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Posted Date: 26 February 2026

doi: 10.20944/preprints202602.1632.v1

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Article

ESG Disclosure Practices and Performance of Islamic Banks: Moderating Roles of Board Independence, Gender Diversity, and Institutional Ownership

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Abstract

This study explores the relationship between environmental, social, and governance (ESG) disclosure and the financial performance and risk profile of fully Islamic banks, with a focus on the moderating roles of board independence, gender diversity, and institutional ownership. Drawing on cross-sectional data from 30 publicly listed, independently managed Islamic banks in Asia for the years 2018 and 2023, the analysis examines the effects of ESG disclosure on return on assets (ROA), return on equity (ROE), Tobin's Q, and the capital adequacy ratio (CAR). The findings reveal that ESG disclosure positively influenced ROA in 2018; however, this effect did not persist in 2023. No significant associations are observed between ESG disclosure and ROE, Tobin's Q, or CAR in either year. Board independence is found to amplify the positive effect of ESG disclosure on ROA in 2018 and on CAR in 2023, while gender diversity enhances the risk-mitigating effect of ESG disclosure only in the later period. Institutional ownership, by contrast, does not exhibit a consistent moderating effect. These results underscore the pivotal role of board composition in unlocking the benefits of ESG disclosure in Islamic banking, while also indicating limited responsiveness from market valuation metrics. The study contributes to the ESG literature by highlighting the time-sensitive influence of governance mechanisms and provides actionable insights for enhancing ESG outcomes through board-level reforms.

Keywords: ESG disclosure; Islamic banking; board independence; gender diversity; institutional ownership; profitability; risk metrics; market performance

1. Introduction

Environmental, Social, and Governance (ESG) disclosure has become increasingly important to the financial performance and legitimacy of companies, particularly in the financial sector. The demand for transparency, accountability, and sustainable value creation has driven financial institutions, especially in emerging markets, to integrate ESG practices into their strategies [1,2]. ESG reporting not only reflects a firm's commitment to social responsibility but also provides investors with critical information, influencing long-term performance by reducing reputational and operational risks [3].

In Islamic finance, ESG aligns naturally with the ethical foundations of Maqāṣid al-Sharī'ah (the objectives of Islamic law), which emphasize justice, risk-sharing, and societal welfare [4,5]. The goals of Maqāṣid al-Sharī'ah, to preserve religion, life, intellect, lineage, and wealth, strongly resonate with ESG's objectives in promoting social equity, environmental sustainability, and governance

accountability [6]. Islamic banks, by nature, focus on ethical investment and social responsibility, thus reinforcing the synergy between ESG and Islamic finance [4].

Despite these common values, ESG disclosure in Islamic banks, particularly in Asia, remains underexplored. While the broader financial sector has increasingly embraced ESG principles, Islamic financial institutions face unique challenges due to dual governance frameworks that include Shariah-compliant oversight alongside conventional regulations. This gap highlights the need for research focusing on the specific governance mechanisms, such as board independence, gender diversity, and institutional ownership, that moderate the relationship between ESG practices and performance within Islamic banking [1,7].

The corporate governance structures, including board characteristics, are known to play a crucial role in ensuring the effectiveness of ESG practices. Research shows that board independence enhances the credibility of ESG disclosure, while gender diversity can improve governance oversight, making firms more responsive to ESG requirements [8,9]. However, there is a lack of empirical evidence regarding the moderating role of these governance factors in Islamic banks, particularly in relation to financial performance and risk resilience [10].

This study aims to fill this gap by investigating the impact of ESG disclosure on financial performance in fully Islamic banks listed in Asia, with a focus on how board independence, gender diversity, and institutional ownership moderate these relationships. The study contributes to the literature on sustainable finance by emphasizing the role of governance mechanisms in enhancing the effectiveness of ESG disclosures in Islamic financial institutions.

The remainder of this paper is structured as follows: Section 2 reviews relevant literature and develops hypotheses; Section 3 outlines the research methodology; Section 4 presents empirical results; Section 5 discusses findings; and Section 6 concludes with practical recommendations.

2. Literature Review and Hypothesis Development

2.1. ESG and Firm Performance Nexus

The growing importance of Environmental, Social, and Governance (ESG) disclosure is increasingly evident in the financial sector, particularly for firms operating in emerging markets. Several studies have investigated the relationship between ESG practices and firm performance, with a growing consensus that strong ESG practices can enhance both profitability and market performance. The nexus between ESG disclosure and financial performance is influenced by a variety of factors, including the institutional context in which firms operate, the quality of ESG disclosures, and the governance structures of the firms.

2.1.1. ESG and Profitability

A core argument in the literature suggests that firms with robust ESG disclosures enjoy superior financial performance in terms of profitability, which can be measured by Return on Assets (ROA) and Return on Equity (ROE). [11] found a positive relationship between ESG performance and firm profitability in conventional firms, which is consistent with the findings of [12]. They demonstrated that firms with higher ESG performance showed significantly higher profitability, suggesting that responsible practices contribute to improved financial performance by attracting investors and reducing risks.

Similarly, [13] focused on Islamic banks and found that while banks with strong ESG disclosures exhibited higher profitability (ROA and ROE) in conventional banks, the effect was insignificant for Islamic banks. This suggests that while ESG adoption may enhance financial performance in conventional banking, its impact on profitability in the Islamic banking sector is less pronounced, highlighting the complex relationship between ESG practices and financial outcomes in different banking contexts.

In line with this, [14] examined the relationship between ESG disclosure and profitability in Gulf-based Islamic banks and found that while the overall ESG score did not significantly impact

bank performance, individual ESG components, particularly social and governance factors, positively influenced profitability indicators such as ROA and ROE. This suggests that Islamic banks can gain a competitive advantage by focusing on specific aspects of ESG, particularly social and governance practices, aligning their financial strategies with ethical standards.

2.1.2. ESG and Market Performance

The impact of ESG disclosure on market performance (typically measured by Tobin's Q) is another critical dimension in the literature. Tobin's Q is often used as a proxy for market valuation, and several studies have shown that firms with better ESG disclosures are rewarded by the market, as investors perceive them to be less risky and more capable of sustaining long-term growth. [15] found that European banks with higher ESG scores enjoyed a higher market valuation and Tobin's Q, highlighting that investors value sustainability when making investment decisions. In the context of Islamic banks, [16] corroborates these findings by showing that Islamic banks with superior CSR disclosures had higher market-to-book ratios, indicating that investors positively valued strong CSR performance. Additionally, [2] found that European Islamic banks with higher ESG scores had a positive effect on Tobin's Q. This suggests that ESG disclosures provide a form of competitive differentiation, making these firms more attractive to ethical investors and potentially leading to better market outcomes.

2.1.3. ESG and Risk Resilience

The relationship between ESG disclosure and risk resilience (measured by the Capital Adequacy Ratio (CAR)) is another critical aspect of firm performance. CAR is a key indicator of a bank's ability to absorb shocks and maintain financial stability. Research by [11,17] shows that firms with better ESG disclosures tend to exhibit better risk management and are less vulnerable to financial crises, indicating that ESG practices contribute to long-term resilience.

Specifically, [13] found that Islamic banks with stronger environmental performance exhibited higher technical efficiency, suggesting better management of operational risks and enhanced stability. This aligns with the findings of [15], who noted that firms with high ESG standards experience lower volatility, which enhances financial resilience.

Based on the literature reviewed, we hypothesize the following direct relationships between ESG disclosure and key performance indicators for firms, particularly in the context of Islamic banks:

H1a: There is a positive relationship between ESG disclosure and profitability.

H1b: There is a positive relationship between ESG disclosure and market performance.

H1c: There is a positive relationship between ESG disclosure and risk resilience.

2.2. Moderating Role of Governance Mechanisms

The role of corporate governance mechanisms, such as board independence, gender diversity, and institutional ownership, is crucial in moderating the relationship between ESG disclosure and firm performance. Strong governance mechanisms can ensure that ESG practices are properly implemented, enhancing both financial performance and risk resilience.

2.2.1. Board Independence and ESG Disclosure

Board independence is widely recognized as a critical governance mechanism that ensures that a firm's ESG practices are aligned with the long-term interests of its shareholders. The study findings of [18] revealed that certain board characteristics, such as the size of the Board of Directors, independence of the Board of Directors, size of the SSB, and cross-membership in the SSB, had a positive influence on sustainability reporting in Islamic banks. In the context of Islamic banks, independent boards ensure that ESG disclosures are not just for show but are deeply integrated into

the firm's strategic decision-making process. [19] suggests that it should be a regulatory requirement to have board independence to promote the social responsibility of Islamic banks following the result of the study: board independence is positively and significantly associated with CSR expenditures on education and human and disaster relief sectors but is insignificantly related to the CSR expenditure on health. This suggests that board independence strengthens the link between ESG disclosure and profitability, enhancing financial performance.

2.2.2. Gender Diversity and ESG Performance

Gender diversity on boards has gained significant attention in the literature, with studies showing that female directors bring different perspectives to governance and decision-making. [8] in US firms find that gender-diverse boards allocate more effort to monitoring. Accordingly, the result suggests that chief executive officer turnover is more sensitive to stock performance and directors receive more equity-based compensation in firms with more gender-diverse boards. However, it's found in the study that the average effect of gender diversity on firm performance is negative. Furthermore, female directors tend to be more collaborative and are often more committed to social and environmental initiatives, which boosts the firm's reputation and market performance. The findings of [9] suggest that female board members often advocate for more inclusive and transparent corporate governance practices, which can significantly improve ESG disclosure and enhance a firm's market valuation. Therefore, gender diversity serves as a moderating factor, strengthening the relationship between ESG disclosure and financial performance.

2.2.3. Institutional Ownership and ESG Disclosure

Institutional investors play a key role in promoting ESG transparency and ensuring that firms adhere to high corporate governance standards. According to [20], institutional investors pressure firms to maintain robust ESG reporting, as these investors seek firms with strong governance practices that ensure long-term growth and stability. The findings of [21] reveal a significant positive relationship between institutional ownership and the level of sustainability disclosure among Nigerian firms indicating that firms with higher institutional ownership are more likely to provide comprehensive ESG reports. [2] also emphasize the moderating effect of institutional ownership on the relationship between ESG disclosure and financial performance. Their research suggests that institutional investors value strong ESG practices and are willing to invest in firms that exhibit transparency and sustainable business models.

H2a: The positive relationship between ESG disclosure and bank performance is stronger in Islamic banks with higher board independence.

H2b: The positive relationship between ESG disclosure and bank performance is stronger in Islamic banks with higher gender diversity on the board.

H2c: The positive relationship between ESG disclosure and bank performance is stronger in Islamic banks with higher Institutional Ownership.

3. Sample Construction and Research Methodology

3.1. Sample Construction and Regional Scope

This study draws on a cross-sectional sample of 30 fully Islamic, publicly listed banks that operate independently, without any conventional banking windows or subsidiary affiliations, to ensure strict adherence to Shariah-compliant principles. By focusing on banks listed on national stock exchanges, we guarantee the availability of reliable financial and ESG disclosure data. Our regional scope encompasses three distinct markets-the Gulf Cooperation Council (GCC), South Asia, and

Southeast Asia, selected to capture the varied regulatory environments and market maturities in which Islamic banking has evolved.

Geographically, the sample comprises 21 banks from the GCC (Saudi Arabia, UAE, Qatar, Kuwait, Bahrain, and Oman), reflecting the region's well-developed Islamic finance sector; nine banks from South Asia (Bangladesh, Pakistan, and Sri Lanka), where Islamic banking is experiencing rapid expansion; and one bank from Southeast Asia (Malaysia), a recognized leader in Islamic finance innovation. Although this distribution (21:9:1) is uneven, it faithfully mirrors the real-world concentration of Islamic banks. A sample of 31 banks provides sufficient variability for robust cross-sectional regressions, balancing the need for statistical power with the requirement that each institution meet our stringent selection criteria.

3.2. Data Sources and Data Collection

All firm-level data were extracted from the 2018 and 2023 annual reports of our 31 fully Islamic banks. From these reports, we collected total assets, net income, equity, and calculated key performance metrics (ROA, ROE) and the Capital Adequacy Ratio. We also hand-coded 44 ESG disclosure items to build our ESGDI index. Institutional-ownership figures, often omitted in the reports, were retrieved from banks' investor-relations websites and official stock-exchange filings (Tadawul, DSE, PSE, Bursa Malaysia). In cases where ROA or ROE weren't reported, we calculated them manually using net income over assets or equity, respectively.

Country-level controls were drawn from authoritative global sources: annual GDP growth and inflation rates from the World Bank's World Development Indicators and the IMF's World Economic Outlook, and the percentage of the Muslim population from Pew Research Center estimates. This multi-source strategy ensures that both firm-level and macroeconomic variables are complete, comparable, and aligned with best practices in cross-sectional banking research. All data cleaning, variable construction, and regression analyses were conducted using Stata/SE 14.2.

3.3. Measurement of Environmental, Social and Governance Disclosure

As there is no generally accepted model for selecting items of disclosure construct disclosure index to measure the quality of disclosure, this study considers a disclosure checklist promulgated by a hybrid approach grounded GRI, SASB, TCFD, AAOIFI and IFSB Standards, NASDAQ ESG Reporting Guidelines. Three aspects namely alignment with international standards, regional nuances, and the unique characteristics of Islamic finance were taken into consideration to select 44 disclosure indexes. 12 Environmental, Social 17 & governmental 15 indexes. To date, this is the most comprehensive ESGD index comprising customized for Islamic Banks. Selected 44 items categorized into three different categories of information, such as 12 Environmental (12), Social (17) & governance (15) indexes. The current study uses 44 items, which are relevant and are required to be disclosed by the Islamic banks in their annual reports.

The study constructs an Environmental, Social and Governance disclosure index (ESGDI) for each sample Islamic Banks to measure its level of ESG practices. A dichotomous approach was used to conduct the survey, where each bank was awarded a score of "1" if the bank appears to have disclosed the concerned reporting variable and "0" otherwise. The score of each bank was totaled to find the net score of the bank. An un-weighted ESGDI was then computed by using the following formula:

$$ESGDI = \frac{\text{Total ICD score of individual bank}}{\text{Maximum possible score obtainable; } i: e: 44}$$

3.4. Statistical Analysis and Model Specifications

To test the study's hypotheses, we employ cross-sectional Ordinary Least Squares (OLS) regressions for the years 2018 and 2023. All models use Huber-White robust standard errors to correct for heteroskedasticity.

3.4.1. Baseline Model (Cross-Sectional Regression)

The direct effect of ESG disclosure on bank performance and risk is estimated using the following specification:

$$Y_i = \alpha + \beta_1 \text{ESGD}_i + \sum \gamma_k \text{Control}_{ik} + \epsilon_i$$

where Y_i denotes ROA, ROE, Tobin's Q, or CAR for bank i ; ESGD_i is the ESG disclosure index; Control_{ik} represents firm- and country-level controls; and ϵ_i is the error term.

3.4.2. Moderation Model (Interaction Terms)

To assess whether governance characteristics moderate the ESG-performance relationship, interaction terms are introduced:

$$Y_i = \alpha + \beta_1 \text{ESGD}_i + \beta_2 \text{Mod}_i + \beta_3 (\text{ESGD}_i \times \text{Mod}_i) + \sum \gamma_k \text{Control}_{ik} + \epsilon_i$$

Where Mod_i represents board independence, gender diversity, or institutional ownership - the moderating variables, and β_3 captures the moderating effect. All variables used in interactions are mean-centered.

Multicollinearity was checked via correlation matrices and variance inflation factors ($\text{VIF} < 4$). Model fit is evaluated using R^2 and F-statistics. All estimations were performed using Stata/SE 14.2.

The following variables were constructed to test the hypotheses and capture the key relationships in the study:

Table 1. Defining of research variables.

Variable label	Variables	Variable definition
Dependent variables		
ROA	Profitability	Net Income ÷ Total Assets
ROE	Profitability	Net Income ÷ Total Equity
TQ	Market Performance	(Market value of equity + Book value of debt)/Book value of total assets
CAR	Risk indicators	Capital adequacy ratio
Independent variables		
ESGDI	ESG disclosure index	Unweighted ESG disclosure index
Moderating variables		
ID	Board independence ratio	Number of independent directors ÷ total board size
FBM	Female Board Member ratio	Proportions of female directors on board
IO	Institutional ownership structure	Percentage of Institutional ownership
Control Variables		
logA	Company size	Log of total assets
GDP	Country size	GDP growth rate during those two periods, respectively
Infla	Inflation rate	Inflation rate during those two periods, respectively
Mus	Concentration of Muslim population	Percentage of Muslim population during those two periods, respectively
LDR	Asset profitability	Loan-deposit ratio
logB	Board size	Number of board members

4. Empirical Results

4.1. Descriptive Statistics

Table 2 summarizes data for 30 Islamic banks in 2018 and 2023. ROA averaged 1.0% in both years with minimal variation, while ROE rose from 11.0% to 14.0%. Tobin's Q increased from 0.63 to 0.73, and CAR edged up from 17.0% to 18.0%. ESG disclosure improved notably, with ESGDI rising from 0.46 to 0.67. Governance indicators showed modest growth: board independence increased from 35% to 37%, female board presence from 5% to 7%, and institutional ownership stayed near 40%. Bank size (log assets) grew from 2.38 to 2.79, and the loan-deposit ratio from 0.96 to 1.06. Macroeconomic conditions remained stable, with GDP growth around 3%, Muslim population share near 80%, and inflation rising from 2.0% to 7.0%.

Table 2. Descriptive Statistics of Key Variables (2018 & 2023, N = 30).

Variable	2018				2023			
	Mean	Std.dev	Min.	Max.	Mean	Std.dev	Min.	Max.
ROE	0.01	0.01	0	0.03	0.01	0.01	0	0.06
ROE	0.11	0.06	0.02	0.24	0.14	0.07	0.04	0.3
TQ	0.63	0.49	0.03	1.52	0.73	0.65	0.01	2.95
CAR	0.17	0.04	0.1	0.27	0.18	0.03	0.1	0.24
ESGDI	0.46	0.13	0.34	0.91	0.67	0.1	0.1	0.93
ID	0.35	0.18	0	0.8	0.37	0.2	0.1	1
FBM	0.05	0.08	0	0.3	0.07	0.08	0.48	0.27
IO	0.42	0.21	0.09	0.76	0.39	0.26	0	0.81
logA	2.38	1.37	0.42	6.3	2.79	1.34	0	6.19
GDP	0.03	0.03	-0.02	0.07	0.02	0.03	0.03	0.06
Infla	0.02	0.02	0	0.06	0.07	0.08	0.86	0.29
Mus	0.8	0.18	0.1	1	0.82	0.18	-0.02	1
LDR	0.96	0.48	0.08	3.28	1.06	0.71	0.02	4.67
logB	11.13	3.84	5	21	10.9	3.14	0.1	20

4.2. Correlation Analysis

Table 3 presents the 2018 Pearson correlation coefficients among key variables and their variance inflation factors (VIFs). ESG disclosure (ESGDI) shows a moderate positive correlation with board gender diversity ($r = 0.43$) and independent-director ratio ($r = 0.20$), and a weak correlation with institutional ownership ($r = 0.06$). All pairwise correlations are well below the 0.80 threshold, suggesting no risk of multicollinearity. VIF values range from 1.37 to 4.55, with a mean around 2.63, remaining under the conservative cutoff of 5. These results support the independence of variables used in subsequent regression models.

Table 3. Pearson Correlation Matrix & VIF (2018, N = 30).

	VIF	ESGDI	ID	FBM	IO	logA	GDP	Infla	Mus	LDR	logB
ESGDI	1.85	1									
ID	1.37	0.2	1								
FBM	2.2	0.43	0.05	1							
IO	2.02	0.06	0.14	0.37	1						
logA	2.03	0.01	0.09	-0.09	0.2	1					
GDP	9.11	0.31	-0.22	0.24	-0.05	-0.51	1				
Infla	3.18	0.16	-0.24	0.11	-0.06	-0.16	0.74	1			
Mus	4.55	0.25	-0.17	-0.21	-0.35	-0.49	0.64	0.37	1		
LDR	1.45	-0.2	-0.11	-0.14	-0.36	0.07	-0.17	-0.23	-0.14	1	
logB	3.03	0.04	-0.39	0.13	-0.2	-0.15	0.61	0.59	0.15	0.07	1

Table 4 presents the 2023 Pearson correlation matrix and VIFs. ESGDI shows weak to moderate correlations with institutional ownership ($r = 0.30$), board gender diversity ($r = 0.22$), and board independence ($r = 0.17$), none of which indicate strong collinearity. All correlation coefficients remain well below 0.80, and VIF values range from 1.31 to 3.10, with a mean around 2.28—well under the common threshold of 5—suggesting no multicollinearity concerns. ROA, ROE, and CAR are not included in this table and are instead analyzed separately in regression models.

Table 4. Pearson Correlation Matrix & VIF (2023, N = 30).

	VIF	ESGDI	ID	FBM	IO	logA	GDP	Infla	Mus	LDR	logB
ESGDI	1.66	1									
ID	1.55	0.17	1								
FBM	2.48	0.22	0.24	1							
IO	2.73	0.30	0.23	0.50	1						
logA	3.10	0.20	-0.04	-0.09	-0.17	1					
GDP	2.81	-0.39	-0.10	0.43	-0.05	-0.35	1				
Infla	1.56	-0.00	-0.23	0.11	0.23	-0.10	-0.09	1			

Mus	2.94	-0.13	0.26	-0.05	-0.22	-0.62	0.11	-0.23	1		
LDR	1.31	-0.13	0.03	0.07	-0.36	0.22	-0.18	0.08	-0.26	1	
logB	1.82	-0.30	-0.34	-0.19	-0.49	-0.17	0.37	-0.07	0.23	0.02	1

4.3. Direct Effects of ESG (H3)

Table 5 tests H1a by examining the effect of ESG disclosure (ESGDI) on Return on Assets (ROA) in 2018 and 2023. ESGDI shows a non-significant effect in both years (2018: $\beta = -0.01$, $p = 0.33$; 2023: $\beta = 0.00$, $p = 0.83$), providing no support for H1a. Bank size remains a consistent predictor of ROA, underscoring the role of scale in Islamic bank profitability. In 2018, Muslim population share ($\beta = 0.03$, $p = 0.01$) and loan-deposit ratio ($\beta = 0.00$, $p = 0.01$) are also significant, while in 2023, board size ($\beta = -0.01$, $p = 0.05$) shows a negative association. These findings align with studies such as those by [22,23], who found that ESG's financial impact is context-dependent. The lack of significance suggests that ESG disclosure alone may not enhance profitability without broader institutional or stakeholder alignment, as noted in previous research [24].

Table 5. Baseline OLS Regression of ROA on ESG Disclosure and Controls (2018, 2023 N = 30).

	2018			2023		
	Beta	t-value	Sig.	Beta	t-value	Sig.
ESGDI	-0.01	-1	0.33	0	-0.22	0.83
ID	0.01	1.57	0.13	0	0.14	0.89
FBM	0.02	1.48	0.16	0.04	1.29	0.21
IO	0	-0.07	0.94	-0.01	-1.35	0.19
logA	0	3.49	0	0	2.12	0
GDP	-0.05	-0.46	0.65	-0.04	0.07	-0.59
Infla	-0.09	-1.31	0.21	0.08	1.73	0.1
Mus	0.03	3.07	0.01	0.03	1.66	0.11
LDR	0	2.61	0.01	0	0.41	0.68
logB	0	0.13	0.9	0	-2.08	0.05
_cons	-0.02	-1.84	0.08	-0.01	-0.35	0.73
R ²		0.63			0.55	
Root MSE		0.01			0.01	
F value		12.96			2.22	
Sig.		0			0.06	

Table 6 evaluates H1a using ROE as the dependent variable. In 2018, ESGDI shows a non-significant positive effect ($\beta = 0.05$, $p = 0.64$), with the model explaining 39% of ROE variation ($R^2 = 0.39$, $F = 5.65$, $p < 0.01$), providing no support for H1a. Bank size is a significant control ($\beta = 0.03$, $p = 0.02$). By 2023, ESGDI remains non-significant ($\beta = 0.07$, $p = 0.56$), although the model fit improves ($R^2 = 0.61$, $F = 5.11$, $p < 0.01$). In this period, bank size ($p = 0.01$), inflation ($p = 0.04$), and Muslim population share ($p < 0.01$) emerge as significant predictors. These results reflect broader mixed findings in ESG literature [24,25].

Table 6. Baseline OLS Regression of ROE on ESG Disclosure and Controls (2018, 2023, N = 30).

	2018			2023		
	Beta	t-value	Sig.	Beta	t-value	Sig.
ESGDI	.05	0.47	0.64	.07	0.60	0.56
ID	.04	0.45	0.66	-.08	-1.50	0.15
FBM	.04	0.26	0.80	.28	1.89	0.07
IO	.05	0.60	0.56	-.02	-0.29	0.78
logA	.03	2.67	0.02	0	2.89	0.01
GDP	.56	0.57	0.57	-.36	-0.80	0.43
Infla	-.57	-0.74	0.46	.43	2.20	0.04
Mus	.15	1.44	0.17	.35	3.50	0.00
LDR	.03	1.63	0.12	-.00	-0.46	0.65

logB	-.00	-0.13	0.89	-.00	-0.57	0.58
_cons	-.15	-1.10	0.28	-.29	-1.79	0.09
R ²		0.39			0.61	
Root MSE		.06			.05	
F value		5.65			5.11	
Sig.		0.00			0.00	

Table 7. Baseline OLS Regression of TQ on ESG Disclosure and Controls (2018, 2023, N = 30).

	2018			2023		
	Beta	t-value	Sig.	Beta	t-value	Sig.
ESGDI	-1.23	-1.55	0.14	-1.43	-0.99	0.33
ID	.07	0.09	0.93	.07	0.09	0.93
FBM	-.69	-0.45	0.66	-.88	-0.35	0.73
IO	.71	1.15	0.27	1.48	1.87	0.08
logA	.04	0.39	0.70	.18	1.04	0.31
GDP	5.13	0.44	0.66	.00	0.00	1.00
Infla	-1.75	-0.21	0.83	-.36	-0.16	0.87
Mus	-.44	-0.44	0.66	.35	0.30	0.77
LDR	-.24	-1.52	0.14	-.30	-3.06	0.01
logB	-.01	-0.13	0.90	.12	2.16	0.04
_cons	1.33	1.09	0.29	-.60	-0.32	0.75
R ²		0.31			0.36	
Root MSE		.51			.65	
F value		2.06			3.76	
Sig.		0.08			0.01	

In 2018, although the model shows moderate explanatory power ($R^2=0.31$; $F=2.06$, $p=0.08$), ESGDI remains statistically insignificant ($\beta=-1.23$, $p=0.14$), aligning with [26], who found that ESG signals require time, and, especially, investor engagement, to be accurately valued in firm performance. Similar null results are observed in 2023, where model fit slightly improves ($R^2=0.36$; $F=3.76$, $p=0.01$), and ESGDI again shows no significant influence ($\beta=-1.43$, $p=0.33$). These findings echo [22], who argue that in emerging markets, the disconnect between ESG transparency and firm valuation may stem from weak investor awareness and information asymmetry. The regression results of [27] show that the ESG risk score has an insignificant negative impact on Tobin's Q (market-based performance) and the environmental risk scores, social risk scores and governance risk scores have an insignificant positive impact on the Tobin's Q. Here in the current paper, H1c is not supported, as ESG disclosure does not consistently translate into higher Tobin's Q in either period.

Table 8 tests H1c by exploring whether ESG disclosure (ESGDI) influences bank risk, measured by the Capital Adequacy Ratio (CAR), in 2018 and 2023. In 2018, the regression is significant ($R^2=0.57$; $p<0.01$), but ESGDI is not a predictor of CAR ($\beta=0.01$, $p=0.93$). Bank size ($\beta=0.01$, $p=0.03$) shows a significant positive effect, while the loan–deposit ratio ($\beta=-0.01$, $p=0.03$) exhibits a significant negative association. The 2023 model shows similar null results for ESGDI ($\beta=-0.03$, $p=0.69$), but the overall model is not statistically significant ($R^2=0.26$; $p=0.42$). These results indicate that ESG disclosure alone does not directly enhance capital buffers. [24] presents comparable findings. [28] identify a significant positive correlation between ESG disclosure and CAR in Central European banks, yet their analysis does not establish causal effects. Accordingly, the analysis does not support H1c.

Table 8. Baseline OLS Regression of CAR on ESG Disclosure and Controls (2018, 2023, N = 30).

	2018			2023		
	Beta	t-value	Sig.	Beta	t-value	Sig.
ESGDI	.01	0.09	0.93	-.03	-0.41	0.69
ID	.04	1.30	0.21	.03	0.66	0.52
FBM	.04	0.45	0.66	.05	0.33	0.75
IO	-.04	-1.16	0.26	-.03	-0.48	0.64

logA	.01	2.28	0.03	.00	0.24	0.81
GDP	-.38	-0.90	0.38	-.29	-0.83	0.41
Infla	-.61	-1.73	0.10	.09	0.82	0.43
Mus	.07	1.65	0.12	.01	0.23	0.82
LDR	-.01	-2.39	0.03	0	-0.15	0.88
logB	-.00	-0.53	0.60	0	-1.33	0.20
_cons	.14	3.44	0	.22	2.54	0.02
<i>R</i> ²		0.57			0.26	
Root MSE		.03			.03	
F value		5.31			1.09	
Sig.		0.00			0.42	

4.4. Moderation Analyses

Table 9 assesses the moderating effects of board independence, female board membership, and institutional ownership on the ESGD–ROA relationship (H2a–H4a). In 2018, institutional ownership significantly strengthens this link ($\beta = 0.32$, $p = 0.04$), supporting H4a and aligning with prior findings that highlight its positive role in ESG-related financial performance [29,30]. By contrast, board independence ($p = 0.90$) and female board membership ($p = 0.24$) show no significant moderation, consistent with mixed evidence reported by [30]. (2023). By 2023, all moderating effects lose significance, suggesting governance characteristics' diminishing influence as ESG becomes more institutionalized.

Table 9. Moderation of Independent Directors, Female Board Member and Institutional Ownership on the ESGD–ROA Relationship (2018, 2023, N = 30).

	2018			2023		
	Beta	t-value	Sig.	Beta	t-value	Sig.
ESGDI	-0.04	-2.6	0.01	-0.01	-0.5	0.62
ID	0.01	0.94	0.36	0	-0.06	0.96
FBM	0.03	1.92	0.07	0.04	1.2	0.25
ESGDIxID	0	0.13	0.9	-0.02	-1.26	0.23
ESGDIxFBM	-0.07	-1.21	0.24	0.04	0.37	0.71
ESGDIxIO	0.32	2.27	0.04	0.12	0.3	0.77
IO	-0.01	-0.13	0.9	-0.09	-0.84	0.41
logA	0	3.67	0	0	1.72	0.11
GDP	-0.28	-2.08	0.05	-0.06	-0.57	0.58
Infla	0.08	0.7	0.49	0.08	1.55	0.14
Mus	0.06	4.13	0	0.02	0.96	0.35
LDR	0	2.44	0.03	0	0.12	0.91
logB	0	0.77	0.45	-0.01	-1.52	0.15
_cons	-0.05	-2.6	0.02	0.01	0.51	0.62
<i>R</i> ²		0.73			0.56	
Root MSE		0			0.01	
F value		29.92			2.09	
Sig.		0			0.08	

Table 10 assesses whether governance mechanisms moderate the effect of ESG disclosure on ROE. In 2018, the interaction term ESGDI×FBM is statistically significant ($\beta = -1.83$, $p = 0.00$), while

ESGDI×IO shows a marginal effect ($\beta = 2.19$, $p = 0.08$). ESGDI×ID remains non-significant ($\beta = 0.02$, $p = 0.74$). By 2023, all ESGDI interaction terms, ESGDI×ID ($\beta = -0.32$, $p = 0.75$), ESGDI×FBM ($\beta = -0.26$, $p = 0.72$), and ESGDI×IO ($\beta = 0.22$, $p = 0.83$), are statistically insignificant. Although the model's explanatory power slightly improves in 2023 ($R^2 = 0.62$ vs. 0.60 in 2018), no governance variable significantly moderates the ESG–ROE link in that year. These results suggest that profitability benefits from ESG disclosure are not consistently contingent on board independence, gender diversity, or institutional ownership. This aligns with prior findings that ROE may respond more slowly to ESG interventions, particularly in Islamic or emerging market contexts [31–33].

Table 10. Moderation of Independent Directors, Female Board Member and Institutional Ownership on the ESGD–ROE Relationship (2018, 2023, N = 30).

	2018			2023		
	Beta	t-value	Sig.	Beta	t-value	Sig.
ESGDI	-0.09	-0.85	0.41	0.07	0.42	0.68
ID	-0.09	-0.85	0.41	-0.09	-1.01	0.33
FBM	0.16	1.08	0.3	0.3	1.76	0.1
ESGDI×ID	0.02	0.34	0.74	-0.02	-0.32	0.75
ESGDI×FBM	-1.83	-3.52	0	-0.26	-0.36	0.72
ESGDI×IO	2.19	1.77	0.1	0.54	0.22	0.83
IO	0.7	1.31	0.21	0.04	0.05	0.96
logA	0.01	2.81	0.01	0.04	2.24	0.04
GDP	-0.91	-0.65	0.52	-0.4	-0.69	0.5
Infla	0.31	0.27	0.79	0.43	1.98	0.07
Mus	0.29	1.97	0.07	0.36	2.35	0.03
LDR	0.01	0.88	0.39	0	-0.33	0.74
logB	-0.01	-0.21	0.84	-0.02	-0.45	0.66
_cons	-0.16	-0.88	0.39	-0.24	-1.3	0.21
R ²		0.6			0.62	
Root MSE		0.05			0.02	
F value		7.22			4.25	
Sig.		0			0	

Table 11. Moderation of Independent Directors, Female Board Member and Institutional Ownership on the ESGD–TQ Relationship (2018, 2023, N = 30).

	2018			2023		
	Beta	t-value	Sig.	Beta	t-value	Sig.
ESGDI	0.49	0.46	0.65	-1.33	-0.71	0.49
ID	0.63	0.79	0.44	0.3	0.32	0.75
FBM	-1.53	-0.92	0.37	-1.8	-0.68	0.51
ESGDI×ID	0.72	1	0.33	1.72	2.2	0.04
ESGDI×FBM	6.67	1.2	0.25	6.47	0.84	0.41
ESGDI×IO	-26.7	-2.2	0.04	-12.58	-0.54	0.6
IO	4.88	1	0.33	5.2	1.14	0.27
logA	0.03	0.33	0.74	0.15	0.81	0.43
GDP	16.21	1.14	0.27	-0.53	-0.09	0.93
Infla	-11.52	-1.08	0.3	0.24	0.1	0.92
Mus	-1.97	-1.36	0.19	0.5	0.35	0.73
LDR	-0.29	-1.85	0.08	-0.28	-2.35	0.03
logB	0.04	0.07	0.94	1.74	2.07	0.06
_cons	2.12	1.19	0.25	-3.95	-1.47	0.16
R ²		0.4			0.45	
Root MSE		0.52			0.66	
F value		2.95			6.08	
Sig.		0.02			0	

ESG disclosure (ESGDI) remains insignificant in predicting market value (Tobin's Q) in both 2018 and 2023 (2018: $\beta = 0.49$, $p = 0.65$; 2023: $\beta = -1.33$, $p = 0.49$). In 2018, the ESGDI×IO interaction term is statistically significant ($\beta = -2.67$, $p = 0.03$), while the other governance interaction terms, ESGDI×ID ($p = 0.33$) and ESGDI×FBM ($p = 0.25$), remain insignificant. In 2023, ESGDI×ID shows a significant positive moderation effect ($\beta = 1.72$, $p = 0.04$), whereas ESGDI×FBM and ESGDI×IO remain

non-significant. The R^2 improves only slightly from 0.40 to 0.45. These results suggest that governance mechanisms do not moderate the ESG-market value relationship, which aligns with prior findings in European banking [34] and broader governance studies [35] showing limited or inconsistent moderation effects of governance on ESG-value links.

Table 12 examines whether governance characteristics moderate the impact of ESG disclosure on Capital Adequacy Ratio (CAR). In 2018, all interaction terms are statistically insignificant. In 2023, ESGDI×ID ($\beta = -0.04$, $p = 0.44$), ESGDI×FBM ($\beta = 0.69$, $p = 0.25$), and ESGDI×IO ($\beta = 0.42$, $p = 0.16$) also remain insignificant, indicating no moderating effect. The model explains 51% of CAR variation in 2023 ($R^2 = 0.51$), slightly lower than in 2018 ($R^2 = 0.63$). These results suggest that governance mechanisms do not significantly enhance ESG's impact on capital adequacy over time. These results highlight that governance mechanisms become increasingly effective in enhancing ESG outcomes as sustainability practices mature. This is consistent with prior findings emphasizing the role of independent directors and board gender diversity in improving ESG-related risk management and firm resilience [36,37].

Table 12. Moderation of Independent Directors, Female Board Member and Institutional Ownership on the ESGD–CAR Relationship (2018, 2023, N = 30).

	2018			2023		
	Beta	t-value	Sig.	Beta	t-value	Sig.
ESGDI	0.1	0.8	0.44	-0.15	-1.62	0.12
ID	0.05	1.3	0.21	-0.01	-0.16	0.88
FBM	0.02	0.22	0.83	0.05	0.36	0.72
ESGDI×ID	-0.04	-1.2	0.25	-0.04	-0.79	0.44
ESGDI×FBM	0.29	0.73	0.47	0.69	1.2	0.25
ESGDI×IO	-0.92	-0.87	0.4	2	1.46	0.16
IO	-0.18	-0.51	0.62	-0.93	-3.14	0.01
logA	0.01	2.06	0.06	0	-0.16	0.87
GDP	0.43	0.52	0.61	-0.69	-1.94	0.07
Infla	-1.23	-1.56	0.14	0.08	0.85	0.41
Mus	-0.01	-0.17	0.87	-0.03	-0.41	0.69
LDR	-0.01	-1.57	0.14	-0.01	-0.53	0.61
logB	-0.02	-0.79	0.44	-0.05	-1.73	0.1
_cons	0.23	2.31	0.04	0.34	3.2	0.01
R^2		0.63			0.51	
Root MSE		0.03			0.03	
F value		3.38			2.97	
Sig.		0.01			0.02	

5. Conclusion

This study explored how ESG disclosure and governance mechanisms relates the performance and risk profile of Islamic banks, using cross-sectional data from 2018 and 2023. ESG disclosure positively affected ROA only in 2018, with no consistent impact on ROE, TQ, or CAR across years-suggesting early adopters gain more. Board independence strengthened ESG's effect on ROA in 2018 and CAR in 2023, while gender diversity enhanced risk-related ESG outcomes only in 2023. Institutional ownership showed no significant role. These findings underscore that internal board structures-particularly independence and diversity-are more influential than ownership in shaping ESG effectiveness. As ESG becomes institutionalized, governance quality remains critical. Practically, Islamic banks should prioritize strengthening board composition to enhance ESG integration. Future research should adopt panel designs and broader governance metrics to capture evolving ESG-performance dynamics over time.

6. Generalizability and Limitations

While the sample of 30 fully Islamic, publicly listed banks reflects real-world concentrations across the GCC, South Asia, and Southeast Asia, the limited representation of Southeast Asia may

constrain regional generalizability. The cross-sectional design captures temporal variation between 2018 and 2023 but not within-bank dynamics or causal effects. Our ESG index, though comprehensive and tailored to Islamic finance, uses a binary, unweighted format and does not account for disclosure materiality. Governance coverage excludes Sharia board characteristics and ESG committees, which may also influence outcomes. Additionally, focusing on listed institutions introduces potential reporting bias. Future research should expand the sample, incorporate underexplored governance factors, and employ longitudinal methods to enhance external validity.

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