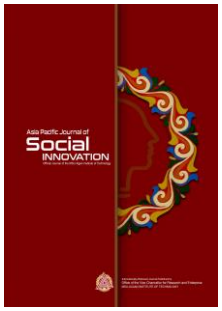

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Shariah-Compliant Investing as Financial Social Innovation: Stock Performance in the Philippine Stock Market

Madelle P. Conales, Maria Cecilia P. Lagaras

ABSTRACT

This study examines whether Shariah compliance is associated with systematic differences in firm characteristics, returns, and risk in the Philippine equity market, a frontier setting with limited Islamic capital market infrastructure. Using firm-level data for investable companies listed on the Philippine Stock Exchange from 2021 to 2025, the analysis proceeds in three stages. First, descriptive statistics identify structural differences between Shariah-compliant and non-compliant firms. Second, unconditional tests, including t-tests and Wilcoxon rank-sum tests, assess differences in returns and volatility. Third, the Fama-MacBeth regression is employed to evaluate whether Shariah compliance is priced in the cross-section of returns after controlling for firm characteristics. The results show that Shariah-compliant firm-month observations are significantly smaller, less leveraged, and more growth-oriented, reflecting the constraints imposed by screening criteria. Unconditional tests indicate that these exhibit lower returns and slightly higher volatility. However, the Fama-MacBeth cross-sectional results reveal that the return differential becomes statistically insignificant once firm characteristics are accounted for, indicating that Shariah compliance is not a priced characteristic. While a modest association with higher volatility is observed in certain specifications, the effect is economically limited. Overall, the findings suggest that Shariah compliance does not function as a cross-sectional pricing factor, but rather operates as a constraint-based selection mechanism that shapes firm characteristics already reflected in market outcomes. The results contribute to Islamic finance and social innovation literature by showing that Shariah-compliant investing in a frontier Muslim-minority market can serve as an inclusive ethical investment channel.

KEYWORDS

Asset pricing; Firm characteristics; Philippines; Shariah compliance; Stock performance

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INTRODUCTION

According to Islamic Financial Services Board (IFSB, 2024), the expansion of Islamic finance has attracted increasing academic and policy attention due to its emphasis on ethical investment principles, risk-sharing, and asset-backed financing structures (IFSB, 2024). Within this broader development, Shariah-compliant equities have emerged as a key component of Islamic capital markets, enabling investors to align financial decisions with religious and ethical considerations. In more developed jurisdictions such as Malaysia and Indonesia, well-established Shariah screening frameworks and dedicated Islamic equity indices facilitate systematic evaluation and benchmarking. In contrast, the Philippine capital market remains at an early stage of Islamic financial development (Asian Development Bank, 2024; Bangko Sentral ng Pilipinas, 2022). Within the Philippine stock market, the development of Shariah-compliant stocks originated primarily as an initiative of the Philippine Stock Exchange (PSE) rather than through a dedicated Islamic capital market regulatory framework. The Philippine Stock Exchange (PSE) initiated the identification and publication of Shariah-compliant securities in 2013 and engaged IdealRatings, Inc. to conduct quarterly screening based on AAOIFI standards (Philippine Stock Exchange, 2014). To ensure consistency with internationally recognized Islamic finance standards, the PSE engaged IdealRatings, Inc. to conduct the screening of listed firms based on the criteria established by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI). Under this framework, firms were evaluated using both qualitative and quantitative screens, including restrictions on prohibited business activities, leverage, interest-based income, and receivables ratios (Philippine Stock Exchange, 2014). Through this initiative, the PSE became one of the first institutions to provide systematic identification of Shariah-compliant securities in the Philippine stock market, thereby creating an initial foundation for Islamic equity investing despite the absence of a dedicated Shariah stock index.

Although subsequent developments, including the Islamic Banking Act of 2019 and related regulatory initiatives, strengthened the broader Islamic finance ecosystem, the Philippine stock market continues to operate without a formal Shariah benchmark index. Consequently, while investors have access to periodically screened Shariah-compliant securities, the absence of an official index limits benchmarking, product development, and the broader institutionalization of Islamic capital market activities. This institutional context makes the Philippines a particularly relevant setting for examining the characteristics and performance implications of Shariah-compliant firms.

The existing empirical literature on Shariah-compliant equities presents mixed findings regarding performance and risk characteristics. While some studies document comparable or superior performance relative to conventional benchmarks, others emphasize the restrictive effects of screening criteria, particularly leverage limits and sectoral exclusions. Recent research increasingly interprets these outcomes through a constraint-based screening framework, arguing that Shariah compliance reshapes the investable universe by systematically excluding firms with specific financial structures and business activities. Under this perspective, observed performance differences arise not from compliance per se, but from the characteristics of firms that satisfy screening rules. This interpretation is reinforced by recent evidence

showing that Shariah-compliant firms differ structurally in financial policies, particularly in relation to leverage and liquidity management (Bugshan & Bakry, 2025; Kayani et al., 2025).

Beyond screening effects, recent literature has strengthened the link between Shariah compliance and capital structure theory. Bugshan and Bakry (2025) provide direct evidence that Shariah compliance significantly influences firms' financing decisions, particularly through constraints on debt usage, thereby confirming that compliance operates as a binding financial restriction rather than a passive classification. Similarly, Kayani et al. (2025) show that Shariah-compliant firms exhibit distinct working capital behavior compared to conventional firms, reflecting differences in liquidity management and short-term financial policies. These findings collectively support the view that Shariah compliance is deeply embedded in firm-level financial structure, with implications for risk exposure and operational efficiency.

Despite these advances, several important gaps remain in the literature. First, much of the existing evidence originates from markets with relatively developed Islamic finance ecosystems, particularly Malaysia, Indonesia, and the Gulf Cooperation Council (GCC) countries, where Islamic financial institutions, regulatory frameworks, and benchmark indices are already well established (Farhat & Hili, 2025; Sutrisno et al., 2025; Bakar et al., 2023; Haseeb et al., 2022; Suryadi et al., 2021; Jeng et al., 2020; Pepis & de Jong, 2019; Ho, 2019). Consequently, relatively little is known about how Shariah compliance operates in frontier and Muslim-minority markets where Islamic capital market infrastructure remains underdeveloped. Second, many studies evaluate Shariah-compliant investing through portfolio-level or index-level comparisons, which provide useful evidence on aggregate performance but offer limited insight into whether Shariah compliance itself is associated with stock returns at the firm level (Asutay et al., 2022; Al-Yahyaee et al., 2020; Ben Rejeb & Arfaoui, 2019; Liu & Chang, 2021; Bayram & Othman, 2019; Al-Khazali et al., 2014). Third, existing studies generally treat Shariah compliance as a static classification despite the fact that firms may enter or exit compliance status over time as their financial conditions and business activities change. Finally, while prior research has documented differences in performance, risk, and financial characteristics between Shariah-compliant and conventional firms, relatively few studies distinguish between selection effects and pricing effects. As a result, the asset-pricing implications of Shariah compliance remain insufficiently understood.

The Philippine literature remains particularly limited in this regard. Existing studies have primarily focused on stock performance prediction and portfolio construction rather than the economic implications of Shariah compliance itself. Pandita (2021), for example, employed logistic regression to predict the performance of selected Shariah-compliant stocks using conventional financial ratios, while Sales et al. (2024) examined portfolio optimization using Shariah-compliant and conventional securities under the Single Index Model. Although these studies provide valuable evidence regarding investment decision-making, both largely treat Shariah compliance as a static classification and focus on compliant securities without explicitly examining differences relative to non-compliant firms. Moreover, neither study investigates whether Shariah compliance constitutes a priced characteristic in the cross-section of stock returns, nor do they examine whether Shariah compliance constitutes a priced characteristic in the cross-section of stock

returns after controlling for firm-level financial characteristics. Consequently, little is known about whether investors are rewarded, penalized, or remain indifferent to Shariah compliant stocks in the Philippine stock market. Unlike Pandita (2021), which focuses on stock-performance prediction, and Sales et al. (2024), which focuses on portfolio optimization, the present study adopts an asset-pricing perspective and investigates whether Shariah compliance represents an independently priced characteristic in the cross-section of Philippine stock returns using the Fama–MacBeth regression framework.

Addressing these gaps, the present study contributes to the literature in three important ways. First, it shifts the focus of Philippine Shariah-compliance research from portfolio construction and stock prediction to asset pricing by examining whether Shariah compliance is reflected in the cross-section of stock returns. Second, the study adopts a firm-level perspective and evaluates Shariah compliance alongside established return determinants, including firm size, leverage, liquidity, and growth characteristics. Third, by employing the Fama–MacBeth (1973) cross-sectional regression framework, the study distinguishes whether observed return differences are attributable to Shariah compliance itself or to the underlying firm characteristics associated with compliance. In doing so, the study provides new evidence on the pricing implications of Shariah compliance within a frontier Muslim-minority market and contributes to the broader literature on Islamic finance and asset pricing. The Philippine stock market provides a particularly informative setting because Shariah-compliant securities exist despite the absence of a dedicated benchmark index and a relatively underdeveloped Islamic capital market ecosystem.

The significance of this study extends beyond academic inquiry to broader discussions of social innovation, financial inclusion, and Islamic capital market development. The absence of a formal Shariah stock index makes it difficult to assess whether shariah-compliant stocks reward or disadvantage investors in the Philippine setting. Empirically, the study contributes new firm-level evidence from a frontier market where Islamic capital market infrastructure remains at an early stage of development. Conceptually, it advances the understanding of Shariah compliance as a dynamic and constraint-driven process that shapes firm characteristics, financial decisions, and market outcomes. From a practical and policy perspective, the findings provide insights for regulators, investors, and market institutions seeking to expand ethical investment opportunities and strengthen Islamic finance in the Philippines. The study may contribute to greater financial inclusion among Muslim investors who seek investment alternatives aligned with their religious values while remaining accessible to the broader investing public. More broadly, the findings point toward the development of credible Shariah-compliant investments representing a form of financial social innovation that promotes diversity, accessibility, and inclusiveness within capital markets. Accordingly, the study contributes to ongoing efforts to deepen Islamic capital market participation, support ethical investing, and strengthen the institutional foundations necessary for sustainable Islamic finance development in emerging economies.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Shariah Screening and Firm Characteristics

Islamic finance has been labelled as 'prohibition-driven' finance as it forbids interest and speculation-based transactions (Kaya, 2023). It prohibits exploitative practices such as interest (riba), excessive uncertainty (gharar), and gambling (maysir), promoting fairness and ethical conduct in financial transactions (Baloch & Chimenya, 2023). Shariah compliance refers to the adherence of firms to Islamic financial principles, which impose restrictions on leverage, business activities, and sources of income. The prohibition of riba is among the most established tenets in Islamic jurisprudence, grounded in numerous Qur'anic injunctions (e.g., Qur'an 2:275–279) and Hadith literature. The prohibition of gharar reinforces the exclusion of excessively speculative instruments and strengthens the ethical basis for limiting ambiguous or high-uncertainty financial practices within Shariah-compliant investing. The concept of Maqasid al-Shariah, or the higher objectives of Islamic law, provides the foundational ethical and philosophical underpinning of Islamic finance (Monawer et al., 2022).

From an economic perspective, Shariah compliance can be theoretically understood as a form of constraint-based screening that shapes firm behavior through restrictions on leverage, business activities, and financial practices. Rooted in Islamic Finance Theory, these constraints derive from the prohibition of riba, gharar, and non-permissible activities, and are operationalized through screening criteria that limit debt usage, speculative exposure, and non-compliant income (AAOIFI, 2025; Nor et al., 2019). In economic terms, this aligns with the broader financial constraints literature, which shows that restrictions on external financing influence firm investment, risk-taking, and performance (Fazzari et al., 1988; Campello & Chen, 2010; Capelle et al., 2025). Firms subject to such constraints tend to adopt more conservative capital structures, potentially reducing financial risk but also limiting investment opportunities and growth potential, resulting in theoretically ambiguous performance outcomes (Livdan et al., 2006; Ferrando & Mulier, 2013). As such, Shariah screening creates theoretically ambiguous return implications. Compliant firms may benefit from lower financial risk, but they may also face constrained investment flexibility and reduced exposure to high-return opportunities.

Qualitative screening excludes firms engaged in non-permissible activities such as conventional finance, alcohol, gambling, pork-related products, and other prohibited sectors (AAOIFI, 2025; Ishak & Nasir, 2021; Securities Commission Malaysia, 2024). Quantitative screening, then evaluates firms' financial structures to limit excessive reliance on interest-based financing and income. Standard thresholds typically constrain interest-bearing debt, non-compliant income, and certain liquidity measures within defined proportions of total assets or market capitalization. These financial filters ensure that firms maintain Shariah-compliant capital structures while remaining operationally viable within modern financial systems (AAOIFI, 2025; Monawer et al., 2022). These screening criteria limit firms' engagement in interest-based financing, speculative transactions, and non-permissible sectors, thereby shaping both firm characteristics and the investable universe.

Recent firm-level studies support this mechanism by showing that Shariah compliance is associated with capital structure, liquidity management, and information efficiency. For instance, Bugshan and Bakry (2025) demonstrate that Shariah compliance significantly influences firms' capital structure decisions, particularly by constraining leverage. Similarly, Kayani et al. (2025) show that Shariah-compliant firms exhibit distinct working capital management behavior, reflecting differences in liquidity and operational efficiency. These findings reinforce the argument that Shariah compliance operates through firm-level financial characteristics rather than acting as an independent determinant of performance. Additionally, Farooq and Ahmed (2024) document differences in stock price synchronicity between Shariah-compliant and non-compliant firms, suggesting that compliance may influence information incorporation and market efficiency. These findings support the view that Shariah compliance operates through observable firm-level characteristics and information environments, rather than functioning automatically as an independent determinant of stock performance.

Asset-Pricing Perspective on Shariah Compliance

Shariah-compliant equities represent a distinct investable segment characterized by lower leverage, constrained financial flexibility, and sectoral exclusions. From an asset pricing perspective, Shariah compliance may influence stock performance through two primary channels. First, screening criteria alter firm fundamentals--particularly capital structure, liquidity, and income composition, which may affect risk-return profiles. Second, screening reduces the available investment universe, potentially affecting diversification and portfolio efficiency. These mechanisms suggest that any observed differences in performance may be driven not by compliance itself, but by the underlying characteristics of firms that satisfy Shariah criteria.

The relevant asset-pricing question, therefore, is whether Shariah compliance remains associated with expected returns after controlling for firm characteristics. Asset pricing theory provides the benchmark for evaluating this question because expected returns are generally attributed to systematic risk and priced firm characteristics rather than categorical classifications. The Fama–MacBeth framework is appropriate because it evaluates whether a characteristic commands a return premium in the cross-section of stocks (Fama & MacBeth, 1973; Fama & French, 1992,1993, 2006, 2015). Accordingly, the present study examines whether Shariah compliance remains associated with expected returns after accounting for firm size, leverage, liquidity, and growth characteristics.

Stakeholder Theory (Freeman, 1984) is used primarily to contextualize Shariah-compliant investing within a broader ethical framework in which transparency, fairness, and stakeholder trust may influence investor perception and portfolio appeal. It emphasizes the link among a company and its consumers, suppliers, staff, investors, local communities, and anyone with an interest in it (Freeman,1984). In Islamic finance, this aligns with Quranic principles (e.g., 4:58 "Allah commands you to render trusts to whom they are due") and Maqasid al-Shariah's emphasis on social welfare and ethical conduct (Chapra, 2008). In the Philippine context, this lens is particularly relevant because Shariah-compliant securities may expand ethical investment choice

and support broader financial inclusion among Muslim and values-oriented investors.

Shariah Compliance and Stock Performance

The empirical literature on Shariah-compliant equities presents mixed and context-dependent findings. One strand of literature argues that Shariah-compliant equities may outperform or exhibit greater resilience because screening excludes highly leveraged and speculative firms. Early studies comparing Islamic and conventional indices suggest that Shariah-compliant portfolios may exhibit competitive or even superior performance, particularly during periods of financial stress (Delle Foglie & Panetta, 2020; Albaity & Ahmad, 2008; Hoepner et al., 2011). These findings are often attributed to lower leverage and reduced exposure to speculative sectors, which enhance resilience during market downturns. Farhat and Hili (2025) conduct a comprehensive firm-level analysis across multiple global markets and find that Shariah-compliant firms exhibit higher performance and lower risk relative to non-compliant firms. The study highlights that Shariah compliance is associated with reduced idiosyncratic risk, lower total volatility, and improved financial performance, suggesting that compliance acts as a proxy for conservative financial management and effective risk control. Similarly, Shear and Ashraf (2022) find that Shariah-compliant firms demonstrated greater resilience and superior performance during periods of market stress, outperforming conventional firms during the crisis period. The study attributes this resilience to lower leverage, reduced exposure to speculative sectors, and more conservative financial structures inherent in Shariah-compliant firms. Saba and Ariff (2020) examine cross-sectional differences between compliant and non-compliant firms, and found out that Shariah-compliant firms exhibit higher profitability (ROA and ROE), stronger growth, and higher firm value compared to non-compliant firms.

A second strand reaches the opposite conclusion, arguing that Shariah screening may impose opportunity costs. Excluding firms with high leverage and non-compliant activities, such screening may reduce diversification and limit access to high-return opportunities, potentially resulting in underperformance (Ashraf & Khawaja, 2016). This perspective highlights the trade-off between ethical constraints and portfolio efficiency. Under this view, Shariah compliance may be associated with lower returns not because of investor preference against compliance, but because the screening process narrows the investable universe.

A third strand of literature reports no statistically significant difference between Shariah-compliant and conventional stocks after controlling for firm characteristics (Jawadi et al., 2014; Trabelsi et al., 2020). Pepis and de Jong (2019) examine the long-term financial effects of Shariah-compliant practices using a large firm-level dataset and a long-horizon event study methodology. The results show that Shariah-compliant firms exhibit significantly higher long-term accounting performance, particularly in terms of return on assets (ROA) and return on sales (ROS). However, the study finds mixed and inconclusive results for stock return performance, indicating that market-based measures do not consistently reflect these improvements. This neutrality view is consistent with efficient market theory, suggesting that any structural differences induced by screening are already priced by investors. This

neutrality view is particularly relevant to the present study because it implies that Shariah compliance may affect returns indirectly through firm characteristics rather than directly as a priced classification.

Philippine Evidence and Research Gap

Empirical research on Shariah-compliant equities in the Philippines remains limited, despite the introduction of Shariah-compliant securities by the Philippine Stock Exchange in 2013. Existing studies have primarily focused on portfolio construction and predictive modeling, with limited attention to firm-level performance dynamics. Pandita (2021) provides one of the earliest firm-level analyses, employing logistic regression to examine stock performance. The findings suggest that conventional financial ratios remain useful in predicting performance, indicating that Shariah-compliant firms can be evaluated using standard financial metrics. However, the study is primarily predictive and does not assess the causal impact of Shariah compliance on returns or risk. Sales et al. (2024) examine portfolio optimization using Shariah-compliant securities and conventional stocks under the Single Index Model. Their results show that both portfolios outperform the benchmark index, highlighting the viability of Shariah-compliant investments. However, the study remains focused on portfolio construction and does not explore firm-level heterogeneity or cross-sectional effects. Hence, the empirical evidence suggests that while Shariah compliance shapes firm characteristics and financial behavior, yet its direct effect on stock returns remains inconclusive. A key limitation of this literature is the reliance on portfolio-level analysis, which limits firm-level understanding.

Jointly, the literature suggests that Shariah compliance may influence stock performance through two competing mechanisms. On the one hand, screening rules may select firms with lower leverage, more conservative financial structures, and reduced exposure to speculative activities, which may improve resilience and reduce downside risk. On the other hand, the same restrictions may limit financial flexibility, reduce diversification, and constrain exposure to higher-return opportunities. These competing mechanisms explain why prior studies report mixed evidence of outperformance, underperformance, and performance neutrality. From an asset-pricing perspective, however, the central issue is not whether Shariah-compliant firms differ unconditionally from non-compliant firms, but whether Shariah compliance remains associated with stock returns after firm characteristics are controlled for. If Shariah compliance remains significant, it may be interpreted as an independently priced characteristic. If it becomes insignificant, the observed differences are more likely attributable to the firm characteristics selected by the screening process. Based on this logic, the hypotheses are developed in three sequential layers. The first concerns whether Shariah screening produces observable differences in firm characteristics. The second concerns whether these differences are reflected in unconditional return and risk outcomes. The third concerns whether Shariah compliance has an independent asset-pricing effect after firm characteristics are controlled for. This layered structure is consistent with the study's empirical strategy, which first examines descriptive and unconditional differences and then applies the Fama–MacBeth framework to test whether Shariah compliance is priced in the cross-section of stock returns.

H0a: There are no significant differences in firm size, leverage, cash ratio, and market-to-book ratio between Shariah-compliant and non-compliant firm-month observations.
H0b: Shariah-compliant and non-compliant firms do not differ significantly in excess stock returns.
H0c: Shariah-compliant and non-compliant firms do not differ significantly in return volatility.
H0d: Shariah compliance is not significantly associated with excess stock returns after controlling for firm characteristics.

METHODOLOGY

Research Design and Study Context

This study adopts a quantitative research design to examine whether Shariah compliance is associated with firm-level stock performance in the Philippine stock market. The empirical strategy in Table 1 is structured to distinguish between selection effects and pricing effects, recognizing that Shariah-compliant firms may differ systematically from non-compliant firms in financial characteristics and that such differences may influence observed returns.

Table 1. Alignment of Research Objectives, Variables, and Empirical Tests

Tests	Purpose	Dependent variable	Main explanatory	Method
1	Test firm-characteristic differences	Size, leverage, cash ratio, market-to-book	Shariah compliance	Descriptive statistics / mean comparison
2	Test unconditional performance differences	Excess return; 12 month rolling volatility of excess returns	Shariah compliance	t-test; Wilcoxon rank-sum
3	Test pricing effect	Excess return	SC + lagged firm characteristics	Fama–MacBeth regression

First, the study examines whether Shariah compliance is structurally distinguishable among firms. Second, it evaluates unconditional differences in returns and volatility between Shariah-compliant and non-compliant firms. Third, it employs cross-sectional asset pricing techniques to assess whether Shariah compliance is associated with systematic differences in expected returns after controlling for firm characteristics which are standard in asset-pricing studies (Farhat and Hili, 2025; Zaremba et al, 2020).

Data Sample and Selection

The study utilizes firm-level panel data of publicly listed companies from the Philippine Stock Exchange (PSE) over the period 2021–2025, yielding 60 monthly return observations. This study covers a span of five years similar to other studies on stock performance such as Aarif et al (2020), Saleh (2020), Rana and Akhter (2015) and others. This period was selected because it captures the most recent operational phase of Shariah-compliant equity screening in the Philippine stock market following the COVID-19 market disruption and corresponds to the availability of consistent Shariah screening, financial statement, and market data. Monthly observations are used because they are common in empirical asset-pricing research, reduce the excessive noise associated with daily returns, and provide sufficient time-series observations for estimating Fama–MacBeth coefficient averages (Asutay et al., 2022; Alam & Ansari, 2020). Focusing on this recent post-pandemic environment allows the study to evaluate Shariah compliance under contemporary market conditions rather than under outdated institutional structures.

The unbalanced panel dataset is constructed using a purposive sampling approach designed to reflect the investable universe of the Philippine Stock Exchange. Firms are first identified at each index review (February and August) based on predefined eligibility criteria, namely the free-float thresholds and liquidity requirement. Firms must meet the minimum free-float or public ownership threshold, 15% before December 2022 and 20% from December 2022 onward, as laid down in PSE CN No. 2021-0046. Secondly, firms must also pass the liquidity screen which is based on the median daily trading value rankings. The panel is unbalanced because firms enter or exit the investable universe across review periods and because some firm-level accounting variables are unavailable for certain months. Observations with missing stock returns, Shariah compliance classification, or required lagged financial controls were excluded from the relevant analysis. Because the availability of firm-level data varies across firms and time, the final dataset is an unbalanced panel. The final sample consists of 133 unique investable firms observed over an unbalanced monthly panel, 88 of which are non-Shariah compliant firms. Appendix A lists the 133 firms included in the investable sample. The unit of analysis is firm-month.

Variable Measurement

Table 2 presents the operational definitions of the variables used in the study. The dependent variables are excess returns and return volatility. Excess return is measured as monthly stock return minus the monthly risk-free rate, while return volatility is measured as the 12-month rolling standard deviation of monthly excess returns representing firm-level risk. The use of a rolling annual window is consistent with the longstanding asset-pricing literature, where volatility is commonly estimated from return variability over the preceding twelve months (Officer, 1973; Fama, 1976). This approach captures the time-varying nature of risk while providing a sufficiently stable estimate of return volatility.

The main explanatory variable is Shariah compliance, coded as 1 for firms classified as Shariah-compliant in the relevant PSE screening period and 0 otherwise. Shariah compliance status is based on the official lists released by

the PSE, which apply Shariah screening criteria derived from internationally recognized standards. These lists are updated quarterly, allowing the construction of a time-varying compliance indicator at the firm-month level. Financial data, including firm characteristics such as size, leverage, liquidity, and valuation metrics, are obtained from publicly available financial statements and market data sources. As for lagged financial variables mapping, annual financial data are merged by firm and year, then lagged by one year and applied to all months in year t. Such that monthly observations in year t use financial statements from year t−1. This approach is consistent with standard asset pricing practice and avoids forward-looking bias. The lag structure is used as an information-timing convention in empirical asset pricing rather than as an optimized dynamic lag length; it ensures that firm characteristics are observed before subsequent stock returns are realized. The use of lagged variables ensures that explanatory information is available prior to return realization, in order to mitigate simultaneity, reverse causality, and look-ahead bias. This approach follows the standard methodology employed in cross-sectional asset-pricing studies, including Fama and MacBeth (1973), Fama and French (1992), and subsequent studies examining the role of firm characteristics in explaining expected stock returns (Farhat and Hili, 2025; Zaremba et al, 2020; Lewellen, 2015).

Consistent with asset pricing and corporate finance literature, lagged firm characteristics are included as control variables. Firm size as the natural logarithm of market capitalization. Leverage which is the ratio of total debt to total assets. Cash ratio from cash and equivalents divided by total assets. And Market-to-book ratio as the proxy for growth opportunities. Size controls for known size-related differences in returns and risk (Banz, 1981; Guay, 1999). Cash is incorporated to reflect its potential association with anticipated equity returns (Palazzo, 2012). Leverage is essential as it affects risk and performance (Flannery, 1994; Lee & Lee, 2014; Miller, 1977). Finally, the growth ratio, assessed by a firm's market-to-book equity ratio, is incorporated because of its favorable correlation with stock performance and risk (Davis, 1994; Fama & French, 1992, 1993, 2006; Guay, 1999; Lewellen, 1999).

Table 2. Variable Definition

Variable	Role	Operational definition
Excess return	Dependent variable	Monthly stock return minus monthly risk-free rate proxied by the 91-day Treasury bill; $R_{i,t}-R_{f,t}$
Volatility of Excess return	Dependent variable for risk tests	12-month rolling standard deviation of monthly excess returns
Shariah compliance	Main independent variable	1 if firm is listed as Shariah-compliant in the relevant PSE screening period; 0 otherwise
Size	Control	Natural logarithm of market capitalization, lagged
Leverage	Control	Total debt divided by total assets, lagged
Cash ratio	Control	Cash and cash equivalents divided by total assets, lagged
Market-to-book	Control	Market capitalization divided by book equity, lagged

Empirical Model

Unconditional Differences (Mean Comparison Tests)

To assess whether Shariah-compliant firms differ from non-compliant firms in terms of returns and return volatility proxied by rolling 12-month SD of excess returns, the study employs: (1) Independent sample t-tests (parametric) and (2) Wilcoxon rank-sum tests (non-parametric). These tests evaluate whether differences in means and distributions are statistically significant without controlling for firm characteristics. Both parametric (t-test) and non-parametric (Wilcoxon rank-sum) tests are employed to ensure robust inference. Given that financial return data often exhibit non-normality, skewness, and outliers, non-parametric tests provide a distribution-free alternative. The consistency of results across both methods strengthens the validity of the findings and ensures that conclusions are not driven by violations of parametric assumptions. These tests are interpreted as unconditional comparisons because they do not control for firm-level characteristics.

Fama MacBeth Cross Section Performance Analysis

This study follows Farhat and Hili (2025), Zaremba et al (2020), Saba and Ariff (2020), Davis (1994) in employing the cross section analysis of stock returns. To determine whether Shariah compliance is priced in the cross-section of stock returns, the study employs the Fama–MacBeth regression approach (Fama & MacBeth, 1973), which is the standard methodology in empirical asset pricing. This answers the question: "At any given time, are SC firms priced differently from non-SC firms?"

Model Specification

The empirical specification is based on monthly cross-sectional regressions of firm-level excess returns on Shariah compliance and lagged firm characteristics. For each month t, the following regression is estimated across firms i:

$$excess\_ret_{i,t}=\beta 0,_t+\beta_{1,t}SC_{i,t}+\beta_{2,t}Size_{i,t-1}+\beta_{3,t}Leverage_{i,t-1}+\beta_{4,t}Cash_{i,t-1}+\beta_{5,t}MB_{i,t-1}+\varepsilon_{i,t} \quad (1)$$

where excess_reti,t is the monthly excess return of firm i at time t, computed as the difference between stock return and the risk-free rate proxied by 91-day Treasury bill; SCi,t is a binary indicator equal to 1 if the firm is Shariah-compliant and 0 otherwise; Sizei,t−1 is the lagged natural logarithm of market capitalization; Leveragei,t−1 is the ratio of total debt to total assets; Cashi,t−1 is the ratio of cash holdings to total assets; MBi,t−1 is the market-to-book ratio. All control variables are lagged to mitigate simultaneity, reverse causality and look-ahead bias.

Estimation Procedure

The estimation follows a two-step procedure: (1) Monthly Cross-Sectional Regressions and (2) Time-Series Averaging. Firstly, for each month in the sample period, a cross-sectional regression is estimated using the investable universe of firms. This produces a time series of coefficient estimates for each explanatory variable. Secondly, the final coefficient for each variable is computed as the average of the monthly estimates.

$$\{\beta_{k,t}\}\ \ {}^{T}_{t=1,}k = 0,1,\ldots\ldots.5 \qquad (2)$$

where T denotes the number of months.

$$\bar{\beta}_k = \frac{1}{T} \sum_{t=1}^{T} \beta_{k,t} \qquad (3)$$

This average in equation 3 represents the expected cross-sectional relationship between the explanatory variable and excess returns.

Statistical significance is evaluated using Fama–MacBeth standard errors, based on the time-series variability of the estimated coefficients and Newey–West adjusted standard errors, which account for potential autocorrelation in the coefficient series. The classical Fama-MacBeth standard errors are computed based on the time-series variability of the estimated coefficients, where $\sigma(\beta_{k,t})$ is the standard deviation of the monthly coefficient estimates.

$$SE\left(\bar{\beta}_k\right) = \frac{\sigma(\beta_{k,t})}{\sqrt{T}} \qquad (4)$$

The coefficient on Shariah compliance $\bar{\beta}$ represents the average cross-sectional return differential between Shariah-compliant and non-compliant firms. A statistically significant coefficient indicates that compliance is a priced characteristic, while an insignificant coefficient implies that return differences are explained by underlying firm characteristics.

Overall, the methodology provides a layered empirical strategy by first identifying unconditional differences between Shariah-compliant and non-compliant firms and then testing whether such differences persist in a cross-sectional asset-pricing framework. This design allows the study to distinguish between observed group differences and independent pricing effects.

Diagnostic and Robustness Procedures

Several diagnostic and robustness procedures were conducted to strengthen the reliability of the empirical results. First, multicollinearity among explanatory variables was assessed using correlation analysis and variance inflation factors. Second, the use of lagged firm characteristics mitigates simultaneity and look-ahead bias by ensuring that explanatory variables precede return realization. Third, the Fama–MacBeth procedure reduces concerns arising from cross-sectional dependence by estimating coefficients in each monthly cross-section and evaluating inference using the

time-series variability of those coefficients. Fourth, Newey–West adjusted standard errors are reported to account for potential autocorrelation in the monthly coefficient estimates. Finally, the results are compared across unconditional tests and multivariate Fama–MacBeth specifications to determine whether observed Shariah-related return differences persist after firm characteristics are controlled for.

Ethical Considerations

This study applied for a research ethics clearance and was granted clearance. During the preparation and revision of this manuscript, AI-assisted tools were used for language editing and grammar checks (Grammarly®). The authors retain full responsibility for the content, interpretation, and conclusions presented in the manuscript.

RESULTS

Descriptive Statistics

Table 3 provides evidence to reject the null hypothesis that there are no significant differences in firm size, leverage, cash ratio, and market-to-book ratio between Shariah-compliant and non-compliant firm-month observations.

Table 3. Characteristics by Shariah Compliance Status

Variable	Non-Shariah-Compliant (SC = 0)	Shariah-Compliant (SC = 1)	Mean Difference	t-statistic	Wilcoxon z	Interpretation
Size (log market cap)	10.192 (1.783)	9.883 (1.735)	0.310***	5.345***	4.645***	SC are smaller
Leverage	0.553 (0.208)	0.402 (0.214)	0.150***	21.965***	21.003***	SC are less levered
Cash Ratio	0.085 (0.072)	0.067 (0.068)	0.018***	7.865***	10.229***	SC have lower cash
Market-to-Book	1.397 (2.365)	2.202 (2.099)	-0.805***	-10.676***	-17.740***	SC have higher growth

Notes: Standard deviations in parentheses. t-tests assume equal variances while Wilcoxon rank-sum tests reported for robustness to non-normality. *** $p < 0.01$.
Source: Authors' computations based on PSE data

Shariah-compliant firm-months are significantly smaller, less leveraged, have lower cash ratios, and exhibit higher market-to-book ratios than non-compliant firm-months. The results are significant under both t-tests and Wilcoxon rank-sum tests, indicating that these differences are not driven solely by distributional assumptions. Because the tests are unconditional, the findings are interpreted as descriptive evidence of structural differences rather than evidence of an independent pricing effect.

Unconditional Differences in Excess Returns and Risk

Table 4 reports unconditional differences in excess returns and 12-month rolling volatility. Shariah-compliant firm-months have significantly lower excess returns and higher volatility than non-compliant firm-months under both t-tests and Wilcoxon rank-sum tests. Thus, the null hypotheses of no return and no volatility differences are rejected. Because these tests do not control for firm characteristics, the results provide preliminary evidence of group differences rather than evidence of an independent compliance effect.

Table 4. t-test and Wilcoxon Rank-Sum Results

Variable	Mean Diff (Non-SC – SC)	t-stat	p-value	z-stat	p-value
Excess Return	0.0078	2.06	0.039**	2.43	0.015**
Return Volatility	−0.0056	−2.47	0.014**	−6.37	0.000**

Diagnostic Tests

Table 5 reports the multicollinearity diagnostics for the explanatory variables used in the Fama–MacBeth specification. The highest absolute pairwise correlation is 0.313 between firm size and market-to-book ratio, well below the conventional 0.80 threshold. VIF values range from 1.04 to 1.18, with a mean VIF of 1.13, also well below the conventional cutoff of 10. These results indicate that the explanatory variables do not exhibit problematic linear dependence.

Table 5. Multicollinearity Diagnostics for Explanatory Variables

Panel A. Pairwise Correlation Matrix

Variable	SC	Size	Leverage	Cash Ratio	Market-to-Book
SC	1.000				
Size	-0.105	1.000			
Leverage	-0.296	0.225	1.000		
Cash Ratio	-0.112	0.078	-0.069	1.000	1.000
Market-to-Book	0.058	0.313	0.038	0.123	0.123

Panel B. Variance Inflation Factors

Variable	VIF	Tolerance
Size	1.18	0.851
Leverage	1.17	0.852
Shariah Compliance	1.14	0.879
Market-to-Book	1.13	0.885
Cash Ratio	1.04	0.957
Mean VIF	1.13	

Note. SC = Shariah compliance dummy variable; Size = natural logarithm of market capitalization; Leverage = total debt divided by total assets; Cash Ratio = cash and cash equivalents divided by total assets; Market-to-Book = market capitalization divided by book equity.

Fama–MacBeth Cross-Sectional Regression Results: Excess Returns

Table 6 reports the Fama–MacBeth results for monthly excess returns. The coefficient on Shariah compliance is negative but statistically insignificant under both classical and Newey–West adjusted standard errors. Among the controls, firm size is marginally significant, while leverage, cash ratio, and market-to-book ratio are not significant at conventional levels. These results indicate that Shariah compliance is not independently associated with excess returns after firm characteristics are controlled for.

Table. Fama–MacBeth Cross-Sectional Regression Results: Excess Returns

Variables	Mean Coefficient (β̄)	FM SE	t-stat	Newey–West SE	NW t-stat
Shariah Compliance (SC)	-0.00417	0.00411	-1.01	0.00496	-0.84
Size (t−1)	0.00262†	0.00133	1.97	0.00142	1.85
Leverage (t−1)	-0.00713	0.00805	-0.89	0.00792	-0.90
Cash Ratio (t−1)	0.03291	0.02204	1.49	0.02187	1.51
Market-to-Book (t−1)	-0.00158	0.00097	-1.62	0.00086	-1.83
Constant	-0.02705†	0.01461	-1.85	0.01364	-1.98

DISCUSSION

The results indicate that Shariah compliance is associated with observable selection differences in the Philippine equity market. Firm-months classified as compliant are smaller, less leveraged, less cash-intensive, and more growth-oriented than non-compliant observations. The leverage result is especially consistent with Shariah screening rules that restrict interest-bearing debt, while the higher market-to-book ratio suggests that compliant observations tend to come from firms with stronger growth characteristics.

These findings show that compliance status reflects underlying firm structure rather than a random classification (Abu-Alkheil, 2020).

The unconditional tests show weaker raw risk-return outcomes among Shariah-compliant firm-months, but these differences should be interpreted cautiously. Because compliant observations also differ in size, leverage, cash ratio, and market-to-book ratio, simple group comparisons cannot establish whether compliance itself affects performance. The unconditional findings therefore justify the use of the Fama–MacBeth framework to separate observed group differences from pricing effects.

The Fama–MacBeth results provide the central evidence of the study. Once firm characteristics are controlled for, Shariah compliance is statistically insignificant under both classical and Newey–West adjusted standard errors. This indicates that compliance is not an independently priced characteristic in the cross-section of Philippine stock returns. Instead, the unconditional return difference appears to reflect the financial characteristics selected by screening. The evidence therefore supports a selection effect, but not a separate pricing effect.

This result is consistent with asset-pricing theory, which attributes expected returns to risk exposures and priced firm characteristics rather than categorical labels alone. In this setting, investors do not appear to reward or penalize Shariah compliance after observable fundamentals are considered. Compliance status may therefore be informative, but its return implications are absorbed through the characteristics it selects.

The results also contribute to the financial constraints perspective. Shariah screening imposes restrictions similar to financial constraints by limiting debt usage, narrowing permissible sources of income, and excluding certain sectors. These restrictions shape capital structure and may influence firm behavior, financing decisions, and growth opportunities. However, the findings show that such constraints do not automatically translate into a systematic return premium or penalty. Instead, they shape the composition of the investable universe. At the firm level, this implies that companies seeking Shariah eligibility must manage leverage, liquidity, and business activity composition deliberately. Compliance may therefore influence corporate financial policy even when it does not independently explain stock returns.

The Philippine context gives these findings additional relevance. The market lacks a formal Shariah stock index and remains at an early stage of Islamic capital market development, yet the results suggest that firm-level pricing remains consistent with established asset-pricing logic. The absence of a Shariah return premium should therefore not be read as evidence against Islamic equity development. Rather, it suggests that market infrastructure should be justified primarily by inclusion, transparency, benchmarking, and product innovation.

These findings help reconcile mixed evidence in Islamic equity research. Reported outperformance or underperformance may partly reflect differences in firm composition rather than a pure compliance effect. This study supports a performance-neutral interpretation of Shariah compliance in the Philippine market by showing that unconditional return differences disappear after controls are introduced.

CONCLUSION

This study examined whether Shariah compliance is associated with firm characteristics, excess returns, and risk in the Philippine stock market using firm-level data for 133 investable firms from 2021 to 2025. The analysis compared firm-month characteristics, tested unconditional return and volatility differences, and applied Fama–MacBeth regressions to determine whether compliance is independently priced after firm characteristics are controlled for.

Three findings emerge. First, Shariah-compliant firm-months differ significantly from non-compliant firm-months in size, leverage, cash ratio, and market-to-book ratio. Second, compliant observations show lower excess returns and higher rolling volatility in unconditional tests. Third, once firm characteristics are included in the Fama–MacBeth regressions, Shariah compliance is no longer statistically significant. Thus, the study rejects the null hypotheses of no unconditional differences but fails to reject the null hypothesis that Shariah compliance is not independently associated with excess returns after controls (Ulussever et al., 2025; Bugshan & Bakry, 2025; Kayani et al., 2025).

Collectively, these findings indicate that Shariah compliance shapes the composition of the investable universe but does not independently command a return premium or penalty in the cross-section of Philippine stocks. The study therefore distinguishes between selection differences and pricing effects. Shariah-compliant observations differ from non-compliant observations in firm characteristics, and they also differ in unconditional return and risk outcomes. However, the return difference does not persist after firm characteristics are controlled for. This suggests that the economic effect of Shariah compliance operates primarily through the characteristics selected by screening rather than through compliance status itself.

The study contributes firm-level evidence from the Philippines, a frontier Muslim-minority market with limited Islamic capital market infrastructure. It extends prior Philippine studies on prediction and portfolio optimization by adopting an asset-pricing perspective and showing that Shariah compliance is performance-neutral after firm characteristics are considered. Beyond academic contribution, the findings support the development of Shariah-compliant investment infrastructure as a tool for ethical investment choice, financial inclusion, and capital-market social innovation.

IMPLICATIONS

Theoretically, the findings clarify that Shariah compliance should be understood as a screening filter rather than a return-generating factor. Its role is to select firms with distinct financial characteristics, particularly in leverage and growth orientation, but not to command a separate risk premium after those characteristics are controlled for. This distinction helps reconcile mixed Islamic equity findings by showing why compliant stocks may differ in unconditional comparisons but appear performance-neutral in conditional asset-pricing tests. The result extends asset-pricing and Islamic finance theory to a frontier Muslim-minority market, where limited Islamic capital market

infrastructure affects accessibility and benchmarking more than the pricing of firm-level fundamentals.

Methodologically, the study shows why unconditional comparisons should be supplemented with firm-level controls and cross-sectional pricing tests. Without such controls, lower returns or higher volatility among compliant observations may be misinterpreted as a compliance effect rather than a consequence of differences in firm characteristics.

For investors, the findings carry important practical implications. The absence of a statistically significant return premium associated with Shariah compliance indicates that ethical or faith-based investing does not inherently result in inferior financial performance once firm characteristics are considered. This suggests that investors can pursue Shariah-compliant strategies without sacrificing expected returns. However, the higher unconditional volatility of compliant observations indicates that diversification, sector exposure, liquidity, and firm fundamentals remain important in portfolio construction.

From a business and corporate perspective, the results imply that firms seeking Shariah compliance must recognize the structural financial implications of screening criteria. Compliance requires adherence to constraints on leverage, liquidity, and permissible income sources, which may influence capital structure decisions, financing strategies, and growth trajectories. Firms may need to adopt more conservative financial policies, which could affect investment flexibility but also enhance financial discipline and resilience.

For policymakers and market institutions, the findings support the development of Islamic equity infrastructure in the Philippines. Since Shariah compliance is not associated with an independent return penalty after controls, Shariah-compliant products may be promoted as ethical and faith-aligned investment channels without necessarily disadvantaging investors. Policy priorities include transparent screening criteria, regular disclosure of compliance status, investor education, and support for Shariah-compliant funds or pooled investment products.

The findings also strengthen the case for a formal Philippine Shariah stock index. Such an index would not merely serve as a performance benchmark; it would function as market infrastructure that can support product innovation, portfolio benchmarking, fund creation, and international visibility. In a Muslim-minority frontier market, this may serve as a form of financial social innovation by expanding ethical investment choice and enabling broader participation among Muslim and values-oriented investors. Therefore, Islamic equity development should be viewed not as a parallel system competing with conventional finance, but as an inclusive capital-market innovation that complements the existing financial system.

LIMITATION AND DIRECTIONS FOR FUTURE RESEARCH

Several limitations should be acknowledged. First, the study relies on accounting-based proxies for firm characteristics, which may not perfectly align with the financial ratios used in formal Shariah screening frameworks. Second, while the use of Fama–MacBeth regression provides a rigorous test of cross-sectional pricing relationships, it is inherently limited in terms of causal

interpretation and does not fully account for unobserved firm-level heterogeneity or dynamic adjustments over time. Third, the single-country context may limit generalizability, as prior studies have shown that Islamic equity performance can vary across markets and institutional settings (Hayat & Kraeussl, 2011).

Future research may extend this analysis by incorporating panel-based methodologies, such as fixed effects or correlated random effects models, to better capture within-firm dynamics and address unobserved heterogeneity. Additionally, cross-country comparative studies would provide deeper insights into how institutional environments, regulatory frameworks, and market maturity influence the performance and pricing of Shariah-compliant firms.

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Appendix A
Firms included in the Investable Sample (2021-2025)

ABA	C	FPH	MEG	RFM
ABS	CEB	FRUIT	MER	RLC
AC	CHP	GERI	MONDE	RRHI
ACEN	CIC	GLO	MRC	SCC
ACR	CLI	GMA7	MREIT	SEVN
AEV	CNPF	GSMI	MRSGI	SGP
AGI	CNVRG	GTCAP	MWC	SHLPH
ALCO	COSCO	HOME	MWIDE	SHNG
ALI	CPG	HOUSE	NIKL	SLI
ALLDY	CPM	ICT	NOW	SM
ALLHC	CREC	IMI	OGP	SMC
ALTER	CREIT	INFRA	ORE	SMPH
ANI	DD	ION	PCOR	SSI
AP	DDMPR	JFC	PGOLD	SSP
APX	DFNN	JGS	PHA	STI
AREIT	DMC	KEEPR	PHES	TBGI
ASLAG	DMW	LC	PHN	TECH
AT	DNL	LCB	PIZZA	TEL
ATN	EEI	LOTO	PLC	TUGS
ATNB	EMI	LPZ	PLUS	URC
AXLM	EVER	LTG	PNX	VITA
BC	FCG	MAC	PPC	VLL
BCB	FGEN	MAH	PRMX	VREIT
BEL	FILRT	MAHB	PX	WEB
BLOOM	FLI	MARC	PXP	WLCON
BRN	FNI	MAXS	RCI	
BSC	FOOD	MEDIC	RCR	

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