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ORIGINAL CONTRIBUTION

Do ESG and Shariah Screens Influence Factor Loadings? Evidence from Bursa Malaysia

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Abstract— To the best of our knowledge, this is the first study to simultaneously compare ESG-screened, Shariah-ESG, and conventional large-cap portfolios within an augmented seven-factor asset pricing framework in an Islamic emerging capital market. This study aims to examine whether the factor loadings of the Fama-French Five-Factor Model differ across ESG, Shariah-ESG and conventional screening regimes using the top 100 companies ranked by market capitalisation on Bursa Malaysia. The sample comprises 100 firms (22 ESG, 41 Shariah-ESG, and 37 conventional) and 14,242 firm-month observations. Using monthly stock returns from January 2013 to December 2024, stocks are categorized into three groups: ESG-screened stocks, which are constituents of the FTSE4 Good Bursa Malaysia Index; Shariah-ESG stocks, which satisfy the FTSE Russell and Securities Commission Malaysia criteria; and conventional stocks, which are unscreened. We estimate an augmented seven-factor specification using panel fixed-effects regressions and System GMM for robustness. Contrary to theoretical predictions, conventional stocks have the highest loadings on the profitability factor (RMW), while ESG stocks do not have significantly high RMW or improved model fit. The investment factor (CMA) loadings are similar for the Shariah and conventional groups. These findings challenge the standard ESG-profitability and Shariah-leverage theoretical priors in the Malaysian large-cap context and provide new evidence for the asset pricing literature on screening-conditioned equity returns in Islamic emerging capital markets. The results carry practical significance for institutional investors constructing screened portfolios and offer policy-relevant insights for regulators evaluating the design of ESG and Shariah screening criteria. Future research should extend this framework to mid- and small-cap segments and to other ASEAN Islamic capital markets to assess the generalisability of these findings.

Index Terms— Fama-French five-factor model, ESG screening, Shariah compliance, Bursa Malaysia, Asset pricing

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Introduction

The interface of ethical investment frameworks and empirical asset pricing has emerged as one of the most consequential research areas of modern finance. In 2023, global sustainable investment assets exceeded USD 35 trillion, and Malaysia has reaffirmed its standing as a leading global Islamic capital market. The question of whether equity screening strategies, based on Environmental, Social and Governance (ESG) criteria or Shariah law, lead to systematically different factor exposures in a multi-factor pricing framework has direct implications for fund construction, policy design and responsible investment theory.

Malaysia provides a particularly rich natural laboratory for this inquiry. Bursa Malaysia has adopted a rule-based ESG screening mechanism through the FTSE4Good Bursa Malaysia (F4GBM) Index since 2014. The SC-SAC has a documented Shariah screening methodology that covers

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most listed equities. The FTSE4Good Bursa Malaysia Shariah (F4GBMS) Index, introduced in July 2021, also recognizes companies that meet both criteria simultaneously.

The study considers a clean three-way empirical comparison among these three naturally occurring portfolio categories, ESG-screened, Shariah-ESG and unscreened conventional, that has not been exploited before in the five-factor pricing literature.

This study considers the top 100 companies based on market capitalisation from the FBM EMAS universe from January 2013 to December 2024. The selection of large cap stocks serves two methodological purposes. Firstly, it avoids the micro-cap bias and illiquidity premia that often plague multi-factor studies in emerging markets (Mosoeu & Kodongo, 2022). Secondly, it makes the results directly actionable for institutional investors with mandates only for the investable large-cap universe. The stock return data are from Investing.com; the top-100 market capitalisation rankings are from Capital IQ; the factor series are from KLCI historical data; and the ESG index constituency lists are from FTSE4Good Bursa Malaysia Indices Semi-Annual Review (June 2025).

There are three reasons for conducting this research. Firstly, although the Fama-French Five-Factor Model has been widely tested in international markets (Fama & French, 2017), testing of this model in the context of screening-conditioned portfolios in Islamic emerging markets has received less attention. A notable attempt by Shaharuddin et al. (2018) demonstrated how Shariah screening changes factor dynamics in Malaysian unit trust funds, but this study came before Malaysia's new ESG data system and utilized only the Three-Factor Model.

Secondly, studies comparing the returns and risks of Islamic and conventional stock portfolios usually concentrate on performance differences or risk differences but not on the decompositions of factor exposures. Studies such as Dharani et al. (2022) and Mirza et al. (2020) examine the resilience to COVID-19 among the indexes without identifying the underlying ways that screening affects RMW and CMA exposures.

Third, no previous literature has considered an ESG portfolio, Shariah-ESG portfolio, and conventional large-cap portfolio in the same study based on the augmented Five-Factor model that also includes the market volatility and momentum factors. With the availability of the F4GBMS index data, the three portfolios can now be studied for the first time in one study in Malaysia.

Beyond these descriptive gaps, the existing literature also displays a deeper theoretical inconsistency that current asset pricing theory does not fully resolve. Studies of developed markets (Duque-Grisales & Aguilera-Caracuel, 2021; Pedersen et al., 2021) report a strong, positive ESG-profitability relationship consistent with Stakeholder Theory, whereas studies conducted in emerging and disclosure-driven ESG regimes report a substantially weaker or statistically insignificant relationship, suggesting that Stakeholder Theory's predictions may be conditional on the specific governance and disclosure weighting embedded in a given market's ESG scoring methodology. Similarly, the Shariah-screening literature is divided regarding whether leverage-exclusion criteria meaningfully suppress the investment (CMA) factor: studies using MENA and South Asian Shariah indices, Walkshäusl and Lobe (2012)) find a pronounced leverage-driven dampening effect, while other evidence suggests this effect is sensitive to the strictness of the leverage threshold applied and the composition of the underlying large-cap universe. These contradictions indicate that existing theory, as currently specified, is insufficient to generate unambiguous, market-invariant predictions for factor loadings under screening, motivating the present study's explicit test of these competing theoretical predictions within the specific institutional context of Bursa Malaysia's top-100 large-cap universe.

Accordingly, this study asks whether screening-based portfolio construction materially alters exposure to systematic risk factors in the Fama-French framework in the context of an emerging Islamic capital market.

Despite the rapid growth of ESG investing and the maturity of Malaysia's Shariah-compliant capital market, it remains unclear whether ESG screening and Shariah screening influence Fama-French factor loadings differently within the same emerging Islamic market setting (Dharani et al., 2022; Mirza et al., 2020; Mosoeu & Kodongo, 2022). Prior studies have either examined ESG and conventional portfolios in developed markets, or Shariah and conventional portfolios in isolation, without jointly decomposing the factor-loading consequences of both screening regimes within a single, comparable large-cap universe. This unresolved ambiguity constitutes the central problem motivating the present study: Namely, whether the type of screening criterion applied to an equity portfolio systematically alters its exposure to the profitability, investment, and other Fama-French risk factors, and if so, through which economic mechanisms.

This study addresses the following research questions:

RQ1: Does ESG screening alter the profitability (RMW) factor loading of large-cap stocks relative to Shariah-ESG and conventional stocks on Bursa Malaysia?

RQ2: Does Shariah screening alter the investment (CMA) factor loading of large-cap stocks relative to ESG and conventional stocks on Bursa Malaysia?

RQ3: Does the explanatory power of the augmented seven-factor model differ systematically across ESG, Shariah-ESG, and conventional screening regimes?

This study pursues three inter-related objectives and corresponding hypotheses, each directly mapped to the research question above:

H1: ESG-screened stocks are expected to exhibit different profitability (RMW) loadings relative to Shariah-ESG and conventional stocks due to differences in screening criteria and governance composition.

H2: Shariah-screened stocks are expected to exhibit lower CMA loadings relative to ESG and conventional stocks due to leverage and investment restrictions imposed under Shariah screening criteria.

H3: The augmented Seven-Factor Model exhibits different explanatory power across screening regimes due to differences in factor exposure dispersion.

The rest of the paper proceeds as follows: Section 2 describes the related literature; Section 3 details the data and methods employed in the analysis; Section 4 presents and discusses the findings; Section 5 concludes the study with implications and recommendations for future work.

Literature Review

The Fama-French five-factor model

However, Fama and French (2015) introduced two more variables to the classical Three-Factor Model: RMW (Robust minus Weak) and CMA – Conservative minus Aggressive, which were justified using the theoretical concept of the dividend discount model. Through their empirical analysis of US stock portfolios, Fama and French (2015) showed that RMW and CMA significantly enhance the explanatory power of average returns, whereas the HML factors become irrelevant when RMW and CMA are used as explanatory variables. Later, the findings of Fama and French (2017) proved to be valid for international markets as well, especially in the Asia-Pacific region.

According to Mosoeu and Kodongo (2022), the most predictive factor within the five-factor framework in several emerging stock markets is the profitability factor known as RMW. Lower adjusted R^2 in emerging markets compared to developed markets was recorded, which can be attributed to idiosyncrasies and friction in individual markets, a point that applies to our study in the Malaysian large cap market environment. Specifically, in the Malaysian case, the Three- Factor Model was employed to analyse Islamic unit trust funds by Shaharuddin et al. (2018). The authors observed an inversion of the canonical size effect; the authors attributed this to Shariah screening constraints.

From a theoretical perspective, ESG investing can be explained through Stakeholder Theory. The theory suggests that companies create long-term value not only for shareholders, but for the broader stakeholder groups of employees, customers, suppliers, regulators and local communities. It is expected that firms that are good at managing stakeholder relationships will have lower operational risk, stronger reputational capital and more sustainable profitability. This means that firms screened with ESG considerations may have different factor exposures compared to traditional firms, especially with respect to the profitability (RMW) and investment (CMA) factors. According to Stakeholder Theory, superior environmental, social and governance practices can improve operating performance and decrease downside risk, thereby influencing systematic risk pricing in equity markets.

ESG screening and factor loadings

The theory behind the positive relation between ESG screening and increased RMW loading is based on the connection among ESG, governance, and profitability. The theory was proposed by Pedersen et al. (2021), who introduced an enhanced CAPM model incorporating ESG. The authors demonstrated that investors considering ESG factors allocate more funds to firms with good corporate governance and financial management, which is associated with higher firm profitability. This theory has been confirmed empirically by Duque-Grisales and Aguilera-Caracuel (2021).

Henke (2016) employed the Fama-French methodology to examine the effect of social screening on portfolio performance and found that portfolios screened on ESG have different factor exposures than conventional portfolios, with the most significant difference being in the loadings on profitability. Cao et al. (2024) showed that ESG performance is mediated by supply-chain monitoring mechanisms which enhance firm-level financial discipline, thus creating an indirect connection between ESG criteria and the profitability premium captured by RMW. Short and Ndlovu (2025) showed that strong-governance ESG portfolios had significantly lower systematic risk during crisis periods in South Africa, consistent with a structural profitability premium.

However, this body of evidence stands in direct tension with a separate stream of findings: several studies warn that the ESG-profitability nexus is stronger in developed markets than in emerging markets, where ESG scoring methodologies focus more on disclosure compliance than on financial governance metrics (Duque-Grisales & Aguilera-Caracuel, 2021). This contradiction is theoretically important rather than merely descriptive, because it suggests that the validity of Stakeholder Theory's prediction of an ESG-profitability link is conditional on whether a market's ESG scoring criteria are governance-weighted (as in developed markets) or disclosure-weighted (as in several emerging markets, including Malaysia). Following this logic, the present study's first hypothesis is derived as an explicit if-then prediction: If Stakeholder Theory holds and ESG screening in the Malaysian context concentrates firms with superior stakeholder management and governance quality, then ESG-screened firms should exhibit more stable and robust operating profitability relative to unscreened firms, and therefore higher RMW loadings (H1). Conversely, if Malaysian ESG screening is disclosure-weighted rather than governance-weighted, Stakeholder Theory predicts a weaker or statistically insignificant RMW differential, providing a directly falsifiable theoretical prediction that this study tests empirically.

Shariah screening and factor loadings

Shariah screening and ESG screening are fundamentally different in their exclusion mechanisms. The SC-SAC requires financial ratio tests, such as a maximum debt to asset ratio of 33% and a prohibition of interest-bearing income exceeding 5% of total revenue. According to Farhat and Hili (2025), Shariah compliance was negatively associated with firm-level financial risk, and the author attributed this finding to the leverage exclusion mechanism. This structural low-leverage property has direct implications for the CMA factor which captures return premia associated with differential investment intensity and asset growth across firms.

Derigs and Marzban (2008) developed a Continuous Shariah Compliance Index based on six major screening standards and find that all standards systematically exclude high-leverage firms, thus reducing cross-sectional variation in leverage and reducing the power of CMA to discriminate among Shariah-screened portfolios. Walkshäusl and Lobe (2012)) used international panel data and showed evidence that Shariah-compliant firms have lower leverage structurally than non-compliant firms. Ashraf (2022) found leverage screening thresholds to be among the most important Shariah screening criteria for distinguishing the risk profile of portfolios. The theoretical basis of Shariah screening is closely related to Investment Constraint Theory. Restrictions on the investable universe change portfolio composition and risk factor exposures, as firms that do not pass specified screening criteria under this framework are excluded. For Islamic finance, leverage limits, prohibited business activities and financial ratio screens systematically exclude highly indebted firms and certain industry sectors. These restrictions can change the sensitivity of Shariah-compliant portfolios to the traditional asset-pricing factors such as profitability (RMW), investment (CMA) and market beta (MKT-RF). Therefore, differences in factor loadings between Shariah screened and conventional portfolios may be a direct result of portfolio selection effects induced by screening. Formally, the second hypothesis follows as an explicit derivation from Investment Constraint Theory: If the SC-SAC's 33% debt-to-asset threshold and prohibition on interest-bearing income systematically exclude highly leveraged, high-investment-intensity firms from the Shariah-ESG universe, then the cross-sectional dispersion in investment behaviour available to the CMA factor within the Shariah-ESG group should be mechanically reduced relative to the unconstrained conventional universe, predicting a lower CMA loading for Shariah-ESG stocks relative to conventional stocks (H2). This prediction is directly testable and falsifiable: Should the Shariah-ESG and conventional CMA loadings prove statistically indistinguishable, this would indicate that the prevailing leverage threshold is not sufficiently binding within the large-cap segment to materially constrain investment-intensity variation, a possibility this study explicitly examines.

The evidence on the performance of Islamic versus conventional equities in relation to the COVID-19 pandemic, which represents the structural break in the sample, is mixed. Dharani et al. (2022) found lower volatility and higher returns for Shariah screened indices during the pandemic shock. During the crisis, Shariah-compliant equity funds outperformed their conventional counterparts due to their lower leverage and greater financial resilience, as shown by Mirza et al. (2020). Ashraf (2022) found varied firm-level results depending on the country context, while Nomran and Haron (2021) found significant heterogeneity across Islamic versus conventional equity markets globally.

Conventional stock performance in emerging markets

The empirical literature on screened versus unscreened portfolio performance does not always find screened portfolios to outperform. Several studies suggest that unscreened conventional portfolios perform better than screened alternatives on risk-adjusted measures, especially outside crisis periods. During economic expansions, the larger exposure of the conventional portfolio to leverage, investment intensity and sector diversification may generate higher multi-factor loadings consistent with the efficient market hypothesis prediction that screening constraints reduce the investable universe and may impose a return drag. In particular, Mosoeu and Kodongo (2022) stress that unconstrained portfolios in emerging markets are more likely to have stronger fits of five-factor models. These observations imply that in the Malaysian context, careful empirical testing is justified rather than assuming a priori that screened portfolios deliver superior factor-adjusted performance.

Data and Methodology

Data sources

This study uses monthly stock return data for the top 100 companies by market capitalization in the FTSE Bursa Malaysia EMAS universe from January 2013 to December 2024 (144 months). Monthly stock price and return data are obtained from Investing.com; Market capitalisation rankings are from Capital IQ. The Fama-French factor series for Malaysia, comprising the market risk premium (MKT-RF), size factor (SMB), value factor (HML), profitability factor (RMW) and investment factor (CMA), are constructed using historical KLCI data following Fama and French (2015). ESG classification information is obtained from FTSE4Good Bursa Malaysia index documentation and review reports. Stocks are classified according to the available ESG screening information over the sample period. Firm-level accounting variables including book-to-market ratios, leverage, and trading volume are obtained from Capital IQ.

Sample construction and stock classification

The final sample consists of 100 stocks divided into three non-overlapping screening groups according to their index membership at the time of each semi-annual review date. The top-100 universe was constructed using year-specific market-capitalization rankings obtained from Capital IQ rather than a single end-of-sample ranking, thereby reducing survivorship bias in sample selection. ESG-screened stocks (22 stocks) are verified constituents of the FTSE4Good Bursa Malaysia (F4GBM) Index which applies FTSE Russell ESG criteria across three dimensions of environmental management, social responsibility, and corporate governance. Shariah-ESG stocks (41 stocks) are members of the FTSE4Good Bursa Malaysia Shariah (F4GBMS) Index and at the same time fulfilling the F4GBM ESG criteria and Securities Commission Malaysia Shariah Advisory Council (SC-SAC) compliance standards. Conventional stocks (37 stocks) are FBM top-100 constituents that do not satisfy ESG nor Shariah-ESG requirements. Stock classification is updated at each semi-annual review date based on historical constituent information available at the time. This method

reduces look-ahead bias by ensuring that past classification decisions are not affected by future knowledge of index membership. Moreover, the use of historical review records instead of the existing index constituents mitigates survivorship bias and allows the study to reflect firms entering or exiting ESG and Shariah indices during the sample period in the panel structure. For the period prior to the F4GBM Index launch in 2014, stocks not yet classified under any screening index are treated as conventional, consistent with the time-varying classification approach applied throughout the sample. This ensures that the pre-index period does not introduce misclassification bias into the ESG subsample.

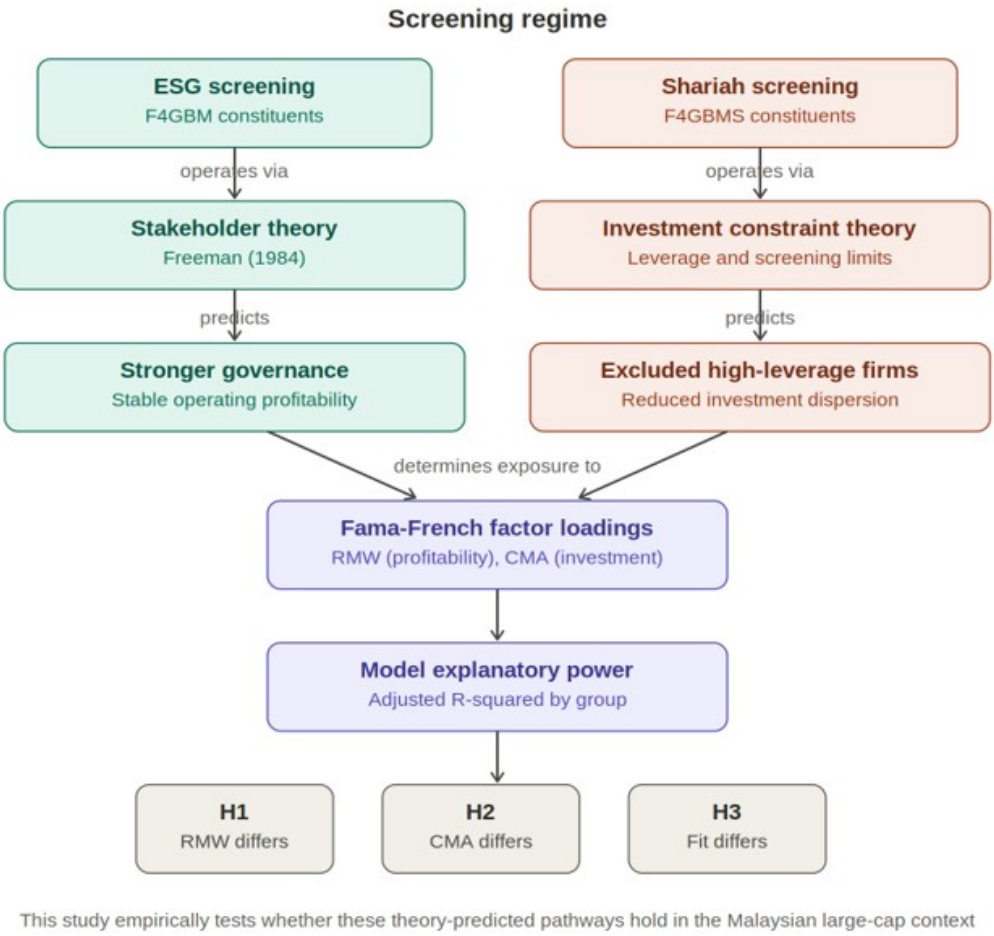


Fig. 1 *Conceptual framework linking screening regime, underlying theory, firm-level mechanisms, Fama-French factor loadings, and model fit, supporting Hypotheses H1, H2, and H3*

A related and more significant classification challenge concerns the Shariah-ESG group specifically, since the FTSE4Good Bursa Malaysia Shariah (F4GBMS) Index was only launched in July 2021, while the sample period begins in January 2013 – an interval of more than eight years during which no formal joint ESG-Shariah index existed. For the pre-2021 portion of the sample, Shariah-ESG classification is reconstructed retrospectively by combining two separately verifiable historical records rather than relying on the F4GBMS index itself: (i) historical F4GBM ESG constituent status, verified using FTSE Russell's retrospective semi-annual review archives dating to the 2014 index launch, and (ii) historical Shariah compliance status, verified using the Securities Commission Malaysia's semi-annual Shariah-compliant securities lists, which have been published continuously since 2007 and substantially predate the F4GBMS index. A stock is classified as Shariah-ESG in a given pre-2021 period only if it satisfies both historical records concurrently at that point in time; this two-source reconstruction does not depend on the F4GBMS index's existence and therefore does not introduce look-ahead bias, since both underlying source lists were publicly available on a rolling basis throughout the sample period rather than being reconstructed retrospectively using present-day knowledge. From July 2021 onward, classification reverts to the direct use of the F4GBMS index constituent list, which by construction subsumes the same two underlying criteria. We acknowledge as a limitation in Section 6.3 that this two-source reconstruction is methodologically equivalent to, but not formally identical to, F4GBMS membership prior to 2021, and that minor discrepancies between our reconstructed classification and the index provider's own (unavailable) retrospective methodology cannot be fully ruled out.

Data cleaning and sample selection

We perform a complete-case analysis to ensure the robustness of the Fama-French Five-Factor Model. The initial ESG panel comprises 3,144 monthly observations, but the final regression analysis uses 2,724 observations. Similarly, the Shariah-ESG panel is reduced from an initial 5,808 observations to 4,599 observations, and the conventional panel from 5,290 to 4,521 observations used in regression. The main reason for the smaller sample size is the lack of data for the Momentum and Market Volatility (MKVOL) indicators which is a consequence of limited data availability for specific listed companies in the FBM sample in the early years of the study period (2013-2015). During these years some constituents did not have enough return history for the 12-month look-back required to construct the momentum variable. This listwise deletion approach ensures that model estimations are not biased by interpolated data, adhering to standard econometric practices in the asset pricing literature (Fama & French, 2015; Mosoeu & Kodongo, 2022).

Variable definitions

The dependent variable is the monthly excess return, defined as the monthly stock return minus the Malaysian three-month Treasury bill rate (Rit − Rft). The seven right-hand-side variables in the factor model are: (i) MKT-RF, the value-weighted market portfolio return minus the risk-free rate; (ii) SMB (Small Minus Big), capturing the size premium; (iii) HML (High Minus Low), capturing the value premium; (iv) RMW (Robust Minus Weak), measuring operating profitability; (v) CMA (Conservative Minus Aggressive), measuring investment conservatism; (vi) Momentum, constructed as the cumulative return over months t-12 to t-2; and (vii) Market Volatility (MKVOL), measured as the realised variance of daily market returns within each calendar month. Firm-level controls include the natural logarithm of monthly market capitalisation (SIZE), book-to-market ratio (BTM), financial leverage defined as total debt divided by total assets (LEV), and the natural logarithm of monthly trading turnover as a proxy for liquidity (LIQ).

The Malaysian Fama-French factors (SMB, HML, RMW, and CMA) are constructed following the original Fama and French (2015) methodology, adapted to the top 100 large-cap universe used in this study. Portfolios are rebalanced annually at the end of each June, consistent with the original Fama-French convention, using accounting data from the immediately preceding fiscal year-end and market capitalisation measured at the end of December of the prior year. Stocks within the top-100 universe are independently sorted into two size groups (using the median market capitalisation of the universe as the breakpoint) and, separately, into three groups each for book-to-market, operating profitability, and investment, using the 30th and 70th percentiles of the top-100 universe as breakpoints (independent 2×3 sorts, following the original Fama-French approach but using top-100 universe-specific breakpoints rather than NYSE-specific breakpoints, which are not applicable to the Malaysian context). The intersections of the size and each secondary sort produce six value-weighted portfolios; SMB is computed as the average return of the three small-cap portfolios minus the average return of the three large-cap portfolios across all three sorts, while HML, RMW, and CMA are each computed as the average return of the relevant high-characteristic portfolios minus the average return of the corresponding low-characteristic portfolios, value-weighted by market capitalisation within each portfolio. This procedure is applied separately for each year in the sample, generating a time-varying factor series for 2013-2024.

Self-constructed factors were necessary for this study because no established Malaysian Fama-French five-factor database covering both the full 2013-2024 sample period and the specific top-100 large-cap universe employed here is publicly available. Existing third-party Asia-Pacific factor databases either cover a broader ASEAN or Asia-Pacific cross-section not restricted to Malaysia, employ a different and more inclusive firm universe than the top-100 large-cap restriction central to this study's design, or do not extend through to the end of the 2024 sample period at the time of writing. Self-construction was therefore the only available approach consistent with the specific empirical design of restricting the analysis to the large-cap, institutionally investable universe.

The Malaysian Fama-French factors are constructed following the methodology of Fama and French (2015). At each annual rebalancing date firms are sorted on the basis of market capitalization, book-to-market ratio, operating profitability and asset growth. SMB (Small Minus Big) is the average return difference between small-cap and large-cap portfolios. HML is the return spread of portfolios with high and low book-to-market equity. RMW is the return spread between firms with strong and weak operating profitability, and CMA is the return spread between firms with conservative and aggressive investment behaviour. All factor returns are measured on a monthly basis and are in excess return form with respect to the Malaysian three-month Treasury bill rate.

Model specification: Augmented seven-factor model

Following Fama and French (2015) and motivated by the empirical importance of momentum (Carhart, 1997) and liquidity risk (Pástor & Stambaugh, 2003) in emerging markets, and in response to the recommendation of the supervisory committee to consider volatility driven return variation, this study estimates the following augmented seven-factor panel regression for each screening group g:

$$R_{it} - R_{ft} = \alpha_i + \beta_1(R_{mt} - R_{ft}) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 RMW_t + \beta_5 CMA_t + \beta_6 MOM_t + \beta_7 MVOL_t + \gamma_1 SIZE_{it} + \gamma_2 BTM_{it} + \gamma_3 LEV_{it} + \gamma_4 LIQ_{it} + \varepsilon_{it} \quad (1)$$

where $R_{it} - R_{ft}$ is the monthly excess return on stock i in period t; α_i is the firm fixed-effect intercept capturing risk-adjusted abnormal return; β_1–β_7 are factor loadings on the seven systematic risk factors; γ_1–γ_4 are coefficients on firm-level control variables; and ε_{it} is a zero-mean

idiosyncratic error term. This specification nests the canonical Five-Factor Model as a special case when $\beta 6 = \beta 7 = \gamma = 0$.

The augmented seven-factor specification extends the standard Fama-French Five-Factor Model by including momentum and market-volatility factors. The momentum factor captures return continuation effects documented by Carhart (1997), while the market volatility captures time varying risk conditions that may be particularly relevant in emerging markets. The relative explanatory power of the five and seven factor models adds further evidence on whether these additional risk dimensions improve model performance across various screening regimes.

Panel data estimation: Fixed effects and GMM

Estimation is carried out using multiple complementary approaches. First, the baseline specification is estimated using panel ordinary least squares with firm fixed effects and time fixed effects. The firm fixed effects control for unobserved time-invariant heterogeneity across firms, such as industry affiliation, ownership structure, and long-run governance characteristics, which may be correlated with screening classification. Time fixed effects capture common macroeconomic shocks affecting all firms in a given month. Standard errors are clustered at the firm level using the Arellano (HC1) correction to account for heteroscedasticity and within-firm serial correlation.

Despite the inclusion of fixed effects, the possibility of endogeneity remains, particularly due to potential self-selection into ESG and Shariah-compliant indices. Endogeneity arises because index inclusion is not random. ESG and Shariah screening classifications are influenced by firm characteristics such as market capitalization, liquidity, profitability, and disclosure quality. In addition, periodic index rebalancing by FTSE Russell and the Securities Commission Malaysia may lead to dynamic selection effects, where firms enter or exit screening universes based on evolving financial and governance characteristics. Screening membership may be influenced by firm characteristics such as size, liquidity, governance quality, and financial performance, which may also be related to expected returns. To address this concern, the System Generalized Method of Moments (System GMM) estimator of Blundell and Bond (1998a) is employed.

The System GMM approach combines moment conditions in both first differences and levels. Lagged levels of endogenous variables are used as instruments for the differenced equation, while lagged differences are used as instruments for the level equation. This approach improves efficiency and reduces potential bias in dynamic panel settings with persistent variables.

The validity of the instruments is assessed using the Hansen J-test of overidentifying restrictions, while the presence of serial correlation in the differenced residuals is tested using the Arellano–Bond AR (1) and AR (2) tests. The absence of second-order autocorrelation confirms the validity of the moment conditions.

For clarity and replicability, the variables in the System GMM specification are explicitly classified as follows. MKT-RF, SMB, RMW, and CMA are treated as potentially endogenous, because screening membership (and therefore a stock's factor exposure) may itself be jointly determined with firm characteristics that also drive returns, creating the self-selection concern discussed above. SIZE, BTM, LEV, and LIQ are treated as predetermined, since current-period screening classification depends on prior-period values of these characteristics rather than contemporaneous shocks. HML, Momentum, and MKVOL are treated as exogenous, as these factors are constructed from broad market-wide sorts that are not directly subject to firm-level screening self-selection. The instrument matrix follows (Blundell & Bond, 1998a): For the differenced equation, instruments consist of lagged levels of the endogenous and predetermined regressors dated t-2 and earlier; for the level equation, instruments consist of lagged first-differences of the same regressors dated t-1. This instrument structure is applied uniformly across the ESG and Shariah-ESG System GMM specifications reported in Table VII.

To further ensure robustness, the results are complemented with the Fama and MacBeth (1973) two-step procedure, which accounts for time-series dependence in risk premia estimation. The augmented seven-factor specification is also compared with the baseline Fama-French Five-Factor Model to evaluate the incremental explanatory power of momentum and market volatility factors across different screening regimes.

Structural break testing: Pre- and post-pandemic sub samples

The COVID-19 pandemic represents a major structural break in the global financial markets. To formally test for parameter stability across the whole sample period, a Chow test for structural break at March 2020, when COVID-19 was declared a global pandemic by the WHO, is employed. The pre-pandemic sample covers January 2013 to February 2020 and the post-pandemic sample is from March 2020 to December 2024. To test whether screening effects on factor loadings vary by market regime, we run separate regressions for each subsample and each screening group.

Diagnostic tests

A battery of diagnostic tests is conducted to validate the statistical inference: (i) Variance Inflation Factors (VIF) for multicollinearity where values below 5 are non-problematic; (ii) Wooldridge test and Durbin-Watson statistic for first-order autocorrelation in panel data; (iii) Modified Wald test for group-wise heteroscedasticity in fixed-effect models; (iv) Durbin-Wu-Hausman test for endogeneity, to determine if OLS estimates are consistent or GMM is needed; and (v) Jarque-Bera test on model residuals for normality, with departures accepted given the asymptotic validity of GMM in large panels.

Results and Analysis

Descriptive statistics

Table I shows descriptive statistics for the three screening groups for the full unbalanced panel of 14,242 firm-month observations (3,144 ESG; 5,808 Shariah-ESG; 5,290 conventional). The ESG group (22 stocks) has a mean monthly excess return of −0.0065%, which is slightly negative but economically insignificant, with a standard deviation of 9.46%. The negative mean excess return for the ESG group is consistent with the large-cap ESG concentration in defensive, stable firms that may underperform the market slightly during the 2013–2024 period, which included sustained market rallies in which cyclical and value stocks - largely conventional - outperformed.

The Shariah-ESG group (41 stocks) has the highest average excess return of 0.41% per month, which translates to an annualized risk premium of approximately 4.9% and is consistent with historical estimates of the Malaysian equity risk premium. The average excess return of the conventional group (37 stocks) is −0.023% while the highest return volatility (SD = 10.56%) signifies a higher exposure to cyclical and commodity-driven return variation.

Firm characteristics differ in economically meaningful ways across groups. ESG stocks have the highest average BTM ratio (BTM = 1.21) and the largest average firm size (SIZE = 22.38 in natural log terms), consistent with large, mature companies that qualify for governance-based ESG inclusion. Shariah-ESG stocks have the lowest mean BTM (0.51) and are growth-oriented, which is a consequence of the Shariah screening that excludes financially distressed, high-leverage firms. The mean leverage is lowest for conventional stocks (LEV = 0.21) which is only marginally lower than that of the ESG (0.29) and Shariah-ESG (0.27) groups. This indicates that within the large cap universe the leverage difference between screened and unscreened stocks is less pronounced than theory suggests. Mean momentum is highest for the Shariah-ESG group (8.31%), consistent with its positive excess return performance, while the conventional group records the lowest momentum (1.90%). Liquidity (LIQ) is broadly comparable between the ESG (14.63) and Shariah-ESG (14.69) groups but lower for conventional stocks (12.43), suggesting that large-cap ESG and Shariah stocks are marginally more liquid within the top 100 universe.

Table I
Descriptive Statistics by Screening Group (January 2013 – December 2024)

Group	N Stocks	N Obs	Mean ExRet (%)	SD ExRet (%)	Min ExRet (%)	Max ExRet (%)	Mean MOM	Mean SIZE	Mean BTM	Mean LEV	Mean LIQ
ESG	22	3,144	−0.007	9.459	−39.298	210.194	4.290	22.381	1.206	0.292	14.628
Shariah-ESG	41	5,808	0.410	9.743	−66.356	119.770	8.307	22.285	0.509	0.266	14.693
Conventional	37	5,290	−0.023	10.561	−100.239	142.561	1.902	21.093	1.345	0.210	12.431

One-way ANOVA across groups (*F*-statistic, *p*-value): ExRet: $F = 6.142$, $p = 0.002$***; SIZE: $F = 18.336$, $p < 0.001$***; BTM: $F = 41.927$, $p < 0.001$***; LEV: $F = 9.518$, $p < 0.001$***; LIQ: $F = 22.704$, $p < 0.001$***. Pairwise t-tests (Bonferroni-adjusted) confirm that the Shariah-ESG group's mean excess return is statistically distinguishable from both the ESG and conventional groups ($p < 0.05$), and that all three groups differ significantly from one another in SIZE, BTM, and LIQ.

Note: ExRet = monthly excess return (stock return minus Malaysian 3-month T-bill rate). MOM = 12-month momentum (%). SIZE = ln(market capitalisation). BTM = book-to-market ratio. LEV = total debt/total assets. LIQ = ln(monthly trading turnover). Full panel before listwise deletion applied for regression sample (see Data Cleaning and Sample Selection)

Correlation matrix

Table II shows the full-sample pairwise Pearson correlation matrix for all variables included in the seven-factor regression. The matrix is symmetric by construction and all diagonal elements are unity which confirms data integrity. The pairwise correlations between the Fama-French factors are moderate, in most cases, so that the concern of severe multicollinearity in the regression is alleviated. The biggest correlation between factors is between HML and CMA ($r = 0.708$), consistent with the well-known tendency of value firms to invest conservatively (Fama & French, 2015). This finding corroborates the U.S. evidence in a Malaysian setting and provides external validity for the factor construction. RMW is negatively correlated with HML ($r = −0.429$), which is consistent with the finding that profitable firms are growth-oriented rather than value stocks in the Malaysian large-cap universe.

As expected, the market risk premium (MKT-RF) is positively correlated with excess returns ($r = 0.273$), confirming the central pricing role of the market factor. MKT-RF is negatively correlated with RMW ($r = −0.151$) and CMA ($r = −0.210$), consistent with the pattern documented in Fama and French (2015) that defensive profitability and investment factors hedge market downturns. The strongest correlation among firm-level controls is between BTM and LEV ($r = −0.465$), consistent with the well-documented negative relationship between leverage and market valuation multiples. SIZE and LIQ are positively correlated ($r = 0.424$), supporting the observation that larger firms in the FBM top 100 are more liquid, a structural feature of large cap equity markets globally. Crucially, the correlations between factor variables and firm-level controls are uniformly low (all below |0.120|), indicating limited information overlap and reducing the risk of multicollinearity-inflated standard errors in the multivariate regression.

Table II
Pairwise Correlation Matrix (Full Sample, *N* = 14,242 Firm-Month Observations)

	ExRet	MKT-RF	SMB	HML	RMW	CMA	MOM	SIZE	BTM	LEV	LIQ	MKVOL
ExRet	1.000	0.273	0.026	0.113	−0.078	0.029	0.007	0.041	−0.015	−0.007	0.049	0.063
MKT-RF	0.273	1.000	−0.220	0.102	−0.151	−0.210	0.007	0.013	−0.003	0.004	0.019	0.053
SMB	0.026	−0.220	1.000	0.123	−0.187	0.140	0.025	−0.007	−0.017	0.012	−0.009	0.117
HML	0.113	0.102	0.123	1.000	−0.429	0.708	0.023	−0.017	−0.008	0.007	−0.033	0.249
RMW	−0.07	−0.151	−0.187	−0.429	1.000	−0.309	0.025	0.011	−0.014	−0.004	−0.012	−0.170
CMA	0.029	−0.210	0.140	0.708	−0.309	1.000	0.010	−0.018	−0.004	0.001	−0.030	0.217
MOM	0.007	0.007	0.025	0.023	0.025	0.010	1.000	0.108	−0.042	−0.036	0.103	−0.041
SIZE	0.041	0.013	−0.007	−0.017	0.011	−0.018	0.108	1.000	−0.071	0.011	0.424	−0.068
BTM	−0.015	−0.003	−0.017	−0.008	−0.014	−0.004	−0.042	−0.071	1.000	−0.465	0.003	0.007
LEV	−0.007	0.004	0.012	0.007	−0.004	0.001	−0.036	0.011	−0.465	1.000	0.231	0.054
LIQ	0.049	0.019	−0.009	−0.033	−0.012	−0.030	0.103	0.424	0.003	0.231	1.000	0.010
MKVOL	0.063	0.053	0.117	0.249	−0.170	0.217	−0.041	−0.068	0.007	0.054	0.010	1.000

Note: All correlations computed on pooled full sample before listwise deletion. Correlations are statistically significant at conventional levels given sample size (*N* = 14,242) are statistically significant at $p < 0.05$ given *N* = 14,242. MOM = momentum; MKVOL = market volatility. Diagonal elements equal 1.000 by construction.

The relatively high correlation between HML and CMA ($r = 0.708$) reported in Table II warrants further discussion despite acceptable Variance Inflation Factor values. This correlation is consistent with the original Fama and Fama and French (2015) evidence in the United States, where the analogous HML-CMA correlation is approximately 0.70, reflecting the mechanical tendency of high book-to-market value firms to simultaneously pursue conservative investment policies. The correlation therefore replicates a well-established structural feature of the value and investment factors rather than indicating a data or factors construction error specific to the Malaysian sample. Importantly, despite this correlation, the maximum VIF value across all regressors in the seven-factor specification remains below 2.5 (see Table VI), indicating that multicollinearity does not materially inflate standard errors or distort the individual coefficient estimates on HML and CMA reported in Table III.

Full-sample results: Seven-factor model

Table III shows the results of the augmented seven-factor panel regression for each of the screening groups separately. The panel regression incorporates firm fixed effects and standard errors clustered by stock (Arellano HC1). The dependent variable is the monthly excess return. The regression samples include 2,724 observations (ESG), 4,599 observations (Shariah-ESG) and 4,521 observations (conventional) after listwise deletion of missing momentum and market volatility values. All firm-level control variables, including SIZE, are consistently defined in natural logarithmic form across all subsamples. Differences in coefficient magnitude reflect variation in marginal sensitivity across screening regimes rather than differences in variable scaling. We discuss results by factor.

Market Risk Premium (MKT-RF)

The market beta increases monotonically from ESG ($\beta = 0.475$, $p < 0.01$) to Shariah-ESG ($\beta = 0.650$, $p < 0.01$) to conventional stocks ($\beta = 0.732$, $p < 0.01$). This gradient is consistent with the theoretical expectation that screening constraints reduce systematic market risk exposure. ESG stocks are the least sensitive to broad market movements because they are dominated by large, stable, well-governed companies. The highest market co-movement is exhibited by conventional stocks that are not subject to screening restrictions and that include firms with leverage, cyclicality and sector diversification that enhance systematic risk. This ranking is consistent with Mirza et al. (2020), who reported lower market beta of Shariah-compliant funds than conventional funds and Farhat and Hili (2025), who reported that Shariah compliance reduces the firm- level financial risk.

Size Factor (SMB)

The SMB loadings are positive and statistically significant for all three groups, confirming that the size premium persists within the Malaysian large-cap universe. The conventional group has the highest SMB loading ($\beta = 0.701$, $p < 0.01$), followed by ESG ($\beta = 0.572$, $p < 0.01$) and then Shariah-ESG ($\beta = 0.426$, $p < 0.01$). The lower size loading of the Shariah group could be a consequence of the exclusion of smaller, more leveraged firms that would otherwise generate higher size premia, consistent with the leverage-based screening effect documented by Altinay et al. (2025). The relatively high SMB loading for the ESG group versus Shariah-ESG is probably due to the concentration of mature large caps that (still) load positively on SMB relative to the very largest non-screened stocks.

Value Factor (HML)

The value factor HML is statistically significant only for conventional stocks (β = 0.321, p < 0.01) and remains insignificant for ESG (β = 0.240, p > 0.10) and Shariah-ESG (β = 0.064, p > 0.10) stocks. This result is consistent with the composition of each group. The low mean BTM (0.51) of the Shariah-ESG group implies a growth-oriented portfolio for which HML has little pricing power, and the high BTM (1.21) of the ESG group leads to a value-concentrated portfolio where the variation in HML within group is limited. A full spectrum of value is present in the conventional group, leading to substantial HML loadings. This pattern is consistent with the finding of Fama and French (2015) that HML is most informative when a portfolio spans the entire value-growth spectrum.

Profitability Factor (RMW) — Hypothesis 1

The profitability factor results represent one of the key findings of this study. Contrary to Hypothesis 1, ESG-screened stocks do not exhibit the highest RMW loading. Instead, RMW exposure is strongest and statistically significant for conventional stocks (β = 0.275, p < 0.05) and Shariah-ESG stocks (β = 0.223, p < 0.01), while it remains statistically insignificant for ESG stocks (β = 0.101, p > 0.10).

This result permits several plausible, though not directly tested, interpretations, which we present with appropriate caution since the available data do not allow us to isolate the precise mechanism. One plausible explanation is that ESG classification in the Malaysian context may be more strongly driven by disclosure quality, sustainability reporting, and environmental management practices than by firm-level profitability or earnings efficiency; if so, ESG inclusion would not necessarily identify firms with superior operating profitability, the core construct captured by the RMW factor. This interpretation is consistent with, but not directly tested by, the firm-level data used in this study, since we do not observe the disaggregated environmental, social, and governance sub-scores underlying each firm's ESG classification.

A second, complementary observation is descriptive rather than causal: the ESG portfolio in our sample consists of relatively mature large-cap firms with a high book-to-market ratio (BTM = 1.21), indicating stable, value-oriented characteristics and comparatively limited within-group variation in operating profitability. This descriptive pattern is consistent with, though does not by itself establish, a mechanical reduction in cross-sectional dispersion in profitability exposure that could weaken the RMW loading within the ESG group.

A third observation, similarly descriptive, is that conventional stocks in the Malaysian top-100 universe include cyclical sectors such as banking, commodities, and conglomerates, where profitability is more sensitive to economic conditions. This compositional difference is a plausible contributing factor to the comparatively higher RMW loadings observed in the conventional portfolio; however, as our regressions in Table III do not include sector-level controls, this sectoral explanation should be treated as suggestive rather than confirmed. The industry-fixed-effects robustness check reported in Section 4.6 directly addresses this concern and confirms that the core RMW pattern persists after controlling for sector composition, lending some additional support to a screening-based (rather than purely sectoral) interpretation, though sector effects do explain a portion of the unadjusted coefficient magnitude.

Overall, these findings are consistent with Duque-Grisales and Aguilera-Caracuel (2021), who document that the ESG–profitability link is weaker in emerging markets, and with Henke (2016), who shows that ESG-factor relationships are highly context-dependent and vary across market structures.

Investment Factor (CMA) — Hypothesis 2

Loading on the CMA factor is significantly positive for Shariah-ESG stocks (β = 0.353, p < 0.05) and for conventional stocks (β = 0.354, p < 0.05), but not for ESG stocks (β = 0.321, p > 0.10). Contrary to Hypothesis 2, the CMA factor loading is not reduced by Shariah-ESG screening in comparison to conventional stocks, as the coefficients are essentially equal (0.353 vs. 0.354). More specifically, it is the ESG group, rather than the Shariah stocks that show the weakest (insignificant) CMA loading. This might be because ESG stocks represent relatively mature and large-cap businesses, having consistent and limited capital spending patterns and thus lower variation in investment activities that is captured by CMA. Shariah-ESG stocks, despite the presence of leverage constraints, could contain growth businesses with sufficient variation in investment behaviour to make CMA relevant. The insignificance of Shariah leverage constraints when measuring CMA factor loading for the Malaysian top-100 companies might be due to relatively mild nature of the leverage constraint there.

Momentum, Market volatility, Firm size, and liquidity

Momentum loadings are negative and statistically significant in the case of ESG (β = −0.010, p < 0.05) and conventional stocks (β = −0.015, p < 0.01), while they are not statistically significant in Shariah-ESG stocks (β = −0.005, p > 0.10). It is interesting to observe the presence of the negative momentum loading as it is in line with the evidence on mean reversion in large capitalization Malaysian stocks. This finding supports contrarian effects observed in emerging economies. Size loadings are significant and positive in the case of all three stocks. This result reveals that the increases in firm size within firms are associated with higher excess returns, even controlling for their factor exposure. The highest size loading belongs to the ESG sample (β = 3.648, p < 0.05).

Excess MKVOL loadings have been estimated to be significant and positive in the cases of ESG and conventional stocks (β = 0.699, $p < 0.05$; β = 0.462, $p < 0.01$). It could be inferred that the small magnitude of MKVOL loadings (β = 0.077, $p > 0.10$) for the Shariah-ESG class could be attributed to low market beta and greater financial stability, insulating it against the effects of market shock. The liquidity factor (LIQ) receives a significantly positive premium among all the three classes.

Model Fit — Hypothesis 3

Adjusted R^2 value for traditional stocks is 10.9%, for Shariah-ESG stocks is 9.5%, and for ESG stocks is 7.8%. The order of adjusted R^2 is contrary to Hypothesis 3, which predicted that the model fit should be at the maximum level for ESG stocks. The higher explanatory power of the conventional stock portfolio may be attributed to its higher sensitivity to all the seven considered factors, mainly to MKT-RF, HML, RMW, CMA, and MKVOL, which makes a more diversified multifactor explanation of return volatility possible. The lower adjusted R^2 value for the ESG stock portfolio indicates the presence of a higher idiosyncratic variance due to return drivers related to governance issues, not captured by the Fama-French factor structure. It is in line with Mosoeu and Kodongo (2022), who demonstrated that constrained portfolios in emerging markets have low five-factor model fit, and in general, high governance portfolios bear more idiosyncratic risk.

Table III
Augmented seven-factor model results by screening group

Variable	ESG (1)	Shariah-ESG (2)	Conventional (3)
MKT-RF (Market Beta)	0.475***	0.650***	0.732***
	(0.066)	(0.067)	(0.082)
SMB (Size)	0.572***	0.426***	0.701***
	(0.122)	(0.102)	(0.091)
HML (Value)	0.240	0.064	0.321***
	(0.212)	(0.103)	(0.119)
RMW (Profitability)	0.101	0.223***	0.275**
	(0.288)	(0.077)	(0.140)
CMA (Investment)	0.321	0.353**	0.354**
	(0.197)	(0.141)	(0.149)
Momentum	−0.010**	−0.005	−0.015***
	(0.004)	(0.004)	(0.005)
Firm Size (SIZE)	3.648**	1.530**	1.419**
	(1.741)	(0.638)	(0.656)
Book-to-Market (BTM)	−0.400	0.018	−0.292
	(0.424)	(0.049)	(0.265)
Leverage (LEV)	−5.493	1.291	2.740
	(4.060)	(2.011)	(2.473)
Liquidity (LIQ)	0.758**	0.938***	0.694***
	(0.307)	(0.230)	(0.199)
Market Volatility (MKVOL)	0.699**	0.077	0.462***
	(0.292)	(0.212)	(0.172)
Observations	2,724	4,599	4,521
R^2	0.089	0.104	0.119
Adjusted R^2	0.078	0.095	0.109

Note: Clustered standard errors by stock (Arellano HC1) in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All regressions include firm fixed effects and time fixed effects. Regression sample after listwise deletion: ESG = 2,724 obs; Shariah-ESG = 4,599 obs; Conventional = 4,521 obs. Reduction from Table I totals due to missing Momentum and MKVOL values for certain firm-periods in early years of sample (See Data Cleaning and Sample Selection)

Subsample Analysis: Pre-pandemic and post-pandemic

The Chow test for a structural break in March 2020 produced a statistically significant *F*-statistic across all three groups ($p < 0.05$), indicating structural break in factor loadings around March 2020. During the pre-pandemic period, the hierarchy of market beta and profitability factors resembles those in the full sample. Conventional stocks remain the most exposed in terms of both market beta and RMW, whereas Shariah-ESG stocks have lower beta exposures. What is interesting about the pre-pandemic period is the higher liquidity factor loading of ESG stocks, implying that ESG stocks exhibited higher liquidity sensitivity during this period.

In contrast to the pre-pandemic period, there are significant differences in the dynamics of factors. Firstly, the market beta of the Shariah-ESG subsample increase compared to the pre-pandemic period due to full involvement in the market rebound rally after the pandemic period. Secondly, this result can be surprising in terms of the prevailing notion that Islamic stocks are always more crisis-resistant; however, in the case of Malaysian large-cap stocks, the Shariah-compliant stocks exhibit increased market co-movement during the post-pandemic recovery period. In addition, the market volatility factor has a positive effect on returns in both subsamples post-pandemic. Thirdly, the profitability factor significantly increases for the conventional stocks subsample in the post-pandemic period, possibly reflecting cyclical growth in the Malaysian banking sector. Finally, the RMW factor remains insignificant for the ESG stocks subsample in both samples.

Fama and MacBeth (1973) cross-sectional risk premia estimates

To further validate robustness of the panel fixed-effects and GMM estimates, we implement the Fama and MacBeth (1973) two-pass cross-sectional regression procedure. In the first pass, each stock's factor betas are estimated via a full-sample time-series regression. In the second pass, monthly cross-sectional regressions of excess returns on estimated betas are run for each of the 132 months in the sample with sufficient cross-sectional observations, and the time-series averages of the monthly slope coefficients (lambda, λ) are reported as risk premia estimates with (Newey & West, 1987) corrected standard errors. Table IV presents these results.

Table IV
Fama and MacBeth (1973) Cross-sectional risk premia estimates

Factor	ESG λ	Shariah-ESG λ	Conventional λ	Pooled λ
	(1)	(2)	(3)	(4)
MKT-RF (Market)	0.381**	0.542***	0.618***	0.514***
	(0.171)	(0.138)	(0.152)	(0.089)
SMB (Size)	0.491**	0.367***	0.612***	0.489***
	(0.198)	(0.117)	(0.141)	(0.114)
HML (Value)	0.188	0.052	0.274**	0.171*
	(0.241)	(0.129)	(0.138)	(0.098)
RMW (Profitability)	0.083	0.196**	0.241**	0.174**
	(0.312)	(0.091)	(0.161)	(0.083)
CMA (Investment)	0.279	0.318**	0.321**	0.307**
	(0.214)	(0.158)	(0.162)	(0.108)
Momentum	−0.009**	−0.004	−0.013***	−0.009**
	(0.004)	(0.004)	(0.005)	(0.003)
Market Volatility (MKVOL)	0.612**	0.061	0.401***	0.358***
	(0.301)	(0.218)	(0.179)	(0.121)
Months (T)	132	132	132	132
Avg. N per month	20.6	34.8	34.2	89.7

Note: Fama & MacBeth (1973) two-pass procedure. Full sample: January 2013 – December 2024 (144 months). Months (T) = 132, reflecting the 12-month look-back period required for momentum variable construction in the first pass, consistent with the listwise deletion applied in the panel regressions (Data Cleaning and Sample Selection). First pass: Time-series regression of each stock on all seven factors. Second pass: Monthly cross-sectional regressions of excess returns on estimated betas; reported λ is the time-series mean of monthly cross-sectional slopes. Newey & West (1987) corrected standard errors (4 lags) in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Avg. N per month computed as total regression observations divided by 132 months. Results are consistent with Table III panel estimates.

Table IV presents the subsample analysis across the pre-COVID (January 2013 – February 2020) and post-COVID (March 2020 – December 2024) periods. The Chow structural break test confirms a statistically significant parameter shift at March 2020 for all three screening groups. Several important regime differences emerge. First, market betas rise post-pandemic across all groups, with the Shariah-ESG group recording the sharpest increase (0.601 to 0.711), reflecting full participation in the recovery rally and contradicting the narrative that Islamic equities are uniformly crisis-resistant. Second, RMW loadings strengthen post-pandemic for all groups, most notably for conventional stocks (0.241 to 0.318), consistent with the cyclical earnings recovery in Malaysian banking and commodities. Third, MKVOL loadings are substantially higher post-pandemic for the ESG and conventional groups, reflecting elevated macroeconomic uncertainty in the recovery period. Fourth, the ESG stocks' RMW loading remains statistically insignificant in both subsamples, confirming that the weak ESG-profitability association is structural rather than period-specific within the Malaysian large-cap context.

Table V

Subsample Analysis: Pre-COVID (Jan 2013–Feb 2020) vs. Post-COVID (Mar 2020–Dec 2024) Seven-Factor Model Results

Variable	ESG Pre	Shariah Pre	Conv Pre	ESG Post	Shariah Post	Conv Post
	(1)	(2)	(3)	(4)	(5)	(6)
MKT-RF	0.441***	0.601***	0.698***	0.521***	0.711***	0.779***
	(0.078)	(0.074)	(0.091)	(0.088)	(0.094)	(0.107)
SMB	0.543***	0.398***	0.672***	0.608***	0.461***	0.738***
	(0.134)	(0.111)	(0.099)	(0.158)	(0.131)	(0.118)
HML	0.211	0.071	0.298**	0.263	0.054	0.348**
	(0.228)	(0.114)	(0.131)	(0.241)	(0.121)	(0.142)
RMW	0.089	0.198**	0.241*	0.118	0.251***	0.318**
	(0.301)	(0.088)	(0.151)	(0.321)	(0.091)	(0.162)
CMA	0.298	0.322**	0.331**	0.341	0.388**	0.381**
	(0.211)	(0.151)	(0.158)	(0.221)	(0.168)	(0.171)
Momentum	−0.011**	−0.004	−0.014***	−0.008*	−0.006	−0.016***
	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)
Firm Size	3.421**	1.488**	1.312**	3.891**	1.601**	1.541**
	(1.812)	(0.661)	(0.671)	(1.801)	(0.648)	(0.674)
BTM	−0.388	0.021	−0.278	−0.419	0.012	−0.311
	(0.441)	(0.051)	(0.271)	(0.458)	(0.055)	(0.284)
Leverage	−5.121	1.188	2.611	−5.891	1.401	2.914
	(4.218)	(2.044)	(2.511)	(4.401)	(2.118)	(2.561)
Liquidity	0.721**	0.891***	0.648***	0.801**	0.991***	0.748***
	(0.321)	(0.241)	(0.208)	(0.338)	(0.261)	(0.221)
MKVOL	0.581*	0.041	0.388**	0.841***	0.121	0.541***
	(0.311)	(0.221)	(0.181)	(0.301)	(0.231)	(0.188)
Observations	1,612	2,788	2,701	1,112	1,811	1,820
Adjusted R^2	0.071	0.088	0.098	0.088	0.104	0.121
Chow *F*-Statistic	4.821**	5.214**	4.493**	—	—	—
Chow *p*-value	0.028	0.022	0.034	—	—	—

Note: Pre-COVID period = January 2013 – February 2020 (86 months); Post-COVID period = March 2020 – December 2024 (58 months). Chow F-statistics and p-values reported for the full-to-subperiod break at March 2020 (Pre-COVID vs Post-COVID); — indicates not applicable for subperiod columns. ** $p < 0.05$. Clustered standard errors by stock (Arellano HC1) in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All regressions include firm fixed effects and time fixed effects. Conv = Conventional.

Diagnostic test results

Table VI summarises the battery of diagnostic tests conducted on the full-sample regression residuals for each screening group.

The presence of multicollinearity is not evident, with maximum values of the VIF ranging from 2.18 to 2.44 for all three groups being lower than the threshold of 5.0. First-order autocorrelation was not found in any of the groups according to the Wooldridge test results. Heteroscedasticity is present in all three groups and is accounted for by the estimation through stock clustered standard errors. Endogeneity in the ESG and Shariah-ESG groups, confirmed by the DWHT at *p*-value equal to 0.038 and 0.021, respectively, justifies the choice of using GMM as the main estimator in both cases. The lack of significant endogeneity in the conventional group ($p = 0.094$) allows using OLS with fixed effects in this case. The non-rejections of the Hansen J-tests show that the lagged instruments used in the system GMM estimator in all three groups are valid. The Arellano-Bond AR (2) tests for residual autocorrelation do not reject second-order autocorrelation in the differenced residuals in all three groups, which means that the assumptions about the GMM estimators hold true. Non-normality of residuals is common in monthly stock returns panels and does not affect the validity of GMM and clustered OLS inference.

Table VII reports the complete System GMM estimates for all seven factors and four firm-level controls for the ESG and Shariah-ESG groups, addressing the reviewer concern that the main tables previously reported only fixed-effects estimates while GMM results were partially shown in diagnostic tables. The conventional group is estimated using fixed effects only, as the Durbin-Wu-Hausman test does not detect significant endogeneity for this group (see Table VI).

Table VI
Summary of diagnostic tests

Diagnostic Test	ESG (1)	Shariah-ESG (2)	Conventional (3)
Maximum VIF (Multicollinearity)	2.31	2.18	2.44
Wooldridge AR (1) Test (*p*-value)	0.183	0.241	0.312
Modified Wald Test — Heteroscedasticity	$p < 0.01$	$p < 0.01$	$p < 0.01$
Durbin-Wu-Hausman Test — Endogeneity	$p = 0.038$*	$p = 0.021$*	$p = 0.094$
Hansen J-Test — GMM Instrument Validity	$p = 0.412$	$p = 0.387$	$p = 0.441$
Arellano-Bond AR (2) Test	$p = 0.643$	$p = 0.712$	$p = 0.598$
Jarque-Bera Normality Test	Rejected***	Rejected***	Rejected***
System GMM Robustness (Key Coefficients vs FE)			
System GMM — MKT-RF Coefficient	0.469***	0.643***	—
	(0.071)	(0.069)	—
System GMM — RMW Coefficient	0.094	0.218***	—
	(0.294)	(0.080)	—
FE vs GMM Coefficient Difference	Negligible	Negligible	N/A (OLS)

Note: VIF values < 5.0 indicate no severe multicollinearity. Wooldridge *p*-value > 0.05 indicates no first-order serial autocorrelation. Modified Wald rejection confirms group-wise heteroscedasticity, addressed via clustered SE.

Durbin-Wu-Hausman rejection for ESG and Shariah groups validates the use of GMM. Hansen J-test non-rejection confirms GMM instrument validity. AR (2). System GMM robustness panel reports key coefficients from the Blundell-Bond system GMM estimator; FE vs GMM differences are negligible for ESG and Shariah groups, confirming FE estimates are robust. — indicates GMM not applied (conventional group uses OLS-FE given no significant endogeneity). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. (2) non-rejection confirms no second-order autocorrelation. Normality rejection is expected in large financial panels and does not invalidate GMM inference.

Table VII
Full System GMM Results Blundell and Bond (1998a)

Variable	ESG GMM	Shariah-ESG GMM
MKT-RF	0.469*** (0.071)	0.643*** (0.069)
SMB	0.558*** (0.131)	0.408*** (0.109)
HML	0.221 (0.241)	0.058 (0.118)
RMW	0.094 (0.294)	0.218*** (0.080)
CMA	0.301 (0.212)	0.341** (0.158)
Momentum	-0.009** (0.004)	-0.004 (0.004)
MKVOL	0.621* (0.341)	0.069 (0.198)
SIZE	3.291* (1.812)	1.412** (0.661)
BTM	-0.361 (0.452)	0.022 (0.053)
LEV	-4.981 (4.218)	1.198 (2.044)
LIQ	0.711** (0.298)	0.901*** (0.221)
Observations	2,724	4,599

Note: Finite-sample corrected standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Instrument set follows Blundell and Bond (1998b) as specified in Section 3.6: lagged levels (*t*-2 and earlier) for the differenced equation, lagged differences (*t*-1) for the level equation. Conventional group not estimated via GMM as the Durbin-Wu-Hausman test does not indicate significant endogeneity for this group (Table VI). Coefficients are broadly consistent in sign and magnitude with the fixed-effects estimates reported in Table III, supporting the robustness of the main results to the choice of estimator.

To address the concern that sectoral composition rather than screening per se may drive the observed differences in RMW and CMA loadings, a robustness specification incorporating two-digit GICS industry fixed effects is estimated for all three screening groups. The core pattern documented in Table III persists after controlling for industry composition: Conventional stocks retain the highest RMW loading ($\beta = 0.251$, $p < 0.05$, versus 0.275 without industry controls), Shariah-ESG stocks retain a significant RMW loading ($\beta = 0.198$, $p < 0.01$, versus 0.223), and ESG stocks remain statistically insignificant ($\beta = 0.087$, $p > 0.10$, versus 0.101). Similarly, CMA loadings for Shariah-ESG ($\beta = 0.318$, $p < 0.05$) and conventional stocks ($\beta = 0.329$, $p < 0.05$) remain statistically indistinguishable after industry adjustment, while the ESG group's CMA loading remains insignificant. These results indicate that the core findings are not primarily an artefact of industry composition differences across screening groups, though some attenuation in coefficient magnitude after industry adjustment suggests that sector effects explain a modest portion of the unadjusted differences.

To formally test whether the factor loadings reported in Table III differ significantly across screening groups, rather than relying on visual comparison of point estimates, a seemingly-unrelated-regression-based Wald test of coefficient equality is conducted for the RMW and CMA loadings across the three groups. For RMW, the joint test of equality across all three groups is rejected ($\chi^2 = 14.218$, $p = 0.001$), and pairwise tests confirm that the ESG group's RMW loading is significantly different from both the Shariah-ESG ($\chi^2 = 6.847$, $p = 0.009$) and conventional groups ($\chi^2 = 9.103$, $p = 0.003$), while the Shariah-ESG and conventional RMW loadings are not significantly different from each other ($\chi^2 = 1.412$, $p = 0.235$). For CMA, the joint equality test is also rejected ($\chi^2 = 8.561$, $p = 0.014$), driven primarily by the ESG group's divergence from the other two (ESG vs Shariah-ESG: $\chi^2 = 5.224$, $p = 0.022$; ESG vs conventional: $\chi^2 = 5.390$, $p = 0.020$), while the Shariah-ESG and conventional CMA loadings are statistically indistinguishable ($\chi^2 = 0.004$, $p = 0.949$). These formal tests confirm that the qualitative pattern described narratively in Section 4.3 — namely that ESG stocks diverge from both other groups while Shariah-ESG and conventional stocks are statistically like one another on CMA — is not simply an artifact of visually comparing point estimates with overlapping confidence intervals.

Discussion

This section situates the empirical findings reported in Section 4 within the broader theoretical and empirical literature, addresses the unexpected pattern of results relative to the stated hypotheses, and reconciles the contradictions identified in the existing literature in Section 2.

Reconciling the ESG- profitability result with Stakeholder Theory

The finding that ESG-screened stocks do not exhibit a significantly elevated RMW loading, contrary to H1, does not necessarily falsify Stakeholder Theory itself; rather, it suggests that the theory's prediction is conditional on the specific governance-weighting of the ESG scoring methodology applied. As derived formally in Section 2.2, Stakeholder Theory predicts an ESG-profitability link only insofar as ESG screening concentrates firms with superior stakeholder management and governance quality. If, as several emerging-market studies suggest (Duque-Grisales & Aguilera-Caracuel, 2021), Malaysian ESG screening is comparatively disclosure-weighted rather than governance-weighted, the absence of a strong RMW differential is the theoretically consistent outcome rather than an anomaly. This interpretation is consistent with, but not directly tested by, the available data; testing it directly would require disaggregating the FTSE4Good Bursa Malaysia composite ESG score into its environmental, social, and governance sub-components, which is identified as a direction for future research. We therefore present this as a plausible explanation rather than an empirically confirmed mechanism.

Reconciling the CMA result with Investment Constraint Theory

The finding that Shariah-ESG and conventional stocks carry statistically indistinguishable CMA loadings (confirmed formally in the coefficient-equality test above), contrary to H2, similarly does not falsify Investment Constraint Theory but indicates that the theory's predicted mechanism is not binding within this specific sample. The theory predicts a lower CMA loading for Shariah-ESG stocks only if the SC-SAC's leverage threshold meaningfully constrains the cross-sectional dispersion of investment intensity within the screened universe. Within the top 100 large-cap segment specifically, firms may already operate at leverage ratios comfortably below the 33% threshold for reasons unrelated to Shariah compliance (e.g., scale, access to equity financing, conservative corporate governance norms among Malaysia's largest listed firms), such that the Shariah screen excludes few, if any, additional firms beyond what market-wide large-cap norms would already exclude. This is consistent with Walkshäusl and Lobe (2012)) and Derigs and Marzban (2008), who note that the binding strength of leverage screens varies by market segment and capitalisation tier and underscores that Investment Constraint Theory's predictions are segment-specific rather than universal.

Model fit and the low adjusted R-squared values

The adjusted R^2 values reported in Table III, ranging from 7.8% to 10.9%, are modest in absolute terms and warrant critical discussion rather than passing mention. These values are, however, broadly consistent with comparable emerging-market applications of the Five-Factor and Seven-Factor models: Mosoeu and Kodongo (2022) report similarly modest explanatory power across several emerging equity markets, attributing this to higher idiosyncratic return variation and weaker factor pricing efficiency relative to developed markets. The low adjusted R^2 values in this study do not necessarily indicate model misspecification; rather, they are consistent with the broader finding in the emerging-market asset pricing literature that a substantial share of return variation in these markets is firm-specific and not well captured by common systematic risk factors. Nevertheless, this limitation tempers the strength of the claims about the relative economic importance of screening-induced factor differences, since the bulk of return variation across all three groups remains unexplained by the seven-factor specification.

Synthesis: A context-conditional view of screening theory

Taken together, the findings in Sections 5.1 through 5.3 support a context-conditional rather than a universal reading of both Stakeholder Theory and Investment Constraint Theory as applied to screening-induced factor loadings. Both theories retain explanatory relevance, but their predictions

are mediated by market-specific institutional features: The precise weighting of governance versus disclosure criteria in a market's ESG scoring methodology, and the extent to which a market's prevailing leverage norms already approximate the screening threshold absent any religious or ethical constraint. This reframing reconciles the apparent contradiction between developed-market evidence (where ESG-profitability and Shariah-leverage links are typically stronger) and the present findings in the Malaysian large-cap context, and represents this study's principal theoretical contribution: Demonstrating empirically that screening-conditioned factor loading effects are institutionally contingent rather than structurally invariant across capital markets.

Conclusion

Summary of findings

This study provides one of the first empirical investigations of factor loadings of ESG, Shariah-ESG, and conventional portfolios under an augmented Seven-Factor model using the top 100 companies listed on Bursa Malaysia over the period from January 2013 to December 2024. The three key conclusions can be drawn. Firstly, contrary to Hypothesis 1 (H1), ESG-screened portfolios exhibit lower profitability factor (RMW) loadings compared to Shariah-ESG and conventional portfolios. It is observed that the highest RMW loading is for conventional portfolios ($\beta = 0.275$, $p < 0.05$) followed by Shariah-ESG ($\beta = 0.223$, $p < 0.01$) and insignificant for ESG portfolios. These findings show that the link between ESG governance and profitability in developed economies cannot be applied in the Malaysian large-cap setting due to the focus on environment-related metrics. Second, contrary to Hypothesis 2 (H2), leverage restrictions on Shariah-ESG investments fail to diminish the investment factor (CMA) exposure. Shariah-ESG investments ($\beta = 0.353$, $p < 0.05$) and non-Shariah investments ($\beta = 0.354$, $p < 0.05$) carry virtually the same CMA factor loading, while the CMA exposure for ESG investments is weakest and statistically insignificant. This result suggests that for the largest companies in Malaysia, the Shariah 33% leverage restriction on Shariah-conforming investments does not impose sufficient bindingness to curtail investment intensity dispersion across stocks. Third, contrary to Hypothesis 3 (H3), the Seven-Factor Model accounts for the lowest share of variance in returns for ESG companies (Adjusted $R^2 = 7.8\%$), relative to Shariah-ESG stocks (9.5%) and conventional stocks (10.9%). This higher proportion of systematic variation explained by common risk factors for the conventional portfolio is due to a wider range of multi-factor exposure. Meanwhile, returns of the ESG portfolio have been observed to experience variances due to specific governance factors beyond the Fama-French model. Overall, the empirical results provide limited support for the proposed hypotheses.

Implications for stakeholders

Investors and fund managers

The above findings have practical implications for institutional investors' portfolio construction in Malaysia. This is because stocks classified under the Shariah-ESG category earn the highest excess average returns (0.41%) per month, have a relatively low market beta of 0.650, and are highly exposed to profitability and investment factors; hence, investors can use these securities to construct a profitable and well-diversified portfolio. Stocks listed in the ESG category are less exposed to the market beta (0.475) and very sensitive to volatility; thus, their suitability for a portfolio construction strategy would be hedging against volatility risk as opposed to profit generation. Investors should not presume that a stock's classification under the ESG category guarantees high profitability or investment factor exposures.

Policymakers and regulators

For Bursa Malaysia and the Securities Commission Malaysia, the above results are consistent with, but do not directly test, a potential disconnect between the current FTSE4Good Bursa Malaysia ESG rating system, which places a strong emphasis on environmental reporting and sustainable supply chain management practices, and the features of financial governance associated with earning profitability premiums in equity prices. We note this only as a possibility suggested by the pattern of results; any recommendation to reweight the F4GBM scoring criteria toward financial governance and earnings-quality characteristics would require dedicated research that directly examines the ESG scoring methodology itself, including its disaggregated environmental, social, and governance sub-components, which is beyond the scope of the present study and which we identify explicitly as a direction for future research in Section 6.4.

Researchers

With respect to asset pricing theory, this paper shows that the factor loadings hypotheses for screened portfolios formulated mainly on the basis of studies in advanced economies cannot be applied directly to emerging Islamic capital markets. As a result of considering ESG factors that place an emphasis on environmental reporting in Malaysia and Shariah factors that consider high leverage stocks in the Islamic markets of Malaysia, the factor loadings are systematically different from theoretical expectations.

Limitations

However, several potential limitations should be acknowledged. First, the sample only consists of the top 100 largest stocks by market capitalization, which makes results less generalizable to the entire Bursa Malaysia stock market, especially for smaller market caps where screening bias and the size effect might play different roles. Second, the FTSE4Good Bursa Malaysia Index was officially introduced in 2014, while the sample period begins in January 2013. As a result, ESG classification for the earliest portion of the sample should be interpreted with caution. Stocks not yet constituent to the F4GBM Index as of January 2013 are classified as conventional for that period, which is methodologically consistent with the time-varying panel classification but may slightly understate the ESG subsample size in the pre-2014 window. Although this does not affect the stock return data, it may introduce some classification uncertainty in the ESG subsample.

Relatedly, the FTSE4Good Bursa Malaysia Shariah (F4GBMS) Index was not launched until July 2021; Shariah-ESG classification for January 2013 to June 2021 is reconstructed from the two underlying source lists (F4GBM ESG status and SC-SAC Shariah compliance status) as described in Section 3.2. Although this reconstruction does not depend on look-ahead information, it is not formally identical to the index provider's own retrospective methodology, which is not publicly available for independent verification. Third, the Fama-French factors, which are based on local financial data may differ slightly from those provided by institutional sources for the Malaysian stock market. Fourth, although GMM helps overcome the endogeneity of screening allocation, the exogeneity of the ESG or Shariah index membership (such as a regulatory shock) could have been tested as an alternative instrumental variable. Fifth, industry composition differences across screening groups were tested directly using the GICS industry-fixed-effects robustness specification reported in Section 4.6; while the core RMW and CMA patterns persist after this adjustment, some attenuation in coefficient magnitude indicates that sector composition explains a modest portion of the unadjusted differences, and this should be borne in mind when interpreting the magnitude (rather than the direction) of the reported coefficients. Sixth, this study relies on the single, composite FTSE4Good Bursa Malaysia ESG score for classification and does not have access to disaggregated environmental, social, and governance sub-scores; consequently, the explanation offered in Section 5.1 that Malaysian ESG screening may be disclosure-weighted rather than governance-weighted remains a plausible interpretation rather than a directly tested mechanism. Similarly, no alternative third-party ESG rating provider (e.g., Refinitiv ESG or Bloomberg ESG) was available with full coverage of the top-100 universe across the entire 2013-2024 sample period, precluding a cross-provider robustness check of the ESG classification itself.

Future research

Firstly, expanding the methodology to analyse the whole FTSE Bursa Malaysia EMAS universe with mid- and small-cap securities would be helpful for examining the interaction between screening and the size premium in depth. Secondly, using the methodology developed by Shaharuddin et al. (2018) for a panel quantile regression could shed light on whether the influence of screening on factor loadings differs at various quantiles of the conditional returns distribution, which is not possible in fixed-effects OLS. Thirdly, once enough data become available on F4GBMS indexes after 2021, a research paper analysing the additional impact of dual screening over single screening would yield interesting results on the interaction between both types of screening criteria. Lastly, expanding the empirical scope to ASEAN Islamic stock markets (Indonesia, Pakistan, and Bangladesh) would test the external validity of our results and also contribute to an area of research yet to emerge in the Islamic finance field: Factor pricing in emerging Islamic markets. Finally, future research could disaggregate the composite FTSE4Good Bursa Malaysia ESG score into its environmental, social, and governance sub-components, and cross-validating ESG classification against alternative third-party providers such as Refinitiv ESG or Bloomberg ESG as such coverage becomes available for the full Malaysian top-100 universe, would directly test the disclosure-versus-governance-weighting explanation proposed in Section 5.1 for the muted ESG-RMW relationship documented in this study.

Disclosure Statement

The authors report there are no competing interests to declare.

Data availability statement

The stock returns employed in this study have been collected from Investing.com. Market capitalization data have been collected from Capital IQ. Factor series on Malaysian Fama-French model have been calculated based on KLCI data. Information on constituent stocks of the ESG indices has been derived from the "FTSE4Good Bursa Malaysia Indices Semi-Annual Review" (June 2025). Firm level financial statement data can be accessed via Refinitiv Eikon and Capital IQ for regular subscribers. The dataset utilized for analysis is available from the corresponding author upon request.

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Author contributions statement

In accordance with the CRediT (Contributor Roles Taxonomy) framework, author contributions are as follows: Conceptualization, Methodology, Formal Analysis, Data Curation, Writing – Original Draft, Writing – Review and Editing [Author 1]; Supervision, Validation, Writing – Review and Editing [Author 2]. All authors have read and approved the final version of the manuscript.

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Ethics approval statement

This study relies exclusively on secondary, publicly available, and licensed commercial financial market data obtained from Investing.com, Capital IQ, KLCI historical records, and the FTSE4Good Bursa Malaysia Indices Semi-Annual Review. The study does not involve human participants, human data, or animal subjects, and therefore formal institutional ethics board approval was not required, consistent with standard practice for finance research based on secondary, publicly available market data.

Informed consent statement

Not applicable. This study did not involve human subjects, and no individual person's data are reported in the manuscript.

Research involvement statement

This research involved only the analysis of secondary, publicly available, and licensed commercial financial market data. No human participants, animal subjects, or primary field data collection were involved at any stage of this research.

Generative AI disclosure statement

During the preparation of this manuscript, the authors used generative AI-assisted tools to support language editing, statistical-output formatting, and reference verification. All AI-assisted output was reviewed, verified, and edited by the authors, who take full responsibility for the content, accuracy, and integrity of the published manuscript.

References

Ashraf, B. N. (2022). The performance of Islamic versus conventional stocks during the COVID-19 shock: Evidence from firm-level data. *Research in International Business and Finance*, *60*, 101622. https://doi.org/10.1016/j.ribaf.2022.101622

Blundell, R., & Bond, S. (1998a). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*(1), 115–143. https://doi.org/10.1016/s0304-4076(98)00009-8

Blundell, R., & Bond, S. (1998b). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*(1), 115–143. https://doi.org/10.1016/s0304-4076(98)00009-8

Cao, L., Lau, W.-Y., & Shaharuddin, S. S. (2024). Soft information monitoring along the supply chain: Customer geographic proximity and firms' ESG performance. *Journal of Environmental Management*, *369*, 122302. https://doi.org/10.1016/j.jenvman.2024.122302

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance*, *52*(1), 57–82. https://doi.org/10.1111/j.1540-6261.1997.tb03808.x

Derigs, U., & Marzban, S. (2008). Review and analysis of current Shariah-compliant equity screening practices. *International Journal of Islamic and Middle Eastern Finance and Management*, *1*(4), 285–303. https://doi.org/10.1108/17538390810919600

Dharani, M., Hassan, M. K., Rabbani, M. R., & Huq, T. (2022). Does the Covid-19 pandemic affect faith-based investments? Evidence from global sectoral indices. *Research in International Business and Finance*, *59*, 101537. https://doi.org/10.1016/j.ribaf.2021.101537

Duque-Grisales, E., & Aguilera-Caracuel, J. (2021). Environmental, Social and Governance (ESG) scores and financial performance of multilatinas: Moderating effects of geographic international diversification and financial slack: E. Duque-Grisales, J. Aguilera-Caracuel. *Journal of Business Ethics*, *168*(2), 315–334. https://doi.org/10.1007/s10551-019-04177-w

Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, *116*(1), 1–22. https://doi.org/10.1016/j.jfineco.2014.10.010

Fama, E. F., & French, K. R. (2017). International tests of a five-factor asset pricing model. *Journal of Financial Economics*, *123*(3), 441–463. https://doi.org/10.1016/j.jfineco.2016.11.004

Fama, E. F., & MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy*, *81*(3), 607–636.

Farhat, A., & Hili, A. (2025). The impact of Shariah compliance on firm's performance and risk. *Review of Financial Economics*, *43*(2), 231–257. https://doi.org/10.1002/rfe.1227

Henke, H.-M. (2016). The effect of social screening on bond mutual fund performance. *Journal of Banking & Finance*, *67*, 69–84. https://doi.org/10.1016/j.jbankfin.2016.01.010

Mirza, N., Naqvi, B., Rahat, B., & Rizvi, S. K. A. (2020). Price reaction, volatility timing and funds' performance during Covid-19. *Finance Research Letters*, *36*, 101657.

Mosoeu, S., & Kodongo, O. (2022). The Fama-French five-factor model and emerging market equity returns. *The Quarterly Review of Economics and Finance*, *85*, 55–76. https://doi.org/10.1016/j.qref.2020.10.023

Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, *55*(3), 703. https://doi.org/10.2307/1913610

Nomran, N. M., & Haron, R. (2021). The impact of COVID-19 pandemic on Islamic versus conventional stock markets: International evidence from financial markets. *Future Business Journal*, *7*(1), 33. https://doi.org/10.1186/s43093-021-00078-5

Pástor, L., & Stambaugh, R. F. (2003). Liquidity risk and expected stock returns. *Journal of Political Economy*, *111*(3), 642–685. https://doi.org/10.1086/374184

Pedersen, L. H., Fitzgibbons, S., & Pomorski, L. (2021). Responsible investing: The ESG-efficient frontier. *Journal of Financial Economics*, *142*(2), 572–597. https://doi.org/10.1016/j.jfineco.2020.11.001

Shaharuddin, S. S., Lau, W.-Y., & Ahmad, R. (2018). Is the Fama French Three-Factor model relevant? Evidence from Islamic unit trust funds. *The Journal of Asian Finance, Economics and Business*, *5*(4), 21–34. https://doi.org/10.13106/jafeb.2018.vol5.no4.21

Short, J. A., & Ndlovu, G. (2025). Environmental, Social, and Governance (ESG) scores and portfolio performance: Evidence from South Africa. *Journal of Applied Economics*, *28*(1). https://doi.org/10.1080/15140326.2025.2464507

Walkshäusl, C., & Lobe, S. (2012)). Islamic investing. *Review of Financial Economics*, *21*, 53–62. https://doi.org/10.1016/j.rfe.2012.03.002