

Shariah Supervisory Board Diversity, Sustainability Disclosure, and Bank Performance: Evidence from Pakistan

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Abstract: *This paper examines the relationship between sustainability disclosure and the performance of Pakistani Islamic banks, focusing on whether the diversity of the Shariah Supervisory Board (SSB) improves this relationship. The increasing relevance of sustainability transparency in the banking industry and the specific role of Shariah governance in Islamic financial institutions drive the theoretical framework used in the research, combining stakeholder theory and the resource-based view. The authors suggest that sustainability disclosure complements legitimacy, addresses information asymmetry, and enhances stakeholder trust, while SSB diversity serves as an intangible governance ability that can enhance the strategic advantages of disclosure. The paper employs a Sustainability Disclosure Index that encompasses general, economic, environmental, and social dimensions, alongside a composite SSB Diversity Index that incorporates demographic, educational, and professional heterogeneity, utilizing longitudinal panel data of Islamic banks in Pakistan from 2005 to 2024. The primary measure of financial performance is the return on assets (ROA), with the Tobin Q used as a strength check. The results indicate that sustainability disclosure positively impacts bank performance, SSB diversity positively influences performance, and the interaction between the two variables is positive, suggesting greater benefits for banks with more diverse SSBs. The paper combines sustainability disclosure, Shariah governance, and performance under a single framework and provides empirical evidence from Pakistan, a significantly sized but under-researched market in Islamic banking. The results have implications for policymakers, particularly the State Bank of Pakistan, and Islamic bank board managers, who must align governance quality, sustainability credibility, and financial performance.*

Keywords: Islamic Banking, Sustainability Disclosure, Shariah Supervisory Board, Board Diversity, Bank Performance, Pakistan

Introduction

The Islamic banking has now become more than a financial experiment in a niche to an internationally recognised, value-based system of intermediation based on principles of justice, transparency, accountability, and social responsibility. Unlike the conventional banking, Islamic banking is strictly limited by the rules of Shariah that forbids *riba* and *gharar*, and speculative practices and promotes asset-backed, risk-sharing and ethical banking practices. These characteristics make Islamic banking especially topical in the modern discussions about environmental, social, and governance (ESG) responsibility and sustainable finance. With increasing international investor and regulatory and civil society expectations of financial institutions developing legitimate sustainability reporting, the expectations placed on Islamic banks are particularly high since they already charge themselves with moral legitimacy and a social welfare orientation.

Sustainability disclosure has therefore ceased to be an outer reputational instrument, to lapse into a potentially value-relevant information mechanism. Disclosure in economic, environmental, social and governance areas in banking can help mitigate information asymmetry, increase corporate legitimacy, improve relationships with depositors and investors and increase internal risk awareness. In the case of Islamic banks, these effects can be even more conspicuous since a sustainability communication is not only assessed as a PR activity, but as a challenge of whether Shariah-related ethical assertions are

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converted into visible organisational action. In that regard, it is possible that sustainability disclosure will reinforce legitimacy and performance instead of being an empty reporting rite of passage.

However, empirical evidence concerning the links between sustainability disclosure and bank performance is not determined. Even the previous researches done on conventional and Islamic banking tend to testify positive impacts although the extent and statistical outcomes of the impacts tend to vary based on the jurisdiction, the level of regulatory maturity, measurement options and the quality of governance. The findings of studies on the Islamic banks in the Gulf Cooperation Council, the southeast of Asia and other emerging markets argue that the reporting on sustainability may enhance the profitability and confidence of the stakeholders, but the association is contextual rather than automatic. This unresolved trend is the indication of a lack of contingency: disclosure can be more significant in the case of greater internal governance structures.

The Shariah Supervisory Board (SSB) is the most unique institution of governance in Islamic banking. The SSB is not merely an advisory organ; it is a legal governance institution that oversees and ensures compliance with Shariah, assessment of products and contracts and ensuring the ethical legitimacy of the bank. With the increased scope of sustainability expectations, the SSB expanded its role in relation to limited legal compliance to incorporate ethical guidance, interpretive advice and credibility assurance of sustainability-related claims. Therefore, the area of governance of disclosure can be critical in Islamic banks as is disclosure.

This is where the major gap in the literature is. The literature on the topic mostly focuses on sustainability disclosure and Shariah governance as distinct predictors of institutional performance. Conventional studies of sustainability disclosure also tend to pose questions such as whether reporting has an impact on performance or what influences the quality of disclosure, but studies of Shariah governance tend to consider the size of the board, experience, independence or cross-membership as a direct influence on performance, risk, or compliance. The question that is not fully researched is whether the effectiveness of sustainability disclosure is altered by the diversity of the SSB. When there is a conditioning of the market and credibility of disclosure by the stakeholders by governance, then the relationship between SSB diversity and sustainability disclosure should be theoretically and empirically significant.

It is on this backdrop that the current study has three objectives that relate to one another. To start with, it examines the effect of sustainability disclosure on the performance of Islamic banks in Pakistan. Second, it looks at the association of SSB diversity per se with bank performance. Thirdly and above all, it determines whether the SSB diversity moderates the disclosure-performance relationship, in that the more the SSB is diverse, the stronger the sustainability disclosure can be performance-enhancing. This way of formulation brings about a shift in the analysis as the main effects are additive as opposed to a governance contingency perspective.

The article has a number of contributions. It combines sustainability disclosure, SSB diversity and performance into one analytical model; expands the stakeholder theory and the resource-based view into the governance of Islamic banking and shows longitudinal evidence in Pakistan, which is one of the largest emerging Islamic banking markets. Pakistan is analytically useful in the sense that the country is characterized by high growth in the industry, dual banking system, visible Shariah governance reforms and large heterogeneity in disclosure and governance practices. The research also has practical implications on the regulators and Islamic banks by pointing out that the quality and the structure of SSBs can determine whether sustainability reporting will be economically significant or otherwise.

The rest of the paper is structured in the following way. Section 2 of the study paper is a literature review and the hypotheses of the study are formulated. In Section 3 the theoretical basis is offered. Section 4 describes the data, variables and econometric strategy. Section 5 provides and discusses the empirical findings, robustness tests. Section 6 sums up by describing theoretical, policy and managerial implication, limitations and future research possibilities.

Literature Review and Hypothesis Development

Sustainability Disclosure and Bank Performance

Available literature on sustainability reporting in the banking industry and the Islamic finance sector in particular tends to think of sustainability reporting in terms of providing a means through which organisations express their accountability, reduce the degree of transparency and the development of trust amongst external stakeholders. The Islamic finance situation also supports the disclosure rationale by the ethical premises of the industry and the desire that the banks show consistency between the official Shariah compliance and the overall social responsibility. The first attempts at operationalising Islamic social reporting in a way that is sensitive to Shariah issues could be found in the work of Farook, Hassan and Lanis (2011); their study identified the institutional and governance aspects as the driving factors behind disclosure practices in Islamic banks as opposed to being the mere byproduct of reputation-management motives. The work of the authors has great importance as it defines the unique nature of disclosure in Islamic banking and proves that it can not be narrowed down to traditional CSR templates.

Later studies have been tending to connect sustainability practices and disclosure with financial performance. Jan, Marimuthu, and Isa (2019) have discovered that sustainability practices of Islamic banking are positively related to financial performance because they argue that the long-term value creation in Islamic banking depends on the credibility of responsible practices. They also stress in their analysis that the sustainability construct is not a one-dimensional one and that its organisational value would vary according to the way sustainability practices are institutionalised. Similarly, Platonova, Asutay, Dixon, and Mohammad (2018) added that the disclosure of CSR enhances the financial performance of the GCC Islamic banks, hence their report supports the reason why the disclosure may play a beneficial role as a stakeholder signal when considered as credible and substantive.

On the upper level of corporate governance, Michelin and Parbonetti (2012) proved that the sustainability disclosure is linked to the governance framework, especially board features, meaning that the results of disclosure are partly defined by the institutions that produce and certify them. This observation is important since it implies that the disjunctions between the disclosure and the performance literature could be not only the result of the differences in the disclosure actions or market conditions but also arise due to disparities in the level of governance. Disclosure in an organisational vacuum is not the case; instead, it is subjected to boards, internal controls and strategic oversight mechanisms.

In spite of the growing evidence base, the literature is context-specific and to some extent disjointed. Other studies find strong positive impacts of sustainability disclosure on financial performance, but others find weak, lagged, or mixed impacts especially in emerging markets where reporting standards are less developed and sustainability practices are not equally institutionalised. In the Islamic banking environment, the twin requirements of commercial performance and religious legitimacy are expected to enhance these differences. A bank can publish the information on sustainability, but the stakeholders can dismiss the information when they feel that the information published is selective, imbalanced, or not adequately regulated. The current paper fills this gap by examining not only the fact of the sustainability disclosure, but also the performance implications of the sustainability disclosure under the conditions of complementary governance.

In line with this, the initial hypothesis is that sustainability disclosure must have a positive relationship with the performance of Islamic banks. By making disclosure balanced in general, economic, environmental, and social aspects, it can be indicative of greater accountability, more comprehensive sustainability orientation, and greater stakeholder involvement. These channels will enhance credibility and economic results in the long run.

H1: Sustainability disclosure has a positive relationship with the performance of Islamic banks.

Shariah Supervisory Board Diversity and Bank Performance

The Islamic banking is unique in the sense that it has an oversight board; the Shariah Supervisory Board (SSB). The SSB is mandated to protect the ethical and religious legitimacy of the institution by keeping the institution in line with the principles of Shariah in its products, operations, and strategic behavior. This

has resulted in empirical research on the performance of Islamic banks overlooking Shariah governance as a digital compliance tool. As an example, Mollah and Zaman (2015) established that Shariah supervision has both performance and quality of governance implications that are substantive and established that the governance structure in the Islamic banks is materially different to the conventional bank.

Studies have also highlighted the significance of SSB attributes. As Khan and Zahid (2020) found, the financial performance of Islamic banks in the Asian region is directly affected by Shariah and corporate governance variables and consequently demonstrates the real-life consequences of the heterogeneity of governance on the institutional performance outcomes. Likewise, Aslam and Haron (2020) have found that governance mechanisms have an influence on the Islamic bank performance, which supports the idea that the board-level structures have not only a direct effect on compliance but also on operational and strategic outcomes. Nawaz (2021) also contended that the Shariah governance interrelates with the larger resource and capabilities frameworks in Islamic banks and thus condensed the assumption that the quality of governance is relevant to performance.

Diversity has become a highly relevant characteristic in this theoretical corpus. A heterogeneous SSB can create different sources of value, such as wider knowledge base, the wider range of jurisprudential interpretations, more advanced strategic advice, increased monitoring, and greater awareness about the heterogeneous expectations. Diversity also has the ability to dampen the homophily and groupthink which could otherwise limit the ability of the board to question the management or evaluate the complex nature of sustainability efforts. The effects may be particularly strong in emerging Islamic banking markets in which internal governance resources can offset a weaker external enforcement.

However, the current body of literature is largely concentrated on singular board characteristic, i.e. size, expertise, cross-membership, or independence, instead of multidimensional diversity as a compound governance ability. This brings about a gap in conceptualization. Strategically to govern, the existence of an SSB is not enough, but the range of competences, experiences, and opinions, it represents. The boards with diverse educational, demographic, and professional backgrounds have higher chances of ensuring effective oversight and value creation in the long-term as compared to homogeneous boards even when both boards meet the formal regulatory requirement.

It is based on this that a second hypothesis is formulated: SSB diversity is expected to be positively correlated with Islamic bank performance. It is expected that diversity will improve the quality of decisions, increase monitoring, and expand interpretive capacity in manners that would facilitate accountability and profitability.

H2: Supervisory diversity of the Shariah Supervisory Board has a positive correlation with the performance of Islamic banks.

SSB Diversity as a Moderator of the Disclosure–Performance Relationship

The present paper adds to the literature in the sense that it conceptualizes the SSB diversity as a moderating variable and not an independent predictor. The hypothesis is based on the belief that the disclosure as such might not be a source of value creation; sustainability reporting might not be able to improve the performance when it is perceived to be symbolic, incomplete, or poorly justified. Under such situations, the antecedent attributes of governance which regulate disclosure plays a key role. Michelon and Parbonetti (2012) argued that the governance attributes determine the disclosure outcomes based on their impact on the production as well as the credibility of sustainability information.

Similar evidence was given by Chan, Watson and Woodliff (2014), who showed that better corporate governance is associated with greater disclosure of CSR, which means that better-governed companies generate more credible and informative reports. In the field of Islamic finance, the recent study of Abdulrahman et al. (2024) provided a connection between Shariah-compliance disclosure and the corporate governance frameworks across jurisdictions, and the researchers based their study on the assumption that the effectiveness of the disclosure depends on the governance structure. These studies taken together indicate that the informational value of sustainability disclosure is conditional and not universal.

The implication of this reasoning on the context of Islamic banking is that heterogeneity of SSBs is likely to enhance the effect of sustainability disclosure on various levels. To start with, diversity can also increase ethical validation through the ability of the board to assess the disclosed sustainability commitments against the Shariah principles and stakeholder expectations. Secondly, the strategic utility may be enhanced by the introduction of heterogeneity by introducing different disciplinary skills in evaluating sustainability initiatives, such as finance, economics, law, or governance. Thirdly, diversity can enhance credibility by sending a message to investors, regulators and depositors that disclosure is subject of examination by a broader and more expansive structure of governance.

Therefore, SSB diversity can help to change a simple reporting practice into a strategically supported governance asset. It is on this basis that the performance implications of disclosure will be stronger in the more heterogeneous banks in terms of SSB. This speculation is connected with governance–contingency theory that is widespread in the sustainability literature and has an empirical implication in Pakistan, where the differences in the quality of disclosure, the development of governance, and the scrutiny of stakeholders are observed across institutions.

In this regard, the third hypothesis is that sustainability disclosure and SSB diversity has a positive interaction. In particular, the banks with a greater amount of heterogeneous SSBs are expected to enjoy greater benefits of performance linked to sustainability disclosure compared to banks with less diversified boards.

H3: The relationship between sustainability disclosure and performance of Islamic banks is moderated positively by Shariah Supervisory Board diversity, which means that the relationship is stronger in the case of high Shariah Supervisory Board diversity.

Theoretical Foundation

Stakeholder Theory

The theory of the stakeholders is the premise of the explanatory framework of the current study. It is assumed the theory that sustainable value is created when the firms recognize and meet the demands of the various stakeholder groups and do not focus only on the shareholders. In the banking industry, the areas of concern include the depositors, investors, the regulatory bodies, the employees, the local communities, and the society. In this light, sustainability disclosure plays a paramount role, where it addresses the information asymmetry, strengthens accountability, and organizational legitimacy. These roles become even more significant in Islamic banking, where the financial performance of the institutions is measured against ethical behavior, social responsibility and in accordance with the Shariah goals.

The salience of stakeholder expectations can be expected in the Pakistani Islamic banking sector because the sector operates in a mainly Muslim environment with Shariah legitimacy impacting upon trust and market behavior considerably. In turn, sustainability disclosure can be regarded as an accountability mechanism whereby the banks report about the compliance with the principles of justice, transparency, and socio-economic responsibility. As long as such disclosure is viewed by the stakeholders as believable, chances are high that the institution will gain reputational support, find trust, and patronage.

Resource-Based View (RBV)

Resource-based view (RBV) supplements the stakeholder theory by explaining why some Islamic banks can better translate sustainability disclosure into high performance in comparison with others. The RBV suggests that long-lasting performance differentials are based on valuable resources and capabilities that are not easily imitated, are non-substitutable, and are rare. In the present environment, diversity of the sustainability and social bank (SSB) is conceptualised as an intangible governance asset. The heterogeneous SSB is a combination of different knowledge, jurisprudential views, educational backgrounds, and work experiences and, thus, the quality of monitoring, interpretive ability and strategic directions improve.

The RBV perspective on diversity does not see diversity as just a demographic dimension but as a resource that increases capability. The quality of Shariah scholars who have an interdisciplinary exposure

is also quite limited in terms of high-quality Shariah academics in Islamic banking, which makes such diversity hard to duplicate. Therefore, a more varied SSB may help the bank to better substantiate the data on sustainability, incorporate non-financial factors in the strategic decisions-making, and transform disclosure into a competitive advantage.

Integrated Framework

The two theoretical lenses are combined in the research. It can be explained by the fact that, according to the stakeholder theory, sustainability disclosure should be meaningful: it creates legitimacy, reduces transparency, and strengthens ties with relevant audiences. The resource-based perspective explains why and when such an effect is to be enhanced: banks that have better governance resources, in this case, various SSBs, are better positioned at authenticating, interpreting and strategically using sustainability disclosure. In turn, this leads to the conceptualisation of sustainability disclosure as the stakeholder-oriented accountability tool and SSB diversity as the governance capacity that preconditions its effectiveness.

This is the integrated theoretical architecture which is a salient contribution of the paper. It goes beyond monologic descriptions and provides a more detailed account of the manner in which the combination of ethical transparency and governance resources affect the performance of banks in the sphere of Islamic finance.

Data and Methodology

Sample and Context

The research uses unequal longitudinal panel that includes the Islamic banking institutions in operation in Pakistan. The background data is an aggregation of bank-year data based on publicly published annual reports, governance disclosures, and published financial statements. The larger dataset represents a theoretical upper limit of 380 bank-year observations of 19 institutions over a long temporal window, and effective sample sizes are reported to be 320–380 observations, depending on whether the variables are available. Following the layout of the journal, the current paper defines the empirical window of the period 2005–2024, during which the consolidation of the Islamic banking in Pakistan took place, the development of the sustainability reporting framework, and the major Shariah governance reforms implemented by the State Bank of Pakistan.

Pakistan is an analytically sound environment due to a number of reasons. It is one of the largest and fastest-paced growing Islamic banking markets in the world, has a dual banking model, and has established a conspicuous Shariah Governance Framework. At the same time, the industry is heterogeneous in its sustainability reporting, board structure, and financial performance. This difference makes Pakistan an appropriate setting to examine the hypothesis that the value relevance of sustainability disclosure is determined by governance differences in an emerging Islamic economy.

Variables

Islamic Bank Performance (IBP) is the dependent variable that will be used in this study, and the main operationalisation of this variable is Return on Assets (ROA), which is the ratio of profit after tax to total assets. ROA is a pointer of the efficiency of the managers in converting the asset base of the bank into accounting returns. In line with the thesis, the Q of Tobin is introduced as a robustness measure based on a market, which is based on the hypothesis that sustainability disclosure can influence the perception of investors and help to increase the reputational capital.

The Sustainability Disclosure Index (SDI) is the main explanatory variable. This construct has been operationalised in the underlying thesis as a normalised Shannon -entropy based Sustainability Disclosure Diversity Index (SDDI), calculated on disclosure shares in four substantive dimensions, which include general, economic, environmental, and social. This metric measures the balance or the evenness of disclosure as opposed to its aggregate volume and, therefore, it is appropriate in studies involving the plausibility and the scope of sustainability communication.

The Shariah Supervisory Board Diversity Index (SSBDI) is the moderating construct. Based on the thesis, SSBDI is calculated as a weighted average of three dimensions of demographic, educational, and professional diversity. Demographic heterogeneity includes such observable traits as age and nationality; educational diversity captures the disciplinary diversity and academic qualification; and professional diversity captures the difference in industry experience, expertise, and tenure on boards. The resulting composite index lies within the range of 0 to 1 where a high index value represents a high heterogeneity.

The empirical models are used to address the omitted-variable bias, and thus the conventional bank-level control variables are included. These include bank size, which is the natural logarithm of the total assets; capitalization which is conceptually modelled by the ratio between equity and total assets; provisioning intensity which is modelled by the natural logarithm of provisions to non-performing loans; and liquidity, the age of the bank; time effects through the year fixed effects; and bank-specific fixed effects. Within some specifications, the estimation approach also incorporates the total financing or loan intensity. All of these controls are used to isolate the relationships of interest and to measure the effects of scale, heterogeneity of risks and common temporal shocks.

Econometric Model

The empirical strategy centers on a moderation model of the form:

$$IBP_{it} = \alpha + \beta_1 SD_{it} + \beta_2 SSBD_{it} + \beta_3 it(SD_{it} \times SSBD_{it}) + \sum \beta KControls_{it} + \varepsilon_{it}$$

Where IBP is the performance of an Islamic bank, i is bank, and t is year, SD is the sustainability disclosure and SSBD is Shariah Supervisory Board disclosure diversity, SD × SSBD are interaction terms that show whether SSB diversity modulates the impact of disclosure on performance. Positive 3 and statistically significant would support the main hypothesis of the study that different SSBs would strengthen the disclosure performance relationship.

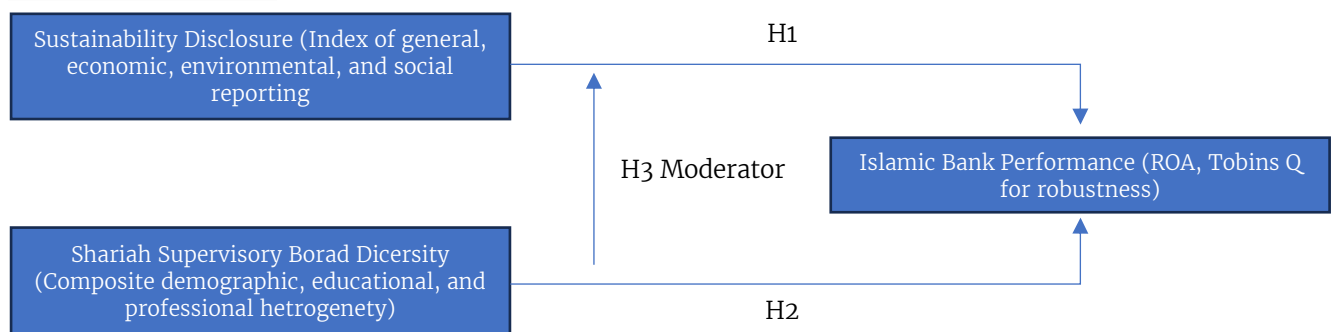
Estimation Strategy

The regression methods that are used on the panel are aimed at exploiting cross-sectional differences between banks and time changes within the banks. The dissertation provides pooled ordinary least squares, fixed effects (FE), and random effects (RE) estimates, having FE as the main specification requirement as it offers the ability to address the time-invariant bank heterogeneity. This point is relevant bearing in mind that governance quality and sustainability orientation can partially reflect intrinsic institutional qualities. RE estimates are also given on a subgroup of interaction models to be used as a relative yardstick.

The conventional diagnostic tests are also included in the empirical methodology. Multicollinearity is first considered in terms of correlation analysis and in the journal article, by the income of the diagnostics of the variance inflation factor. The problem of heteroskedasticity and serial correlation is addressed by using robust standard errors where relevant and year effects take up common shocks. With the continuation of the potential endogeneity, the paper conducts robustness tests using other performance measures and lagging explanatory factors.

Figure 1

Conceptual Framework



Sustainability disclosure affects Islamic bank performance (H1), SSB diversity affects Islamic bank performance (H2), and SSB diversity strengthens the disclosure-performance relationship (H3).

Table 1*Variable Definitions and Measurement*

| Variable | Symbol | Measurement | Source |
|---------------------------------|------------|--|--|
| Islamic bank performance | ROA | Profit after tax / total assets (primary accounting-based measure) | Annual reports and financial statements |
| Market-based performance | Tobin's Q | Market-value-based robustness indicator | Annual reports / market data where available |
| Sustainability Disclosure Index | SDI / SDDI | Normalized Shannon entropy of disclosure shares across general, economic, environmental, and social dimensions | Content analysis of annual reports |
| SSB Diversity Index | SSBDI | Equal-weight composite of demographic, educational, and professional heterogeneity | SSB biographies and governance disclosures |
| Bank size | SIZE | Natural logarithm of total assets | Annual reports |
| Provisioning intensity | LNPROV | Natural logarithm of provisions against non-performing loans | Annual reports |
| Liquidity | LIQ | Liquid assets / total assets | Annual reports |
| Capitalization | CAP | Equity / total assets | Annual reports |
| Bank age | AGE | Years since establishment | Annual reports / bank profiles |
| Year and bank effects | — | Time dummies and bank fixed effects | Model specification |

Results and Discussion**Descriptive Statistics**

In table 2, the most important variables were given the descriptive statistics. The standard deviation is relatively small (0.16) and the sustainability disclosure mean (0.76) is relatively high, which means that the sampled Islamic banks disclose a significant but disproportionate amount of sustainability information on dimensions. In comparison, the mean of SSB diversity is lower (0.27) and its range (0.00 to 0.71) is rather broad, suggesting that there is high heterogeneity in the heterogeneity in the board composition among institutions. Such results indicate the existence of governance diversity of more or less advanced breadth of disclosure.

There is also significant dispersion in financial variables. The total assets and interest income differ acutely among the banks, which is in line with the presence of relatively small and very large institutions in the Pakistan Islamic banking sector. The mean of ROA stands at 0.01 with a value between -0.05 and 0.22 except that the average level of profitability is modest and cross-bank and cross-temporal heterogeneities are high. This kind of heterogeneity makes a panel approach warranted, as it can explain both within-bank and between-bank heterogeneity.

Table 2*Descriptive Statistics*

| Variable | Obs. | Mean | Std. Dev. | Min | Max |
|---|------|------------|------------|----------|--------------|
| Sustainability Disclosure Diversity Index (SDDI) | 380 | 0.76 | 0.16 | 0.22 | 0.99 |
| Shariah Supervisory Board Diversity Index (SSBDI) | 360 | 0.27 | 0.18 | 0.00 | 0.71 |
| Total Assets (PKR mn) | 371 | 683,641.60 | 922,406.90 | 4,024.67 | 6,700,000.00 |
| Interest Income (PKR mn) | 371 | 22,951.03 | 31,351.10 | -581.47 | 226,429.00 |
| Provisioning against NPLs (PKR mn) | 367 | 20,997.45 | 29,948.25 | 1.00 | 233,609.00 |
| Return on Assets (ROA) | 371 | 0.01 | 0.02 | -0.05 | 0.22 |
| Alternative ROA (ROA1) | 371 | 0.04 | 0.06 | 0.00 | 0.48 |

Correlation Analysis

The primary variables are described in Table 3 which presents the pairwise correlation matrix. Sustainability disclosure is positively related to bank size ($r = 0.293$, $p = -0.001$), interest income ($r = 0.264$, $p = -0.001$) and provisioning ($r = 0.179$, $p = -0.001$) meaning that bigger institutions and those with larger operating scale would tend to disclose more information. In its turn, SSB diversity exhibits a weak negative correlation with sustainability disclosure ($r = -0.185$, $p = 0.001$), which means that the institutions with the most wide disclosure profiles do not always have the most diverse sustainable supply-chain banks. It is important to note that the correlations of return on assets and the sustainability disclosure index and SSB diversity index are low in the modern context, which proves the importance of multivariate panel regression model as opposed to the usage of a single piece of evidence.

Even though a number of control variables, especially the total assets, interest income, and provisioning, show a significant intercorrelations, the main explanatory relationships are not problematic in terms of multicollinearity. To submit to the journal, the variance inflation factors are also listed in Table 3; they have acceptable limits in the core specifications diagnosis.

Table 3

Correlation Matrix and VIF

| Variable | SDDI | SSBDI | TA | INTR | PROV | ROA | ROA1 | VIF |
|----------|--------|--------|--------|--------|--------|-------|-------|------|
| SDDI | 1.000 | | | | | | | 1.18 |
| SSBDI | -0.185 | 1.000 | | | | | | 1.09 |
| TA | 0.293 | -0.067 | 1.000 | | | | | 3.94 |
| INTR | 0.264 | -0.062 | 0.928 | 1.000 | | | | 4.71 |
| PROV | 0.179 | -0.047 | 0.811 | 0.688 | 1.000 | | | 2.96 |
| ROA | -0.020 | 0.062 | -0.033 | 0.036 | -0.042 | 1.000 | | — |
| ROA1 | -0.064 | 0.114 | -0.092 | -0.016 | -0.061 | 0.746 | 1.000 | — |

Main Regression Results

The results of core panel regression that can be related to the three hypotheses are reported in Table 4. Model 1 considers the direct influence of performance on sustainability disclosure. The fixed-effects estimate provides a positive and statistically significant coefficient of SDDI on $\ln\text{ROA}$ (0.535 , $p = 0.05$), and the other profitability specification $\ln\text{ROA} 1$ also gives a positive coefficient (0.297 , $p = 0.10$). These findings support H1 and show that an increase in the level of breadth and depth of sustainability reporting correlates with an increase in the profitability, holding all other variables constant, including the size of firms and the provisioning.

Model 2 examines the direct impact of SSB diversity. The fixed-effects coefficient of SSBDI is significant and positive on the $\ln\text{ROA}$ (0.551 , $p < 0.05$) and more so on the $\ln\text{ROA} 1$ (0.506 , $p < 0.01$). These results support H2 and indicate that a more diverse Shariah board can add to the monitoring and strategic governance advantage of the bank in a manner that improves performance.

Model 3 adds the relationship between sustainability disclosure and SSB diversity. The pooled and random-effects estimates have a positive and significant interaction term ($\ln\text{ROA}$) whereas the fixed-effects interaction has a positive value but fails to be statistically significant as per the conventional theory. This trend proves that the disclosure and diversity complementarity are economical and is especially noticeable in the structural disparities among banks. The signs of the coefficient indicate that the disclosure of sustainability is more performance relevant to those banks the SSBs of which are more heterogeneous. The correlation is less strong in the alternative $\ln\text{ROA} 1$ specification and the directional trend is consistent with the main argument of the study. Collectively, these findings have qualified support of H3.

Table 4

Panel Regression Results

| Variable | Model 1 | Model 1 | Model 2 | Model 2 | Model 3 | Model 3 | Model 3 |
|--------------|------------|-----------|------------|----------|------------|-----------|-----------|
| | Pool lnROA | FE lnROA | Pool lnROA | FE lnROA | Pool lnROA | FE lnROA | RE lnROA |
| SDDI | 0.048 | 0.535** | — | — | -1.659*** | -0.195 | -0.683 |
| SSBDI | — | — | 0.019 | 0.551** | -4.598*** | -1.304 | -2.209* |
| SDDI × SSBDI | — | — | — | — | 5.876*** | 1.995 | 3.056** |
| SIZE | -0.137** | -0.189*** | -0.166*** | -0.140** | -0.738*** | -0.813*** | -0.814*** |
| LNPROV | 0.115*** | -0.037 | 0.150*** | -0.054 | 0.008 | -0.173*** | -0.126** |
| Observations | 340 | 340 | 320 | 320 | 320 | 320 | 320 |
| R-squared | 0.022 | 0.096 | 0.031 | 0.100 | 0.168 | 0.228 | — |

Notes: Reported coefficients are condensed from the thesis output. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. FE = fixed effects; RE = random effects.

Discussion

The positive effect of sustainability disclosure is in line with empirical research that shows, responsible disclosure in the context of Islamic banking enhances legitimacy, transparency, and confidence by the stakeholder. These results are in line with Jan et al. (2019), who argue that sustainability practices promote financial performance in Islamic banks, and Platonova et al. (2018), who report a positive correlation between CSR disclosure and financial performance in GCC Islamic banks. The Pakistani context in which the result was found is especially salient since it is claimed that the sustainability reporting is not a mere symbolic gesture; the balanced disclosure in the economic, environmental, social, and general dimensions seems to be the value-relevant indicator of the institutional quality.

The beneficial impact of the SSB diversity is also decisive. It substantiates the literature on governance, which stipulates that Shariah boards are not mere compliance organs, but anything to do with the composition they have influences the quality of the governance, the scope of interpretation and the strategic management of ethical and financial challenges. This finding is in line with Mollah and Zaman (2015), Khan and Zahid (2020), and Aslam and Haron (2020), all of which find that the attributes of governance affect the performance of Islamic banks. In practice, the current study suggests that Islamic banks are better off than just possessing an SSB, but one with a significant diversity of competence and viewpoint.

The most valuable contribution in the paper is the moderating result. It means that the effects of sustainability disclosure vary based on the quality of governance, especially the diversity of the SSB. This can be traced back to the thesis that has been put forward by Michelin and Parbonetti (2012) and Chan et al. (2014), which confirms that the effectiveness of disclosure is contingent on the governance conditions. The credibility and strategic usefulness of sustainability communication seem to be reinforced in Islamic banking through the use of SSB diversity. These disclosures may also receive a stronger response in terms of trust and inclusion of rewards on the part of the stakeholders where boards with wider disciplinary and professional scopes oversee them.

The outcome has also a theoretical meaning. It helps to substantiate the combined framework suggested in the preceding section of the paper: the stakeholder theory clarifies why disclosure is important, whereas the resource-based perspective clarifies why its importance is enhanced in banks that have a better set of governance resources. In this respect, the quality of governance is not extrinsic to sustainability disclosure; it is one of the ways in which disclosure can be economically meaningful. The findings, therefore, lead to the conclusion that governance and transparency should be examined together as opposed to viewing them analytically as performance drivers.

Meanwhile, the findings have to be interpreted subtly. The interaction is also higher in a pooled and random-effects specifications compared to the fixed-effects specifications indicating that the structural cross-bank variation is central. It means that the complementarity of disclosure and board diversity could be especially pronounced in the profile of persistent governance, rather than short term changes in banks.

The pattern does not in any way diffuse the substantive point but merely shows that the idea of governance diversity can be merely a further-reaching institutional feature whose advantages are long-term.

Robustness Checks

The paper also gives a list of strong robustness analyses. To start with, other profitability specifications that use the logarithm of return on assets (lnROA1) confirm the positive impact of sustainability disclosures and the diversity of Sustainability Stewards Boards (SSBs) on primary direct-effect models, albeit with a weaker interaction coefficient. Secondly, market-based rationales are upheld by the inclusion of Tobin Q as a conceptual measure of robustness that appreciates that the disclosure of sustainability can have an impact on investor valuation and accounting profitability. Third, the conditional models are also subject to investigation, which assumes auxiliary moderators of the internal composition of disclosure categories, namely economic, environmental, social, and general. The results show that the disclosure dimensions have not equally related to governance outcomes, and environmental and economically-oriented disclosures seem to be the strongest in some particular fixed-effects specifications.

Last but not least, the story highlights that educational and professional heterogeneity in SSBs is particularly important towards making sustainability disclosures more relevant to their performance. This highlights the fact that diversity does not equally affect each of the dimensions; complementary expertise may be beneficial as compared to diversification that increases coordination costs but does not add to the potential of the board. Combined with the strength analyses, the analyses of robustness provide support to the main premise of this study, which is that the quality of governance moderates the degree to which disclosure enhances the performance of firms.

Table 5

Robustness Tests

| Robustness specification | Key result | Interpretation | Support |
|--|---|---|-----------|
| Alternative profitability measure (lnROA1) | SDDI remains positive in FE model ($\beta = 0.297^*$); SSBDI remains positive ($\beta = 0.506^{***}$) | Main findings are not confined to one profitability scaling choice | Yes |
| Interaction model with lnROA1 | SDDI \times SSBDI remains positive but weaker and not consistently significant | Moderation is economically plausible but stronger in accounting-profitability structure | Partial |
| Random-effects interaction model | SDDI \times SSBDI = 3.056** for lnROA | Cross-bank structural differences support complementarity | Yes |
| Disclosure-composition models | Environmental and economic disclosure shares strengthen some FE relationships | Internal composition of disclosure matters for performance relevance | Qualified |
| Sub-dimensions of SSB diversity | Educational and professional heterogeneity appear especially influential in thesis narrative | Complementary expertise may drive the moderation effect | Qualified |

Conclusion, Implications, Limitations, and Future Research

Conclusion

The study considered in this research examined the relationship between sustainability disclosure and performance of Islamic banks in Pakistan, and whether this relationship was enhanced by the heterogeneity of Shariah Supervisory Boards. Based on the stakeholder theory and the resource-based view, the manuscript argues that sustainability disclosure creates value by contributing to legitimacy,

improvement of trust and transparency and board diversity increases the governance capacity, which is required to translate disclosure into positive financial results. There are three general conclusions that are supported by empirical evidence based on the study. To begin with, there is a positive connection between sustainability disclosure and performance of Islamic banks. Second, the natural diversity of Shariah Supervisory Boards has a direct positive correlation with the performance. Third, board diversity enhances the disclosure-performance nexus, meaning that governance and transparency are co-value drivers, but not independent.

What is important about these findings is that they will transform the discourse that is primarily based on the need to sustainability report by Islamic banks into an interrogation of the governance procedures that make such reporting a viable and value-creating process. The results highlight the necessity to investigate disclosure and governance simultaneously. The highest level of effectiveness of sustainability communication occurs when it is located under a governance framework that is able to interpret, validate and strategically utilized the disclosed information.

Theoretical Implications

The theoretical knowledge developed in this paper is on three aspects. First, it places sustainability disclosure in the context of Islamic banking as an accountability instrument as well as a performance-deliberate instrument of legitimacy constitution, and hence expands the stakeholder theory. Second, it complements the resource-based perspective, as it conceptualizes the diversity of sustainable and socially responsible banks (SSB) as an abstract resource of governance enhancing the efficacy of disclosures. Third, it enhances the Islamic finance corpus by integrating governance and sustainability disclosure into a single framework thus avoiding the existing dichotomous approach to the two constructs as explanatory of performance in a vacuum.

Policy Implications

The current results mean that regulators (especially the State Bank of Pakistan) should not focus on the formal presence of the Shariah boards only but also its composition and diversity. The systems of governance that do not take into account heterogeneity in expertise and background can undermine the potential of the full value that can be created by sustainability disclosure. It is in line with this that sustainability disclosure standards in Islamic banking institutions should be supportive of governance reforms that strengthen board capabilities, build credibility and enhance effectiveness of oversight. Ultimately, the disclosure requirements will gain more importance when the board diversity is recognized as a required enabling factor.

Managerial Implications

The conceptualisation of diversification of Shariah Supervisory Boards (SSBs) in the context of Islamic banking should be viewed as a strategic resource and not just a necessity. The banks which invest in more diversified Shariah boards tend to improve the quality of monitoring, strengthen the processes of ethical validation and make their sustainability disclosure more strategic. As a result, these institutions will be able to attain a stronger balance between the governance practices and sustainability goals.

The management must also incorporate the disclosure processes in the governance system so that the reporting can develop a substantive strategic orientation instead of just a symbolic communication. Simultaneously, building the variety of SSBs which incorporate the complementary knowledge in the field of Shariah, finance, economics, law and governance is also able to improve the credibility and performance.

Limitations

There are a number of constraints that are worth mentioning. To begin with the disclosure index only reflects the reported sustainability practice and not the totality or quality of underlying activities.

Secondly, the study is limited to one nation which limits the generalization process to other Islamic banking jurisdictions with divergent institutional conditions.

Thirdly, the endogeneity is not addressed to the full extent even in the case of using panel methodologies and fixed effects.

Fourthly, the sample size is small, which reflects relatively small population of the Islamic banks in Pakistan and constraints in the availability of data.

Future Research

These findings can be developed in a variety of ways in future research. Comparative cross country-analyses can be used to determine whether the moderating role of SSB diversity is more intense in emerging markets compared to more developed Islamic finance jurisdictions. Ethnographic study or case-study study can use how heterogeneous Shariah boards discuss internally sustainability concerns and how they interrelate with management. Researchers may also go beyond aggregate disclosure indices to undertake issue-based studies with regard to green finance, community empowerment, social integration, or zakat-related programs. Lastly, other moderators like ownership arrangement, external assurance or the quality of governance in a country can also be tested to supplement our knowledge about the relationship between governance and sustainability in Islamic banking.

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