference.

Altogether, GMM stands out as a dependable and versatile estimation tool in empirical research, including in this study's exploration of the influence of macroeconomic variables on the Jakarta Islamic Index (JII), where it helps overcome limitations found in previous methodologies and supports a deeper understanding of the relationships among variables.

Results and Discussion

Based on the research object in the Jakarta Islamic Index (JII) for the period 2020–2024, several independent variables are used in the analysis, namely the BI Rate, Rupiah Exchange Rate (KURS), Liquidity Ratio, and Profitability Ratio. To provide a general overview of these variables, a descriptive statistical analysis was conducted, which includes the mean, median, maximum, minimum, and standard deviation for each variable. The results of this descriptive analysis are presented as follows.

Table 1. Descriptive statistics

Statistics	BIRATE	KURS	Current Ratio (CR)	Return on Equity (ROE)
Mean	4.950000	15120.40	2.301800	0.122154
Median	5.500000	15394.00	1.970000	0.071050
Maximum	5.500000	16089.00	10.300000	1.567400
Minimum	4.000000	14275.00	0.000000	-2.383200
Std. Deviation	1.103685	728.1539	1.616341	0.318866
Observations	150	150	150	150

Source: Eviews 12

Table 1, presents the descriptive statistics for the variables used in this study, namely Return on Equity (ROE), Rupiah Exchange Rate (KURS), Current Ratio (CR), and BI Rate (BIRATE) during the period 2020–2024 with a total of 150 observations each. The ROE variable has a mean of 0.122154, with a maximum value of 1.567400 and a minimum of -2.383200. This range of values indicates a significant imbalance between more stable and profitable JII

companies and highly volatile or even loss-making ones, pointing to diverse performance within the Indonesian Sharia capital market. The standard deviation is 0.318866, indicating a relatively high variability in the profitability of the companies included in the JII. The Rupiah Exchange Rate (KURS) has a mean of 15,120.40, a maximum of 16,089.00, and a minimum of 14,275.00, with a standard deviation of 728.1539, reflecting moderate fluctuations in the exchange rate during the research period. The Liquidity Ratio (Current Ratio - CR) has a mean of 2.301800, with the maximum value reaching 10.30000 and the minimum being 0.000000. The standard deviation is 1.616341, showing notable variation in liquidity levels among the companies analyzed. Lastly, the BI Rate has a mean of 4.950000, with a maximum of 6.000000 and a minimum of 3.500000. The standard deviation is 1.103685, indicating some variation in the interest rate during the observed period.

Table 2. Estimation Model of GMM

Variable	Coefficient	Std. error	T-Stats	Probability
Y(-1)	0.983099	0.012937	75.98986	0.0000
BIRATE	-1.162458	0.977974	-1.187833	0.2370
KURS	0.001039	0.000795	1.306413	0.1934
Current Ration (CR)	-0.488243	0.897807	-0.543763	0.5875
Return on Equity (ROE)	-0.492996	0.668193	-0.737035	0.4619

Source: Eviews 12

Referring to the GMM regression output shown in Table 2, all independent variables exhibit probability values exceeding the 0.05 significance level. The BI Rate has a p-value of 0.2370, indicating its influence on the Jakarta Islamic Index (JII) is statistically insignificant. Likewise, the exchange rate (KURS) records a p-value of 0.1934, also suggesting no significant impact on the JII. The liquidity ratio (CR) yields a p-value of 0.5875, and the profitability ratio (ROE) has a p-value of 0.4619 – both confirming the absence of significant effects on JII movement. To evaluate the model's unbiasedness, the coefficient of the lagged dependent variable Y(-1) is reviewed, and its value of 0.983099 (less than 1) supports the conclusion that the model is not biased. In addition, the J-statistic probability of 0.769149, which is greater than 0.05, confirms that the instrumental variables used in the GMM estimation are valid and that the model is appropriately specified.

Table 3. AB Test or Arellano-Bond

Test order	m-Statistic	Rho	SE(rho)	Prob.
AR(1)	-0.096284	-0.008800	0.083917	0.9234
AR(2)	-0.035812	-0.003005	0.083910	0.9715

Source: Eviews 12

To test the second criterion for a good GMM model, namely consistency, the Arellano-Bond (AB) test was conducted. Based on the probability value of the AR(2) test, which is 0.9715 (> 0.05), it can be concluded that the estimation results are consistent and there is no autocorrelation problem in the model.

Table 4. Sargan Test

Test order	Score	Object	Score
Root MSE	0.751199	Mean dependent var.	-0.069203
S.D. dependent Var.	0.453351	S.E. of regression	0.765189
Sum Squad Residual	7,787.348	J-statistic	1.458953
Rank Instrument	10	Probability (J-statistic)	0.917757

Source: Eviews 12

To evaluate the third criterion of a good GMM model, namely the validity of the instrumental variables used, the Sargan Test was conducted. Based on the probability value of the J-statistic, which is 0.917757 (> 0.05), it can be concluded that the instrumental variables used in the model are valid and not correlated with the error term.

Table 5. Effect result of short-run and long-run

Variable	Coefficient	Prob.	Short-run Effect	Long-run Effect
Y(-1)	0.983099	0.0000	-	-
BIRATE	-1.162458	0.1846	-1.162	-68.760
KURS	0.001039	0.1735	0.001	0.062
Current Ration (CR)	-0.488243	0.5875	-0.488	-28.889
Return on Equity (ROE)	-0.492996	0.4619	-0.493	-29.171

Source: Eviews 12

One key feature of dynamic panel estimation using the Generalized Method of Moments (GMM) is its ability to distinguish between short-run dynamics and persistence effects through the inclusion of a lagged dependent variable. As reported in Table 5, the estimated coefficients of the BI Rate, exchange rate (KURS), Current Ratio (CR), and Return on Equity (ROE) reflect short-run partial effects, all of which are statistically insignificant at the 5% level. While long-run effects are often derived mechanically by scaling short-run coefficients by $(1-\alpha)^{-1}$, where α denotes the coefficient of the lagged dependent variable, such an interpretation requires statistically significant and economically stable short-run estimates. In this study, the coefficient of the lagged JII is very close to unity, indicating a high degree of persistence, while all explanatory variables remain statistically insignificant. As a consequence, the implied long-run effects reported in Table 5 generate mechanically inflated and economically unrealistic magnitudes, such as excessively large percentage changes in the JII. These values should therefore not be interpreted as meaningful long-run economic relationships, but rather as artefacts of high persistence combined with insignificant regressors in a dynamic specification (Wooldridge, 2001). Accordingly, the empirical interpretation of this model is restricted to short-run dynamics and statistical significance, and no inference is drawn regarding stable long-term equilibrium effects between the fundamental variables and the Jakarta Islamic Index.

Table 6. Robustness Test

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Y(-1)	0.983099	0.012937	75.989868	0.0000
BIRATE	-1.162458	0.977974	-1.188365	0.2351
KURS	0.001039	0.000795	1.306413	0.1930
Current Ration (CR)	-0.488243	0.897800	-0.543763	0.5875
Return on Equity (ROE)	-0.492996	0.668193	-0.737805	0.4619

Source: Eviews 12

Based on Table 6, the results indicate that none of the independent variables significantly influence the Jakarta Islamic Index (JII) at the 5% level, as reflected by probability values of 0.2351 for the BI Rate, 0.1930 for the exchange rate (KURS), 0.5875 for the liquidity ratio (CR), and 0.4619 for Return on Equity (ROE). The Adjusted R-squared value of the alternative specification is 0.753487, which is not substantially different from the R-squared of the main GMM estimation (83.11%), indicating that the estimated coefficients and their statistical significance are highly consistent across specifications. Therefore, the robustness test is interpreted as a stability check confirming that the main results are not sensitive to minor specification changes, rather than as an additional or independent empirical finding.

The empirical results of the System Generalized Method of Moments (GMM) estimation presented in Table 2 provide a clear and consistent statistical conclusion. All explanatory variables – both macroeconomic (BI Rate and Exchange Rate) and microeconomic (Current Ratio and Return on Equity) – exhibit probability values exceeding the conventional 5 percent significance level. Specifically, the BI Rate records a p-value of 0.2370, the exchange rate (KURS) 0.1934, the current ratio (CR) 0.5875, and return on equity (ROE) 0.4619. These results indicate that none of the fundamental variables exert a statistically significant effect on the Jakarta Islamic Index (JII) during the 2020–2024 period.

From an econometric standpoint, the robustness and validity of these findings are strongly supported. The coefficient of the lagged dependent variable, $Y(-1)$, is positive and highly significant (p-value = 0.0000) with a value of 0.983099, confirming the dynamic persistence of the JII and validating the use of a dynamic panel framework (Wooldridge, 2001). Furthermore, the Arellano–Bond AR(2) test yields a probability of 0.9715, indicating the absence of second-order serial correlation, while the Sargan test reports a J-statistic probability of 0.917757, confirming the validity of the instrumental variables employed. Therefore, the statistical insignificance of the explanatory variables cannot be attributed to model misspecification or estimation bias, but rather reflects the underlying data-generating process during the observed period.

Empirically, this finding represents a substantive deviation from conventional asset pricing and fundamental valuation theories, which typically posit a significant relationship between stock market performance and interest rates, exchange rates, liquidity, and profitability (Katembo, 2024; Mahapatra & Bhaduri, 2019; Ono Tarsono, 2021). However, the uniformly high p-values across all explanatory variables suggest that during 2020–2024, variations in the JII were not systematically explained by changes in either macroeconomic fundamentals or firm-level financial ratios. This statistical outcome provides direct quantitative evidence that the JII operated under a different market mechanism than that assumed in normal economic conditions.

This phenomenon can be empirically interpreted through the lens of a **sentiment-dominated regime**, rather than through normative or purely theoretical arguments. In such a regime, price formation is weakly linked to observable fundamentals, causing traditional predictors to lose explanatory power and appear statistically insignificant (Caporale et al., 2021; Salisu et al., 2020). The crisis period analyzed in this study – encompassing the COVID-19 pandemic and subsequent geopolitical tensions – corresponds closely to conditions under which behavioral finance literature documents heightened investor sentiment, fear, and herding behavior (Hu et al., 2021; Chen, 2024).

The insignificance of the BI Rate (p-value = 0.2370) is particularly illustrative. Under standard monetary transmission mechanisms, interest rates are expected to influence equity valuations through discount rates and capital allocation decisions (Wang, 2025; Iqbal Ghazanvi & Usman Akram, 2025). However, the empirical results indicate that changes in the BI Rate did not translate into statistically measurable movements in the JII. This aligns with evidence that during crisis periods, monetary policy signals are often overshadowed by market-wide sentiment and uncertainty, reducing their immediate impact on equity prices (Salisu et al., 2020; Kim, 2023).

Similarly, the exchange rate variable (KURS), despite having a positive coefficient, remains statistically insignificant (p-value = 0.1934). Prior studies emphasize that exchange rate fluctuations tend to affect stock markets primarily through volatility transmission rather than direct return predictability during periods of elevated geopolitical risk (Balcilar et al., 2018; Yang et al., 2021). Thus, the insignificant p-value observed in this study is consistent with the interpretation that currency movements during 2020–2024 contributed more to uncertainty and volatility than to directional changes in the JII.

At the firm level, the insignificance of liquidity (CR, $p\text{-value} = 0.5875$) and profitability (ROE, $p\text{-value} = 0.4619$) provides further empirical support for a sentiment-regime interpretation. Under normal market conditions, ROE is widely documented as a key determinant of stock prices (Clara & Kim, 2021; Ono Tarsono, 2021). However, the lack of statistical significance indicates that firm-specific fundamentals failed to differentiate stock performance within the JII during the crisis period. This outcome is consistent with the concept of return synchronicity, whereby individual stock prices move together in response to aggregate sentiment rather than firm-level information (Chue & Gul, 2019).

Importantly, this result does not imply that fundamentals became irrelevant in an absolute sense. Rather, the insignificance of their coefficients reflects a temporary breakdown in the fundamental-price relationship, a condition frequently observed in markets experiencing structural stress and regime shifts (Zhang et al., 2018; Cappelli et al., 2020). When investor sentiment dominates, variations in ROE or liquidity no longer translate into statistically distinguishable price movements, as market participants respond collectively to common narratives and external shocks (Gao et al., 2021; Kim & Lee, 2022).

Taken together, the empirical evidence demonstrates that the Jakarta Islamic Index during 2020–2024 was characterized by a sentiment-driven market regime, in which traditional macroeconomic and microeconomic fundamentals lost their explanatory power. The consistently insignificant $p\text{-values}$ across all explanatory variables serve as quantitative confirmation of this regime shift. This finding aligns with emerging empirical literature documenting that during crisis periods, especially in emerging and Islamic markets, investor sentiment becomes the dominant factor shaping stock price dynamics (Andleeb & Hassan, 2023; Nofrianto et al., 2024).

Conclusions and Suggestions

This study examines the effects of the BI Rate, exchange rate (KURS), liquidity (Current Ratio), and profitability (Return on Equity) on the Jakarta Islamic Index (JII) during the 2020–2024 period using the System GMM approach and finds that none of these fundamental variables have a statistically significant impact on the JII, as indicated by $p\text{-values}$ above the 5 percent level. This result implies that, during the crisis period, the JII operated within a sentiment-dominated regime in which market movements were driven more by collective investor sentiment, uncertainty, and global shocks than by macroeconomic or firm-level fundamentals, consistent with behavioral finance evidence (Salisu et al., 2020; Caporale et al., 2021; Chen, 2024). The key implication is that traditional fundamental analysis and conventional monetary policy signals, such as the BI Rate, have limited explanatory and stabilizing power under crisis conditions, suggesting that investors and policymakers should incorporate behavioral and non-fundamental considerations when assessing Islamic capital market dynamics, while future research is encouraged to integrate sentiment indicators or regime-switching frameworks to better capture structural changes in the JII (Zhang et al., 2018; Cappelli et al., 2020).

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