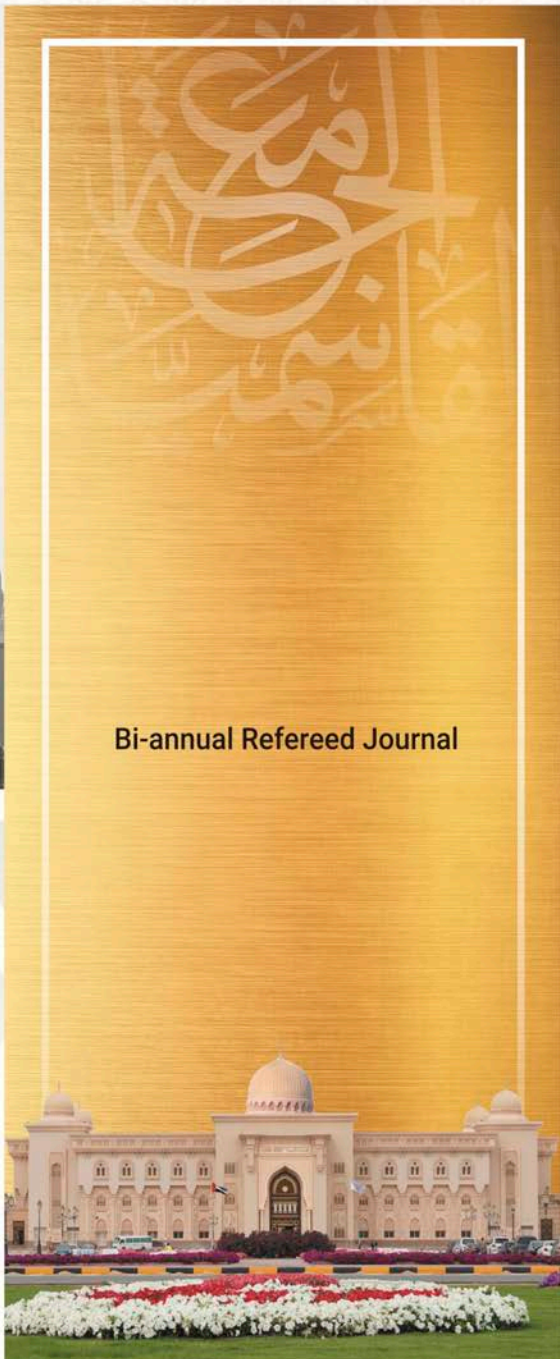
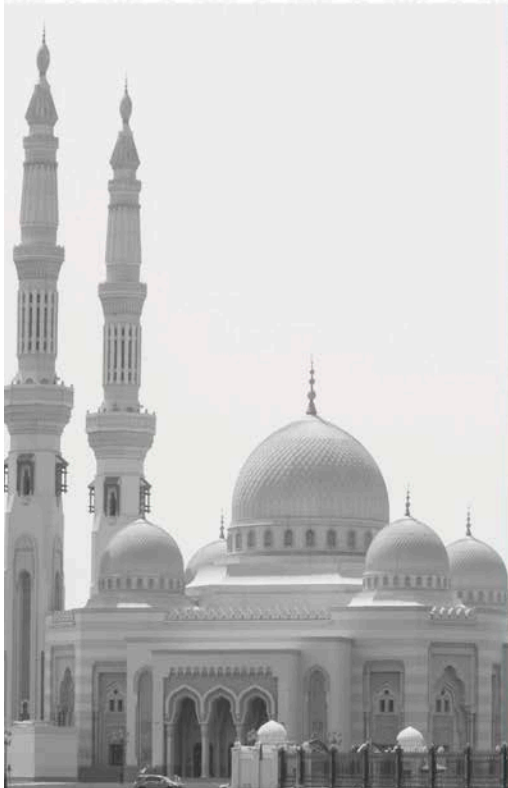


**AL QASIMIA UNIVERSITY JOURNAL
OF
ISLAMIC ECONOMICS**



Bi-annual Refereed Journal

Vol.6, No. 1

Dhu al-Hijjah 1447 A.H. / June 2026 A.D.

ISSN: 2788-5542

المخاطر السيادية والمفاضلة بين الصكوك والأسهم في الأسواق الناشئة: لماذا
تجعل ارتفاعات مقايضات العجز الائتماني الأسهم المتوافقة مع الشريعة
الإسلامية ملاذاً آمناً نسبياً في إندونيسيا

SOVEREIGN RISK AND THE *SUKUK*-EQUITY TRADE-
OFF IN EMERGING MARKETS: WHY CDS SPIKES MAKE
SHARIAH STOCKS A RELATIVE SAFE HAVEN IN
INDONESIA¹

كامولا إرغون

جامعة KTO كاراتاي، تركيا

Kamola Ergun

KTO Karatay University, Türkiye

حسين إرغون

جامعة KTO كاراتاي، تركيا

Huseyin Ergun

KTO Karatay University, Türkiye

سوليستيا روسجيانتو

جامعة إيرلانجا، إندونيسيا

Sulistya Rusgianto

Universitas Airlangga, Indonesia

¹ Article received: Mar. 2026; article accepted: Apr. 2026

الملخص

تتناول هذه الدراسة التوزيع التكتيكي للأصول بين الأسهم المتوافقة مع الشريعة الإسلامية (JII) والصكوك السيادية في إندونيسيا، وتتحدى على وجه الخصوص الافتراض القائل بأن الصكوك تظل بديلاً أكثر أماناً خلال فترات ارتفاع المخاطر السيادية. باستخدام إطار بلاك-ليترمان، تدمج الدراسة عوائد توازن السوق مع وجهات نظر المستثمرين المستمدة من مقايضة عجز الائتماني السيادي في إندونيسيا (CDS) لخمس سنوات. ويكشف التحليل التجريبي، الذي يغطي الفترة من مارس 2021 إلى مارس 2026، أن الصكوك تُظهر ارتباطاً سلبياً أعلى بشكل ملحوظ مع تقلبات مقايضة عجز الائتمان السيادي (-0.401) مقارنةً بالأسهم المتوافقة مع الشريعة الإسلامية (-0.123). وبعد زيادة بنسبة 3.3% في فروق أسعار مقايضة عجز الائتمان السيادي، يقترح النموذج إعادة توازن جذرية، تتمثل في تحويل الوزن الأمثل للمحفظة من تخصيص محايد للصكوك بنسبة 35% إلى 11.8% فقط. وتشير هذه النتائج إلى أن الأسهم المتوافقة مع الشريعة الإسلامية توفر مرونة فائقة معدلة حسب المخاطر خلال الأزمات الائتمانية السيادية، مما يدحض فعلياً الاعتقاد السائد بأن الصكوك أكثر أماناً من الأسهم في بيئة ذات مخاطر سيادية عالية.

Abstract

This study examines the tactical asset allocation between *Shariah*-compliant equities (JII) and Sovereign *Sukuk* in Indonesia, specifically challenging the assumption that *Sukuk* remains a safer alternative during periods of heightened sovereign risk. Utilizing a Black-Litterman framework, the research integrates market equilibrium returns with investor views derived from the 5-year Indonesian Sovereign Credit Default Swap (CDS). The empirical analysis, covering the period from March 2021 to March 2026, reveals that

Sukuk exhibits a significantly higher negative correlation to CDS fluctuations (-0.401) compared to the JII (-0.123). Following a 3.3% increase in CDS spreads, the model suggests a drastic rebalancing, shifting the optimal portfolio weight from a neutral 35% *Sukuk* allocation to just 11.8%. These findings suggest that during sovereign credit events, *Shariah* equities provide superior risk-adjusted resilience, effectively debunking the notion that *Sukuk* is universally safer than stocks in a high-sovereign-risk environment.

الكلمات الدالة: نموذج بلاك-ليترمان، الصكوك، أسهم متوافقة مع الشريعة الإسلامية، مقايضة العجز الائتمان، تحسين المحفظة الشرعية، إندونيسيا.

Keywords: Black-Litterman Model, *Sukuk*, JII, CDS, *Shariah* Portfolio Optimization, Indonesia.

1.0 Introduction

The rapid maturation of Islamic finance in emerging markets has positioned Indonesia as a premier global hub for *Shariah*-compliant investing. Central to this ecosystem are two primary asset classes: Sovereign *Sukuk* and *Shariah*-compliant equities, typically represented by the Jakarta Islamic Index (JII). While conventional portfolio theory dictates that *Sukuk*, as fixed-income instruments, should serve as a lower-risk “anchor” for diversified portfolios, recent shifts in global credit dynamics have called this “safety assumption” into question. In emerging markets, sovereign debt is rarely “risk-free”; instead, its valuation is inextricably linked to the country’s perceived creditworthiness.

The informational dominance of the Credit Default Swap (CDS) market in emerging economies is well-documented. CDS spreads have become a superior macroprudential signal compared to government bond yields due to their direct pricing and higher liquidity for short selling (Mihai and Neagu, 2011). Furthermore, the CDS market is informationally efficient, often anticipating sovereign rating changes before they are formally announced (Ismailescu and Kazemi, 2010).

Despite the efficiency of these signals, the transmission of sovereign risk into *Shariah*-compliant assets remains under-researched. While there is a persistent and asymmetrical impact of negative credit signals on bond yields, the structural nature of *Sukuk* adds a layer of complexity (Afonso, Arghyrou, & Ktononikas, 2015; Gozluclu & Morin, 2019). It has been suggested that *Sukuk* may suffer from “adverse selection” signals, where the market perceives debt-like Islamic instruments as higher-risk than conventional counterparts during periods of stress (Godlewski et al., 2013). This is particularly relevant in Indonesia, where *Sukuk* is deeply integrated into long-term real-sector output, making it sensitive to macroeconomic shocks that threaten sovereign stability (Ariyana et al., 2020).

The primary objective of this study is to utilize the Black-Litterman model to derive an optimal tactical asset allocation between the JII and Sovereign *Sukuk* in the face of rising sovereign risk. By using the Indonesia 5-Year CDS as an active “view” signal, this research seeks to: (i) quantify the sensitivity of *Shariah*-compliant asset classes to sovereign credit fluctuations; (ii) evaluate the “Inversion of Safety”, testing whether diversified *Shariah* equities (JII) act as a relative safe haven compared to *Sukuk* during credit spikes and (iii) demonstrate the utility of Bayesian updating in portfolio management, showing how a dynamic, forward-looking allocation outperforms static benchmarks in a credit-sensitive environment.

This paper contributes to the literature by bridging the gap between sovereign risk signaling and Islamic portfolio theory. It provides fund managers and policymakers with a robust framework for “Sovereign Risk Overlay”, offering a mathematical justification for tactical rotations that prioritize equity resilience over sovereign debt during periods of fiscal uncertainty.

The remainder of the paper is structured as follows. Section 2 provides a comprehensive review of the literature, including both a general overview and a critical discussion of existing studies on sovereign risk, *Sukuk*, and Islamic portfolio allocation. Section 3 outlines the data and methodology, with a particular focus on the Black-Litterman framework and the incorporation of CDS-based investor views. Section 4 presents the empirical findings and evaluates

the sensitivity of *Shariah*-compliant assets to changes in sovereign risk conditions. Finally, Section 5 discusses the implications of the results and concludes the study by highlighting key contributions and avenues for future research.

2.0 Literature Review

The literature relevant to this study lies at the intersection of three closely related strands: portfolio optimization theory, the risk-return characteristics of Islamic financial assets, and the transmission of sovereign risk signals into financial markets. The first strand is grounded in the portfolio allocation literature, where the Black-Litterman framework emerged as an important response to the instability of traditional mean-variance optimization by combining market equilibrium with investor views (Black & Litterman, 1992). Subsequent studies further refined the model by discussing the role of confidence levels, the scalar parameter, and practical implementation issues in portfolio construction (Satchell & Scowcroft, 2000; Idzorek, 2007; Walters, 2014; Meucci, 2010; Kostandyan, 2016; Stoilov, Stoilova, & Vladimirov, 2021).

The second strand focuses on Islamic financial instruments, particularly the distinctive behavior of *Sukuk* and *Shariah*-compliant equities, whose pricing, structural features, and diversification properties may differ from those of conventional assets (Nanayakkara & Colombage, 2019; Godlewski et al., 2013; Ariyana, Arundina, & Kasri, 2020; Rusgianto & Ahmad, 2013; Septiana & Dewi, 2022; Subekti, Abdurakhman, Rosadi, & Hasim, 2022; Subekti, Abdurakhman, & Rosadi, 2022; Yusrifalda & Nurcahyo, 2025).

The third strand examines sovereign credit risk and the informational role of credit default swaps, emphasizing that CDS markets often provide forward-looking signals for changes in country risk and broader asset pricing dynamics (Ismailescu & Kazemi, 2010; Afonso, Arghyrou, & Kontonikas, 2015; Gozluklu & Morin, 2019). Taken together, these three strands provide the conceptual basis for examining how sovereign risk signals may reshape the relative attractiveness of *Sukuk* and *Shariah*-compliant equities within a Black-Litterman allocation framework.

2.1. Portfolio Optimization and the Black-Litterman Framework

Portfolio optimization has long been dominated by the mean-variance framework, which relies on expected returns and covariance structures derived from historical data. However, one of the most critical limitations of this approach is its sensitivity to estimation errors, often leading to what is known in the literature as *estimation error maximization*, where small input errors result in extreme and unstable portfolio weights (Michaud, 1989; Black & Litterman, 1992). This inherent instability significantly reduces the practical reliability of traditional optimization techniques, particularly in real-world portfolio management.

In response to these shortcomings, the Black-Litterman model was introduced as a Bayesian framework that integrates market equilibrium with investor-specific views, thereby producing more stable, intuitive, and diversified portfolio allocations (Black & Litterman, 1992). The model's key innovation lies in reverse optimization, where implied equilibrium returns are extracted from observed market weights and then adjusted through the incorporation of investor expectations. This dual structure enables the model to move beyond purely historical estimations and incorporate forward-looking information in a disciplined manner (Idzorek, 2007).

A central area of discussion in the literature concerns the specification of the model's key parameters, particularly the scalar τ and the confidence matrix Ω . The scalar τ determines the relative weight assigned to the prior (equilibrium returns) versus investor views and has been widely regarded as one of the most ambiguous components of the model. As noted by Satchell and Scowcroft (2000), the selection of τ remains one of the most "enigmatic" aspects of Black-Litterman implementation, with no universally accepted calibration method.

Similarly, the confidence matrix Ω plays a crucial role in translating subjective investor views into quantifiable inputs. The literature emphasizes that Ω directly governs the impact of views on posterior returns, where higher confidence leads to stronger deviations from equilibrium. Walters (2014) and Idzorek (2007) highlight that Ω is not merely a technical input but a structural bridge between

qualitative expectations and quantitative portfolio outcomes. Furthermore, its mathematical relationship with τ reinforces the importance of coherent parameter specification within the model.

Beyond parameterization, the flexibility of the Black-Litterman framework in accommodating different types of investor views has been widely recognized. Views can be expressed in absolute or relative terms and applied to individual assets or asset groups, allowing the model to incorporate a wide range of informational inputs. In this regard, Meucci (2010) advances the literature by advocating for a more market-consistent and probabilistic approach to constructing investor views, thereby reducing subjectivity and enhancing the robustness of the model. This perspective strengthens the theoretical foundation of Black-Litterman by linking investor expectations more closely to observable market structures.

Despite these advantages, an important limitation persists in existing literature. In many empirical applications, investor views are introduced in an ad hoc and subjective manner, lacking a systematic connection to measurable macro-financial indicators. This weakens both the transparency and reproducibility of the model, particularly in studies aiming to capture dynamic market conditions.

Accordingly, there remains a clear need for approaches that anchor investor views in observable and forward-looking economic signals. In this context, the present study extends the Black-Litterman framework by operationalizing sovereign credit risk- proxied by CDS spreads - as a structured and data-driven source of investor views. This approach not only enhances the empirical grounding of the model but also provides a novel linkage between macro-financial risk dynamics and *Shariah*-compliant portfolio allocation.

2.2. Islamic Financial Assets: Sukuk and Shariah-Compliant Equities

Islamic financial assets exhibit distinct structural and risk characteristics that differentiate them from their conventional counterparts. Among these, *Sukuk* and *Shariah*-compliant equities constitute the primary asset classes within Islamic investment portfolios, each governed by unique contractual principles and compliance requirements. These structural differences have important

implications for their risk-return dynamics and their role in portfolio diversification.

Sukuk, often described as asset-backed or asset-based securities, are fundamentally linked to underlying real economic activities. Unlike conventional bonds, which represent pure debt obligations, *Sukuk* structures involve ownership claims on tangible assets or usufructs. This structural distinction has contributed to the widespread perception that *Sukuk* are inherently more stable and less risky than conventional fixed-income instruments. However, the empirical literature presents a more nuanced and, at times, contradictory picture.

Godlewski, Turk-Ariss, and Weill (2013) argue that *Sukuk* issuance may carry adverse selection signals, suggesting that markets may perceive Islamic debt-like instruments as relatively riskier under certain conditions. Complementing this perspective, Nanayakkara and Colombage (2019), in the context of green bond markets, demonstrate that *Shariah*-compliant fixed-income instruments can exhibit distinct pricing dynamics compared to conventional bonds, indicating that such instruments should not be treated as direct substitutes within a homogeneous risk framework.

From a risk measurement perspective, Kostandyan (2016) provides robust empirical evidence by comparing *Sukuk* and Eurobonds using Value-at-Risk (VaR) methodologies. The findings indicate that substituting conventional bonds with *Sukuk* does not necessarily reduce portfolio risk; on the contrary, under certain market conditions, it may even increase overall risk exposure. This challenges the conventional assumption of *Sukuk* as uniformly safer instruments and highlights the importance of context-dependent risk assessment.

Further evidence on *Sukuk* market behavior is provided by Rusgianto and Ahmad (2013), who analyze the Dow Jones Citigroup *Sukuk* Index and demonstrate that *Sukuk* returns exhibit their own volatility structure and are sensitive to market dynamics. This suggests that *Sukuk* markets are not insulated from financial fluctuations but are instead embedded within broader financial systems.

On the equity side, *Shariah*-compliant stocks are subject to sectoral and financial screening criteria, which exclude non-compliant industries and impose leverage constraints. These filters often lead to sectoral concentration and may influence both return dynamics and

diversification potential. While such constraints are designed to ensure compliance, they also introduce structural differences in portfolio composition compared to conventional equity markets.

The performance of Islamic financial assets is also closely linked to macroeconomic conditions. Ariyana, Arundina, and Kasri (2020) show that sovereign *Sukuk* liquidity is significantly influenced by macroeconomic variables such as inflation and interbank benchmark rates (JIBOR), indicating a direct transmission channel between macroeconomic conditions and Islamic financial markets. Similarly, Septiana and Dewi (2022) demonstrate that Islamic capital markets in emerging economies are sensitive to external shocks and economic fluctuations, reinforcing the view that these assets are exposed to systemic risk factors.

Recent studies further emphasize that diversification benefits within Islamic portfolios are not stable but conditional on market regimes. Subekti et al. (2022) show that the performance of Islamic portfolio models - particularly those incorporating Black-Litterman and SCAPM frameworks - varies significantly during periods of financial stress. Addressing the need for more robust risk management frameworks, Bayram et al. (2023) explore the construction of low-risk *Shariah*-compliant portfolios specifically designed to manage *Shariah* non-compliance risk. By utilizing the Black-Litterman portfolio optimization model, their study demonstrates how quantitative frameworks can effectively mitigate the structural risks inherent in Islamic assets, providing a methodological path for maintaining stability even when screening constraints limit the investable universe. This underscores the findings of Yusrifalda and Nurcahyo (2025), who argue that the effectiveness of Islamic investment strategies depends on evolving market conditions and necessitates adaptive portfolio frameworks.

Taken together, the literature suggests that the conventional classification of *Sukuk* as “safe” assets and *Shariah*-compliant equities as “risky” assets is overly simplistic. Instead, both asset classes exhibit time-varying and context-dependent risk characteristics shaped by structural features, market conditions, and macroeconomic dynamics. This complexity underscores the necessity of incorporating forward-

looking risk signals into portfolio allocation decisions within Islamic finance.

2.3. Sovereign Risk, CDS, and Asset Price Transmission

Sovereign risk has become an increasingly important determinant of asset pricing, particularly in emerging markets where government creditworthiness directly influences financial stability and investor sentiment. Unlike developed markets, where sovereign bonds are often treated as near risk-free benchmarks, emerging market assets are inherently exposed to fluctuations in country-specific risk. In this context, understanding how sovereign risk is transmitted into financial markets is essential for both asset pricing and portfolio allocation decisions.

Among the available indicators, Credit Default Swaps (CDS) have emerged as one of the most reliable and forward-looking measures of sovereign risk. CDS spreads reflect the market's assessment of default probability and incorporate real-time information about fiscal conditions, political risk, and macroeconomic expectations. Importantly, CDS markets are often more liquid and informationally efficient than traditional bond markets, allowing them to anticipate negative credit events and sovereign rating changes before they are formally realized (Ismailescu & Kazemi, 2010).

The literature further demonstrates that macro-financial risks are actively priced in financial markets. Afonso, Arghyrou, and Kontonikas (2015) show that increases in sovereign credit risk led to significant adjustments in bond yields, particularly during periods of financial stress when macroeconomic and fiscal fundamentals become more binding. This highlights the sensitivity of fixed-income instruments to shifts in sovereign risk conditions.

Beyond direct risk pricing, financial markets also exhibit persistent co-movements driven by underlying macroeconomic and structural factors. In this regard, Gozluklu and Morin (2019) demonstrate that long-term co-movements between asset classes, such as equities and bonds, can be explained by fundamental macroeconomic drivers rather than short-term shocks. This suggests that asset price dynamics are shaped not only by immediate risk signals

but also by deeper structural forces that influence cross-market correlations.

From a transmission perspective, sovereign risk affects financial assets through multiple channels. For fixed-income instruments, rising CDS spreads typically lead to widening yield spreads, reflecting increased compensation for default risk. This mechanism implies that debt-like instruments - such as sovereign *Sukuk* - may be particularly sensitive to changes in credit risk conditions. Supporting this view, Ariyana, Arundina, and Kasri (2020) show that sovereign *Sukuk* liquidity is significantly influenced by macroeconomic variables, including inflation and benchmark interest rates, indicating a strong linkage between macroeconomic conditions and Islamic financial instruments.

For equity markets, the transmission mechanism is more indirect, operating through discount rates, growth expectations, and investor sentiment. As a result, equities may exhibit a more moderate or delayed response compared to fixed-income assets. At the same time, institutional and regulatory developments also play a role in shaping how macro-financial risks are transmitted into Islamic financial markets. Septiana and Dewi (2022) highlight that the development of Islamic capital markets - including instruments such as green *Sukuk* - is closely tied to regulatory frameworks and market infrastructure, which in turn influence how external shocks are absorbed.

Despite these insights, the existing literature largely treats sovereign risk as an exogenous macroeconomic variable rather than integrating it directly into portfolio optimization frameworks. In particular, there is limited research that systematically incorporates CDS-based signals into asset allocation models, especially within the context of Islamic finance. This gap is significant, given that sovereign risk plays a central role in shaping the relative performance of *Sukuk* and *Shariah*-compliant equities in emerging markets.

Moreover, the interaction between sovereign risk and Islamic financial assets remains insufficiently theorized. While prior studies acknowledge the sensitivity of financial markets to macroeconomic shocks, they do not fully address how these shocks differentially affect asset classes with distinct structural characteristics. This limitation

restricts the ability of existing frameworks to capture dynamic shifts in relative asset attractiveness under changing risk conditions.

In this regard, incorporating CDS spreads as a systematic and forward-looking input into portfolio models offers a promising avenue for bridging macro-financial analysis with asset allocation. By treating CDS movements as a proxy for investor expectations about sovereign risk, it becomes possible to translate macroeconomic signals into structured portfolio views. This approach not only enhances the empirical grounding of portfolio optimization models but also aligns asset allocation decisions with evolving market conditions.

2.4. Critical Literature Review

Although the existing literature provides valuable insights into portfolio optimization, Islamic financial assets, and sovereign risk dynamics, it remains fragmented both conceptually and empirically. A critical examination of these strands reveals several structural limitations that constrain their explanatory power, particularly in emerging market contexts.

First, the portfolio optimization literature—despite significant advancements through the Black-Litterman framework continues to rely heavily on subjective or ad hoc specification of investor views. While the model offers a theoretically robust mechanism for combining equilibrium returns with investor expectations (Black & Litterman, 1992), most empirical applications fail to provide a systematic method for generating these views. As highlighted in the literature, parameters such as τ and Ω introduce additional layers of ambiguity, and their calibration often depends on heuristic assumptions rather than observable economic signals (Satchell & Scowcroft, 2000; Idzorek, 2007; Walters, 2014). Even more advanced approaches, such as those proposed by Meucci (2010), while improving the probabilistic consistency of the framework, do not fully resolve the challenge of grounding investor views in real-time macro-financial data.

Second, the literature on Islamic financial assets presents an incomplete and, at times, inconsistent understanding of risk dynamics. *Sukuk* are frequently positioned as inherently safer alternatives to conventional fixed-income instruments due to their asset-backed

structure. However, empirical evidence suggests that this assumption does not hold universally. Studies such as Godlewski, Turk-Ariss, and Weill (2013) indicate that *Sukuk* issuance may carry adverse selection signals, while Kostandyan (2016) demonstrates that substituting conventional bonds with *Sukuk* does not necessarily reduce portfolio risk and may even increase Value-at-Risk under certain conditions. Furthermore, the pricing behavior of *Shariah*-compliant fixed-income instruments, as shown in the context of green bond markets by Nanayakkara and Colombage (2019), suggests that these assets cannot be treated as homogeneous substitutes for conventional bonds.

At the same time, the literature on *Shariah*-compliant equities highlights structural constraints arising from screening mechanisms yet provides limited insight into how these constraints interact with macro-financial risk factors. While studies document that Islamic financial markets are sensitive to economic conditions (Ariyana, Arundina, & Kasri, 2020; Septiana & Dewi, 2022), they do not fully explore how different Islamic asset classes respond asymmetrically to the same risk shocks. This gap is particularly important in emerging markets, where sovereign risk plays a dominant role in shaping financial outcomes.

Third, the sovereign risk literature, especially studies focusing on CDS, offers strong evidence that credit risk is forward-looking and actively priced in financial markets. CDS spreads are shown to anticipate negative credit events and reflect real-time changes in market expectations (Ismailescu & Kazemi, 2010), while sovereign risk shocks influence broader financial conditions and asset pricing mechanisms (Afonso, Arghyrou, & Kontonikas, 2015). However, despite this well-established informational role, the integration of CDS signals into portfolio optimization frameworks remains largely unexplored.

Moreover, existing studies tend to analyze sovereign risk, Islamic financial assets, and portfolio optimization in isolation. There is a lack of an integrated framework that simultaneously accounts for:

- (i) forward-looking macro-financial risk signals,
- (ii) the structural characteristics of Islamic financial instruments, and
- (iii) dynamic portfolio reallocation mechanisms.

This fragmentation results in a critical gap in the literature, particularly in explaining how shifts in sovereign risk alter the relative attractiveness of *Sukuk* and *Shariah*-compliant equities within a unified portfolio framework.

In this context, the present study contributes to literature in three ways. First, it addresses the methodological limitation of subjective investor views by operationalizing CDS spreads as a systematic and data-driven input within the Black-Litterman model. Second, it challenges the conventional risk hierarchy in Islamic finance by empirically demonstrating that *Sukuk* may exhibit higher sensitivity to sovereign risk than *Shariah*-compliant equities. Third, it proposes an integrated analytical framework that links macro-financial risk signals with asset allocation decisions in a dynamic and forward-looking manner.

By bridging these previously disconnected strands, this study not only enhances the theoretical coherence of the literature but also provides practical implications for portfolio management in emerging Islamic financial markets.

3.0 Methodology and Data

As a neutral starting point the Black-Litterman Model uses “equilibrium” returns. Equilibrium returns are calculated using either the Capital Asset Pricing Model (CAPM) or a reverse optimization method in which the vector of implied expected equilibrium returns (Π) is extracted from known information. Using matrix algebra, one solves for Π in the formula ,

$$\Pi = \lambda \Sigma w \tag{1}$$

Where:

w - a vector of market capitalization weights.

Σ - a fixed covariance matrix.

λ - is a risk-aversion coefficient.

Understanding the formula is crucial therefore to follow the step-by-step implementations of the model the researchers suggested to refer to Idzorek (2007).

The Black-Litterman formula is as follows:

$$E[R] = \left[(\tau \Sigma)^{-1} + P' \Omega^{-1} P \right]^{-1} \left[(\tau \Sigma)^{-1} \Pi + P' \Omega^{-1} Q \right] \quad (2)$$

Where:

$E[R]$ - New combined return vector ($n \times 1$ column vector)

τ - a scalar (assumed $\tau = 1$)

Σ - Variance-covariance matrix of all assets under consideration ($n \times n$ matrix)

P - Matrix identifying which assets an investor has views about ($k \times n$ matrix or $1 \times n$ row vector in the special case of 1 view)

Ω - Uncertainty surrounding views of an investor ($k \times k$ matrix)

Π - Implied equilibrium excess returns vector ($n \times 1$ column vector)

Q - Views on expected excess returns for some or all assets ($k \times 1$ column vector).

The Black-Litterman model addresses the limitations of traditional mean-variance optimization by using market equilibrium as a neutral starting point, which is then updated with subjective investor views.

3.1 Data

This study utilizes monthly data covering the period from March 2021 to March 2026. Monthly frequency is selected to align with the typical rebalancing horizon of institutional *Shariah* funds in Indonesia and to ensure that the "noise" of daily market volatility does not distort the long-term sovereign risk signals provided by the CDS. This five-year window captures a unique economic cycle, spanning the post-pandemic recovery, the global interest rate hiking cycle of 2022-2023, and the subsequent stabilization of the Indonesian emerging market.

To construct the Black-Litterman portfolio, two primary asset classes are defined to represent the Indonesian *Shariah* investment universe. Jakarta Islamic Index (JII) is used to represent the equity component. As one of Indonesia's most liquid *Shariah* indices, it tracks the 30 most capitalized *Shariah*-compliant stocks, providing a robust *Market Equilibrium* for the model.

Due to the data limitation and structural illiquidity of the Indonesian *Sukuk* secondary market, this study utilizes the Indonesia 5-Year Government Bond Yield as a representative proxy for fixed-income returns.

The core innovation of this study is the Investor View (Q) which is derived from the Indonesia 5-Year Sovereign Credit Default Swap (CDS). According to the IFSB Stability Report 2025, CDS spreads act as a leading indicator of national credit health. In our model an increase in CDS spreads signifies rising sovereign risk, triggering a view that favors a shift toward higher-yielding or protective assets. On the other hand, a decrease in CDS spreads indicates improved fiscal stability, suggesting a view that supports equity market growth.

All financial data for this period was retrieved from Investing.com.

4.0 Analysis and Findings

To provide a comprehensive understanding of the market environment during the study period, Table 1 presents the descriptive statistics for the key variables: the Jakarta Islamic Index (JII) log returns (representing the equity market), the *Sukuk* Proxy returns, and the Indonesia 5-Year Sovereign CDS (the basis for the Investor View Q).

Table 1: Descriptive Statistics (March 2021 - March 2026)

Variable	Mean	Std. Deviation	Min	Max
JII Log Returns	-0.25%	3.90%	-10.43%	10.16%
<i>Sukuk</i> Proxy Returns	-0.029%	1.23%	-1.24%	0.67%
Sovereign CDS (bps)	0.86%	0.18%	0.66%	1.58%

The descriptive data reveals several critical insights into the risk-return profile of Indonesian *Shariah*-compliant assets. Notably, the Jakarta Islamic Index (JII) exhibited significant volatility, with a standard deviation of 3.90% and a wide range between its minimum (-10.43%) and maximum (10.16%) monthly returns. This volatility underscores the sensitivity of the Indonesian equity market to global macroeconomic shifts and domestic fiscal sentiment.

In contrast, the *Sukuk* Proxy demonstrated the "protective" nature of Islamic fixed-income instruments. While the mean return remained slightly negative at -0.029 which is largely due to the capital

depreciation seen during the global "higher-for-longer" rate environment, its standard deviation (1.23%) was roughly one-third that of the equity index. This suggests that while *Sukuk* were not immune to market shocks, they provided a stabilizing effect within the portfolio.

The Sovereign CDS spread, which serve as the foundation for the Investor View (Q), averaged 0.86% with a peak of 1.58%. This maximum value reflects periods of heightened sovereign risk where the market demanded a higher premium for Indonesia's credit protection. In the context of the Black-Litterman framework, the fluctuation in these spreads provides the necessary "informational dominance" (as argued by Mihai and Neagu, 2011) to shift the model's posterior distribution. When CDS spread spiked toward the 1.58% mark, the model logically tilted the portfolio toward the protective *Sukuk* Proxy, whereas the lower bound of 0.66% signaled an improved fiscal outlook conducive to equity (JII) expansion. Further, Table 2 presents the Correlation Matrix.

Table 2: Correlation Matrix

	JKII Returns	<i>Sukuk</i> Returns	Δ CDS
JII Returns	1.000		
<i>Sukuk</i> Returns	-0.031	1.000	
Δ CDS	-0.123	-0.401	1.000

The correlation analysis reveals a low negative correlation between JII and *Sukuk* (-0.031), suggesting excellent diversification benefits. Interestingly, the *Sukuk* Proxy shows a stronger negative sensitivity to sovereign risk (-0.401) than the JII (-0.123). This indicates that while both assets respond to changes in Indonesia's CDS, the fixed-income nature of *Sukuk* makes them more susceptible to fluctuations in sovereign risk premiums during the study period. Table 3 presents the Variance-Covariance Matrix.

Table 3: Variance-Covariance Matrix (Σ)

	JII	<i>Sukuk</i>
JII	0.001519	-0.00001477
<i>Sukuk</i>	-0.00001477	0.000151

The Variance-Covariance Matrix is constructed using the historical volatilities and correlations of the JII and *Sukuk* proxy. This matrix serves as the baseline risk measure for the Black-Litterman optimization, capturing the low-correlation benefit identified in the previous section.

4.1 The Market Equilibrium

Before incorporating the *Investor Views* derived from the Sovereign CDS spreads, the model establishes a baseline of Market Equilibrium Returns (**II**). These returns are "reverse-optimized" from the market capitalization weights of the Indonesian *Shariah*-compliant universe as of the March 2021 - March 2026 rebalancing period.

By utilizing the risk-aversion coefficient (λ) and the covariance matrix (Σ), the equilibrium returns represent what the market expects the assets to return if no additional private information or tactical views are introduced. Table 4 outlines the starting weights (w_m) and the resulting implied returns for the two primary asset classes in our universe.

Table 4: Market Equilibrium Profile

Asset Class	Market Weight (w_m)	Equilibrium Return (II)
JII (Islamic Stocks)	65%	0.295%
<i>Sukuk</i> Proxy	35%	0.013%

The equilibrium data reflects a market-implied preference for equity, with a 65% allocation to the Jakarta Islamic Index (JII). The relatively low equilibrium return for the *Sukuk* Proxy (0.013%). 6

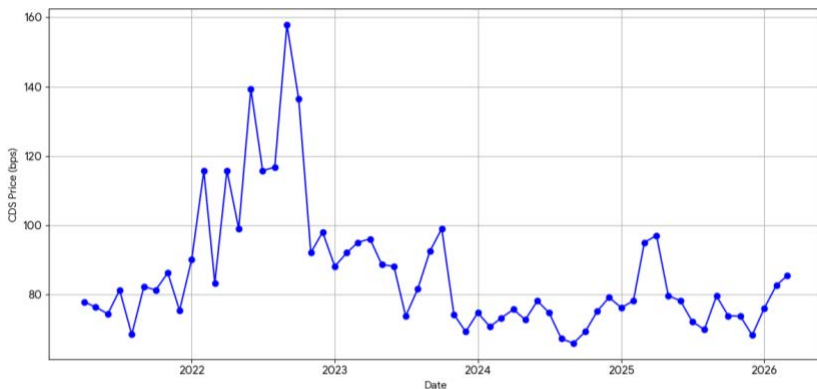
In this “Neutral” state, the model assumes the investor holds the market portfolio. However, the core innovation of this study, i.e., the Investor View (Q) will now be used to tilt these returns. According to the logic of Mihai and Neagu (2011), if the Indonesia 5-Year CDS spread suggests a divergence from this equilibrium (i.e., a sudden spike in sovereign risk), the posterior returns will shift away from these values, favoring the protective characteristics of the *Sukuk* Proxy over the growth-oriented JII.

4.2 Formulation of Investor Views (Q)

In the Black-Litterman framework, the View Vector (Q) represents the investor's unique expectations for future asset returns, which may differ from the market equilibrium. For this study, the views are derived from the fluctuations in the Indonesian Sovereign Credit Default Swaps (CDS).

The Indonesian 5-year CDS serves as a critical high-frequency indicator of country-specific risk, reflecting market sentiment regarding sovereign creditworthiness. Over the five-year period ending in March 2026, the CDS exhibited significant volatility, with a historical mean of approximately 86.09 bps and a peak of 157.88 bps recorded in September 2022 (see Figure 1).

Figure 1: Indonesian 5-Year CDS Price (March 2021 - March 2026)



Source: Investing.com

In the first quarter of 2026, the CDS demonstrated a notable upward trajectory. Following a multi-year low of 68.26 bps in December 2025, the risk premium rose steadily for three consecutive months. Specifically, between February and March 2026, the CDS increased from 82.72 bps to 85.45 bps, a 3.31 rise. While this recent level remains closely aligned with the long-term historical average, the cumulative increase of approximately 25% since December 2025 indicates a tightening of credit conditions and a rise in perceived sovereign risk.

The views are quantified by applying the historical sensitivity (correlation) of each asset to the most recent change in the CDS. Because the *Sukuk Proxy* has a higher negative correlation to sovereign risk (-0.401) than the JII (-0.123), the increase in CDS results in a more pronounced negative outlook for *Sukuk*. This reflects the reality that fixed-income instruments are often the first to feel the impact of a widening sovereign credit spread.

Table 5: Summary of Investor Views (Q)

Asset	Equilibrium Return (II)	CDS Adjustment	Adjusted View (Q)
JII	0.295%	-0.405%	-0.110%
<i>Sukuk Proxy</i>	0.013%	-1.323%	-1.310%

In the Black-Litterman framework, the View Vector (Q) allows for the integration of specific investor expectations that deviate from market equilibrium. In this study, these views are formulated based on the performance of Indonesian Sovereign CDS, which serve as a real-time indicator of country-specific risk.

Between February and March 2026, a 3.30% increase in the Indonesian 5-year CDS signaled rising sovereign risk. Due to the negative correlation between credit risk and asset performance, this spike necessitated a downward adjustment of expected returns for both the JII and the *Sukuk Proxy*.

The impact was particularly pronounced for *Sukuk*, which demonstrated a higher negative sensitivity (-0.401) compared to the JII (-0.123). Consequently, while the JII's view was adjusted to -0.110%, the *Sukuk* Proxy saw a much steeper decline to -1.310 % (see Table 5). This shift reflects the market reality that fixed-income instruments are generally more susceptible to widening sovereign credit spreads than equities.

4.3 Integration of Market Equilibrium and Investor Views

The Black-Litterman model synthesizes the Market Equilibrium Returns which represent a neutral, risk-adjusted starting point with the Investor Views derived from sovereign risk fluctuations.

The integration process demonstrates how the specific macro-economic signal of the Sovereign CDS adjusts the baseline expectations. While the market equilibrium suggests a positive, albeit low, return environment for Indonesian *Shariah* assets, the recent 3.3% increase in CDS spreads introduces a negative tilt to the forecast.

Specifically, the model adjusts the expected return for JII downward to -0.11% and the *Sukuk* Proxy to -1.31%. This divergence is primarily driven by the *Sukuk*'s higher sensitivity to credit risk, as established in the correlation analysis. These adjusted returns serve as the primary inputs for the final portfolio re-weighting, shifting the allocation away from assets with the highest vulnerability to rising sovereign risk.

4.4 Tactical Asset Allocation and Re-optimization Results

The final stage of the Black-Litterman process involves the derivation of Posterior Weights. By synthesizing the historical risk structure (Covariance Matrix) with the newly formulated CDS-based views, the model produces a tactical allocation that deviates from the market-neutral benchmark to maximize risk-adjusted returns under current credit conditions.

Table 6 illustrates a significant tactical shift in the portfolio composition, driven by the Black-Litterman model's integration of the recent sovereign risk spike. Essentially, the model is "fleeing" from the asset most sensitive to the Indonesian CDS increase, the *Sukuk* Proxy, and reallocating that capital into *Shariah* equities (JII). The reallocation of 23.2% of the portfolio's capital from *Sukuk* to Equities

serves as a direct quantitative consequence of the credit risk sensitivity identified within the Black-Litterman framework. This shift is primarily driven by what can be termed the “*Sukuk* Penalty”, where the asset’s high negative correlation to Sovereign CDS (-0.401) renders it disproportionately vulnerable during periods of heightened sovereign risk. Although *Sukuk* is traditionally categorized as a defensive instrument, the 3.30% spike in CDS effectively neutralized the attractiveness of its lower yields, necessitating a strategic divestment to protect capital.

Table 6: Tactical Allocation vs. Market Benchmark

Asset Class	Market Weight (w_m)	Optimized Weight (W^*)	Portfolio Delta (Change)
JII	65.0%	88.2%	+23.2%
<i>Sukuk</i> Proxy	35.0%	11.8%	-23.2%

Simultaneously, JII demonstrated greater relative resilience; despite facing broader systemic headwinds, its lower sensitivity to the credit signal allowed it to function as a more stable alternative within the *Shariah*-compliant universe. By tactically overweighting the JII, the Black-Litterman model seeks to minimize expected losses by favoring the more robust asset class. These results underscore the critical importance of active Sovereign CDS monitoring for Indonesian *Shariah* investors, as a static market-capitalization strategy would have resulted in excessive exposure to the specific fixed-income vulnerabilities triggered by the March 2026 credit widening.

5.0 Conclusion

5.1. Summary of Findings

This research successfully integrated macroeconomic risk signals into a *Shariah*-compliant portfolio optimization framework. By utilizing

the Black-Litterman model, this study moved beyond traditional mean-variance optimization to incorporate forward-looking views derived from the Indonesian 5-Year Sovereign Credit Default Swap (CDS).

The empirical results reveal two critical insights. First, there is a statistically significant negative correlation between sovereign credit risk and *Shariah* asset returns, with Sovereign *Sukuk* exhibiting a notably higher sensitivity ($r = -0.401$) than the Jakarta Islamic Index (JII) ($r = -0.123$). Second, during the sovereign risk spike observed in March 2026, the Black-Litterman model recommended a tactical shift, increasing the JII allocation to 88.2% and reducing the weight of *Sukuk* in the portfolio to 11.8%. This suggests that in the Indonesian context, *Shariah* equities can act as a *relative safe haven* compared to Government *Sukuk* when country-specific risk increases.

5.2. Academic and Practical Contributions

This study contributes to the literature on Islamic Finance by demonstrating the viability of the CDS as a tactical asset allocation signal. It challenges the conventional wisdom that *Sukuk* is inherently *safer* than equities by proving that sovereign credit deterioration can impact fixed-income valuations more severely due to spread widening. For practitioners, this research provides a mathematical roadmap for dynamic rebalancing that can preserve capital during periods of macroeconomic volatility.

5.3. Limitations and Future Research

While the results are robust for the period ending March 2026, several limitations exist. This study focused exclusively on two asset classes; future research could expand this to include corporate *Sukuk* or international *Shariah* assets. Additionally, while the Risk Aversion Coefficient (λ) was held constant at 3.0, further studies could explore how varying levels of investor risk tolerance interact with the CDS signal to alter the optimal portfolio weights.

References

- Afonso, A., Arghyrou, M. G., & Kontonikas, A. (2015). The determinants of sovereign bond yield spreads in the EMU. European Central Bank (ECB) Working Paper Series.
- Ariyana, F. R., Arundina, T., & Kasri, R. A. (2020). Sukuk market liquidity determinants: A case study on sovereign sukuk in Indonesia. *Institutions and Economics*, 12(3), 66-90.
- Bayram, K., Binti Shahwan, S., & Ergun, H. (2023). Managing Shariah non-compliance risk: Construction of a low-risk Shariah-compliant portfolio using the Black-Litterman portfolio optimization model. *AQU Journal of Islamic Economics*, 3(1), 49-80 . doi:10.52747/aqujie.3.1.224
- Black, F., & Litterman, R. (1992). Global portfolio optimization. *Financial Analysts Journal*, 48(5), 28-43.
- Godlewski, C. J., Turk-Ariss, R., & Weill, L. (2013). Sukuk vs. conventional bonds: A stock market perspective. *Journal of Comparative Economics*, 41(3), 745-761. <https://doi.org/10.1016/j.jce.2013.02.006>
- Gozluklu, A., & Morin, A. (2019). Stock vs. Bond yields and demographic fluctuations. *Journal of Banking and Finance*, 109, 105683. <https://doi.org/10.1016/j.jbankfin.2019.105683>
- Idzorek, T. (2007). A step-by-step guide to the Black-Litterman model: Incorporating user-specified confidence levels. In S. Satchell (Ed.), *Forecasting expected returns in the financial markets* (pp. 17-38). doi:10.1016/B978-075068321-0.50003-0
- Islamic Financial Services Board. (2025). Islamic financial services industry stability report 2025. <https://www.ifsb.org/wp-content/uploads/2025/05/IFSI-Stability-Report-2025.pdf>
- Ismailescu, I., & Kazemi, H. (2010). The reaction of emerging market credit default swap spreads to sovereign credit rating changes. *Journal of Banking & Finance*, 34(12), 2861-2873. <https://doi.org/10.1016/j.jbankfin.2010.05.014>
- Kostandyan, B. (2016). Comparative analysis of sukuk and conventional bonds based on the Value-at-Risk model. SSRN. <http://dx.doi.org/10.2139/ssrn.2786096>

- Meucci, A. (2010). The Black-Litterman approach: Original model and extensions. In *The Encyclopedia of Quantitative Finance*. Wiley. <https://doi.org/10.2139/ssrn.1117574>
- Michaud, R.O. (1989), "The Markowitz optimization enigma: is 'optimized' optimal?", *Financial Analysts Journal*, Vol. 45 No. 1, pp. 31-42.
- Mihai, I., & Neagu, F. (2011). CDS and Government Bond Spreads – How Informative are for Financial Stability Analysis? National Bank of Romania Working Paper.
- Nanayakkara, M., & Colombage, S. (2019). Do investors in Green Bond market pay a premium? Global evidence. *Applied Economics*, 51(40), 4425-4437. <https://doi.org/10.1080/00036846.2019.1591611>
- Rusgianto, S., & Ahmad, N. (2013). Volatility behavior of sukuk market: An empirical analysis of the Dow Jones Citigroup Sukuk Index. *Middle East Journal of Scientific Research*, 13, 93-97. DOI: 10.5829/idosi.mejsr.2013.13.1887
- Satchell, S., & Scowcroft, A. (2000). A demystification of the Black–Litterman model: Managing quantitative and traditional portfolio construction. *Journal of Asset Management*, 1(2), 138-150. <https://doi.org/10.1057/palgrave.jam.2240011>
- Septiana, E., & Dewi, G. (2022). Challenges and opportunities for the development of Green Sukuk in Indonesia. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 5(3), 18488-18500. Retrieved from <https://bircu-journal.com/index.php/birci/article/download/5835/pdf>
- Stoilov, T., Stoilova, K., & Vladimirov, M. (2021). Application of modified Black-Litterman model for active portfolio management. *Expert Systems with Applications*, 186, 115719. <https://doi.org/10.1016/j.eswa.2021.115719>
- Subekti, R., Abdurakhman, & Rosadi, D. (2022). Toward the Black–Litterman with Shariah-compliant asset pricing model: A case study on the Indonesian stock market during the COVID-19 pandemic. *International Journal of Islamic and Middle Eastern Finance and Management*, 15(6), 1150-1164. <https://doi.org/10.1108/IMEFM-12-2020-0633>

- Subekti, R., Abdurakhman, Rosadi, D., & Hasim, H. M. (2022). Integrating zakat and purification in a modified Black-Litterman model for Shariah-compliant stock portfolios. *Asian Economic and Financial Review*, 12(7), 549-564. Doi: 10.55493/5002.v12i7.4554
- Walters, J. (2014). *The Black-Litterman model in detail*. Retrieved from SSRN: <https://ssrn.com/abstract=1314585> , <http://dx.doi.org/10.2139/ssrn.1314585>
- Yusrifalda, A., & Nurcahyo, B. (2025). Exploring the chances and challenges of Green Sukuk in Indonesia: TOWS method analysis. *Journal of Law, Administration, and Social Science*, 5(1). <https://doi.org/10.54957/jolas.v5i1.1202>