

How Do ESG Performance and Board Diversity Evolve under Dual Governance? A Longitudinal Descriptive Evidence from Shariah-Compliant Companies

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Abstract

This study offers a longitudinal descriptive account of environmental, social and governance (ESG) performance and board diversity among Shariah-compliant public listed companies operating under dual governance arrangements in an emerging market setting. Drawing on a strongly balanced panel of 186 companies observed from 2019 to 2023, the analysis traces how ESG engagement and selected board attributes evolve over time within Islamic capital markets where market-based governance mechanisms coexist with Shariah-based oversight. The descriptive evidence points to a sustained improvement in ESG performance across the sample period. Both mean and median ESG scores rise steadily, accompanied by a clear rightward shift in the distribution of ESG outcomes. This pattern suggests that improvements in sustainability engagement are broad-based rather than concentrated among a small subset of companies. At the board level, diversity attributes exhibit uneven temporal dynamics. Gender diversity, measured using the Blau index, shows a gradual movement towards greater balance, while ethnic diversity, captured through a normalised entropy index, increases more modestly over time. In contrast, directors' religiosity, proxied by the proportion of Muslim directors on the board, remains relatively stable at the aggregate level, despite marked variation across companies. Overall, these patterns highlight the multidimensional nature of board diversity evolution within Shariah-based governance frameworks. More broadly, the observed ESG trajectory indicates that contemporary sustainability expectations can coexist with, and potentially be reinforced by, value-oriented governance principles embedded in Shariah compliance. By documenting these developments descriptively, the study establishes an empirical baseline for future research on ESG and corporate governance in Islamic capital markets and other emerging economies characterised by hybrid governance arrangements.

The findings also provide a foundation for subsequent inferential and network-based analyses examining governance mechanisms and sustainability outcomes in greater depth.

KEYWORDS: Board Diversity; ESG Performance; Shariah-Compliant Companies; Dual Governance; Emerging Markets

1. Introduction

The institutionalisation of environmental, social and governance (ESG) considerations has intensified over the past decade, reshaping how corporate performance is assessed by investors, regulators and wider society. ESG engagement is increasingly understood not as a peripheral or reputational concern, but as a core element of corporate governance linked to risk oversight, organisational legitimacy and long-term resilience (Eccles et al., 2014; Khan et al., 2021). This shift reflects growing recognition that environmental and social externalities, together with governance failures, pose material risks to companies' value and systemic stability.

Despite the rapid growth of ESG-related research, empirical evidence remains disproportionately concentrated in developed economies characterised by relatively mature regulatory frameworks and stable institutional environments. Emerging markets, by contrast, operate under evolving governance regimes, uneven enforcement and heterogeneous institutional arrangements. In such settings, ESG adoption tends to occur incrementally, shaped by local learning processes and institutional constraints rather than by uniform global standards (Elamer et al., 2022). Prior studies therefore caution against directly extrapolating sustainability trajectories observed in advanced economies to emerging market contexts without careful consideration of institutional differences (Khan et al., 2021).

Beyond differences in regulatory maturity, many emerging markets are increasingly characterised by institutional hybridity, where multiple governance logics coexist within companies. This feature is particularly evident in Islamic capital markets, where conventional market-based governance mechanisms operate alongside Shariah-based oversight structures grounded in ethical principles, social justice and accountability. Shariah-compliant companies thus function under dual governance arrangements, responding simultaneously to contemporary ESG expectations and religiously informed governance norms (Haniffa & Hudaib, 2007). While policy discourse frequently highlights the compatibility between ESG objectives and Shariah principles, systematic academic evidence documenting how ESG engagement evolves within such dual governance settings remains limited.

Boards of directors play a central role in navigating these layered governance demands. As the apex internal governance mechanism, boards influence strategic orientation, oversee risk and shape the credibility of sustainability commitments. Prior research identifies board diversity as an important governance resource in this regard. Gender diversity has been associated with enhanced monitoring quality and greater sensitivity to stakeholder concerns (Adams & Ferreira, 2009), while ethnic diversity may broaden cognitive perspectives and reduce the risk of groupthink in board deliberations (Carter et al., 2010). More recently, scholars have drawn attention to directors' value orientations, including religiosity, as an additional dimension shaping ethical judgement and governance behaviour, particularly in

institutional environments where religious norms are embedded within market regulation (Haniffa & Hudaib, 2007).

Notwithstanding these insights, the ESG and corporate governance literature continues to prioritise causal inference through regression-based models. While such approaches are valuable, they often presuppose relatively stable institutional conditions and well-understood variable behaviour. In emerging markets characterised by dual governance arrangements, this assumption may be problematic. Without a clear descriptive understanding of how ESG performance and board diversity attributes are distributed across companies and how they evolve over time, causal interpretations risk being detached from their institutional context (Meyer et al., 2020).

Responding to this gap, the present study adopts a deliberately descriptive and longitudinal approach. Rather than estimating causal relationships, it documents the temporal evolution, dispersion and heterogeneity of ESG performance and board diversity attributes among Shariah-compliant public listed companies operating under dual governance arrangements from 2019 to 2023. The analysis focuses on three board diversity dimensions that are particularly salient in Islamic capital market settings: gender diversity, ethnic diversity and directors' religiosity.

By mapping levels, variability and changes over time, this study establishes an empirical baseline that clarifies how sustainability engagement and board composition evolve under institutional hybridity. In doing so, it contributes longitudinal descriptive evidence from a dual governance context that remains underexplored, enriches board diversity debates within a Shariah governance framework, and supports more informed theoretical development and future inferential research on sustainability governance in emerging markets.

2. Data and Descriptive Research Design

2.1 Sample Selection and Data Structure

This study focuses on Shariah-compliant public listed companies in Malaysia, an emerging market with a well-established Islamic capital market. Shariah-compliant firms are subject to periodic religious screening alongside conventional corporate governance and sustainability regulations, creating a governance environment in which market-based accountability coexists with faith-based ethical oversight (Haniffa & Hudaib, 2007; Grassa & Matoussi, 2018).

The sample comprises 186 Shariah-compliant companies observed over the 2019–2023 period, resulting in a strongly balanced panel of 930 firm-year observations. This timeframe coincides with intensified ESG-related regulatory guidance and growing stakeholder scrutiny in emerging markets, making it suitable for examining temporal changes in sustainability engagement.

A balanced panel structure is retained to ensure consistency across years and to distinguish cross-firm heterogeneity from within-firm temporal variation, which is particularly important for descriptive governance research aimed at documenting patterns of stability and gradual change rather than causal relationships (Wooldridge, 2010).

2.2 Variable Definition and Measurement

The analysis examines four core variables: ESG performance and three board diversity dimensions, namely gender diversity, ethnic diversity and directors' religiosity. All variables

are analysed descriptively, without imposing assumptions regarding directionality or causality.

ESG performance is measured using a composite ESG score capturing firms' engagement across environmental, social and governance dimensions. Composite indicators are commonly used in descriptive sustainability research as they reflect the multidimensional nature of ESG practices while remaining neutral with respect to causal mechanisms (Berg et al., 2022). The ESG score is retained in its original scale to preserve interpretability and comparability over time.

Gender diversity is measured using the Blau index, calculated from the proportion of male and female directors on the board. For binary categories, the index ranges from 0 to 0.50, with higher values indicating a more balanced gender composition. This measure captures board heterogeneity while accounting for differences in board size (Blau, 1977; Terjesen et al., 2016).

Ethnic diversity is operationalised using a normalised entropy index bounded between 0 and 1, where higher values indicate greater heterogeneity across ethnic groups represented on the board. Entropy-based measures are particularly suitable in multi-ethnic contexts as they reflect both the number of groups present and the distribution of representation (Carter et al., 2010).

Directors' religiosity is proxied by the proportion of Muslim directors on the board, ranging from 0 to 1. In Shariah-compliant firms, this measure captures religious representation at the board level and reflects ethical orientation and accountability norms embedded in Islamic corporate governance (Farooq et al., 2021).

Firm size, measured as the natural logarithm of total assets, and profitability, proxied by return on assets, are included as contextual descriptors. These variables provide background information on firm characteristics and are not treated as explanatory controls, consistent with the descriptive focus of the study.

2.3 Descriptive Analytical Strategy

The study adopts a purely descriptive analytical design, responding to recent methodological calls to recognise descriptive analysis as a substantive and theoretically meaningful component of empirical research, particularly in complex institutional settings characterised by gradual governance adjustment (Meyer et al., 2020).

Descriptive statistics are employed to summarise central tendencies (means and medians), dispersion (standard deviations and interquartile ranges) and basic distributional features (minimum and maximum values). Temporal dynamics are examined using yearly summaries over the 2019–2023 period to capture patterns of change over time.

In addition to analysing observed levels, year-to-year variation is assessed to document the pace and variability of change within firms. This approach is especially appropriate for governance attributes, which typically evolve incrementally through board turnover and institutional learning rather than abrupt structural shifts.

Consistent with the descriptive orientation of the study, no inferential testing or causal modelling is undertaken. Instead, the analysis establishes an empirical baseline by documenting how ESG performance and board diversity attributes are distributed across firms, the extent of heterogeneity between companies, and how these characteristics evolve over time under dual governance arrangements. Recent ESG reviews emphasise the

importance of such systematic descriptive mapping as a foundation for theory development and subsequent empirical testing, particularly in underexplored institutional contexts (Marie et al., 2024).

3. Findings and Discussion

Table 1 presents an integrated summary of ESG performance and board diversity attributes for Shariah-compliant publicly listed companies over the 2019–2023 period. The table combines overall descriptive statistics with start- and end-period comparisons, allowing an assessment of both central tendencies and temporal changes.

The results indicate a clear improvement in ESG performance across the sample. The overall mean ESG composite score was 36.06, with a relatively large standard deviation of 17.55, indicating substantial variation in sustainability engagement among firms. Over time, ESG performance increased markedly from a mean score of 26.32 in 2019 to 43.65 in 2023. This upward trend suggests that ESG practices became progressively more embedded among Shariah-compliant companies during the observation period.

Despite this improvement, dispersion in ESG performance remained relatively stable. The standard deviation was 14.98 in 2019 and 16.95 in 2023, indicating that firm-level differences persisted even as average ESG scores rose. This pattern suggests that improvements in ESG engagement occurred broadly across firms, but without convergence towards a uniform level of sustainability performance.

Regarding board diversity, gender diversity exhibited a noticeable upward trend. The overall mean Blau index for gender diversity was 0.29, with a standard deviation of 0.15. Gender diversity increased from a mean of 0.25 in 2019 to 0.36 in 2023. At the same time, dispersion declined from 0.16 to 0.10, indicating a degree of convergence across firms. These results suggest that female representation on boards improved gradually and became more evenly distributed across companies.

Ethnic diversity showed a more modest pattern of change. The overall mean ethnic diversity score was 0.46, with a standard deviation of 0.25. Over the five-year period, mean ethnic diversity increased slightly from 0.46 in 2019 to 0.48 in 2023, while dispersion remained largely stable. This indicates limited change in the ethnic composition of boards, with persistent heterogeneity across firms.

Directors' religiosity displayed relative stability over time. The overall mean proportion of Muslim directors was 0.33, with a standard deviation of 0.27. This value changed minimally from 0.34 in 2019 to 0.33 in 2023, suggesting that religious representation at the board level remained largely unchanged at the aggregate level. Firm-level variation, however, remained substantial throughout the period.

Table 1: Integrated Descriptive Statistics of ESG Performance and Board Diversity (2019–2023)

The results provide descriptive evidence on how ESG performance and board diversity evolved under dual governance arrangements in an emerging market context. The sustained improvement in ESG performance suggests that Shariah-compliant companies increasingly engaged with contemporary sustainability expectations between 2019 and 2023. This pattern aligns with broader trends observed in emerging markets, where ESG practices are gradually institutionalised through regulatory guidance, stakeholder pressure and organisational learning.

The persistence of dispersion in ESG scores indicates that improvements were uneven across firms. While average performance increased, some companies advanced more rapidly than others. This heterogeneity reflects differences in organisational capacity, governance priorities and strategic orientation, underscoring that ESG integration under dual governance does not produce uniform outcomes.

Board diversity dynamics further highlight differentiated adjustment processes. Gender diversity showed the most pronounced improvement, accompanied by declining dispersion. This suggests that pressures to increase female board representation were increasingly internalised across firms, leading to more similar gender diversity profiles over time. The gradual nature of change is consistent with structural constraints such as director tenure and nomination practices, which typically limit rapid board reconfiguration.

In contrast, ethnic diversity evolved more slowly and exhibited persistent heterogeneity. The modest increase in mean values, coupled with stable dispersion, suggests that ethnic diversification at the board level remains constrained by entrenched recruitment networks and institutional norms. Compared to gender diversity, ethnic diversity appears less responsive to short-term governance pressures and may require longer-term structural and cultural change.

Dimension	Measure	Overall Mean	Overall SD	2019 Mean	2019 SD	2023 Mean	2023 SD	Direction of Change
ESG Performance	ESG Composite Score	36.06	17.55	26.32	14.98	43.65	16.95	Strong increase
Board Diversity	Gender Diversity (Blau Index)	0.29	0.15	0.25	0.16	0.36	0.10	Gradual increase with convergence
Board Diversity	Ethnic Diversity (Entropy Index)	0.46	0.25	0.46	0.25	0.48	0.24	Modest increase
Board Diversity	Directors' Religiosity (Proportion Muslim)	0.33	0.27	0.34	0.28	0.33	0.26	Largely stable

Directors' religiosity displayed a distinct pattern of stability. Despite operating under Shariah-compliant frameworks, firms did not exhibit systematic changes in religious representation at the board level. This suggests that religiosity functions as a structurally embedded governance attribute rather than a dimension subject to frequent adjustment. Importantly, the coexistence of stable religiosity and rising ESG performance indicates that improvements in sustainability engagement did not depend on changes in religious

composition. Ethical orientation appears to be institutionalised through broader governance practices rather than board demographics alone.

Taken together, the findings illustrate that ESG performance and board diversity evolve through gradual and uneven processes under dual governance arrangements. Shariah-based governance principles appear compatible with strengthening ESG engagement, but they do not eliminate firm-level variation in governance practices. The descriptive patterns underscore the importance of contextualised analysis when examining sustainability and governance dynamics in emerging markets characterised by institutional hybridity.

Implications

The descriptive patterns documented in this study carry several implications for policy design, corporate practice and future academic research. Given the non-inferential nature of the analysis, these implications are framed cautiously, focusing on interpretation and relevance rather than prescription.

5.1 Policy Implications

The sustained improvement in ESG performance suggests that existing sustainability-related guidelines and disclosure initiatives have contributed to progressively stronger engagement among Shariah-compliant companies. Rather than relying on prescriptive or highly interventionist measures, the findings support a regulatory approach that emphasises consistency, transparency and gradual institutional alignment.

The gradual increase in gender and ethnic diversity at the board level further indicates that diversity-related governance reforms are taking effect over time, albeit incrementally. Policymakers may therefore prioritise disclosure-based mechanisms and long-term capacity building over rigid quota systems, particularly in contexts where board appointments remain closely tied to ownership structures and institutional norms.

Importantly, the relative stability of directors' religiosity at the aggregate level suggests that effective Shariah governance does not necessarily require uniform board composition. This reinforces the view that ESG frameworks and Shariah-based principles can be aligned through complementary governance expectations centred on accountability, ethical conduct and stewardship, rather than through additional structural constraints.

5.2 Practical Implications for Boards and Companies

From a practical standpoint, the findings highlight the central role of boards in shaping companies' sustainability trajectories under dual governance conditions. The steady upward trend in ESG performance implies that boards are increasingly engaged in overseeing sustainability-related matters, moving beyond symbolic compliance towards more integrated governance attention.

The differentiated evolution of board diversity dimensions carries practical significance for nomination committees and senior management. The gradual improvement in gender and ethnic diversity suggests that diversity initiatives are most effective when embedded within broader board renewal and succession planning processes, rather than treated as standalone governance signals. Companies may therefore benefit from adopting longer-term perspectives on board composition that align diversity objectives with strategic and sustainability priorities.

The stability of religiosity alongside rising ESG engagement further implies that ethical orientation and sustainability oversight can coexist without necessitating homogeneity in religious representation. Practitioners operating in Shariah-compliant companies may thus focus on strengthening ethical governance practices and decision-making norms, rather than equating sustainability effectiveness with specific board demographic profiles.

5.3 Implications for Future Research

This study also carries implications for future research on ESG and corporate governance in emerging markets characterised by institutional hybridity. By establishing a longitudinal descriptive baseline, the findings highlight the importance of understanding temporal variation and companies-level heterogeneity prior to engaging in causal inference.

Future studies may extend this descriptive evidence by assessing whether the documented patterns translate into systematic relationships under inferential modelling, or by investigating how board networks, committee structures and internal governance processes interact with board diversity attributes in shaping ESG outcomes. In this respect, descriptive analysis provides an essential empirical anchor for theory development in governance environments marked by institutional diversity and firm-level heterogeneity (Aguilera et al., 2018).

6. Conclusion

This study provides a longitudinal descriptive examination of ESG performance and board diversity dynamics among Shariah-compliant public listed companies operating under dual governance arrangements. Drawing on balanced panel data covering the 2019–2023 period, the findings document a clear and sustained improvement in ESG performance, indicating a gradual strengthening of sustainability engagement within this segment of the capital market.

The descriptive evidence further reveals that board diversity attributes evolve at different rates. Gender and ethnic diversity display incremental upward movements over time, reflecting gradual adjustments in board composition rather than abrupt structural change. In contrast, directors' religiosity remains relatively stable at the aggregate level, despite substantial companies-level heterogeneity. Taken together, these patterns underscore the importance of conceptualising board diversity as a multidimensional construct, particularly in institutional environments shaped by ethical and religious governance norms.

More broadly, the findings highlight the relevance of inclusive and value-driven governance in supporting sustainability engagement within Islamic capital markets. The coexistence of ESG frameworks and Shariah-based governance principles appears to provide a conducive environment for the progressive institutionalisation of sustainability practices, rather than presenting inherent constraints.

By foregrounding descriptive mapping rather than causal estimation, this study contributes an empirical baseline for future research on ESG and corporate governance in emerging markets characterised by institutional hybridity. The longitudinal insights presented here lay the groundwork for subsequent inferential and network-based analyses that may further explore how board attributes, governance structures and sustainability outcomes interact over time.

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