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Navigating Shariah Capital Markets: The Influence of Commodities, Macroeconomics, and Cryptocurrency in Indonesia's Islamic Financial Framework

Menavigasi Pasar Modal Syariah: Pengaruh Komoditas, Makroekonomi, dan Mata Uang Kripto dalam Kerangka Keuangan Islam di Indonesia

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Abstract

This study examines the dynamic interaction of commodity prices (crude oil, gold, coal), macroeconomic indicators (exchange rates, inflation, interest rates), and cryptocurrencies (Bitcoin, Ethereum) on the Indonesian Islamic stock market, using the Jakarta Sharia Index (JII) as a benchmark. The research method employed a quantitative approach, with a Vector Error Correction Model (VECM) model with weekly data from 2018 to 2024. This study found that crude oil and coal prices have a positive effect on the JII in the short term, while gold acts as a safe haven asset with a negative correlation. Exchange rate depreciation and inflation negatively impact the JII, and interest rates have an indirect effect. Cryptocurrencies exhibit a weak correlation, offer diversification potential but raise *Sharia* compliance concerns due to speculative risks. These findings contribute to the understanding of the impact of global markets on Islamic investment and provide information to policymakers and investors in aligning strategies with the principles of *maqasid Sharia*.

Kata Kunci:

Harga Komoditas; Kriptukurensi; Indikator Makroekonomi; Pasar Saham Syariah; Vector Autoregression.

Abstrak

Penelitian ini meneliti interaksi dinamis harga komoditas (minyak mentah, emas, batubara), indikator makroekonomi (nilai tukar, inflasi, suku bunga), dan mata uang kripto (Bitcoin, Ethereum) pada pasar saham syariah Indonesia, menggunakan Indeks Syariah Jakarta (JII) sebagai tolok ukur. Metode penelitian yang digunakan menggunakan pendekatan kuantitatif, dengan model Vector Error Correction Model (VECM) dengan data mingguan dari tahun 2018 hingga 2024, penelitian ini menemukan bahwa harga minyak mentah dan batubara berpengaruh positif terhadap JII dalam jangka pendek, sementara emas bertindak sebagai aset aman dengan korelasi negatif. Depresiasi nilai tukar dan inflasi berdampak negatif terhadap JII, dan suku bunga memiliki efek tidak langsung. Mata uang kripto menunjukkan korelasi yang lemah, menawarkan potensi diversifikasi tetapi menimbulkan kekhawatiran kepatuhan syariah karena risiko spekulatif. Temuan ini berkontribusi pada pemahaman dampak pasar global terhadap investasi syariah dan memberikan informasi kepada pembuat kebijakan dan investor dalam menyelaraskan strategi dengan prinsip-prinsip *maqashid syariah*.

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INTRODUCTION

Problem Background

Indonesia's *Sharia* capital market has emerged as a vital component of the nation's financial landscape, driven by a Muslim population of over 230 million and supportive policies like the Masterplan Ekonomi Syariah Indonesia (MEKSI) 2019–2024 (Krisnawati, 2024). The Jakarta Islamic Index (JII), comprising 30 liquid *Sharia*-compliant stocks, serves as a key benchmark for *Sharia* investment performance. However, JII experienced a 18.3% decline from 2018 to 2024, contrasting with the 20.67% and 19.28% gains in the Indonesia *Sharia* Stock Index (ISSI) and Composite Stock Index (IHSG), respectively (www.id.tradingview.co.id, 2025). This underperformance highlights a critical problem: the vulnerability of *Sharia* stocks to global economic factors, including commodity price volatility, macroeconomic fluctuations, and the rising influence of cryptocurrencies. Understanding these dynamics is significant for preserving wealth (*hifz al-mal*), a core principle of *maqashid Sharia*, and for ensuring the resilience of Indonesia's *Sharia* capital market amidst global uncertainties (Chapra, 2016).

The core problem lies in how commodity prices (crude oil, gold, coal), macroeconomic indicators (exchange rate, inflation, interest rate), and cryptocurrencies (Bitcoin, Ethereum) dynamically interact with JII performance. These factors are critical given Indonesia's reliance on commodity exports, which exposes the economy to price volatility (Essayem et al., 2024) and its sensitivity to macroeconomic shocks, such as rupiah depreciation and inflation (Puspitasari et al., 2023). The emergence of cryptocurrencies introduces both opportunities for portfolio diversification and challenges due to their speculative nature, which may conflict with *Sharia* principles prohibiting *gharar* and *maisir* (Mansour Nomran et al., 2024). This study addresses three research questions: (1) How do commodity prices influence JII in the short and long term? (2) What are the effects of macroeconomic indicators on JII performance? (3) Can cryptocurrencies serve as *Sharia*-compliant diversification assets, or do they pose risks conflicting with Islamic principles?

The complexity of this problem stems from the interconnected nature of global markets and the unique constraints of *Sharia*-compliant investments. Commodity price fluctuations, driven by geopolitical events like the Russia-Ukraine conflict, impact Indonesia's export-driven economy, influencing *Sharia* stock returns (Agustin et al., 2024). Macroeconomic indicators, such as exchange rate volatility, exacerbate financial risks for *Sharia* issuers with foreign debt exposure (Puspitasari et al., 2023). Cryptocurrencies, while offering diversification potential, raise ethical concerns due to their volatility and speculative trading, necessitating alignment with Fatwa No. 144/DSN-MUI/XI/2021 (DSN-MUI, 2021). These multifaceted interactions require a dynamic analytical approach to capture bidirectional relationships.

The novelty of this research lies in its integration of commodity prices, macroeconomic indicators, and cryptocurrencies within a Vector Autoregression (VAR) framework, specifically tailored to Indonesia's *Sharia* capital market. Unlike prior studies, such as (Essayem et al., 2024) and (Bouri et al., 2017), which focus on unidirectional effects or

global markets, this study examines bidirectional dynamics in Indonesia's context while grounding the analysis in maqashid *Sharia* principles. By addressing these gaps, the research offers fresh insights into optimizing *Sharia*-compliant investment strategies.

The objectives of this study are to: (1) analyze the short- and long-term impacts of commodity prices on JII, (2) evaluate the influence of macroeconomic indicators on JII performance, (3) assess the role of cryptocurrencies as potential diversification assets while addressing *Sharia* compliance, and (4) provide actionable recommendations for *Sharia* investors and policymakers to enhance market resilience and align with Islamic economic principles. These objectives aim to contribute to both theoretical understanding and practical strategies for sustaining Indonesia's *Sharia* capital market.

Problem Identification

Despite Indonesia's Islamic capital market showing significant growth driven by the world's largest Muslim population and supporting policies such as the 2019–2024 Indonesian Islamic Economic Masterplan (MEKSI), the Jakarta Islamic Index (JII), the primary benchmark for Islamic stocks, experienced a 18.3% decline during the 2018–2024 period. This decline contrasts with the 20.67% increase in the Indonesia *Sharia* Stock Index (ISSI) and the 19.28% increase in the Jakarta Composite Index (JCI) during the same period. This JII underperformance indicates the structural vulnerability of the Islamic capital market to external factors, particularly commodity price volatility, fluctuations in macroeconomic indicators, and the emergence of increasingly influential cryptocurrencies in the global market.

A key unresolved issue in the literature is the lack of understanding of the dynamic and bidirectional interactions between these variables and JII performance in the Indonesian context. Previous studies, such as (Essayem et al., 2024) and (Bouri et al., 2017), tend to analyze the influence unidirectionally or within a global market setting, without considering the specific characteristics of the Indonesian *Sharia* market, namely limited diversification due to *Sharia* screening, sensitivity to commodity exports, and ethical constraints related to *gharar* and *maisir* in crypto assets. Furthermore, analyses that integrate the principles of *maqasid Sharia*, particularly *hifz al-mal* (preservation of wealth), are still rare, even though this principle is the main foundation of *Sharia* investment.

The JII's vulnerability to external factors is even more crucial given Indonesia's reliance on commodity exports (oil and coal) and exposure to foreign debt, which is affected by rupiah depreciation. On the other hand, crypto offers potential portfolio diversification, but its high volatility and speculative nature could potentially contradict DSN-MUI Fatwa No. 144/DSN-MUI/XI/2021. Therefore, a comprehensive analysis using a dynamic approach (VAR/VECM) is needed to uncover short- and long-term relationships and provide recommendations aligned with *Sharia* principles to increase the resilience of the Indonesian *Sharia* capital market..

Research Question

Based on the identified issues that reveal the vulnerability of the Jakarta Islamic Index (JII) to commodity price volatility, macroeconomic indicators, and crypto assets within the context of the Indonesian Islamic capital market, this study is designed to address the existing empirical and theoretical gaps. Previous studies often only analyze unilateral influences or within conventional/global market settings, without integrating a bidirectional dynamic perspective and the principles of *maqasid Sharia*, particularly *hifz al-mal*. Therefore, this study formulates the following three main research questions:

1. How do commodity prices (crude oil, gold, and coal) affect the performance of the Jakarta Islamic Index (JII) in the short and long term, and is there a significant bidirectional relationship?
2. What is the impact of macroeconomic indicators (rupiah/USD exchange rate, inflation, and BI interest rates) on JII performance, both directly and indirectly, within a dynamic interaction framework?
3. To what extent can cryptocurrencies (Bitcoin and Ethereum) serve as *Sharia*-compliant diversification assets for the JII portfolio, or do they pose risks of gharar and maisir, which contradict DSN-MUI Fatwa No. 144/DSN-MUI/XI/2021?

Hypotheses Development

This study investigates the gap in understanding the dynamic interactions among commodity prices, macroeconomic indicators, and cryptocurrencies on Indonesia's *Sharia* stock market, represented by the Jakarta Islamic Index (JII). Prior research, such as Essayem et al. (2024) and Bouri et al. (2017), often examines these factors in isolation or within global contexts, overlooking Indonesia's unique economic structure and *Sharia*-compliant investment constraints. The hypotheses developed here address this gap by integrating bidirectional relationships within a Vector Autoregression (VAR) framework, grounded in *maqashid Sharia* principles of wealth preservation (*hifz al-mal*). The flow of hypotheses is crafted to respond to the research objectives, linking commodity price volatility, macroeconomic fluctuations, and cryptocurrency dynamics to JII performance while ensuring *Sharia* compliance.

H1: Crude oil and coal prices positively influence JII in the short term, while gold negatively correlates due to its safe-haven role.

Indonesia's economy heavily relies on commodity exports, particularly crude oil and coal, which contribute significantly to GDP and influence stock market performance. Rising oil prices increase revenues for energy-related *Sharia*-compliant firms, positively impacting JII. Similarly, coal price surges, driven by global energy demand, enhance the profitability of Indonesia's mining sector, a key component of JII. Conversely, gold is hypothesized to negatively correlate with JII, as investors shift to gold during economic uncertainty, reducing demand for *Sharia* stocks. This hypothesis addresses the research question on commodity price impacts and accounts for Indonesia's export-oriented economy, distinguishing it from global studies that overlook context-specific dynamics.

H2: Exchange rate depreciation and inflation negatively affect JII, while interest rates have an indirect negative impact.

Macroeconomic indicators significantly influence *Sharia* stock performance due to Indonesia's exposure to global financial markets. A depreciating rupiah increases the cost of foreign debt for *Sharia*-compliant firms, reducing JII returns. Inflation erodes purchasing power, deterring investment in *Sharia* stocks and negatively impacting JII. (Although *Sharia* markets prohibit *riba*, rising interest rates in conventional markets divert capital from *Sharia* stocks to fixed-income instruments, indirectly affecting JII. This hypothesis responds to the research question on macroeconomic effects, filling the gap in studies that focus on unidirectional impacts without considering bidirectional interactions in Indonesia's *Sharia* context.

H3: Cryptocurrencies (Bitcoin and Ethereum) exhibit weak correlations with JII, offering diversification potential but posing speculative risks conflicting with *Sharia*

principles.

The rapid growth of cryptocurrencies, with a global market capitalization exceeding $3.5 trillion in 2024, presents opportunities for portfolio diversification. However, their high volatility raises concerns about *gharar* (excessive uncertainty) and *maisir* (gambling), potentially conflicting with *Sharia* principles. Bitcoin and Ethereum are hypothesized to have weak correlations with JII, as their price movements are driven by speculative trading rather than economic fundamentals affecting *Sharia* stocks. This weak correlation suggests diversification potential, but speculative risks necessitate alignment with Fatwa No. 144/DSN-MUI/XI/2021, which permits cryptocurrencies as investments if *Sharia*-compliant. This hypothesis addresses the research question on cryptocurrencies' role, bridging the gap in studies that overlook *Sharia* compliance in Indonesia's context.

These hypotheses collectively address the research gap by integrating commodity prices, macroeconomic indicators, and cryptocurrencies within a dynamic framework tailored to Indonesia's *Sharia* capital market. By leveraging primary sources from top-tier journals and aligning with *maqashid Sharia*, the hypotheses provide a robust foundation for analyzing JII performance and informing *Sharia*-compliant investment strategies.

Objective and Benefits Research

Objective

This study's primary objective is to analyze the dynamic interactions between commodity prices, macroeconomic indicators, and cryptocurrency assets on the performance of the Jakarta Islamic Index (JII) within the context of the Indonesian Islamic capital market. The research objectives are specifically formulated as follows:

1. To analyze the short-term and long-term impacts of commodity prices (crude oil, gold, and coal) on JII performance, including identifying bidirectional relationships and gold's role as a safe-haven asset.
2. To evaluate the direct and indirect influence of macroeconomic indicators (the rupiah/USD exchange rate, inflation, and BI interest rates) on JII performance, within the framework of dynamic interactions.
3. To assess the role of cryptocurrencies (Bitcoin and Ethereum) as potential diversification assets for the JII portfolio, while also examining their speculative risks (gharar and maisir) and their compliance with DSN-MUI Fatwa No. 144/DSN-MUI/XI/2021.
4. This study provides practical recommendations for Islamic investors, regulators, and policymakers to increase the resilience of the Indonesian Islamic capital market amidst global uncertainty, while adhering to the principles of *maqasid Sharia*, particularly *hifz al-mal* (wealth preservation).

Benefits

This research contributes to several aspects, both theoretically and practically:

1. Theoretical Benefits: This research enriches the Islamic finance literature by integrating dynamic analysis (VAR/VECM) of commodity, macroeconomic, and cryptocurrency factors in the Indonesian context. This approach strengthens the understanding of the partial inefficiency of Islamic markets due to constraints on Islamic screening, while also strengthening the application of the principles of

maqasid Sharia (*hifz al-mal*) as an ethical framework in empirical analysis.

2. Empirical Benefits: Using weekly data from 2018–2024 covering significant global events (the Russia-Ukraine conflict, the cryptocurrency boom), this study provides robust evidence on the main drivers of JII volatility, such as the dominance of crude oil and exchange rates. The IRF and variance decomposition results provide new quantitative insights that can serve as references for further research in emerging market Islamic capital markets.
3. Practical and Policy Benefits: For Islamic investors, these findings help optimize portfolios by leveraging positive commodity trends (crude oil, coal) and gold as a hedge, as well as exercising caution regarding cryptocurrencies. For regulators (OJK, DSN-MUI) and policymakers (Bank Indonesia), this study recommends strengthening macroeconomic stability (controlling inflation and exchange rates) and developing a clearer and *Sharia*-compliant cryptocurrency regulatory framework to support the sustainable growth of the Indonesian Islamic capital market in accordance with MEKSI 2019-2024.

THEORITICAL AND CONCEPTUAL FRAMEWORK

Market Efficiency and *Sharia* Compliance Constraints

The Efficient Market Hypothesis (EMH), as proposed by (Fama, 1970), asserts that asset prices fully reflect all available information, making it difficult to consistently outperform the market without additional risk. However, in Islamic capital markets, EMH faces unique challenges due to *Sharia* screening processes that exclude non-compliant sectors (e.g., *riba*-based finance, alcohol, gambling), resulting in limited diversification and potential partial inefficiency (Sidik et al., 2024);(Nofrianto et al., 2024). The Jakarta Islamic Index (JII), with its restricted universe of 30 liquid stocks, exhibits higher vulnerability to asymmetric shocks compared to conventional indices like IHSG (Asy'arie et al., 2023). Recent studies confirm that Indonesian *Sharia* markets display weak-form efficiency but are influenced by ethical constraints, leading to distinct return patterns during crises (Robiyanto, 2018) ; (Krisnawati, 2024).

Commodity Prices and Export-Led Market Dynamics

Commodity prices play a pivotal role in emerging export-oriented economies like Indonesia, where oil, coal, and gold significantly influence stock returns (Jones & Kaul, 1996); (Essayem et al., 2024). Rising crude oil and coal prices typically boost revenues for *Sharia*-compliant energy and mining firms, positively impacting JII performance (Agustin et al., 2024) (Pratama & Wildana, 2024). Conversely, gold often acts as a safe-haven asset during uncertainty, exhibiting negative correlation with equity indices, including Islamic ones (Bouri et al., 2017) (Taera et al., 2023) (Nofrianto et al., 2024). Empirical evidence from 2022–2024 highlights gold's hedging role amid geopolitical tensions (e.g., Russia-Ukraine conflict) and commodity volatility in Asian Islamic markets (Asy'arie et al., 2023) (Robiyanto, 2018).

Macroeconomic Indicators and Systemic Risk Transmission

Macroeconomic variables such as exchange rates, inflation, and interest rates exert substantial influence on Islamic stock returns, often more pronounced than in conventional markets due to foreign debt exposure and capital flow sensitivity (Chen et al., 1986) (Sugiharti et al., 2020). Rupiah depreciation and inflation negatively affect JII

by increasing costs and eroding investor confidence (Puspitasari et al., 2023) (Hidayat & Fageh, 2022). Although *Sharia* principles prohibit *riba*, rising conventional interest rates indirectly divert funds from Islamic equities (Bouri et al., 2017) (Sidik et al., 2024). Recent analyses (2023–2025) show that these factors explain significant volatility in Indonesian *Sharia* indices, with exchange rates and inflation contributing notably during post-pandemic recovery (Asy'arie et al., 2023) (Nofrianto et al., 2024).

Cryptocurrency: Innovation, Diversification, and Ethical Ambiguity

The emergence of cryptocurrencies like Bitcoin and Ethereum introduces diversification potential but raises *Sharia* concerns over *gharar* (excessive uncertainty) and *maisir* (speculation) (Baur et al., 2018). While some scholars view utility-based cryptos as permissible if free from *riba*, high volatility often renders them non-compliant(Mansour Nomran et al., 2024) (Alam et al., 2019). Studies from 2022–2025 indicate weak correlations with Islamic indices, suggesting hedging benefits, yet speculative trading conflicts with Fatwa DSN-MUI guidelines (Lončar, 2024) (Rizieq, 2025). In GCC and Indonesian contexts, cryptos exhibit limited spillover to *Sharia* stocks but pose ethical risks (Mansour Nomran et al., 2024) (Asy'arie et al., 2023).

Maqashid Sharia and Ethical Investment Principles

Maqashid Sharia, particularly *hifz al-mal* (wealth preservation), provides an ethical lens for Islamic investments, prioritizing stability over speculation (Chapra, 2016) (Muhammed Midlaj P, 2025). This framework evaluates assets like gold (safe-haven alignment) positively while cautioning against volatile cryptos (Tumiran et al., 2024) (Rofik et al., 2025). Recent applications in Indonesia emphasize integrating maqashid principles into portfolio management and regulatory policies for sustainable *Sharia* market growth (Krisnawati, 2024) (Nofrianto et al., 2024).

METHODOLOGY

This study employs a Vector Autoregression (VAR) model, supplemented by a Vector Error Correction Model (VECM) if cointegration is present, to examine the dynamic interactions among commodity prices (crude oil, gold, coal), macroeconomic indicators (exchange rate, inflation, interest rate), cryptocurrencies (Bitcoin, Ethereum), and the Jakarta Islamic Index (JII). The VAR approach models each variable as a function of its own lagged values and the lagged values of other variables, capturing bidirectional relationships. The methodology is concise yet robust, enabling the analysis of short- and long-term dynamics while addressing the complexity of Indonesia's *Sharia* capital market.

The VAR model is chosen for its ability to handle multiple endogenous variables without imposing restrictive assumptions on causality, making it ideal for studying interconnected financial markets. Unlike structural models, VAR allows for dynamic feedback loops, which are critical given the bidirectional influences among commodity prices, macroeconomic indicators, and cryptocurrencies. The VECM is incorporated to account for long-term equilibrium relationships if cointegration exists, enhancing the model's accuracy. These methods are state-of-the-art in time-series econometrics, ensuring reliable insights into JII performance.

The research design is quantitative, focusing on time-series analysis of weekly data from January 2018 to December 2024. The dependent variable is JII, a benchmark index of 30 *Sharia*-compliant stocks, while independent variables include Brent crude oil, gold,

coal, rupiah/USD exchange rate, consumer price index (CPI) inflation, Bank Indonesia (BI) interest rate, Bitcoin, and Ethereum. The design incorporates diagnostic tests (stationarity, cointegration, lag selection) and analytical tools (Granger causality, Impulse Response Functions, variance decomposition) to ensure robustness. This accurate design aligns with the study's objective of analyzing dynamic interactions in Indonesia's *Sharia* context.

The sample comprises 364 weekly observations from 2018 to 2024, selected to capture significant global events, such as the Russia-Ukraine conflict and cryptocurrency market growth. The target population is Indonesia's *Sharia* capital market, with JII as the unit of analysis due to its liquidity and representativeness. Weekly data are chosen over daily data to minimize noise and over monthly data to ensure sufficient observations for VAR analysis. The sample size is appropriate for time-series modeling, providing adequate degrees of freedom for reliable estimation.

Data were collected from reputable online databases to ensure accuracy and reliability. Commodity prices (crude oil, gold, coal) were sourced from (www.investing.com, 2025) macroeconomic indicators (exchange rate, inflation, interest rate) from (www.bps.go.id, 2025) and cryptocurrency prices (Bitcoin, Ethereum) from (www.coinmarketcap.com, 2025) and (www.finance.yahoo.com, 2025) All variables were standardized to weekly averages to align with JII data, which were obtained from (www.finance.yahoo.com, 2025) Data integrity was verified through cross-checking with alternative sources, and missing values were addressed using linear interpolation, a standard practice in time-series studies. This rigorous process ensures properly conducted data collection.

The analysis follows a systematic approach using state of the art econometric techniques:

1. Stationarity Test: The Augmented Dickey-Fuller (ADF) test assesses whether variables are stationary at levels or first differences, ensuring valid VAR estimation.
2. Lag Selection: The Akaike Information Criterion (AIC) determines the optimal lag length to balance model fit and parsimony.
3. Cointegration Test: The Johansen test identifies long-term equilibrium relationships, triggering VECM if cointegration is present.
4. Granger Causality: Tests directional causality among variables to validate hypothesized relationships.
5. Vector Error Correction Model (VECM): Estimates short- and long-term dynamics if cointegration exists.
6. Impulse Response Functions (IRF): Trace the response of JII to shocks in other variables, providing dynamic insights.
7. Variance Decomposition: Quantifies the contribution of each variable to JII volatility, highlighting key drivers.

These methods are relevant for capturing the complex interactions in Indonesia's *Sharia* capital market and are widely used in top-tier journals.

RESULT AND DISCUSSION

Result

The statistical analysis was conducted using a Vector Error Correction Model (VECM), following confirmation of cointegration among variables via the Johansen test ($p < 0.01$), indicating long-term equilibrium relationships. The VECM was chosen to capture both short and long terms dynamic, building on the Vector Autoregression (VAR) framework,

which was validated by stationarity tests (Augmented Dickey-Fuller, $p < 0.05$ for all variables at first difference) and optimal lag selection (Akaike Information Criterion, lag order = 2). The analysis used 364 weekly observations from 2018 to 2024, ensuring robust estimation. Results are reported with coefficients, standard errors, and p-values to provide sufficient detail for interpretation, followed by Impulse Response Functions (IRF) and variance decomposition to assess dynamic impacts and variable contributions.

VECM Results: The short-term coefficients from the VECM, with JII as the dependent variable, are as follows:

1. Crude Oil: A 1% increase in crude oil prices leads to a 0.15% increase in JII (SE = 0.04, p = 0.002), confirming a significant positive short-term impact, consistent with Indonesia's oil export reliance.
2. Coal: A 1% rise in coal prices increases JII by 0.12% (SE = 0.03, p = 0.006), reflecting the influence of the energy sector.
3. Gold: A 1% increase in gold prices reduces JII by 0.08% (SE = 0.02, p = 0.010), supporting its role as a safe haven during uncertainty.
4. Exchange Rate: A 1% depreciation of the rupiah/USD exchange rate decreases JII by 0.20% (SE = 0.05, p = 0.001), indicating sensitivity to currency fluctuations.
5. Inflation: A 1% increase in CPI inflation reduces JII by 0.10% (SE = 0.03, p = 0.008), aligning with reduced investor confidence.
6. Interest Rate: A 1% rise in BI interest rates indirectly reduces JII by 0.05% (SE = 0.02, p = 0.070), reflecting capital diversion to fixed-income instruments.
7. Bitcoin and Ethereum: Both cryptocurrencies show weak correlations with JII, with coefficients of 0.03 (SE = 0.02, p = 0.150) and 0.02 (SE = 0.02, p = 0.220), respectively, suggesting limited direct impact.

The error correction term in the VECM is significant (coefficient = -0.06, p = 0.015), indicating that JII adjusts to long-term equilibrium at a rate of 6% per week when deviations occur. Granger causality tests confirm that crude oil (p = 0.004), coal (p = 0.007), exchange rate (p = 0.002), and inflation (p = 0.010) Granger-cause JII, while gold (p = 0.012) and interest rates (p = 0.080) show weaker causality, and cryptocurrencies exhibit no significant causality ($p > 0.200$).

Impulse Response Functions (IRF): IRF analysis, conducted over a 10-week horizon, shows that a one-standard-deviation shock to crude oil and coal prices increases JII by approximately 0.20% and 0.15%, respectively, peaking at week 2 and stabilizing by week 6. A gold price shock reduces JII by 0.10%, with effects persisting for 4 weeks, consistent with its safe-haven role (Bouri et al., 2017). Exchange rate and inflation shocks decrease JII by 0.25% and 0.12%, respectively, with effects lasting 5 weeks. Interest rate shocks have a smaller, indirect impact (-0.07%), while Bitcoin and Ethereum shocks result in negligible JII responses (< 0.03%), aligning with their weak correlations.

Variance Decomposition: Over a 10-week horizon, variance decomposition indicates that crude oil prices explain 25% of JII's forecast error variance, followed by exchange rate (20%), coal (15%), inflation (10%), gold (8%), and interest rates (5%). Bitcoin and Ethereum contribute less than 5% combined, reinforcing their limited influence on JII volatility.

Justification of Conclusions: The VECM results justify the conclusion that crude oil and coal positively drive JII in the short term due to their economic significance in Indonesia's export driven market. Gold's negative impact supports its safe haven role, while exchange rate and inflation negatively affect JII, reflecting macroeconomic

vulnerabilities. The weak influence of cryptocurrencies supports their potential as diversification assets but highlights *Sharia* compliance concerns due to volatility. IRF and variance decomposition analyses reinforce these findings by quantifying dynamic responses and variable contributions, providing a robust basis for concluding that commodity prices and macroeconomic indicators are primary drivers of JII, while cryptocurrencies play a minor role.

The results of this study provide a comprehensive understanding of why commodity prices, macroeconomic indicators, and cryptocurrencies dynamically influence Indonesia's *Sharia* stock market, specifically the Jakarta Islamic Index (JII), addressing the research gap in prior studies that often focus on unidirectional relationships or global markets without considering Indonesia's unique *Sharia*-compliant context. By integrating theoretical frameworks, empirical evidence, and *maqashid Sharia* principles, this discussion elucidates the rationale behind the results, links them to the hypotheses, and highlights their contributions to scientific development in Islamic finance.

The positive short-term impact of crude oil and coal prices on JII, with coefficients of 0.15% ($p = 0.002$) and 0.12% ($p = 0.006$), respectively, reflects Indonesia's reliance on commodity exports, which constitute a significant portion of GDP and drive profitability in *Sharia*-compliant energy and mining sectors. This finding aligns with portfolio theory, which posits that asset prices are influenced by economic fundamentals. The Impulse Response Functions (IRF) show that shocks to oil and coal prices increase JII by 0.20% and 0.15%, respectively, peaking within two weeks, indicating rapid market responses to commodity price fluctuations. Variance decomposition further confirms their dominance, explaining 25% and 15% of JII's volatility, respectively. These results are driven by Indonesia's export-oriented economy, where rising commodity prices enhance corporate earnings and investor confidence in *Sharia* stocks, supporting hypothesis H1. However, during volatile periods, such as the 2022 Russia-Ukraine conflict, oil price spikes increased production costs, temporarily dampening JII returns, as noted by (Agustin et al., 2024).

Gold's negative correlation with JII (-0.08%, $p = 0.010$) underscores its role as a safe-haven asset, consistent with modern portfolio theory's emphasis on risk-averse investor behavior during uncertainty. The IRF reveals that a gold price shock reduces JII by 0.10% over four weeks, reflecting investor shifts to gold amid economic instability, such as during the 2020–2022 global crises. This finding supports hypothesis H1 and aligns with *maqashid Sharia's* principle of wealth preservation (*hifz al-mal*), as gold provides stability for *Sharia* investors (Chapra, 2016). The result addresses the research gap by confirming gold's distinct role in Indonesia's *Sharia* market, unlike prior studies that generalize across global markets.

Exchange rate depreciation (-0.20%, $p = 0.001$) and inflation (-0.10%, $p = 0.008$) negatively impact JII, as evidenced by Granger causality and IRF results, which show a 0.25% and 0.12% decline in JII following respective shocks. These outcomes reflect macroeconomic vulnerabilities in Indonesia, where a weaker rupiah increases foreign debt burdens for *Sharia*-compliant firms, and inflation erodes purchasing power, deterring investment. Variance decomposition indicates that exchange rate and inflation contribute 20% and 10% to JII's volatility, respectively, supporting hypothesis H2. The indirect effect of interest rates (-0.05%, $p = 0.070$) arises from capital diversion to conventional fixed-income instruments, consistent with asset allocation theory. These findings highlight the need for robust monetary policies to stabilize JII, addressing a gap in studies that overlook bidirectional macroeconomic impacts in *Sharia* markets.

The weak correlations of Bitcoin and Ethereum with JII (0.03, $p = 0.150$; 0.02, $p = 0.220$) and their minimal contribution to JII volatility (< 5%) suggest limited direct

influence, supporting hypothesis H3. This result aligns with efficient market theory, as cryptocurrency price movements are driven by speculative trading rather than economic fundamentals affecting *Sharia* stocks. The IRF shows negligible JII responses to cryptocurrency shocks (< 0.03%), indicating diversification potential. However, their high volatility raises concerns about *gharar* and *maisir*, conflicting with *Sharia* principles unless aligned with Fatwa No. 144/DSN-MUI/XI/2021 (DSN-MUI, 2021). This finding addresses the research gap by evaluating cryptocurrencies' role in Indonesia's *Sharia* context, unlike prior studies that focus on global markets without *Sharia* compliance considerations.

The study's contributions to scientific development are threefold. *First*, it advances Islamic finance literature by integrating commodity prices, macroeconomic indicators, and cryptocurrencies within a dynamic VAR/VECM framework, offering a novel perspective on Indonesia's *Sharia* market. *Second*, it provides empirical evidence supporting *maqashid Sharia*, emphasizing stable investments like gold for wealth preservation. *Third*, it informs policymakers and investors on managing global market risks, enhancing *Sharia* market resilience. These insights bridge the gap in context-specific studies and contribute to the theoretical and practical development of Islamic economics.

Discussion

The results of this study provide a comprehensive understanding of why commodity prices, macroeconomic indicators, and cryptocurrencies dynamically influence Indonesia's *Sharia* stock market, specifically the Jakarta Islamic Index (JII), addressing the research gap in prior studies that often focus on unidirectional relationships or global markets without considering Indonesia's unique *Sharia*-compliant context (Essayem et al., 2024; Bouri et al., 2017). By integrating theoretical frameworks, empirical evidence, and maqashid *Sharia* principles, this discussion elucidates the rationale behind the results, links them to the hypotheses, and highlights their contributions to scientific development in Islamic finance.

The positive short-term impact of crude oil and coal prices on JII, with coefficients of 0.15% ($p = 0.002$) and 0.12% ($p = 0.006$), respectively, reflects Indonesia's reliance on commodity exports, which constitute a significant portion of GDP and drive profitability in *Sharia*-compliant energy and mining sectors (Pratama & Wildana, 2024). This finding aligns with portfolio theory, which posits that asset prices are influenced by economic fundamentals (Essayem et al., 2024). The Impulse Response Functions (IRF) show that shocks to oil and coal prices increase JII by 0.20% and 0.15%, respectively, peaking within two weeks, indicating rapid market responses to commodity price fluctuations. Variance decomposition further confirms their dominance, explaining 25% and 15% of JII's volatility, respectively. These results are driven by Indonesia's export-oriented economy, where rising commodity prices enhance corporate earnings and investor confidence in *Sharia* stocks, supporting hypothesis H1 (Pratama & Wildana, 2024). However, during volatile periods, such as the 2022 Russia-Ukraine conflict, oil price spikes increased production costs, temporarily dampening JII returns, as noted by (Agustin et al., 2024).

Gold's negative correlation with JII (-0.08%, $p = 0.010$) underscores its role as a safe-haven asset, consistent with modern portfolio theory's emphasis on risk-averse investor behavior during uncertainty (Bouri et al., 2017; Taera et al., 2023). The IRF reveals that

a gold price shock reduces JII by 0.10% over four weeks, reflecting investor shifts to gold amid economic instability, such as during the 2020–2022 global crises. This finding supports hypothesis H1 and aligns with maqashid *Sharia*'s principle of wealth preservation (hifz al-mal), as gold provides stability for *Sharia* investors (Chapra, 2016). The result addresses the research gap by confirming gold's distinct role in Indonesia's *Sharia* market, unlike prior studies that generalize across global markets (Bouri et al., 2017).

Exchange rate depreciation (-0.20%, p = 0.001) and inflation (-0.10%, p = 0.008) negatively impact JII, as evidenced by Granger causality and IRF results, which show a 0.25% and 0.12% decline in JII following respective shocks. These outcomes reflect macroeconomic vulnerabilities in Indonesia, where a weaker rupiah increases foreign debt burdens for *Sharia*-compliant firms, and inflation erodes purchasing power, deterring investment (Puspitasari et al., 2023; Hidayat & Fageh, 2022). Variance decomposition indicates that exchange rate and inflation contribute 20% and 10% to JII's volatility, respectively, supporting hypothesis H2. The indirect effect of interest rates (-0.05%, p = 0.070) arises from capital diversion to conventional fixed-income instruments, consistent with asset allocation theory (Bouri et al., 2017). These findings highlight the need for robust monetary policies to stabilize JII, addressing a gap in studies that overlook bidirectional macroeconomic impacts in *Sharia* markets (Puspitasari et al., 2023).

The weak correlations of Bitcoin and Ethereum with JII (0.03, p = 0.150; 0.02, p = 0.220) and their minimal contribution to JII volatility (< 5%) suggest limited direct influence, supporting hypothesis H3. This result aligns with efficient market theory, as cryptocurrency price movements are driven by speculative trading rather than economic fundamentals affecting *Sharia* stocks (Bouri et al., 2017; MBN Nomran et al., 2024). The IRF shows negligible JII responses to cryptocurrency shocks (< 0.03%), indicating diversification potential. However, their high volatility raises concerns about gharar and maisir, conflicting with *Sharia* principles unless aligned with Fatwa No. 144/DSN-MUI/XI/2021 (DSN-MUI, 2021). This finding addresses the research gap by evaluating cryptocurrencies' role in Indonesia's *Sharia* context, unlike prior studies that focus on global markets without *Sharia* compliance considerations (MBN Nomran et al., 2024; Lončar, 2024).

Limitation

Limitations: The study has two primary limitations. First, its focus on JII as the sole benchmark may limit generalizability to broader *Sharia* indices, such as the Indonesia *Sharia* Stock Index (ISSI), potentially overlooking diverse *Sharia*-compliant sectors (Krisnawati, 2024). This focus may have underestimated the resilience of less liquid *Sharia* stocks. Second, the inclusion of only Bitcoin and Ethereum excludes other cryptocurrencies, such as stablecoins, which may have different dynamics and *Sharia* compliance profiles (MBN Nomran et al., 2024). This limitation could affect the conclusions regarding cryptocurrencies' diversification potential, as other digital assets might exhibit stronger correlations with JII.

Contribution

This research makes a significant contribution to the development of Islamic finance in

Indonesia, both theoretically, empirically, methodologically, and practically. This contribution not only addresses gaps in previous research but also offers a new, contextual perspective oriented toward the principles of *maqasid Sharia*.

This research has several novel elements that distinguish it from previous studies:

1. Comprehensive Integration of Three Groups of External Factors in a Single Dynamic Framework: This research is the first to simultaneously integrate commodity prices (crude oil, gold, coal), macroeconomic indicators (rupiah/USD exchange rate, inflation, BI interest rates), and cryptocurrency assets (Bitcoin, Ethereum) as endogenous variables in a Vector Error Correction Model (VECM) to analyze the performance of the Jakarta Islamic Index (JII).
2. Focus on Bidirectional Dynamics and the Specific Context of the Indonesian Islamic Market: By capturing bidirectional causality and long-run equilibrium through cointegration, this research provides in-depth insights into risk transmission in Islamic markets that face limited diversification due to *Sharia* screening, an aspect often overlooked in global analyses.
3. Strengthening the *Maqasid Sharia* Foundation in Empirical Analysis: This study explicitly integrates the principles of *maqasid Sharia*, particularly *hifz al-mal* (preservation of wealth), as a framework for interpreting empirical results (e.g., the role of gold as a safe haven and the risk of *gharar/maisir* in cryptocurrencies). This approach is rarely found in the econometric literature on Islamic finance, enriching the theoretical discourse of Islamic finance with ethical-jurisprudential dimensions that are contextually relevant to Indonesia (including references to DSN-MUI Fatwa No. 144/DSN-MUI/XI/2021).

CONCLUSION AND RECOMMENDATION

Conclusion

This study elucidates the dynamic interactions of commodity prices, macroeconomic indicators, and cryptocurrencies on Indonesia's *Sharia* stock market, using the Jakarta Islamic Index (JII) as a benchmark. The findings reveal that crude oil and coal prices significantly boost JII in the short term, driven by Indonesia's export oriented economy, while gold serves as a safe-haven asset, reducing JII returns during uncertainty. Macroeconomic factors, particularly exchange rate depreciation and inflation, exert negative pressures on JII, reflecting vulnerabilities in Indonesia's financial landscape. Cryptocurrencies like Bitcoin and Ethereum show weak correlations with JII, offering potential for portfolio diversification but raising *Sharia* compliance concerns due to speculative risks.

Empirical and Theoretical Benefits: Empirically, the study provides robust evidence through a Vector Error Correction Model (VECM), confirming bidirectional relationships among variables, with crude oil and exchange rate explaining 25% and 20% of JII's volatility, respectively. Theoretically, it advances Islamic finance literature by integrating *maqashid Sharia* principles, particularly wealth preservation (*hifz al-mal*), into a dynamic framework tailored to Indonesia's context. This approach bridges the gap in prior studies that overlook Indonesia-specific dynamics.

Economic Benefits: The findings offer practical insights for *Sharia* investors and policymakers. Investors can leverage commodity price trends to optimize portfolio returns, while prioritizing gold for risk mitigation. Policymakers can use these insights to design monetary policies that mitigate exchange rate and inflation impacts, enhancing *Sharia* market stability. The study also highlights the need for *Sharia*-compliant

cryptocurrency frameworks to harness diversification benefits while ensuring compliance with Islamic principles.

New Findings: A novel contribution is the identification of cryptocurrencies' limited influence on JII, coupled with their potential as diversification assets, contingent on *Sharia* compliance. This finding is significant in Indonesia's context, where *Sharia* investment growth is a national priority. The study's focus on bidirectional dynamics using VECM distinguishes it from prior unidirectional analyses, offering a fresh perspective on *Sharia* market resilience. For advanced researchers, this study suggests exploring additional *Sharia*-compliant assets and extending the analysis to other Islamic markets. General readers, including *Sharia* investors, are encouraged to consider commodity-linked investments and gold for portfolio stability, while awaiting regulatory clarity on cryptocurrencies.

Recommendation

For *Sharia* investors, this study's findings recommend portfolio optimization by increasing exposure to *Sharia*-compliant stocks in the energy and mining sectors related to crude oil and coal, given their short-term positive impact on JII performance. However, this exposure needs to be balanced with close monitoring of geopolitical volatility, which can increase production costs. Furthermore, gold is recommended as a primary hedging instrument during times of economic uncertainty due to its role as a safe haven that supports the principle of *hifz al-mal*. For cryptocurrencies such as Bitcoin and Ethereum, investors are advised to adopt a cautious approach with small allocations (<5-10%) only after ensuring full compliance with DSN-MUI Fatwa No. 144/DSN-MUI/XI/2021, and to avoid speculative trading to prevent the risks of *gharar* and *maisir*.

For regulators and policymakers, Bank Indonesia needs to strengthen interventions to maintain rupiah exchange rate stability and control inflation, given the significant contribution of these two factors to JII volatility. The Financial Services Authority (OJK) and the National *Sharia* Council-Indonesian Ulema Council (DSN-MUI) are advised to refine the regulatory framework for crypto assets, including the development of *Sharia*-compliant trading platforms and stricter screening criteria, such as those for real-asset-based stablecoins. This recommendation also supports the implementation of the 2019–2024 Indonesian *Sharia* Economic Masterplan (MEKSI) by promoting investor education on external risks and integrating *Sharia*-compliant hedging instruments for the sustainable growth of the *Sharia* capital market.

For further research, it is recommended to expand the variables by incorporating geopolitical risk indices, *Sharia*-compliant ESG factors, or analyzing volatility spillovers using the Dynamic Conditional Correlation (DCC-GARCH) method. The analysis could also be extended to other *Sharia* indices such as the JII70 or ISSI, as well as comparisons with regional *Sharia* markets to generalize the findings. The use of daily or high-frequency data post-2024 would allow exploring the impact of real-time events, such as the green energy transition, on the resilience of the JII amidst continued global uncertainty.

AUTHOR CONTRIBUTION STATEMENT

Didik Gunawan: Conceptualization (formulating the main idea, research problem, and study objectives), Methodology (designing the VAR/VECM model, variable selection, and dynamic analysis approach), Investigation (collecting time-series data from official sources), Data curation (cleaning and processing data), Formal analysis (implementing

stationarity, cointegration, Granger causality, Impulse Response Functions, and variance decomposition tests), Software (implementing econometric models), Writing – original draft (preparing the initial draft of all sections of the manuscript, including the Introduction, Theoretical Framework, Results, Discussion, and Conclusion), Visualization (creating graphs and tables of empirical results), and Project administration (coordinating the entire research process as a doctoral student).

Andri Soemitra: Supervision (primary advisor, providing conceptual and methodological guidance), Conceptualization (contribution to problem formulation and integration of the maqashid *Sharia* principles), Validation (verifying the validity of the interpretation of empirical results and their alignment with Islamic finance literature), and Writing – review and editing (substantial revisions to the Theoretical Framework, Discussion, Contribution, and Recommendation sections).

Isnaini Harahap: Supervision (co-supervisor, providing input on econometric aspects and policy implications), Validation (checking model robustness and interpretation of results), Resources (providing access to literature related to the DSN-MUI fatwa and Islamic capital market regulations), and Writing – review and editing (revising the Methodology, Results, and overall consistency of the manuscript).

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