



## Global Risk Aversion and Returns from Faith-Based Assets Across Market Conditions

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### Abstract

*This study renders an empirical documentation of the resilience of Islamic stocks, from various sectors of economic activity, as a safe-haven and hedge against global risk aversion (GRA) during bullish, normal, and bearish market conditions. Using the causality-in-quantiles and quantile regression techniques, the analysis reveals that (i) GRA significantly predicts the returns from Islamic stocks across quantiles, (ii) faith-based stocks belonging to both the “real” and “services-driven” sectors retain their safe-haven and hedge attributes against GRA across various economic conditions, and (iii) assets from the real sector are more attractive than those from the services-driven sector. These findings underscore the importance of sectoral composition in determining the effectiveness of faith-based assets as risk mitigation tools. Moreover, the asymmetric and nonlinear dependence structures observed across quantiles suggest that investors’ preferences for Islamic equities are heightened during periods of elevated global uncertainty. The study contributes to the growing body of literature on ethical investing by offering fresh insights into the dynamic relationship between global risk aversion and the performance of Islamic financial instruments. Policy implications are discussed for portfolio managers, institutional investors, and regulators aiming to enhance market stability through diversification into resilient, faith-based asset classes.*

## Introduction

Financial market turmoil-driven events, like the global financial crisis, European debt crisis, and the coronavirus pandemic, continuously revive investors' interest in safe-haven assets owing to amplified risk aversion in such event periods. Accordingly, the relationship between risk aversion and safe-havens across different economic states has pivotal implications for risk management. This paper is focused on investigating the asymmetric effects of global risk aversion on Islamic sectoral stock returns. Thus, depending on the level of risk aversion, we document the degree of change in returns from faith-based stocks covering different sectors of economic activity and across the bullish, normal, and bearish market conditions. We measure risk aversion using Bekaert et al.'s (2022) global risk aversion (GRA) index, which was recently developed based on daily observable financial data. The GRA presents an unbiased metric of time-varying risk aversion in financial markets globally because it splits the time-varying attribute of risk into the volume of risk (economic uncertainty) and the price of risk (risk aversion) (Umar et al., 2023; Wu et al., 2022).

Risk aversion embodies the sentiment carried by investors towards risky investments. Based on their risk aversion levels, investors regulate the fraction of high-risk and fairly safe-haven assets (Demirer et al., 2018). Therefore, by extension, risk aversion can measure the level of demand for safe-haven assets, which by their character, should be able to provide adequate returns in stressed periods (Baur & Lucey, 2010). It is worth noting that while the existing studies on safe-haven assets mainly utilize the EPU and VIX as risk measures for investor sentiment during crises, studies that utilize risk aversion, to measure investor fear, focus on conventional assets like stocks, gold, oil, and forex (Dai & Chang 2021; Demirer et al, 2019, 2021; Wu et al., 2022). We extend the aforementioned evidence by envisaging the role of risk aversion in predicting the returns of Shariah-compliant stocks. We investigate whether GRA possesses a significant predictive power on various quantiles of Islamic sectoral stock returns. Although equities from the Islamic faith-compliant companies have been attracting increasing attention from diverse types of investors as a hedge or possible diversifier in various market conditions, there is a lack of empirical evidence on their safe-haven and hedge attributes against global risk aversion (GRA).

We employ a two-step approach. First, the causality-in-quantiles technique is used to confirm whether GRA predicts faith-based stock returns. Second, we probe into the asymmetric relationships by analysing how different distributions of faith-based stock returns respond to various quantiles of GRA using the nonparametric quantile-on-quantile regression technique. This is the first study to document the asymmetric effects of risk aversion on Shariah-compliant stocks across different economic sectors.

The rest of the paper is structured as follows. The next section discusses the theoretical foundation and analyses the related studies. section three deals with the methods used to collect and analyse the empirical data. Section four discusses the key findings of the study. Finally, section five concludes that section and offers recommendations.

## Literature Review

### *Theoretical Overview*

According to prospect theory, investors are loss-averse and much more sensitive to potential losses than equivalent gains; with greater uncertainty or distress, the investors would move away from risky assets into perceived safe assets (Levy, 1992). "Global Risk Aversion Index," as proposed by Bekaert et al. (2021), can quantify the risky assets as an index capturing such shifts in sentiment. The increasing risk-averse investor sentiment would increase demand for safe-haven assets (Azad & Devi, 2024). This study's Measurement of risk aversion uses a GRA proxy to measure it as a behavioural measure of "fear or uncertainty" in driving investors towards safer asset classes. Similarly, the safe-haven asset theory highlights some assets' role in shielding against the impacts of market downturns

(Ji et al., 2020; Kopyl & Lee, 2016). That is, the price of a particular safe asset will be intact or appreciated in a period of market turmoil (Nguyen & Liu, 2016). This has become quite important in modern finance with increased volatility from global events such as the financial crisis of 2008 and COVID-19. Whereas traditional studies focus on gold, US Treasuries, or foreign exchange, this research adds to the theory by checking the potential of Islamic stocks defined by the economic sector to become sound-safe havens and hedges under differing levels of global risk aversion. Third, this study relies on the ethical and faith-based investing theory, which points out these non-financial motivations behind investment decisions (Munte H.J, 2022). Ethically structured investments all fall within the purview of Islamic ethical criteria activities that are speculative, interest-based, or socially harmful.

These principles provide the basis for selecting assets and may strengthen survival in harsh times owing to avoiding overleveraged and speculative companies (Kolari et al., 2023). The moral screening of Islamic finance and the emphasis on real economic activity could result in the forms being perceived as stable, thus making such assets alluring at times of panic and risk aversion among investors (Alshater et al., 2022; Hussain et al., 2016). Hence, the returns could vary between Islamic equity and traditional equities in basic materials, healthcare, and utility classes, as both inputs and outputs are built on real assets and essential services (Harahap et al., 2023). This research contributes to the theoretical lens by placing faith-driven sector stocks as potentially firm-sustaining assets in adverse financial environments. On the other hand, the study posits that risk aversion as a behavioral measure of investor sentiment would conduct sizeable fear and attraction to such assets in various market scenarios.

### *Review of Related Literature*

The theoretical complexity of global risk aversion (GRA) plus Islamic stocks relates to numerous global economic uncertainties and the nature of principles of Islamic finance. The Islamic stock indices, the Dow Jones Islamic Market Index, face global economic policy uncertainty (GEPU), geopolitical risk (GPR), and the CBOE Volatility Index (VIX) (Kazak et al., 2024). A limited effect from the GPR and World Uncertainty Index (WUI) exists on the Islamic equity markets; this suggests that they are somewhat insulated from global risks (Kazak et al., 2024). Arshad and Rizvi (2014) showed that Islamic indices exhibited a low correlation with conventional indices, establishing Islamic stocks as relatively insulated or protecting investment alternatives during global risk aversion. Comparisons of Islamic and conventional stocks yield no significant mean differences in returns and levels of risk, indicating that Islamic stocks do not have lower risk levels by nature (Marlinda & Syahputra, 2024). Furthermore, Islamic equities primarily couple with global benchmarks, suggesting they may not be a safe haven across periods of high GRA (Sifat et al., 2022).

Furthermore, the paradigms of Islamic finance prohibit the acceptance of interest, excessive uncertainty, and speculative activities, enhancing resilience to Islamic stocks while promoting asset-backed financing, profit-and-loss sharing models, linking financial activities with the real economy, and instilling long-term stability (Alisic et al., 2024). Chowdhury et al. (2021) claim that Islamic stocks recorded relatively lower drawdowns and a faster recovery rate throughout the contagion period than other segments of the economy. The researchers have also suggested that Shariah principles such as risk-sharing and ethical investor-oriented approaches have put Islamic stocks resilient despite very high levels of global risk aversion. Choiruddin et al. (2025) stipulate Islamic finance as an agent for speculation risk mitigation and market stability. Besides that, competition seems instigated by promises for returns and lower volatility among peers of the conventional markets. Balçılar et al. (2015) state that the Islamic equity venues, for the major part, exhibit possible positive risk exposures during shocks originating from the developed markets.

Negative exposures during the crash periods have been observed, particularly in Consumer Services, Oil & Gas, and Technology, thus indicating possible safe haven features during global risk aversion. Islamic equity indices tend to show robustness against the Geopolitical Risk (GPR) and the Economic Policy Uncertainty (EPU), most particularly, in the consumer goods and financial sectors

(Hasan et al., 2023). Further, it must be noted that no Islamic indices, however, showed resilience against Oil Market Volatility (OVX); hence, one can assert sector-specific vulnerabilities.

Nevertheless, changes in global risk aversion have significant implications for future real economic activity, which makes Islamic stocks vulnerable to GRA-induced swings in broader economic cycles (Kim et al., 2024). Islamic portfolios, particularly those that regularly include their share of ESG-containing stocks, have outperformed conventional portfolios on the scale of risk aversion during stable and crisis periods (Asl et al., 2024). On average, combined with ESG investments, energy, and utilities sectors raise average returns, and it seems that these sectors might be resilient to global risk aversion since they are driven by ethical and sustainable investment focus. Concerning resilience and vulnerability to market dynamics, it deals with Islamic stocks, which are seen as foreign to factors like usury, speculation, and uncertainty shunned by Sharia-compliant ones (Sepvira et al., 2024). Yet despite that resilience, Islamic stocks are not entirely immune to global market fluctuations, as demonstrated by their tendency to succumb to market contagion during the global financial crisis (Hoque et al., 2024). The size anomaly in Islamic stock indices shows that for certain regions, namely Asia/Pacific and Europe, small-sized portfolios fare better than large-sized ones for risk-averse investors (AlKhazali et al., 2022). This indicates that investor behavior and aversion to risk can influence how well Islamic stocks perform, having better returns when dealing with smaller firms in specific markets. GRA affects Islamic stocks but offers opportunities for diversification and ethical investment per se. While Islamic stocks have a certain resilience against speculation types of market risks or too much uncertainty, they may give investors a chance for a more stable investment environment in volatile markets. Such Islamic stocks are thus susceptible to global uncertainties and market contagion, indicating that they are not fully insulated from the dynamics in the wider market. This dual nature of Islamic stocks stresses the relevance of strategic portfolio management and, specifically, sector consideration in the investment decision process.

## Research Methods

Based on the longest matching available data from Bloomberg, we utilise daily returns from Islamic stocks of ten sectors spanning from 02-Jan-2013 to 29-Jul-2021. We statistically (pictorially) describe the data in Table 1 (Figure 1). All series exhibited various volatility clusters, were leptokurtic, negatively skewed, and non-normally distributed. However, they were stationary, making the use of the QQR approach adequate.

**Table 1.** Sample statistics.

	Mean	Skewness	Kurtosis	Jarque-Bera	ADF	PP
Basic Materials	0.0001	-0.7869	15.4795	0.8956 <sup>a</sup>	-41.9645 <sup>a</sup>	-14.9034 <sup>a</sup>
Consumer Goods	0.0004	-1.3424	18.2628	0.8758	-45.0344 <sup>a</sup>	-14.7570 <sup>a</sup>
Consumer Services	0.0004	-1.7984	34.0488	0.8286	-48.8032 <sup>a</sup>	-15.2197 <sup>a</sup>
Oil & Gas	-0.0002	-1.2766	23.8175	0.8438	-53.1057 <sup>a</sup>	-14.9960 <sup>a</sup>
Financials	0.0005	-0.7113	23.5901	0.8334	-45.7854 <sup>a</sup>	-15.5771 <sup>a</sup>
Healthcare	0.0005	-0.5861	9.3234	0.917	-44.0021 <sup>a</sup>	-14.4224 <sup>a</sup>
Industrials	0.0005	-1.0039	18.6689	0.8643	-47.9586 <sup>a</sup>	-15.5080 <sup>a</sup>
Technology	0.0007	-0.8307	13.3953	0.8885	-50.9964 <sup>a</sup>	-15.6588 <sup>a</sup>
Telecoms	-0.0001	-0.2695	4.7191	0.9579	-42.3321 <sup>a</sup>	-42.2208 <sup>a</sup>
Utilities	0.0000	-0.4732	4.9186	0.9513	-42.0673 <sup>a</sup>	-41.8810 <sup>a</sup>
GRA	-0.0001	-1.6188	25.6663	0.9177	-46.1568 <sup>a</sup>	-46.1640 <sup>a</sup>

*Notes:* ADF and PP are the stationarity tests of Augmented Dickey Fuller and Phillips-Perron, respectively. <sup>a</sup> denotes 1% significance level for the various test statistics.

Methodologically, the QQR approach of Sim and Zhou (2015) applies nonparametric processes along with the quantile regression (QR) model, which makes an extension of the traditional linear regression

to reveal the effect of a regressor on various distributions of the regressand. With the QQR, we can analyse how various quantiles of the regressor affect the distinct distributions of the regressand (Agyei, 2022; Bossman et al., 2022). In this study, we employ the QQR approach to document how different quantiles of GRA interact with the various return distributions of faith-based stocks.

The QQR model is formularized as:

$$Returns_t = \beta^\theta(GRA_t) + u_t^\theta. \quad (1)$$

Here, at period  $t$ ,  $Returns_t$  and  $GRA_t$  are sector-based Islamic stock returns and risk aversion, respectively;  $\beta^\theta(\bullet)$  is the QQR estimate between the observed values of  $Returns_t$  and  $GRA_t$ ;  $\theta$  is the  $\theta$ th quantile of the conditioned distribution of stock returns, and  $u_t^\theta$  is the quantile residual, which is expected to have a zero conditional  $\theta$ th quantile.

We maintain Sim and Zhou's (2015) recommended bandwidth value of  $h = 0.05$ . The steps involved in the causality-in-means test employed as a preliminary analysis is consistent with Umar et al. (2022).

## Results

### Causality-in-quantile means

The causality-in-quantiles analysis captures all conditioned quantiles of returns. The t-statistics from the causality-in-quantile means are graphically (numerically) reported in Figure 2 (Table 2), showing the predictive power of GRA on returns from faith-based stocks across the ten sectors of economic activity. The horizontally displayed solid lines show a 1.96 (95%) critical value, with the null hypothesis: changes in faith-based sectoral stock returns are not Granger-caused by GRA.

The results show that GRA significantly Granger-causes the changes in faith-based stock returns across all quantiles with a few exceptions at the extreme tails. Thus, overall, the null hypothesis is rejected. This satisfies the precondition to proceed with the QQR analysis.

### QR and QQR analysis

Before discussing the QQR results, we present the QR results (Table 3), detailing how the overall GRA influences various return distributions of faith-based sectoral stocks. The results suggest that across all quantiles of asset returns, the levels of GRA positively interact with faith-based stock returns, implying that regardless the level of GRA and market condition, Shariah-compliant stock returns from various sectors of economic activity yield positive returns, explaining their attractiveness as safe-havens (Umar & Gubareva, 2021).

**Table 2.** T-statistics from causality-in-means analysis.

tau	0.05	0.1	0.25	0.5	0.75	0.9	0.95
Basic Materials	1.24951	2.02453**	3.42151***	4.09168***	3.94006***	1.93691*	1.15398
Consumer Goods	1.09952	1.72159*	2.98184***	2.76768***	2.45296**	1.38307	0.81198
Consumer Services	1.40547	2.54882**	2.79474***	3.90542***	3.11865***	2.20031**	1.27505
Financials	1.24764	1.62253	2.09527**	2.35218**	1.60683	1.71790**	1.34507
Healthcare	1.51093	2.04406**	3.17993***	4.39444***	3.05606***	1.88157*	1.38625
Industrials	1.43252	2.05661**	2.71269***	3.49546***	3.03662***	1.92232*	1.16596
Oil & Gas	2.10365**	2.82601***	3.62065***	4.27391***	3.26687***	2.18887**	1.8174
Technology	2.16187**	3.04950***	4.29953***	4.70653***	3.56359***	2.73456***	2.05022**
Telecoms	1.43007	1.74500*	2.67396***	3.43746***	3.02049***	1.91952*	1.20615
Utilities	1.47528	2.01421**	3.18808***	4.44337***	3.20985***	1.98076***	1.39783

Notes: \*, \*\*, and \*\*\* are significance levels at 0.1, 0.05, and 0.01, respectively.

**Table 3.** Beta estimates from quantile regression.

tau	0.05	0.1	0.25	0.5	0.75	0.9	0.95
Basic Materials	0.33791***	0.33791**	0.33468***	0.32201***	0.30737***	0.30172***	0.30132**
Consumer Goods	0.17534***	0.17534**	0.17111***	0.16080***	0.15855***	0.15552***	0.15529**
Consumer Services	0.18201***	0.18201**	0.17512***	0.16100***	0.15458***	0.15285***	0.15225***
Financials	0.18081***	0.17730***	0.17433***	0.16328***	0.15661***	0.14946***	0.14381***
Healthcare	0.12192***	0.11905***	0.11372***	0.11050***	0.10090***	0.09712***	0.09514***
Industrials	0.21633***	0.21268***	0.20905***	0.19925***	0.18277***	0.18137***	0.17750***
Oil & Gas	0.29519***	0.29407***	0.28654***	0.27228***	0.26583***	0.26250***	0.26250***
Technology	0.11977***	0.11917***	0.11493***	0.10960***	0.10232***	0.09765**	0.09765**
Telecoms	0.16111***	0.16051***	0.15604***	0.15409***	0.15188***	0.14432***	0.14432***
Utilities	0.19705***	0.19705***	0.19556***	0.18839***	0.17941***	0.17907***	0.17907***

Notes: \*\* and \*\*\* are significance levels at 0.05 and 0.01, respectively.

Next, we present the QQR results in three-dimensional plots (Figure 3). Like their QR counterparts, the results show that across all quantiles of both GRA and returns from faith-based sectoral stocks, positive slopes are found. We highlight two important findings. First, the coefficients are highly positive across the lower quantiles of both variables. The fact that this occurs at the lower quantiles means that faith-based sectoral stocks do not fail to yield positive returns at high levels of risk aversion in stressed periods, making them viable safe-havens. Second, the coefficients shown for faith-based assets belonging to the real sector (basic materials, consumer goods, industrials, and oil & gas) are relatively higher than those from the services-driven sectors (consumer services, financials, healthcare, technology, telecoms, and utilities).

The QR results confirms the robustness of the QQR estimates, as demonstrated by the high resemblance of the QR and QQR line plots in Figure 4. This approach to testing the robustness of the nonparametric QQR technique is consistent with existing studies (Agyei, 2022; Bossman et al., 2022; Umar et al., 2022).



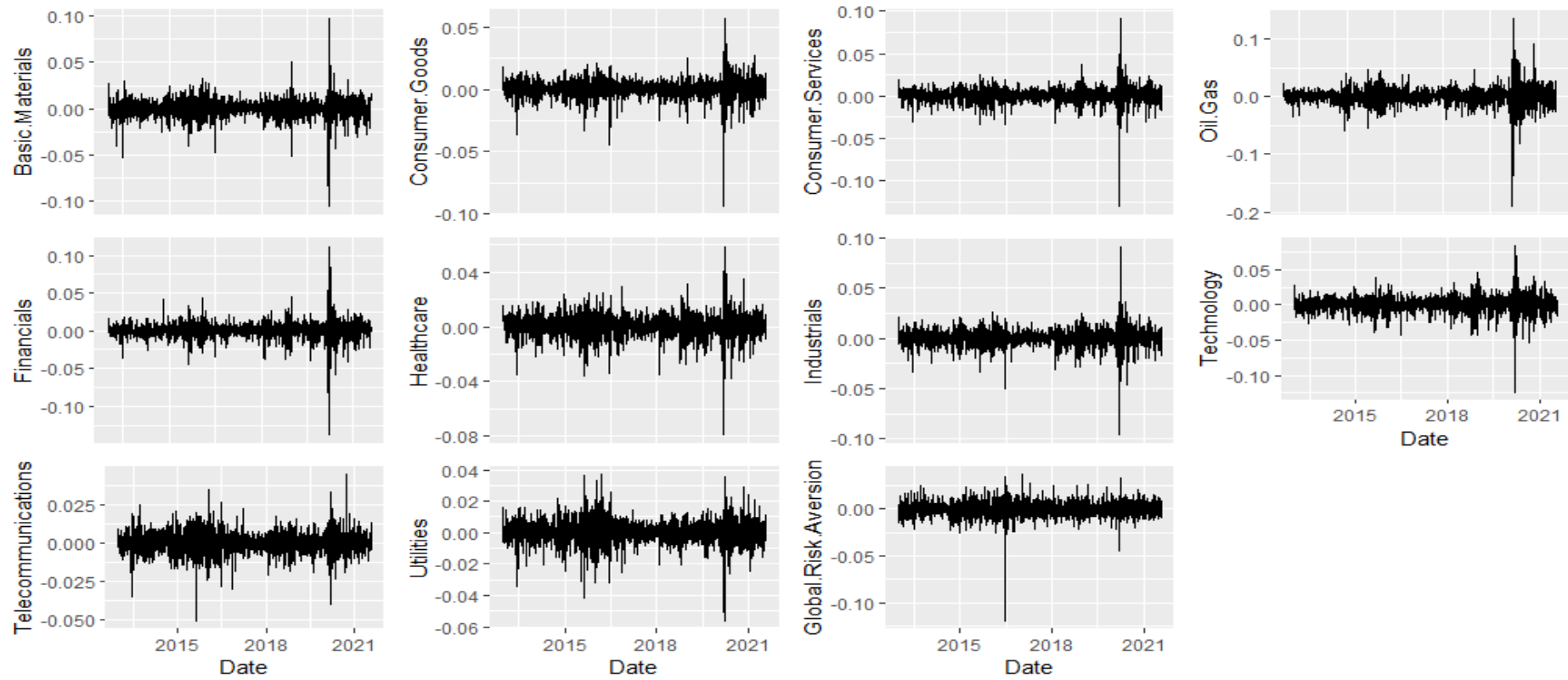


Figure 1. Time series plots.

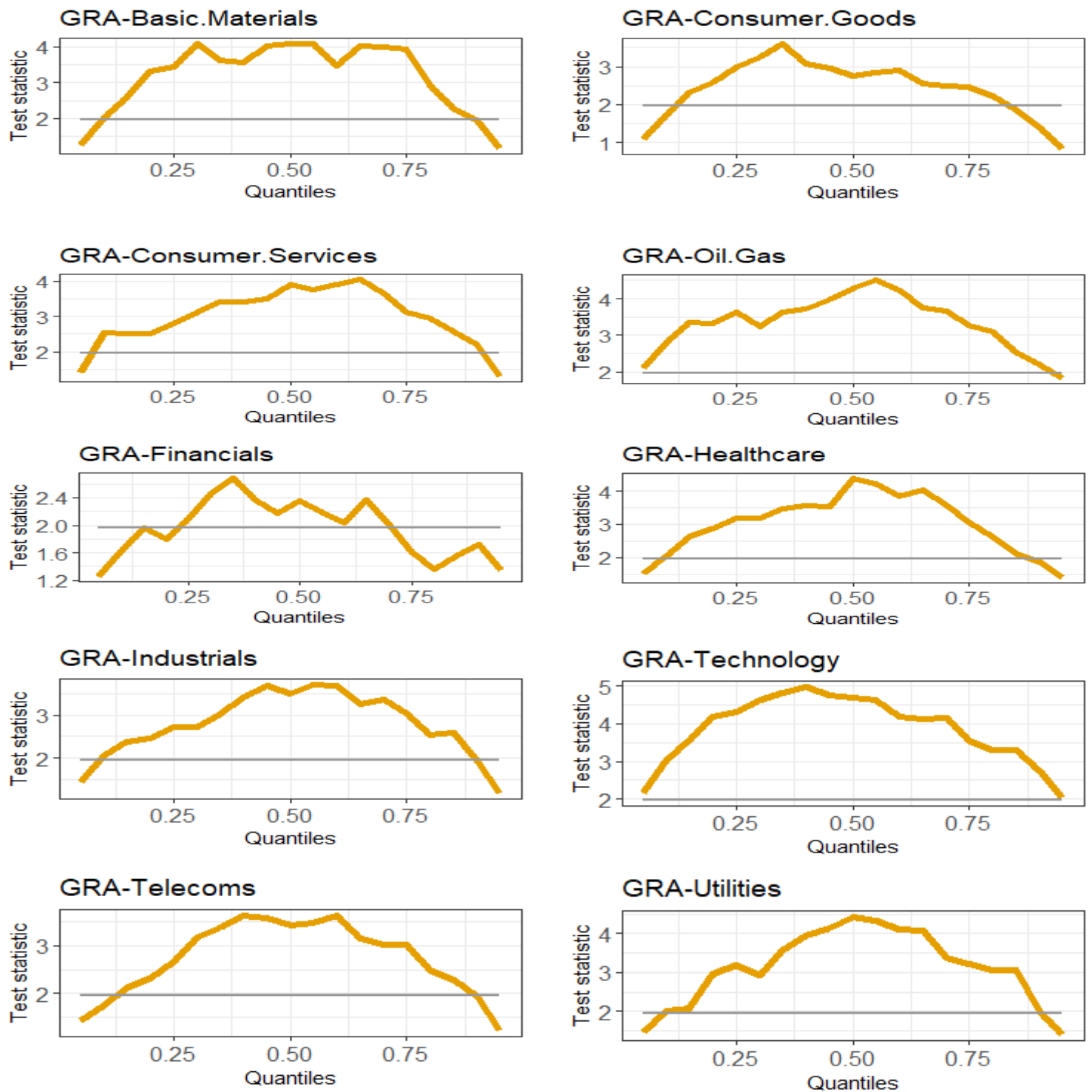


Figure 2. Causality-in-means analysis.



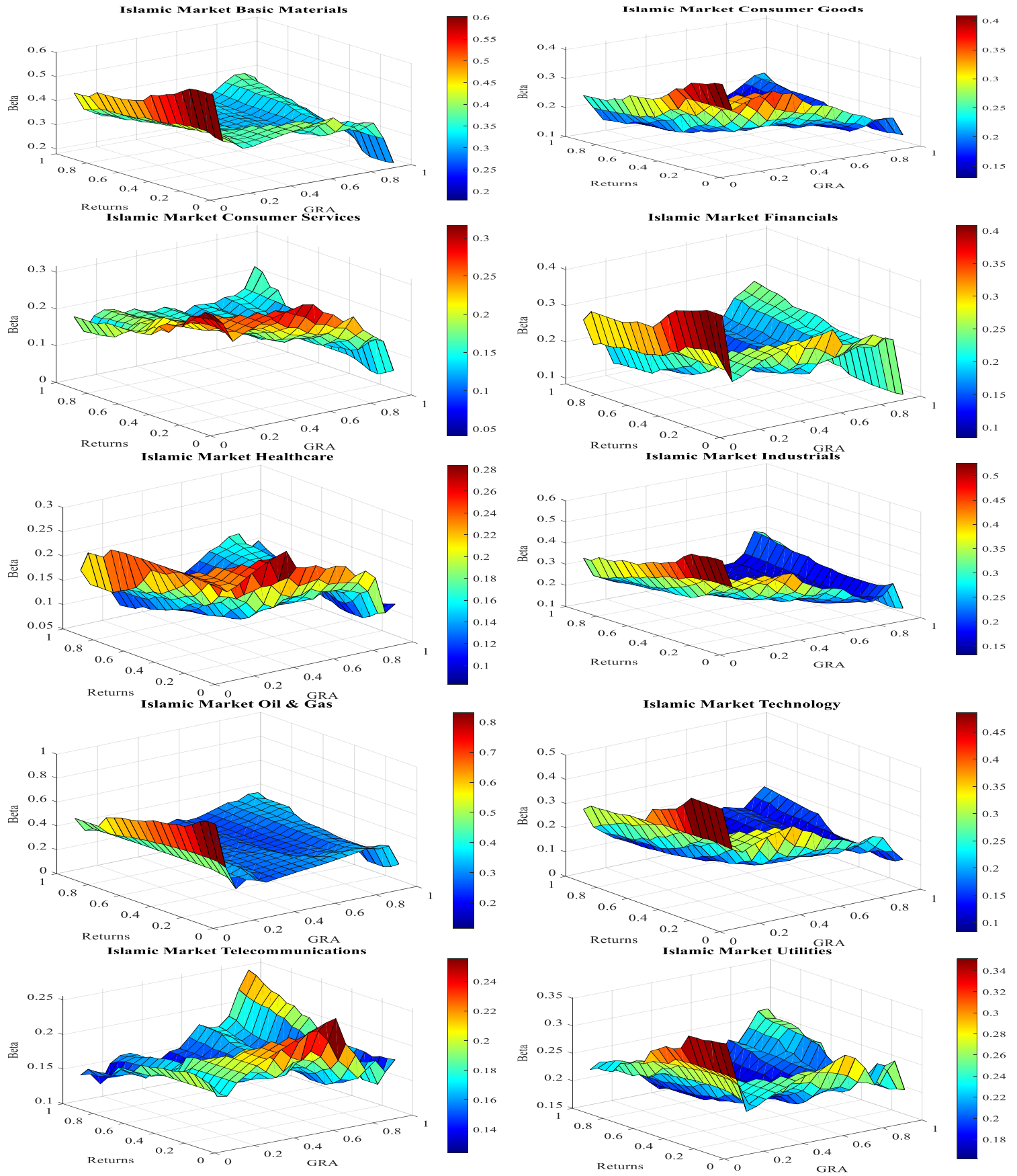


Figure 3. 3D plots of QQR estimates.



Figure 4. QR and QQR estimates.

## Conclusion

Risk aversion's role in predicting volatility in global financial markets has been highlighted recently. In a nonparametric QQR approach, we envisage this interaction from the perspective of faith-based stocks covering various sectors of economic activity and market conditions. Our findings confirm GRA's ability to predict the conditional returns from Islamic stocks. Faith-based stocks belonging to both the "real" sector are more attractive than those from the services-driven sector. The findings confirm the safe-haven and hedge attributes of Shariah-compliant stocks and have notable implications for risk management.

## Data Availability

The authors do not have permission to share data.

## Conflicts of Interest

The authors have no conflicting interests.

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