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Evaluating the Impact of Sukuk Structures on Ratings and Yields: Evidence from Malaysia

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Abstract
Purpose: Despite the significant growth of sukuk markets, the influence of sukuk structures on credit ratings and yields remain unclear. As different sukuk structures reflect different risk-sharing, asset backing and legal frameworks, these structures may influence investor perception and pricing differently. This study investigates the impact of sukuk structures on sukuk ratings and sukuk yields within Malaysia's corporate sukuk market, where structural innovation and regulatory support make this question especially relevant.
Design/methodology/approach: The study uses cross-sectional regression analysis on 207 Malaysian sukuk issuances from 2003 to 2024.
Findings: The results reveal that sukuk structures, particularly *Ijara* and *Murabaha*, consistently and statistically significantly influencing sukuk ratings, confirming that rating agencies account for structural differences when assessing credit risk. However, their impact on sukuk yields depends on model specification.
Research limitations/implications: This study provides insights into how sukuk structures influence investor perceptions and rating agency assessments, contributing to the broader discourse in Islamic finance.
Practical implications: Regulators and standard-setting bodies should promote greater transparency and disclosure in sukuk structuring, ensuring that investors can evaluate structural risks more effectively and in alignment with credit rating agency assessments.
Originality/value: This study is among few papers that do cross countries comparison on the influence of sukuk structures on yield and ratings.

Keywords: Sukuk Structures, Sukuk Ratings, Sukuk Yields

Introduction

Islamic finance has been growing tremendously over the past decade with various financial products that offer Shariah-compliant alternatives to conventional instruments. One of its popular products is sukuk (Islamic bonds) which has become a key instrument for raising capital in both Muslim-majority countries and internationally. Sukuk, is an alternative to conventional bonds, and are structured to comply with Shariah principles, which prohibit interest (*riba*), excessive uncertainty (*gharar*), and gambling (*maysir*). Unlike conventional bonds, sukuk are generally linked to tangible assets and structured through contracts such as *Murabaha* (cost-plus financing), *Ijara* (leasing) or *Wakalah* (agency). However, not all Sukuk

structures grant investors legal ownership of the underlying assets or involve true risk-sharing. Examples are all Sukuk that fall under asset-based Sukuk category. Sukuk are typically classified as either asset-backed or asset-based. While asset-backed sukuk confer legal ownership of the underlying asset to investors and align closely with the risk-sharing ideals of Islamic finance, asset-based sukuk are more common in practice, giving investors only a beneficial interest in the asset, with the issuer often retaining the actual risk.

Over the past decades, sukuk has attracted significant interests from global issuers and investors from both Muslim and non-Muslim countries. The market for Sukuk has grown rapidly, reflecting the growing demand for Shariah-compliant investment opportunities, particularly from investors seeking ethical and sustainable financial instruments.

Based on Figure 1, total global issuance (long term and short term) has grown significantly from USD53.1 billion in 2010 to USD212 billion in 2023, which confirms the leading position of sukuk as the key financing instrument. Sovereign Sukuk issuances from Asia, Gulf Cooperation Council (GCC), Africa and a few other jurisdictions accounted for the majority of the 2023 issuance volume. Malaysia continues to dominate the majority of the sukuk market while the issuances from Saudi Arabia and Indonesia kept up their upward trajectory and grew in size. Some other nations, such as Bahrain, Türkiye and the African continent, also issued Sukuk on a regular basis (IIFM, 2024).

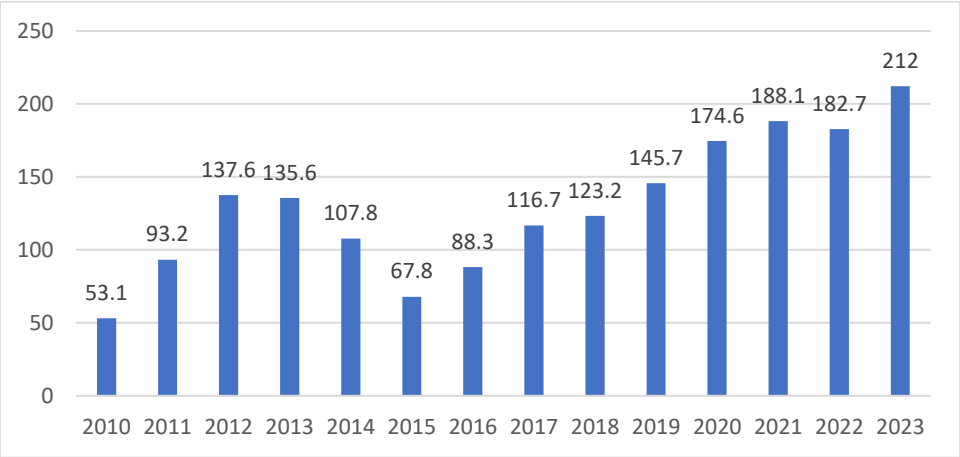

Figure 1: Total Global Sukuk Issuance USD 2.00 Trillion (Jan 2010 – Dec 2023)
Source: International Islamic Financial Market (IIFM) Sukuk database

Malaysia has emerged as a leading hub for Sukuk issuance, accounting for a substantial portion of global sukuk issuances. As of mid 2024, Malaysia accounted for around 60% of the ringgit-denominated Debt Capital Markets (DCM), underscoring its dominance in the Sukuk sector (Securities Commission Malaysia, 2024). The issuance of corporate bonds and Sukuk in Malaysia totalled RM 42.41 billion in the second quarter of 2024, reflecting a 24.59% increase from the previous quarter (Bloomberg, 2024). This substantial growth is indicative of the continued trust and confidence investors place in the stability and performance of Malaysian Sukuk.

Malaysia's well-developed Islamic finance infrastructure, coupled with supportive government policies, has propelled her to the forefront of the global Sukuk market. In May 2024, Malaysia introduced a new sukuk structure that integrates Wakalah (agency) and Khadamat (services) principles. This innovative approach aims to enhance the appeal of Malaysian sukuk to international investors, particularly those adhering to AAOIFI standards, who have previously

found the traditional Government Investment Issues (GII) less attractive due to trading restrictions with debt sales. This shift is expected to broaden the investor base and improve liquidity in the sukuk market.

Even though the sukuk market has grown significantly, there are still important questions regarding how sukuk structures affect financial outcomes, such as yields and ratings. The literature currently highlights how sukuk structures influence investor perceptions, risk profiles, and financial results. While studies like Muhamed et al. (2022) and Al Homsi et al. (2022) show how sukuk structure affects yields and ratings, they do not analyse structural diversity and its unique effects in particular jurisdictions like Malaysia. In a similar vein, Alhammadi et al. (2024) highlight the variations in risk among sukuk structures without delving into how these variations relate to firm-level traits or macroeconomic circumstances. These gaps hinder the ability to develop a holistic understanding of sukuk market dynamics.

Thus, this study aims to fill the gap by investigating the effect of sukuk structures on ratings and yields using empirical data from the Malaysian market. Specifically, the study aims to examine the following research questions: (1) what is the impact of different sukuk structures on the credit ratings of sukuk issued in Malaysia, (2) how does the choice of sukuk structures influence the yields investors demand in Malaysia's sukuk market, and (3) are there specific sukuk structures that consistently lead to higher or lower yields and ratings, based on empirical evidence from Malaysian sukuk issuances?.

Addressing these research questions is essential for both academic and practitioners to enhance the efficiency and resilience of the sukuk market. The study bridges the gap and contributes to the academic discourse on Islamic finance while offering actionable insights for industry practitioners and policymakers. It lays the groundwork for further research into the evolving dynamics of sukuk markets.
This paper is structured as follows. The literature review and hypothesis development are presented in Section 2. Section 3 provides some details on the sample and methodology. The results are presented in Section 4, and Section 5 concludes the paper.

Literature Review and Hypothesis Development
Sukuk, commonly referred to as Islamic bonds, have gained prominence in the global financial landscape due to their compliance with Shariah principles and their role in diversifying investment portfolios. Unlike conventional bonds, Sukuk are structured to be linked to tangible assets, usufructs, or services, aligning financial activities with Islamic law. However, the extent of this linkage varies depending on the sukuk structure. While asset-backed sukuk confer actual legal ownership and align closely with Islamic finance principles of risk-sharing and asset tangibility, asset-backed sukuk only provide beneficial interest and often resemble conventional debt instruments in risk and return characteristics.

This structural has important implications for financial outcomes, particularly sukuk credit ratings and yield performance. Recent literature has increasingly focused on how the design and legal structure of sukuk influence investor perception, perceived risk and consequently, their ratings and market returns. Although various studies have examined general determinants of sukuk performance, the relationship between sukuk structural types and financial metrics such as ratings and yields remains a developing and highly relevant area of inquiry.

Theoretical Framework

Several financial theories underpin the relationship between Sukuk structures and their ratings and yields:

Agency Theory

Agency theory examines conflicts of interest between principals (investors) and agents (issuers), which can create inefficiencies in financial contracts. In the context of Sukuk market, risk-sharing structures like *Mudarabah* (profit-sharing) and *Musharakah* (joint venture) aim to mitigate these conflicts ie reduce agency conflicts by aligning the interests of issuers and investors. Studies such as Al Homsi et al. (2022) and Sulistiani & Tjahjadi (2022) argue that such alignment improves transparency and governance, thereby enhancing credit ratings.

However, in practice, the issuer holds more information and control while investors may have lack insights into the business's financial health or management decisions. This imbalance creates informational asymmetry and moral hazard, "potentially leading to higher yields to compensate for perceived risk". "Rating agencies may also assign lower rating due to the variable nature of returns and weaker recourse to underlying assets compared to fixed income sukuk such as *Ijarah* (lease-based) or *Murabahah* (cost-plus sale) (Borhan and Ahmad, 2018; Utomo, 2016).

Risk-Return Trade-Off Theory

This foundational theory suggests that higher risks should correspond to higher expected returns. Past studies find that different sukuk structures carry different levels of risk and these structural differences influence both yield (return) and rating (risk assessment). Muhamed et al. (2022) and Melzatia et al. (2018) observed that more complex or equity-based Sukuk structures, which expose investors to greater credit, structural or operational risks, tend to offer higher yields and typically lower rating. This also applies to asset-based sukuk structures such as Murabahah or hybrid sukuk. Conversely, asset-backed Sukuk structures like Ijarah may provide more stable (lower risk), lower (required) yields due to their reduced risk profile and typically has higher rating assessment.

Signalling Theory

The signalling hypothesis emphasizes how certain features of financial instruments inform the market. An issuer's choice of Sukuk structure might provide information about their risk tolerance, Shariah compliance, and financial stability. According to Godlewski et al. (2016), investor perception and market valuation are greatly impacted by Sukuk structures and the standing of Shariah scholars. For instance, "a company may be indicating financial strength and asset transparency by choosing asset-backed ijarah sukuk." On the other hand, selecting a complicated hybrid form could indicate greater uncertainty. As a third-party indicator of issuer creditworthiness, credit ratings serves as a buffer against this information gap. On the other hand, rating agencies might evaluate new or opaque structures more conservatively, which would affect yield spreads.

Market Efficiency Theory

According to the Efficient Market Hypothesis (EMH) (Fama, 1970), asset prices accurately reflect all available information. This suggests that in the context of Sukuk markets, ratings and yields ought to instantly adapt to information that the public has regarding Sukuk structures (such as asset-based or asset-backed) and issuer credit. Nonetheless, empirical data points to Sukuk markets' partial market efficiency. According to Qizam (2021) and Muhamad Sori et al.

(2019), market responses to structural changes and Sukuk ratings differ by location, suggesting that Sukuk markets may have semi-strong efficiency in which prices are solely influenced by publicly available information. According to Ariff et al. (2017), structural complexity frequently manifests as delayed price adjustments brought on by investor unfamiliarity. Sukuk with the same rating but distinct structures may trade at divergent yields, indicating market mispricing.

Sukuk structure and sukuk ratings

In recent literature, there has been much discussion about the connection between Sukuk structures and credit ratings. In Malaysia, for instance, the effect of sukuk structures on ratings is examined by Al Homsi et al. (2022), Muhammad et al. (2022), and Zakaria et al. (2013), whereas in Indonesia, Sulistiani & Tjahjadi (2022), Laila et al. (2020), and Ni'mah et al. (2020). Using 328 sukuk issued by Malaysian companies with 1,110 rating announcements between 2009 and 2014, Al Homsi et al. (2022) used generalized ordered logit regressions to examine the factors influencing sukuk credit ratings. Their research demonstrated empirically that higher credit ratings are positively correlated with equity-based Sukuk structures that prioritize risk-sharing.

Similarly, Sulistiani & Tjahjadi (2022) highlighted that corporate governance attributes embedded within certain Sukuk structures directly enhance credit ratings. Conversely, Muhamed et al. (2022) evaluated how sukuk structures influence ratings and yields in Malaysian market using Malaysian public listed companies issuing Sukuk between 2008 and 2013, found a negative relationship between complex Sukuk structures and ratings, suggesting that increased structural complexity may introduce additional risks that rating agencies perceive unfavourably. This contradiction highlights the need for further investigation, particularly in differentiating between the types of risks introduced by various structures and how these risks are assessed by rating agencies.

Moreover, Zakaria et al. (2013) assessed how sukuk ratings impacts default risk and investor response to earnings where they emphasized the role of default risks in shaping Sukuk ratings. They used Malaysian sukuk market data and employed regression analysis. Their findings suggest that while Sukuk are generally perceived as lower-risk instruments due to their asset-backing, structural differences can significantly alter their risk profiles and, consequently, their ratings.

While the above studies found either positive or negative influence of sukuk structures and sukuk ratings, Ni'mah et al (2020) and Laila et al. (2021) applied ordinal logistic regression models to examine how variables such as profitability, liquidity, leverage, growth and Sukuk structure influence credit ratings assigned to corporate Sukuk. Both studies found profitability, liquidity and maturity positively affect sukuk ratings, while types of Sukuk structure, leverage and growth did not significantly impact the rating outcome in the Indonesian context.
Hypothesis 1 (H1): Sukuk structure has a significant effect on Sukuk credit ratings.

Sukuk structure and sukuk yields

The impact of Sukuk structures on yields has been equally explored, with varying conclusions. Muhamed et al. (2022) found that Sukuk structures positively influence Sukuk yields, indicating that certain types of Sukuk, more complex structures or those with higher inherent risks require higher yields and returns to attract investors. This aligns with Risk Return Trade Off Theory, where investors demand higher compensation for increased risk exposure.

While Melzatia et al. (2018) did not examine Sukuk structures directly, their finding observed a positive correlation between Sukuk yields and structural complexity, particularly in Sukuk with longer maturities and lower ratings. This suggests that structural elements affect credit risk (for example asset backed, or payment guarantees) play a crucial role in determining the return expectations of investors.

In contrast, Ariff et al. (2017) noted that Sukuk yields are generally lower than those of conventional bonds, attributing this to the perceived lower risk associated with Shariah-compliant structures. This indicates that while Sukuk structures influence yields, the overall framework of Islamic finance may inherently offer more stability, reducing yield requirements. Furthermore, Grassa & Miniaoui (2018) found that firms in the GCC region tend to issue Sukuk with risk-sharing structures which face higher issuance costs and hence higher yields when targeting growth opportunities, particularly in sectors like real estate, which are inherently riskier. Other firms prefer to issue asset-based Sukuk to reduce complexity and costs. This regional variation underscores the importance of considering market-specific dynamics when analyzing the relationship between Sukuk structures and yields.
Hypothesis 2 (H2): Sukuk structure has a significant effect on Sukuk yields.

Other Determinants of Sukuk Ratings and Yields
Sukuk Ratings
In addition to Sukuk structures, coupon rate, maturity, issuance size, and Sukuk yields are some additional factors that affect Sukuk ratings. One important element affecting sukuk ratings has been found to be the coupon rate. Since higher coupon rates indicate a greater default risk to rating agencies, they are linked to lower credit ratings (Al Homsi et al., 2022; Borhan & Ahmad, 2018). This is consistent with the Signaling Theory, which states that issuers convey risk levels to investors by using higher coupon rates. Results on maturity have been inconsistent. Longer maturities lower ratings in Indonesia (Nimah et al., 2020), whereas Malaysia shows no discernible effect (Muhamed et al., 2022), most likely as a result of more robust asset-backing procedures. Therefore, the results are influenced by regional variations in risk assessment methods. Since larger issuances frequently imply greater issuer credibility and market liquidity, higher Sukuk ratings are linked to larger issuance sizes (Al Homsi et al., 2022; Grassa & Miniaoui, 2018). Finally, by indicating the degree of risk attached to the Sukuk, yield can have an indirect impact on ratings. Rating downgrades may result from higher yields since they indicate greater risk (Melzatia et al., 2018).

Sukuk Yields
Likewise, Sukuk rates may also be influenced by coupon rate, maturity, issue size, and credit ratings. According to the risk-return trade-off hypothesis, higher coupon rates result in higher yields (Muhamed et al., 2022; Melzatia et al., 2018). Another important factor is maturity. In order to offset duration risk for investors, longer maturities typically result in higher yields (Melzatia et al., 2018). However, because of its special characteristics, such asset-backing and Shari'ah compliance, Malaysian Sukuk show a reduced effect (Muhamed et al., 2022).

Issue size affects liquidity and market perception, which in turn affects yields. According to Grassa & Miniaoui (2018), higher returns may be necessary for larger Sukuk issuances in order to draw in a wider range of investors, especially in riskier industries like real estate. Lastly, there is an inverse relationship between Sukuk ratings and yields. According to Al Homsi et al.

(2022) and Zakaria et al. (2013), higher-rated Sukuk generally give lower yields because they are thought to carry less risk.

The existing literature presents mixed findings on the relationship between Sukuk structures and their financial outcomes, particularly ratings and yields. While some studies emphasize the positive role of risk-sharing structures in enhancing credit ratings, others highlight the potential risks associated with complex Sukuk structures. Similarly, while higher yields are often associated with more complex structures, regional and market-specific factors can moderate this relationship.

The proposed hypotheses aim to clarify these relationships by empirically testing the significance of Sukuk structures on ratings and yields within the Malaysian context. By integrating traditional financial theories with Islamic finance principles, this study seeks to contribute to a more comprehensive understanding of Sukuk performance determinants.

Method

The study uses cross-sectional data. The sample data consists of 207 observations from 237 sukuk samples issued from 2003 to 2024. The dependent variables are sukuk rating and sukuk yield. Sukuk rating is an ordinal variable while sukuk yield is a continuous variable. There are two rating agencies in Malaysia which are RAM and MARC. These rating agencies issue rating based in the overall quality of the firm's outstanding debt, either public or private. This rating is available from rating agencies on an annual basis starting from the time the Sukuk is issued in Malaysia. In transforming the S&P rating into conventional numerical scores, AAA takes on the value of 6 and D takes on the value of 1. A higher numerical score corresponds to a lower credit rating or higher credit risk.

Following Al Homsi et al (2022), Muhammed et al (2022), Han et al. (2013) and Fairchild et al. (2015), the numerical score for each rating for this study is as follows:

Table 1: Sukuk Rating Categories And Distribution

Sukuk ratings	Code	Freq.	%	Risk
AAA	6	139	57.7	Least
AA1, AA2, AA3, AA+, AA, AA-	5	102	42.3	
A1, A2, A3, A+, A, A-	4	–	–	
BBB1, BBB2, BBB3, BBB+, BBB, BBB- BB1, BB2, BB3, BB+, BB, BB-	3	–	–	
B1, B2, B3, B+, B, B-	2	–	–	
C1, C2, C3, C+, C, C-, D	1	–	–	Highest

The second dependent variable (SUKUK YIELD) refers to the rate of return anticipated on a Sukuk if it is held until the maturity date which is considered a long-term Sukuk yield expressed as an annual rate. Yield to maturity (YTM) is a financial metric used to estimate the annual return an investor will earn from a Sukuk if it is held to maturity. For the dependent variable (SUKUK YIELD), this study obtained data from BNM Bond Info Hub where there are enough sources for data on Sukuk yield and other Sukuk information.

Each of the many structures and forms in which Sukuk are issued carries a significant risk. As a result, the rating agency cannot use generic financial risk alone to generalize the technique

(Arundina et al., 2015). It would involve a varied degree of risk as well as potential return and influence the decision on Sukuk structuring because Sukuk comes in different varieties and structures based on its purpose. Therefore, it is expected that the Sukuk structure plays a role to determine and affect the Sukuk rating and yield.

The Sukuk structure encompasses six different types of Sukuk; murabaha (MUR), ijarah (IJAR), Wakalah bil Isthimar, hybrid, musharaka (MUS), mudaraba (MUD) as issued by listed firms in Bursa Malaysia during the period of March 2023 to April 2024. Thus, the sukuk structure measured with six categorical variables; 1 is murabaha, 2 is wakalah, 3 is ijara, 4 is hybrid, 5 is mudaraba and 6 is musyaraka. This categorical also structures based on 1 of least risk to 6 as highest risk. By measuring the Sukuk structure variable in two distinct methods, this article examines the claim that the Sukuk structure (SS) has a substantial association with Sukuk rating and yield (Hypothesis 1 and Hypothesis 2, respectively). In accordance with Arundina et al. (2015), the first method uses numbers 1–6 to represent the six distinct types of Sukuk structures and measures the Sukuk structure as a numerical coding variable. In the second method, the Sukuk structure is represented as a dummy variable that takes the value of one of the structures the firm has issued; if not, it returns zero. The similar approach is used for the remainder of the Sukuk structure.

Table 2: Sukuk Structure

Sukuk structure	Code	Freq.	%
Murabahah	1	78	32.37
Ijarah	2	1	0.42
Wakalah	3	15	6.22
Hybrid	4	129	53.53
Mudarabah	5	9	3.73
Musyarakah	6	9	3.73

Prior research has documented a number of independent variables that affect bond/Sukuk rating and yield (Shaheen & Javid, 2014; Arundina et al., 2015; Grassa, 2016). This study uses a set of control variables that have been employed in previous studies, which are (1) coupon rate, (2) sukuk maturity, (3) issuance size, and (4) sukuk yield and sukuk rating (if dependent variable is sukuk rating and sukuk yield, respectively). All these data were sourced from multiple sources such as BNM Bond Info Hub, Malaysian Securities Commission website, Rating Agency Malaysia (RAM) and Malaysian Agency of Rating Corporation (MARC).

Model specification

This study employs a quantitative approach to investigate the relationship between sukuk structure and sukuk ratings and yields. The data were obtained from 207 corporate sukuk issuances in Malaysia. The dependent variables in the analysis are sukuk yield and sukuk rating, while the independent variables include coupon rate, maturity, size of issuance, sukuk yield (for ratings regression), and sukuk structure.

To test Hypothesis 1, which posits a significant relationship between sukuk structure and ratings, the following model is employed:

$$Sukuk\ Rating_i = \alpha_i + \beta_1 Coupon\ rate_i + \beta_2 Maturity_i + \beta_3 Size\ Issuance_i + \beta_4 Sukuk\ Yield_i + \beta_5 Sukuk\ strucuture_i + \in_i$$

Similarly, Hypothesis 2 examines the relationship between sukuk structure and yield using model specification for sukuk yields as follows:

$$Sukuk\ Yield_i = \alpha_i + \beta_1 Coupon\ rate_i + \beta_2 Maturity_i + \beta_3 Size\ Issuance_i + \beta_4 Sukuk\ Rating_i + \beta_5 Sukuk\ strucuture_i + \in_i$$

For robustness test, the model specification for sukuk ratings and yields by category of sukuk structure are as follows:

$$Sukuk\ Rating_i = \alpha_i + \beta_1 Coupon\ rate_i + \beta_2 Maturity_i + \beta_3 Size\ Issuance_i + \beta_4 Sukuk\ Yield_i + \beta_5 Sukuk\ strucuture_i = 1 + +\beta_6 Sukuk\ strucuture_i = 2 + \beta_7 Sukuk\ strucuture_i = 4 + \beta_8 Sukuk\ strucuture_i = 5 + \beta_9 Sukuk\ strucuture_i = 6 + \in_i$$

$$Sukuk\ Yield_i = \alpha_i + \beta_1 Coupon\ rate_i + \beta_2 Maturity_i + \beta_3 Size\ Issuance_i + \beta_4 Sukuk\ rating_i + \beta_5 Sukuk\ strucuture_i = 1 + +\beta_6 Sukuk\ strucuture_i = 2 + \beta_7 Sukuk\ strucuture_i = 4 + \beta_8 Sukuk\ strucuture_i = 5 + \beta_9 Sukuk\ strucuture_i = 6 + \in_i$$

Findings

Descriptive Statistics

The descriptive statistics for the sukuk dataset provide an overview of key characteristics and variability within the sample, highlighting the fundamental features of sukuk issuances. Table 3 above presents the descriptive statistics for six variables related to Sukuk used in this study. It summarizes the mean, median, maximum, minimum, standard deviation, and number of observations for six critical variables: sukuk yield, sukuk rating, coupon rate, maturity, issuance size, and sukuk structure.

The mean sukuk yield is 3.94% with a standard deviation of 0.48%, indicating relatively low variability across the sample. The median yield (3.90%) closely aligns with the mean, suggesting a symmetric distribution. The maximum yield observed is 5.55%, while the minimum is 0%, potentially reflecting cases of zero returns due to market conditions or sukuk-specific factors. The dataset contains 207 observations for this variable.

The sukuk rating, reflecting creditworthiness, has a mean value of 5.58, with a standard deviation of 0.50. The median rating is 6.00, and the range is between 5 and 6, indicating that the majority of sukuk in the sample possess high credit quality. With 241 observations, the ratings demonstrate limited variability, suggesting a robust and consistent risk profile across the sample.

The average coupon rate is 4.54%, with a median value of 4.36%, reflecting consistency in periodic payments made to sukuk holders. The standard deviation of 0.89% further supports the stability in coupon rates, with a range from 2.67% to 6.85%. This limited variability suggests that sukuk issuers tend to maintain competitive and predictable financing costs. The dataset includes 241 observations for this variable.

The mean maturity of sukuk in the sample is 8.02 years, with a median of 9.00 years. Maturities range widely from 1 to 25 years, with a standard deviation of 4.63 years, indicating significant heterogeneity in the tenor of sukuk issuances. This diversity reflects the ability of sukuk to cater to both short-term liquidity needs and long-term financing requirements. The variable includes 241 observations.

The average issuance size is 19.54 million, with a standard deviation of 0.92. The median value (19.52) is closely aligned with the mean, indicating a consistent scale of sukuk offerings. The issuance sizes range from 16.12 to 21.82 units, highlighting the standardized nature of sukuk financing. A total of 241 observations are recorded for this variable.

The sukuk structure, categorized numerically, has a mean value of 3.01 and a standard deviation of 1.55, suggesting that on average, that the typical sukuk structure is Wakalah with moderate risk and there is a moderate level of variability in structural types. The median value is 4.00, with a range spanning from 1 to 6, reflecting the dataset is more towards Hybrid sukuk, with Murabahah and Mudarabah as the lowest and highest risk, respectively. This variable contains 240 observations.

The descriptive statistics highlight several key trends in the sukuk market. The consistency in yields, ratings, coupon rates, and issuance sizes suggests a standardized and stable market environment. On the other hand, the variability in maturity and sukuk structure reflects the flexibility of sukuk as an instrument capable of meeting diverse investor and issuer preferences. These findings underscore the attractiveness of sukuk as a secure and versatile investment vehicle, particularly in a Shariah-compliant context.

Table 3: Descriptive statistics

Variable	Mean	Median	Max.	Min.	Std. Dev.	Obs.
Sukuk Yield	0.0394	0.0390	0.0555	0.0000	0.0048	207
Sukuk Rating	5.5768	6.0000	6.0000	5.0000	0.4951	241
Coupon Rate	0.0454	0.0436	0.0685	0.0267	0.0089	241
Maturity	8.0166	9.0000	25.0000	1.0000	4.6332	241
Size Issuance	19.5413	19.5193	21.8219	16.1181	0.9239	241
Sukuk Structure	3.0125	4.0000	6.0000	1.0000	1.5483	240

Correlation Analysis

The correlation analysis presented in Table *4* reveals significant relationships between various Sukuk-related variables, providing insights into how structural and financial elements interact. Notably, Sukuk Rating shows a negative correlation with Sukuk Yield (-0.3588), indicating that higher-rated Sukuk (ie low risk) tend to offer lower yields, consistent with traditional risk-return dynamics in financial markets. This relationship is statistically significant, as reflected by the t-statistic of -5.5045*. Similarly, Coupon Rate exhibits a strong positive correlation with Sukuk Yield (0.4261), suggesting that higher coupon rates are associated with higher yields (t = 6.74345*), while showing a strong negative correlation with Sukuk Rating (-0.6026), implying that Sukuk with higher coupon rates are often lower rated (t = -10.8116*).

Maturity has a moderate positive correlation with Sukuk Yield (0.2818) and Coupon Rate (0.5498), indicating that longer maturities are linked to higher yields and coupon rates. However, it has a negative correlation with Sukuk Rating (-0.2914), suggesting that longer-term Sukuk tend to have lower credit ratings (t = -4.36226*). Interestingly, Size of Issuance shows minimal correlation with Sukuk Yield (0.0363) but is positively correlated with Sukuk Rating (0.3032), indicating that larger issuances may be associated with better credit ratings (t = 4.5548*). Finally, Sukuk Structure shows a negligible relationship with Sukuk Yield (-0.0221; t =-0.3163), positive correlation with Sukuk Rating (0.2012; t = 2.9406) but exhibits a negative correlation with Maturity (-0.1747), implying that certain Sukuk structures are associated with shorter maturities (t = -2.5401*).

Overall, the analysis highlights that while traditional financial variables like coupon rate, maturity, and size of issuance play significant roles in determining Sukuk yields and ratings, the structural elements of Sukuk show more nuanced, less consistent effects.

Table 4: Correlation

Correlation **t-Statistic** **Probability**	**Sukuk Yield**	**Sukuk Rating**	**Coupon Rate**	**Maturity**	**Size Issuance**	**Sukuk Structure**
Sukuk Yield	1.0000					

Sukuk Rating	-0.3588	1.0000				
	-5.5045	-----				
	0.0000	-----				
Coupon Rate	0.4261	-0.6026	1.0000			
	6.7435	-10.8116	-----			
	0.0000	0.0000	-----			
Maturity	0.2818	-0.2914	0.5498	1.0000		
	4.2056	-4.3623	9.4247	-----		
	0.0000	0.0000	0.0000	-----		
Size Issuance	0.0363	0.3032	-0.2905	0.1739	1.0000	
	0.5200	4.5548	-4.3462	2.5278	-----	
	0.6036	0.0000	0.0000	0.0122	-----	
Sukuk Structure	-0.0221	0.2012	0.0690	-0.1747	-0.0321	1.0000
	-0.3163	2.9406	0.9897	-2.5401	-0.4601	-----
	0.7521	0.0037	0.3235	0.0118	0.6460	-----

Note:

Sukuk structure 1 = Mudarabah; 2 = Ijarah; 3 = Wakalah; 4= Hybrid; 5 = Mudarabah and 6 = Musyarakah

Sukuk ratings C1, C2, C3, C+, C, C-=1; B1, B2, B3, B+, B, B-=2; BBB1, BBB2, BBB3, BBB+, BBB, BBB-=3; A1, A2, A3, A+, A, A-=4; AA1, AA2, AA3, AA+, AA, AA-=5 AAA=6

Results

The multiple regression analyses presented in Table 5 provide compelling evidence about the factors influencing Sukuk yields and credit ratings. Using two distinct methodological approaches, one that aggregates Sukuk structures into a single variable and another that treats them as categorical dummy variables, the models examine the influence of various financial and structural factors, including coupon rate, maturity, size of issuance, and Sukuk structure. The findings reveal both consistent patterns and notable divergences, contributing to a deeper understanding of how these variables interact within the Sukuk market.

Determinants of Sukuk Yield

The regression results indicate that the coupon rate remains a significant determinant of Sukuk yields across both estimation techniques, though the magnitude and interpretation vary based on how Sukuk structures are measured. In Model 1, where Sukuk structures are aggregated into a single variable, the coupon rate shows a positive coefficient of 0.1998 ($p = 0.0002$), indicating that higher coupon rates are associated with higher yields. This aligns with conventional financial theories, where higher fixed returns compensate for increased risk exposure. Similarly, in Model 3, where Sukuk structures are treated as categorical dummy variables, the coupon rate exhibits a slightly stronger effect with a coefficient of 0.2208 ($p = 0.0000$), reaffirming its role as a primary driver of Sukuk yields.

The size of issuance also demonstrates a consistent positive and statistically significant relationship with Sukuk yields across both models. In Model 1, the coefficient is 0.0012 ($p = 0.0038$), and in Model 3, it remains significant at 0.0010 ($p = 0.0067$). These findings suggest that larger Sukuk issuances may require slightly higher yields to attract a broader investor base, possibly due to increased market exposure or liquidity considerations. The consistency of this relationship across both measurement techniques highlights the robustness of issuance size as a determinant of yield performance.

Conversely, maturity does not exhibit a significant impact on Sukuk yields in either model. In Model 1, the coefficient is essentially zero (0.0000) with a p-value of 0.7865, while in Model 3, the coefficient remains negligible (0.0000) and statistically insignificant ($p = 0.9308$). This finding diverges from traditional bond market behavior, where longer maturities typically correlate with higher yields due to increased interest rate and default risks. The insignificance of maturity in this context may reflect unique characteristics of Sukuk, such as asset-backing and risk-sharing mechanisms, which potentially mitigate the typical risk premiums associated with longer maturities.

The most notable difference between the two models arises from the measurement of Sukuk structures. In Model 1, where all Sukuk structures are combined into a single variable, the overall effect on yield is statistically insignificant (coefficient = 0.0000, $p = 0.9357$). However, in Model 3, where individual structures are represented as dummy variables, several structures show statistically significant positive coefficients. For instance, Sukuk Structure 6 demonstrates the strongest impact with a coefficient of 0.0193 ($p = 0.0095$), while Structures 1 through 5 also exhibit significant positive relationships with yields. This suggests that when disaggregated, specific Sukuk structures materially influence yield outcomes, highlighting the importance of structural design in shaping investor return expectations. The adjusted R-squared for Model 3 is 0.2491, indicating that approximately 25% of the variation in Sukuk yields is explained by the included variables, leaving room for further exploration of additional determinants.

Determinants of Sukuk Ratings

The determinants of Sukuk ratings present a more complex and nuanced picture, particularly when comparing models that aggregate Sukuk structures versus those that disaggregate them. In Model 2, where Sukuk structures are combined into a single variable, the coupon rate exhibits a strong negative coefficient of -30.101000 ($p = 0.0000$). This suggests that higher coupon rates, while attractive to investors, are perceived by rating agencies as indicative of higher risk, leading to lower Sukuk ratings. However, in Model 4, where Sukuk structures are treated as categorical variables, the relationship between coupon rate and Sukuk ratings weakens significantly. The coefficient for coupon rate drops to -26.1728 ($p = 0.0000$), but it still reflects the same negative relationship between higher coupon rates and lower ratings.

The size of issuance consistently shows a positive and significant relationship with Sukuk ratings across both models. In Model 2, the coefficient is 0.0801 ($p = 0.0231$), while in Model 4, the coefficient remains significant at 0.0913 ($p = 0.0028$). This suggests that larger Sukuk issuances are generally associated with higher credit ratings, potentially reflecting issuer credibility, greater investor confidence, or more rigorous due diligence processes associated with large-scale financial instruments. The consistency of this relationship across models reinforces the importance of issuance size as a determinant of creditworthiness.

The influence of Sukuk structures on credit ratings becomes particularly pronounced when these structures are disaggregated. In Model 4, all Sukuk structures (1 through 6) exhibit positive and highly significant coefficients, underscoring their critical role in determining credit ratings. For example, Sukuk Structure 5 shows a coefficient of 5.4700 ($p = 0.0000$), while Structure 6 has a coefficient of 4.7025 ($p = 0.0000$). These findings suggest that certain structural designs, particularly those emphasizing risk-sharing principles or innovative features, are perceived as more creditworthy by rating agencies. In contrast, Model 2, which aggregates Sukuk structures into a single variable, shows a significant overall effect (coefficient = 0.0860, $p = 0.0000$), but this approach masks the nuanced differences between individual structures.

Interestingly, maturity does not significantly influence Sukuk ratings in either model, with p-values of 0.2753 in Model 2 and 0.2914 in Model 4. This finding contrasts with conventional fixed-income securities, where longer maturities typically attract higher risk assessments and lower ratings. The insignificance of maturity in the context of Sukuk may be attributed to the mitigating effects of Shariah-compliant features, such as asset-backing and contractual safeguards, which reduce the perceived risk associated with longer terms.

The adjusted R-squared for Model 4 is 0.5905, indicating that nearly 60% of the variation in Sukuk ratings is explained by the model. This suggests a robust explanatory power, particularly when structural variations are accounted for in a disaggregated manner. However, the explanatory power of Model 2 is substantially lower (adjusted R-squared = 0.44691), highlighting the limitations of aggregating Sukuk structures into a single variable.

Table 5: Results of The Multiple Regression Analyses

	Estimation technique 1						Estimation technique 2					
	Model 1: Sukuk Yield			Model 2: Sukuk Rating			Model 3: Sukuk Yield			Model 4: Sukuk Rating		
Variable	**Coefficient**	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**
Constant	0.0183	1.8823	0.0612	5.6007	7.5543	0.0000						
Coupon Rate	0.1998	3.7794	0.0002	-30.1010	-7.2159	0.0000	0.2208	4.3673	0.0000	-26.1728	-7.0883	0.0000
Maturity	0.0000	-0.2712	0.7865	0.0079	1.0938	0.2753	0.0000	-0.0869	0.9308	-0.0071	-1.0580	0.2914
Size Issuance	0.0012	2.9315	0.0038	0.0801	2.2901	0.0231	0.0010	2.7391	0.0067	0.0913	3.0279	0.0028
Sukuk Structure	0.0000	-0.0808	0.9357	0.0860	4.7093	0.0000						
Sukuk Structure =1							0.0162	2.1458	0.0331	4.9533	7.6745	0.0000
Sukuk Structure =2							0.0161	2.2048	0.0286	5.5820	8.6143	0.0000
Sukuk Structure =4							0.0149	2.0271	0.0440	5.3774	8.3031	0.0000
Sukuk Structure =5							0.0181	2.4163	0.0166	5.4700	8.2794	0.0000
Sukuk Structure =6							0.0193	2.6189	0.0095	4.7025	6.9548	0.0000
Sukuk Rating	-0.0020	-2.4057	0.0170				-0.0010	-1.4531	0.1478			
Sukuk Yield				-14.3103	-2.4057	0.0170				-5.9129	-1.1096	0.2685
Adjusted R-squared	0.2158			0.44691			0.2491			0.5905		
No. of observation	207			207			207			207		

Note:

Sukuk structure 1 = Mudarabah; 2 = Ijarah; 3 = Wakalah; 4= Hybrid; 5 = Mudarabah and 6 = Musyarakah
Sukuk ratings C1, C2, C3, C+, C, C-=1; B1, B2, B3, B+, B, B-=2; BBB1, BBB2, BBB3, BBB+, BBB, BBB-=3; A1, A2, A3, A+, A, A-=4; AA1, AA2, AA3, AA+, AA, AA-=5 AAA=6

Discussion

One of the most consistent findings across the current study and prior literature is the significant influence of the coupon rate on Sukuk yields. The positive relationship between coupon rate and yield, as evidenced in both Model 1 and Model 3, aligns with the findings of Muhamed et al. (2022) and Arundina et al. (2015), who similarly observed that higher coupon rates are associated with higher yields in the Malaysian Sukuk market. This relationship is consistent with conventional finance theory, particularly the risk-return trade-off principle, which posits that higher returns are required to compensate for greater perceived risk. The fact that this relationship holds true even within the Shariah-compliant structure of Sukuk indicates that, while these instruments are distinct from conventional bonds, they still adhere to fundamental financial principles.

Similarly, the issuance size was found to have a positive and significant influence on both Sukuk yields and Sukuk ratings, echoing earlier evidence from Al Homsi et al. (2022) and Nimah et al. (2020). Larger issuances tend to be regarded as less risky because they typically signal stronger issuer credibility, enhanced market liquidity, and a wider base of investors. These results imply that market confidence in sizeable Sukuk issues is not confined to a single region, rather, the interplay of issuance scale and issuer reputation appears to be a universal determinants of financial outcomes within Islamic capital markets.

Furthermore, structural characteristics of Sukuk emerge as critical. Consistent with Alhammadi et al. (2024) and Muhamed et al. (2022), the present study finds that the specific contractual from, debt-based, equity-based, or hybrid, shapes how rating agencies judge creditworthiness. Using Model 4, which differentiates Sukuk types a categorical variables, the study identifies that non-*Wakalah* structures, notably *Ijara*, *Musyaraka*h and hybrid arrangements are linked to higher credit ratings than *Wakalah*. *Mudarabah* also exhibits a positive, albeit smaller, effect. These outcomes lend further support to the argument that risk-sharing designs align with Shariah principles and are viewed as carrying lower credit risk.

The findings diverge from prior research in at least one important respect. Maturity does not significantly affect either yields or ratings in any of the models, in contrast to the Indonesian evidence reported by Nimah et al. (2020). Classical financial theory suggests that longer maturities are associated with higher yields and attract lower credit ratings because of greater exposure to risk of default and interest rate volatility. Yet, in Malaysia, distinct features of Sukuk, such as asset-backing, profit-and-loss sharing, and Shariah compliance features , may mitigate or reduce these typical maturity risks. This differences highlights how regional market structures and regulatory environments can reshape the risk profile of long-term Islamic instruments, positioning Malaysian Sukuk as potentially more resilient to maturity related concerns compared to other jurisdictions.

Another notable difference is the varying impact of Sukuk structures on yields. While previous studies, such as Muhamed et al. (2022), identified a strong relationship between Sukuk structures and yield performance, the current study finds this relationship to be less consistent. In Model 1, where Sukuk structures are aggregated into a single variable, the effect on yields is statistically insignificant. However, when structures are disaggregated in Model 3, several specific structures show significant positive effects on yields. This inconsistency suggests that prior research may have oversimplified the role of structural variations by not accounting for the nuanced differences between individual Sukuk designs. The current study's findings imply

that while some structures may enhance yields, others may have negligible or even opposite effects, underscoring the need for more granular analyses in future research.

Contributions to Theory and Literature

The results of this study contribute to the theoretical understanding of Islamic finance by demonstrating that while Sukuk share many characteristics with conventional bonds, their unique structures introduce complexities that require a more nuanced theoretical framework. The significant role of coupon rate and size of issuance in determining yields and ratings supports the application of traditional financial theories, such as the Capital Asset Pricing Model (CAPM) and risk-return trade-off theory, within the context of Sukuk markets. This suggests that, despite their distinct regulatory and ethical foundations, Sukuk operate under many of the same financial principles as conventional securities.

However, the findings related to Sukuk structures challenge the adequacy of purely conventional models in explaining Sukuk performance. The strong influence of structural variations on credit ratings, particularly when disaggregated, highlights the need for theoretical models that integrate Shariah compliance considerations, risk-sharing principles, and asset-backing mechanisms. These findings suggest that the Agency Theory—which focuses on the conflicts between principals and agents—may need to be adapted to account for the unique governance and compliance structures in Islamic finance. Similarly, the Signaling Theory, which posits that certain financial characteristics signal information to the market, could be expanded to include the signaling effects of Sukuk structures, particularly in relation to Shariah compliance and ethical considerations.

A break from traditional term structure theories of interest rates, such the Expectation Theory and Liquidity Preference Theory, is also suggested by the insignificance of maturity un setting yields and ratings. New theoretical frameworks that better capture these processes are required since the link between maturity and financial performance may be fundamentally altered by the distinctive risk-mitigation elements of Sukuk, such as profit-and-loss sharing and collateralization with tangible assets.

The present study adds significantly to the body of knowledge on Sukuk and Islamic finance in a number of ways. First, this study offers a more thorough knowledge of how particular structural designs affect financial performance by breaking down Sukuk structures into categorical categories. Prior research frequently viewed Sukuk structure as a single variable, which may have obscured significant differences among Sukuk varieties. The results show that some structures are more positively viewed by rating agencies and may provide greater yields, especially those that emphasize risk-sharing and creative characteristics. This information is useful for practitioners and policymakers.

Second, the study's methodology emphasizes the significance of model specification in empirical research by using both aggregated and disaggregated measures of Sukuk structures. The requirement for strong econometric methods and sensitivity analysis to guarantee the validity of results is highlighted by the difference in outcomes between models. This methodological contribution, which implies that the choice of measurement methods might have a major impact on the interpretation of data, is very pertinent for future

Third, the study’s finding that maturity does not significantly influence Sukuk yields and ratings challenges existing assumptions in the literature and opens new avenues for research. This result suggests that the unique features of Sukuk—such as Shariah compliance, asset-

backing, and risk-sharing mechanisms—may mitigate the traditional risks associated with longer maturities, offering a new perspective on the factors that drive financial performance in Islamic finance.

Implications for Future Research

The findings of this study have several implications. First, given that the maturity has little influence on yields and ratings, more research is necessary to determine how Shariah compliant features like asset-backing, profit and loss sharing and risk mitigation techniques might change the conventional assessments that are usually connected to longer term financial products. Future studies should examine if this pattern is consistent in other jurisdictions outside Malaysia, such as Indonesia or the GCC countries, where market dynamics and regulatory frameworks are different. Additionally, even though this study emphasizes how particular Sukuk structures impact financial performance, little is known about the underlying mechanisms by which these structures impact investor perceptions and credit evaluations. In order to better understand the reasons influencing these results, more research should use qualitative techniques or case studies to examine how rating agencies and investors make decisions. Furthermore, including macroeconomic factors as interest rate settings, inflation rates and regulatory changes could improve the explanatory power of future models and provide a more comprehensive picture of Sukuk performance. Lastly, expanding on the work of Arundina et al (2015), the use of sophisticated econometric methodologies and machine learning models may offer more subtle insights into the predictive power of Sukuk yields and ratings, especially when examining sizable and intricate datasets. Future studies can help create a more thorough theoretical framework for comprehending the special traits and performance factors of Sukuk in international financial markets by filling in these gaps.

Conclusion

This study provides insights into the influence of Sukuk structures on Sukuk yields and Sukuk credit ratings in Malaysia corporate Sukuk market. It utilizes cross-sectional regression analysis on a sample of 207 Sukuk issuances between 2003 and 2024. The findings reveal important relationships and give both theoretical and empirical contribution in understating of Sukuk in Islamic finance. First, in line with conventional financial theory, specifically, the risk return trade-off, the coupon rate become a major factor in determining Sukuk yields and an inverse predictor of Sukuk ratings. Higher coupon rates are connected with higher yields, compensating investors for greater perceived risk, while concurrently associating with lower credit ratings, representing increased credit risk from the perspective of rating agencies. These findings are consistent with earlier studies, such as those by Muhammad et al (2022) and Arundina et al (2015) and they support the idea that Sukuk still function according to standard financial principles even with their distinctive Shariah compliant features.

Second, it was found that Sukuk structures have a major impact on credit ratings, with higher credit ratings being linked to structures that emphasize risk-sharing like *Mudarabah* and *Musharakah*. These findings corroborate those of Alhammadi et al. (2024) and Al Homsi et al. (2022), who emphasized how structural design influences rating agency evaluations. But there was a more complex relationship between Sukuk structures and yields. Disaggregated models demonstrated that particular structures do, in fact, affect yield outcomes, although aggregated measures of structure demonstrated no effect on yields. This discrepancy emphasizes the significance of granular analysis in future study and raises the possibility that earlier studies may have oversimplified the relevance of structural changes.

It is interesting to note that maturity had no discernible impact on Sukuk yields or ratings, which contradicts conventional financial theories like the Liquidity Preference Theory and Expectation Theory. This is in contrast to research conducted in Indonesia, where maturity was a major factor (Nimah et al., 2020). The study's lack of maturity effects indicates that the distinctive characteristics of Malaysian Sukuk, such as asset-backing, profit and loss sharing, and Shariah compliance may lessen the typical risks connected to longer-term financial products. This finding necessitates a reassessment of term structure theories in light of Islamic financing. From a theoretical perspective, this study advances the fusion of Islamic finance principles with traditional financial theories. The impact of Sukuk structures on financial outcomes requires an extension of theoretical frameworks to include Shariah compliance principles and risk sharing mechanisms, even though standard factors like coupon rate and issue size fit into classical models. The results lend credence to the necessity of modifying models like Agency Theory and Signaling Theory in order to better accommodate the distinctive features of Islamic financial instruments.

Empirically, this study fills a critical gap in the literature by providing updated, Malaysia-specific evidence on the interplay between Sukuk structures, yields, and ratings. Malaysia's dominance in the global Sukuk market, coupled with its diverse range of Sukuk structures, offers a unique setting for exploring these dynamics. The disaggregation of Sukuk structures in the analysis not only provides deeper insights into the role of structural variations but also highlights the importance of methodological rigor in empirical research.

While this study offers robust insights, it also identifies several areas for future research. The insignificant role of maturity warrants further exploration, particularly through comparative studies across different jurisdictions such as GCC countries and Indonesia, where regulatory frameworks and market dynamics may differ. Additionally, incorporating macroeconomic variables, regulatory changes, and Shariah governance quality could enhance the explanatory power of future models. The application of advanced econometric techniques and machine learning models may also provide more nuanced insights into the predictive factors of Sukuk yields and ratings, particularly in analyzing large and complex datasets.

In conclusion, this study advances the understanding of the determinants of Sukuk yields and ratings, offering important implications for investors, issuers, rating agencies, and policymakers in the Islamic finance sector. The evolving landscape of Sukuk markets, characterized by structural innovations, regulatory developments, and increasing global adoption, necessitates ongoing empirical investigation to capture the dynamic interplay between financial and structural determinants. By addressing these complexities, future research can contribute to the development of a more comprehensive theoretical and practical framework for Sukuk, further solidifying their role as a cornerstone of Islamic finance.

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