

Does Banking-Specific ESG Context Strengthen the Value Relevance of ESG Performance?

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Abstract

This study examines whether Environmental, Social, and Governance (ESG) performance affects bank firm value and whether banking-specific ESG context strengthens this relationship. Using a quantitative approach, the study employs unbalanced panel data from 26 banks comprising 133 bank-year observations during 2019–2024, with Tobin's Q as the proxy for firm value, aggregate ESG and its environmental, social, and governance dimensions as independent variables, and banking-specific ESG context as a moderating variable. The results show that aggregate ESG performance has no significant effect on Tobin's Q ($\beta = -0.0812$; $p = 0.149$). At the dimension level, environmental ($\beta = 0.01995$; $p = 0.392$), social ($\beta = -0.08744$; $p = 0.237$), and governance performance ($\beta = -0.01838$; $p = 0.807$) are also statistically insignificant. Furthermore, banking-specific ESG context does not significantly moderate the relationship between aggregate ESG performance and firm value ($\beta = 0.02690$; $p = 0.417$), while none of the dimension-specific interaction effects is significant. These findings indicate that ESG performance does not automatically generate a valuation premium for banks, thereby extending the value relevance perspective by emphasizing the importance of information credibility, economic materiality, and the connection between ESG performance, risk, and future financial prospects. The findings imply that banks should integrate ESG with risk management, transparency, financing strategies, and long-term value creation, while future research should examine mediating mechanisms such as ESG disclosure, ESG controversies, financed emissions, and reputational risk.

Keywords: Banking; ESG Performance; Firm Value; Sustainability; Value Relevance.

INTRODUCTION

Environmental, Social, and Governance (ESG) has increasingly become an important mechanism through which investors, regulators, and other stakeholders evaluate corporate sustainability, risk exposure, and long-term value creation. The growing relevance of ESG reflects a broader shift from purely financial assessment toward an integrated evaluation of environmental responsibility, social accountability, and governance quality. Recent evidence generally indicates that ESG performance and disclosure can enhance firm value by reducing information asymmetry, improving stakeholder trust, strengthening reputation, and lowering perceived risk. A meta-analysis of 95 studies confirms that ESG disclosure is positively associated with firm performance and that environmental and social disclosures generate particularly pronounced effects, while ESG practices can also reduce the cost of capital (Saini et al., 2025/2026). Similarly, evidence from Saudi Arabia demonstrates a positive relationship between ESG disclosure and Tobin's Q, particularly for environmental and social dimensions (Abdalahamid & Alhaggan, 2026). These findings suggest that ESG information may possess economic value because markets can incorporate credible sustainability signals into firm valuation.

However, the value relevance of ESG performance is not necessarily uniform across firms or institutional contexts. Recent research shows that the relationship between ESG and financial outcomes depends on how ESG information is communicated, interpreted, and embedded within corporate governance and institutional environments. Zahri and Haryanto (2026), for example, find that GRI compliance significantly strengthens the positive relationship between ESG performance and firm value among ASEAN firms, demonstrating that the informational and institutional context surrounding ESG can determine whether sustainability performance is effectively translated into market value. Conversely, Sihotang and Siregar (2025) report that ESG performance alone does not significantly affect firm value or financial distress among Indonesian non-financial firms, while ESG controversies weaken the potential valuation benefits of ESG

performance. This inconsistency indicates that ESG performance should not be considered an isolated determinant of value; rather, its economic consequences depend on the context in which sustainability information is generated, governed, disclosed, and evaluated. Importantly, this contextual argument also requires a distinction between ESG performance itself and the sector-specific context in which that performance operates. ESG performance captures the extent to which a firm performs on environmental, social, and governance dimensions, whereas a sector-specific ESG context concerns the extent to which those dimensions are embedded in the firm's distinctive business model, risk structure, governance arrangements, regulatory environment, and stakeholder relationships. Thus, ESG and banking-specific ESG context are conceptually related but not interchangeable: ESG represents the sustainability performance being evaluated, while banking-specific ESG context represents the institutional and economic environment that may determine how that performance becomes meaningful to investors.

This distinction is particularly important in the banking sector. Banks differ fundamentally from non-financial firms because their primary activities involve financial intermediation, risk transformation, credit allocation, and the management of substantial information asymmetry. Consequently, environmental and social risks can be transmitted through loan portfolios, while governance weaknesses may directly affect credit quality, risk-taking, regulatory compliance, and stakeholder confidence. Recent evidence from Chinese small and medium-sized banks demonstrates that climate-related physical risks significantly increase non-performing loans and bank risk-taking through deterioration in firms' operational capacity and cash reserves (Xue et al., 2026). This suggests that ESG-related risks in banking are not merely reputational issues but can become embedded within core financial risks. Consistent with this perspective, Chakraborty et al. (2026) conclude from a systematic review that ESG integration generally supports long-term bank stability and risk management, although the strength of ESG effects varies across environmental, social, and governance dimensions. The banking context therefore potentially changes the economic meaning and value relevance of ESG performance. For example, the environmental performance of a manufacturing firm is primarily associated with the firm's own environmental footprint, whereas the environmental relevance of a bank extends beyond its direct operations to the sustainability characteristics of its lending and investment portfolios. Similarly, social performance in banking can be connected to financial inclusion, responsible lending, customer protection, and human capital, while governance is closely related to prudential oversight, risk governance, compliance, and accountability. Therefore, the same ESG score may carry a different economic meaning when observed in a bank because the bank can transmit sustainability-related risks and opportunities through its financial intermediation function.

Against this background, Banking-Specific ESG Context (BESG) should be understood as a contextual construct rather than as a second measure of generic ESG performance. In this study, ESG represents the bank's overall Environmental, Social, and Governance performance, while BESG captures the banking-specific sustainability context through which those ESG characteristics acquire sector-specific economic meaning. The distinction is therefore based on function rather than merely measurement. ESG answers the question of "how well does the bank perform on environmental, social, and governance dimensions?", whereas BESG addresses "how strongly are those sustainability dimensions situated within the distinctive risk, governance, regulatory, financing, and stakeholder environment of banking?". Consequently, BESG is expected to operate as a contextual condition that may alter the extent to which ESG performance is recognized by the market, rather than as a substitute for ESG performance itself. This distinction provides the conceptual foundation for treating BESG as a moderating variable rather than as another independent ESG determinant.

The existing literature nevertheless leaves an important gap. Much of the ESG literature examines the direct relationship between ESG performance or disclosure and firm value, while banking studies tend to emphasize ESG, risk management, stability, or performance separately. More specifically, existing studies generally ask whether ESG performance or ESG disclosure affects firm value, but provide less evidence on whether the distinctive ESG context of banking

changes the strength of that relationship. In other words, the literature has paid substantial attention to the “ESG → firm value” relationship, but comparatively less attention to the conditional question of “under what banking-specific context does ESG become more or less value relevant?”. This represents a conceptual gap because the existence of a banking-specific sustainability environment does not necessarily imply that the market will value ESG performance differently. A bank may face substantial sustainability-related risks and opportunities, yet those conditions may only influence valuation if investors can observe and interpret how ESG performance is connected to economically material consequences.

The distinction between ESG and BESG is therefore central to the research gap. Generic ESG performance describes the sustainability attributes of the bank, but it does not by itself capture whether those attributes are particularly material to the bank's intermediation activities, regulatory obligations, risk exposure, governance structure, or financing decisions. Conversely, BESG is intended to capture the contextual salience of ESG within banking. Thus, the research gap is not simply the absence of another ESG variable in banking research; it is the limited examination of whether a banking-specific ESG context can function as a boundary condition for the value relevance of ESG performance. This distinction also explains why introducing BESG as a moderator provides additional theoretical information beyond estimating the direct effect of ESG. If ESG measures sustainability performance and BESG captures the banking-specific context in which that performance is interpreted, their interaction tests whether the economic meaning of ESG changes as banking-specific ESG conditions become more pronounced.

This gap is important because banks operate under distinctive regulatory, governance, risk-management, and stakeholder structures. Institutional investors may also respond differently to ESG information when evaluating financial institutions because sustainability-related risks can influence both the banks' own operations and the risk profiles of their financing activities. Aluchna (2024) emphasizes that institutional investors use sustainability information as an input into investment and risk assessment, while ESG transparency can influence strategic organizational change. At the same time, Zioło et al. (2024) and Ștefănescu and Suciú (2026) highlight that ESG controversies and gaps between sustainability claims, governance, and actual organizational responsibility can generate reputational, operational, and systemic consequences. These findings reinforce the argument that the credibility and institutional context of ESG information matter for its economic interpretation.

The gap is further reinforced by the fact that contextual mechanisms identified in prior studies are not necessarily equivalent to banking-specific ESG context. Zahri and Haryanto (2026) examine GRI compliance as a contextual mechanism, while Li et al. (2026) emphasize corporate transparency and institutional environment. De la Fuente and Velasco (2026) highlight the role of bank debt as a monitoring and signaling mechanism. These studies demonstrate that context can condition ESG value relevance, but they do not directly establish whether the sustainability context inherent in banking itself changes the valuation effect of ESG performance. Likewise, studies of banking ESG often focus on bank performance, risk-taking, controversies, financed emissions, or stability rather than explicitly testing whether a banking-specific ESG context moderates the ESG–firm value relationship. The present study therefore connects two streams of literature that have largely developed separately: the literature examining ESG and firm value and the literature examining the distinctive ESG implications of banking.

Building on stakeholder theory, information asymmetry arguments, and the value-relevance perspective, this study argues that ESG performance is more likely to generate firm-value implications when it is supported by a banking-specific context that makes sustainability information more economically meaningful, credible, and connected to the bank's core risk and governance processes. The theoretical logic is therefore conditional rather than purely additive. ESG performance provides sustainability-related information, while BESG represents the contextual condition that may determine whether such information has greater economic salience within banking. If banking-specific ESG context strengthens the informational connection between ESG performance and future risks, cash flows, resilience, or growth opportunities,

investors should place greater valuation relevance on ESG performance when BESG is higher. Conversely, if banking-specific context does not improve the credibility, interpretability, or economic materiality of ESG information, stronger BESG may not translate into a stronger ESG–firm value relationship.

Accordingly, this study aims to examine whether banking-specific ESG context strengthens the relationship between ESG performance and firm value. The study therefore does not treat BESG as a replacement for aggregate ESG, nor does it assume that BESG has an independent valuation effect merely because it is related to sustainability. Instead, BESG is introduced to test a more specific proposition: whether the banking-specific context surrounding ESG changes the extent to which ESG performance becomes value-relevant to investors. The study contributes by moving beyond the conventional question of whether ESG creates value and instead examining when and under what banking-specific conditions ESG performance becomes more value-relevant. This perspective provides theoretical implications for understanding the contextual nature of ESG value creation and practical implications for bank managers, investors, regulators, and standard setters seeking to improve the credibility and economic usefulness of ESG practices and disclosures.

Accordingly, the conceptual distinction can be summarized as follows: ESG represents the sustainability performance of the bank, whereas BESG represents the banking-specific context that may condition how that sustainability performance is interpreted and valued by the market. ESG is therefore the focal explanatory construct, while BESG is the contextual moderator. The interaction between ESG and BESG tests whether the valuation relevance of sustainability performance varies according to the strength of the banking-specific ESG context. This framing provides a more precise contribution than simply adding another ESG measure because it explicitly recognizes that the economic meaning of sustainability information can depend on the institutional and business context in which that information is generated and evaluated.

Based on this theoretical and empirical reasoning, the study proposes the following hypothesis:

H1: Banking-specific ESG context positively moderates the relationship between ESG performance and firm value, such that the value relevance of ESG performance is stronger when banking-specific ESG context is more pronounced.

METHOD

This study employs a quantitative explanatory research design to examine whether banking-specific ESG context conditions the relationship between ESG performance and firm value. The unit of analysis is the bank-year observation, covering 26 banks during 2019–2024 and generating 133 bank-year observations. Secondary data are obtained from the banks' annual reports for the construction of banking-specific ESG measures, while ESG performance data are based on the ESG measures contained in the research dataset.

Firm value is measured using Tobin's Q. The principal explanatory variable is overall ESG performance (ESG), represented by three dimensions: Environmental (ENV), Social (SOC), and Governance (GOV). Banking-Specific ESG Context (BESG) is defined as a banking-contextual measure of ESG based on information disclosed in banks' annual reports. BESG is represented by an overall measure (BESG_ESG) and three dimensions: BESG_ENV, BESG_SOC, and BESG_GOV. Thus, ESG captures the bank's general ESG performance, whereas BESG captures the extent to which ESG characteristics are reflected in the specific business, governance, risk, and sustainability context of banking.

The ESG and BESG measures are operationalized using their respective overall and dimension-level scores in the research dataset. The overall measures are represented as:

$$\begin{aligned}\text{ESG} &= f(\text{ENV}, \text{SOC}, \text{GOV}) \\ \text{BESG} &= f(\text{BESG_ENV}, \text{BESG_SOC}, \text{BESG_GOV})\end{aligned}$$

where ESG represents overall ESG performance and BESG represents the banking-specific ESG context. The detailed indicators and scoring procedures follow the measurement structure applied in the research dataset and the information disclosed in the banks' annual reports.

The empirical analysis is performed using R. Descriptive statistics and correlation analysis are conducted, while VIF is used to assess multicollinearity. Panel-data regression is estimated using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The Chow, Breusch–Pagan Lagrange Multiplier, and Hausman tests are used for model selection. Based on these tests, the Random Effects Model is selected for the principal models.

Three empirical stages are conducted. First, the effect of overall ESG on Tobin's Q is examined. Second, ENV, SOC, and GOV are examined separately. Third, the moderating role of BESG is tested using the interaction $ESG \times BESG_ESG$, followed by $ENV \times BESG_ENV$, $SOC \times BESG_SOC$, and $GOV \times BESG_GOV$. ESG and BESG variables are mean-centered before constructing the interaction terms.

The moderation model is specified as:

$$TobinQ_{it} = \beta_0 + \beta_1 SG_{it} + \beta_2 BESG_{it} + \beta_3 (ESG_{it} \times BESG_{it}) + \varepsilon_{it}$$

where β_3 represents the moderating effect of banking-specific ESG context. A positive and significant β_3 indicates that BESG strengthens the relationship between ESG performance and firm value.

Finally, diagnostic tests are conducted for heteroskedasticity, serial correlation, and cross-sectional dependence. Where necessary, robust estimation procedures are applied.

RESULTS AND DISCUSSION

Descriptive Statistics

The descriptive statistics establish the empirical characteristics of firm value, ESG performance, and banking-specific ESG context across 133 bank-year observations from 26 banks during 2019–2024. Table 1 presents the mean, standard deviation, minimum, median, maximum, skewness, and kurtosis of the variables used in the analysis.

Table 1. Descriptive Statistics

Variable	Mean	SD	Minimum	Median	Maximum	Skewness	Kurtosis
Tobin's Q	1.593	2.650	0.868	1.025	21.850	6.217	39.470
ENV	26.073	13.795	0.000	25.581	65.267	0.478	0.174
SOC	39.368	11.046	10.127	38.331	58.313	-0.061	-0.853
GOV	86.338	8.066	67.821	87.357	97.502	-0.683	-0.126
ESG	50.636	8.633	26.034	51.242	66.482	-0.257	-0.608
BESG_ESG	3.473	1.225	1.220	3.410	6.160	0.258	-0.743
BESG_ENV	1.083	1.169	0.000	0.720	4.695	1.031	0.203
BESG_SOC	4.471	2.152	0.594	4.527	8.559	0.157	-0.954
BESG_GOV	5.127	0.646	3.081	5.236	6.564	-0.569	0.285

Source: Secondary data, processed by the authors (2026).

The descriptive evidence already suggests that ESG information is not homogeneous across banks. Governance records the highest average performance (86.338), substantially above social (39.368) and environmental performance (26.073), indicating that sustainability practices in the sampled banking sector are more strongly concentrated in governance-related attributes. Meanwhile, Tobin's Q has a mean of 1.593 but a median of only 1.025, accompanied by substantial positive skewness (6.217), indicating that market valuation is highly uneven across bank-year observations. This dispersion is important for the value-relevance perspective because ESG performance may not receive identical market recognition across banks. The variation in BESG measures further indicates that banks operate under materially different banking-specific ESG contexts, providing an empirical basis for testing whether such context conditions the valuation relevance of ESG information.

Panel Model Selection

Before estimating the value-relevance relationships, panel specification tests were conducted to identify the appropriate estimator. Table 2 reports the Chow, Breusch–Pagan Lagrange Multiplier, and Hausman tests for the overall ESG model, the ESG-dimension model, and the moderation model.

Table 2. Panel Model Selection Tests

Model Specification	Chow Test p-value	LM Test p-value	Hausman Test p-value	Selected Model
ESG → Tobin's Q	<0.001	<0.001	0.346	REM
ENV + SOC + GOV → Tobin's Q	<0.001	<0.001	0.255	REM
ESG × BESG_ESG → Tobin's Q	<0.001	<0.001	0.959	REM

Source: Secondary data, processed by the authors (2026).

The significant Chow and LM tests indicate that bank-specific effects should not be ignored, while the insignificant Hausman statistics indicate that these effects are appropriately treated as random rather than fixed. Consequently, the Random Effects Model is employed across the principal specifications. This result is particularly relevant to the present research question because the analysis recognizes that differences among banks constitute part of the empirical environment in which ESG information is interpreted, rather than treating all bank-year observations as statistically interchangeable.

ESG Performance and the Value Relevance of ESG Information

The first model establishes whether aggregate ESG performance is reflected in market-based firm value. This baseline relationship is essential before examining whether banking-specific ESG context changes the valuation relevance of ESG information.

Table 3. Effect of ESG Performance on Firm Value

Variable	Estimate	Std. Error	t-value	p-value
ESG	-0.0812	0.0558	-1.455	0.149

Source: Secondary data, processed by the authors (2026).

ESG performance has a negative coefficient ($\beta = -0.0812$), but the relationship is statistically insignificant ($p = 0.149$). Thus, the evidence does not support the proposition that higher aggregate ESG performance is systematically incorporated into the market valuation of the sampled banks. The important implication is not that ESG is economically irrelevant, but that ESG performance alone does not appear sufficient to generate observable valuation differentiation during the study period. This finding is consistent with the broader ESG literature showing that the ESG–firm value relationship varies across industries, countries, institutional environments, and measurement approaches rather than being universally positive.

Dimension-Level Value Relevance

To determine whether the absence of an aggregate ESG effect conceals heterogeneous effects across sustainability dimensions, the analysis separately evaluates environmental, social, and governance performance.

Table 4. Effects of ESG Dimensions on Firm Value

Variable	Estimate	Std. Error	t-value	p-value
ENV	0.01995	0.02319	0.860	0.392
SOC	-0.08744	0.07354	-1.189	0.237
GOV	-0.01838	0.07494	-0.245	0.807

Source: Secondary data, processed by the authors (2026).

None of the three ESG dimensions significantly explains Tobin's Q. Environmental performance has a positive coefficient, whereas social and governance performance show negative coefficients, but none reaches statistical significance. The finding is theoretically important because it indicates that the market does not automatically assign valuation relevance to a particular ESG pillar merely because that pillar exhibits stronger performance. The much higher average governance score therefore does not translate into corresponding valuation relevance. This reinforces the argument that the economic value of ESG depends not only on the

level of sustainability performance but also on how investors interpret, trust, and integrate that information into valuation decisions. Recent systematic evidence similarly identifies substantial heterogeneity in ESG–firm value relationships and calls for greater attention to interactive and moderating mechanisms.

Banking-Specific ESG Context as a Moderating Mechanism

The central contribution of this study is the examination of whether banking-specific ESG context strengthens the value relevance of ESG performance. Table 5 presents the interaction between centered ESG performance and banking-specific ESG context.

Table 5. Moderating Effect of Banking-Specific ESG Context

Variable	Estimate	Std. Error	t-value	p-value
ESG_c	-0.03736	0.08245	-0.453	0.651
BESG_ESG_c	-0.27201	0.58282	-0.467	0.642
ESG_c × BESG_ESG_c	0.02690	0.03299	0.815	0.417

Source: Secondary data, processed by the authors (2026).

The interaction coefficient is positive ($\beta = 0.02690$), suggesting a theoretically positive direction in which stronger banking-specific ESG context could potentially increase the valuation relevance of ESG performance. However, the coefficient is statistically insignificant ($p = 0.417$). Therefore, the hypothesis that banking-specific ESG context strengthens the ESG–firm value relationship is not supported. This is the critical finding of the study: being a bank with a stronger banking-specific ESG context does not, by itself, cause investors to place significantly greater value on ESG performance. The result suggests that contextual compatibility between ESG practices and banking characteristics may be conceptually important, but the sampled market does not appear to translate this compatibility into statistically observable valuation premiums during 2019–2024. This finding is consistent with evidence that ESG outcomes may depend strongly on institutional and contextual conditions, while sustainability information can also face credibility and interpretation problems.

Dimension-Specific Moderating Effects

To further investigate whether the absence of aggregate moderation masks dimension-specific mechanisms, separate interaction models are estimated for environmental, social, and governance performance.

Table 6. Dimension-Specific Moderating Effects

Interaction	Estimate	t-value	p-value	Result
ENV × BESG_ENV	0.00470	1.005	0.317	Not significant
SOC × BESG_SOC	-0.02139	-1.264	0.209	Not significant
GOV × BESG_GOV	-0.05607	-0.819	0.415	Not significant

Source: Secondary data, processed by the authors (2026).

The dimension-specific analysis produces a consistent pattern: none of the interaction terms is statistically significant. Although the environmental interaction is positive, the social and governance interactions are negative, their respective p-values indicate that these differences cannot be interpreted as systematic moderation. The evidence therefore suggests that the absence of moderation is not confined to one ESG dimension but extends across the environmental, social, and governance components. From a value-relevance perspective, this implies that the market response to ESG information may require additional mechanisms beyond the existence of banking-specific ESG characteristics, such as credible disclosure, institutional investor scrutiny, regulatory pressure, or demonstrable financial consequences.

Diagnostic Tests and Overall Empirical Evidence

The reliability of the regression analysis was assessed through multicollinearity, heteroskedasticity, serial-correlation, and cross-sectional-dependence tests.

Table 7. Diagnostic Tests

Test	Statistic	p-value	Interpretation
VIF – ENV	1.449	—	No multicollinearity

VIF – SOC	1.156	—	No multicollinearity
VIF – GOV	1.524	—	No multicollinearity
Breusch–Pagan	2.715	0.099	No significant heteroskedasticity
Serial Correlation	35.363	<0.001	Significant
Pesaran CD	15.817	<0.001	Significant

Source: Secondary data, processed by the authors (2026).

The VIF values remain well below conventional thresholds, indicating that multicollinearity is not a material concern. Although heteroskedasticity is not statistically significant, significant serial correlation and cross-sectional dependence are detected. Accordingly, inference should account for the panel structure and correlated errors across observations.

Table 8. Robustness Test of the Moderating Effect

Variable	Main REM	Robust FE
ESG	–0.03647	–0.03647
BESG_ESG	–0.26419	–0.26351
ESG × BESG_ESG	0.02690	0.02690
Standard Error of Interaction	0.03299	0.03755
t-statistic	0.815	0.716
p-value	0.417	0.474

Source: Secondary data, processed by the authors (2026).

The robustness analysis confirms the stability of the main finding. The interaction coefficient between ESG and banking-specific ESG context remains positive and unchanged at 0.02690, while the clustered standard error increases from 0.03299 in the main Random Effects Model to 0.03755 in the robustness specification. Consequently, the interaction effect remains statistically insignificant ($t = 0.716$; $p = 0.474$). This result indicates that the absence of a significant moderating effect of banking-specific ESG context is not driven by the choice of the main model specification or conventional standard errors. Overall, the robustness test supports the conclusion that BESG does not significantly strengthen the relationship between ESG performance and firm value in the observed banking sample.

DISCUSSION

The finding that aggregate ESG performance does not have a statistically significant effect on Tobin's Q provides an important qualification to the assumption that stronger sustainability performance automatically enhances firm value. The estimated coefficient is negative ($\beta = -0.0812$), but statistically insignificant ($p = 0.149$), indicating that variations in aggregate ESG performance are not systematically incorporated into the market valuation of the sampled banks during 2019–2024. From the perspective of value relevance theory, information becomes value relevant when it provides incremental information that enables investors to assess future cash flows, risk, growth opportunities, or the economic prospects of a firm. Accordingly, the present result does not imply that ESG is economically unimportant; rather, it suggests that ESG performance, when represented as an aggregate score, does not provide sufficiently consistent incremental information for investors to differentiate bank valuations. This interpretation is consistent with the heterogeneous evidence in the banking literature. Azmi et al. (2021), for example, find a non-linear relationship between ESG activities and bank value across 251 banks in 44 emerging economies, with diminishing returns as ESG activity increases. Alghafes et al. (2024) similarly find that aggregate ESG performance does not significantly affect Islamic bank performance in GCC countries, although individual ESG components exhibit different effects. Fakhrunnas et al. (2025) also report that the effect of aggregate ESG differs between Islamic and conventional banks. The implication is that ESG should not be conceptualized as a universally positive valuation determinant; its value relevance depends on whether sustainability information contains economically material information that investors can translate into expectations about future bank performance.

The insignificant relationship is particularly meaningful when the distribution of firm value in the present study is considered. Tobin's Q has a mean of 1.593 but a median of only 1.025, with extremely high positive skewness (6.217) and kurtosis (39.470). This indicates substantial heterogeneity in market valuation, with a limited number of observations exhibiting exceptionally high Tobin's Q values. Such a distribution suggests that investors' valuation of banks is influenced by factors extending beyond aggregate sustainability performance. Within the value relevance framework, ESG information competes with other information sources—including profitability, risk, capital adequacy, growth prospects, macroeconomic expectations, and market sentiment—in determining firm value. Therefore, ESG performance may contain information but not necessarily enough incremental information to dominate other valuation-relevant signals. This interpretation is supported by Di Martino et al. (2024), who show that ESG scores affect the value relevance of financial statement information in European banks, but that the relationship is complex rather than uniformly positive. Their findings indicate that ESG scores may even reduce the value relevance of certain fair-value measurements, suggesting that investors do not necessarily treat ESG scores as straightforward measures of corporate quality. Thus, the high dispersion in Tobin's Q observed in this study reinforces the argument that the market evaluates ESG within a broader information environment rather than as an isolated determinant of valuation.

The negative direction of the aggregate ESG coefficient should also be interpreted cautiously. A negative coefficient does not establish that ESG activities destroy firm value because the relationship is statistically insignificant. Instead, the direction may reflect the possibility that ESG investments involve costs whose benefits materialize over a longer period. Sustainability-related investments can require expenditures on governance systems, environmental initiatives, employee programs, reporting infrastructures, risk management, and stakeholder engagement before their potential financial benefits become observable. This distinction between short-term costs and long-term benefits is particularly relevant to banks because sustainability initiatives may affect risk, reputation, financing relationships, and business resilience over an extended horizon. The literature supports this possibility without implying that ESG is universally value destroying. Azmi et al. (2021) find evidence of diminishing returns to ESG activity, while Gangwani and Kashiramka (2024) report a positive relationship between ESG disclosure and both accounting and market performance among commercial banks in emerging markets. The difference between these findings indicates that the economic consequences of ESG may depend on the level, form, and information quality of sustainability practices. Hence, the present insignificant coefficient is more appropriately interpreted as evidence that additional ESG performance does not automatically generate additional market value.

The distinction between ESG performance and ESG disclosure provides another explanation for the insignificant aggregate relationship. The variable used in this study captures ESG performance, whereas investors receive sustainability information through disclosure, ratings, reports, and other information channels. From a value relevance perspective, performance becomes economically meaningful only when investors can observe, understand, compare, and trust the underlying information. Tamasiga et al. (2024), through a systematic review of 52 studies, demonstrate that the relationship between ESG disclosure and firm value varies considerably across sectors and institutional settings. Similarly, Li et al. (2026) find that ESG performance can improve firm value, but that corporate transparency and institutional environments significantly condition this relationship. Their findings suggest that transparency reduces the costs associated with interpreting ESG signals. This provides an important explanation for the present result: ESG performance may exist, but its valuation effect may remain weak when the market cannot clearly identify the financial implications of that performance. The implication is that the economic relevance of ESG depends not merely on the level of performance, but also on the quality and interpretability of the information through which that performance reaches investors.

The dimension-level results provide further evidence that the insignificant aggregate relationship does not arise merely because the three ESG pillars cancel each other out. Environmental performance has a positive but insignificant coefficient ($\beta = 0.01995$; $p = 0.392$), while social performance ($\beta = -0.08744$; $p = 0.237$) and governance performance ($\beta = -0.01838$; $p = 0.807$) are negative and statistically insignificant. Thus, none of the three dimensions independently demonstrates a systematic relationship with Tobin's Q. This finding indicates that investors do not automatically assign valuation relevance to a particular ESG pillar simply because the bank performs better on that dimension. Chakraborty et al. (2026), based on a systematic review of 36 studies, similarly identify substantial variation in ESG-bank performance relationships and report that environmental initiatives tend to show stronger positive outcomes, whereas social and governance evidence remains mixed. The present findings therefore contribute to this literature by demonstrating that even environmental performance, despite having a positive coefficient, does not necessarily generate a statistically observable market valuation effect within the present sample.

The positive but insignificant environmental coefficient deserves particular attention because environmental performance has been identified as one of the more economically consequential ESG dimensions in banking research. Azmi et al. (2021) find that environmental activities have the strongest effect on bank value among the ESG pillars examined in emerging economies. Alghafes et al. (2024) likewise report a positive association between the environmental factor and Tobin's Q among Islamic banks in GCC countries. Fakhrunnas et al. (2025) further find a profit-enhancing effect of the environmental pillar across Islamic and conventional banks in emerging and developing countries. The fact that the environmental coefficient in the present study is positive but insignificant therefore suggests not a contradiction in the theoretical direction, but a difference in statistical strength and contextual realization. Environmental activities may have potential economic benefits, but those benefits may not be sufficiently uniform across the 26 banks and 133 bank-year observations to generate a significant market effect. This suggests that the environmental dimension may become value relevant only when investors can identify a clear link between environmental performance and economically material issues such as climate risk, financed emissions, regulatory exposure, or sustainable financing opportunities.

The social dimension produces a negative but insignificant coefficient, which similarly should not be interpreted as evidence that social performance destroys firm value. Social initiatives may require resources while generating benefits through customer loyalty, employee engagement, financial inclusion, stakeholder legitimacy, and reputational capital that are difficult to observe immediately through Tobin's Q. Chakraborty et al. (2026) characterize the evidence concerning the social pillar as mixed, reinforcing the interpretation that the economic consequences of social performance are context dependent. More importantly, the market may not value social performance simply because it exists; investors may require evidence that social initiatives reduce risk or generate measurable economic benefits. This is consistent with the broader value relevance perspective, in which information must have implications for expected future economic outcomes before it can be incorporated systematically into market prices. The implication for banks is that social programs may be more likely to create valuation relevance when their effects on customer retention, financial inclusion, human capital, operational resilience, or reputation are transparently demonstrated.

Governance provides the most striking dimension-level result. Governance records the highest mean score in the sample (86.338), yet its coefficient is negative and statistically insignificant ($\beta = -0.01838$; $p = 0.807$). This suggests that stronger governance performance does not necessarily provide an incremental valuation advantage. One possible explanation is that governance functions as an institutional baseline within banking rather than as a distinctive source of competitive advantage. Banks operate under extensive regulatory, prudential, risk-management, and governance requirements. Consequently, investors may perceive a substantial portion of governance practices as necessary conditions for operating rather than as discretionary

characteristics that generate additional value. Lestari et al. (2025), in a systematic review of 173 studies on Islamic corporate governance, identify management and board governance, audit and risk governance, sustainable governance, and Shariah board governance as interconnected components of corporate governance and performance. This supports the interpretation that governance is fundamental to banking performance, but being fundamental does not necessarily mean that marginal improvements in governance produce a valuation premium. In other words, governance may be important without being differentiating.

The absence of significant governance effects can also be understood through the distinction between governance quality and governance failures. Investors may respond more strongly to negative governance events than to incremental improvements in governance scores. In this sense, governance can operate asymmetrically: weak governance may destroy value, whereas strong governance may simply protect existing value. This interpretation is consistent with the broader ESG controversy literature. Galletta and Mazzù (2023) find that banks with fewer ESG controversies exhibit lower risk-taking, while Staroverova et al. find that negative ESG controversies adversely affect bank value. Therefore, the market may be more sensitive to governance-related failures and ESG controversies than to incremental improvements in governance scores. This distinction is important for interpreting the present findings because a high average governance score does not necessarily imply that governance information contains sufficient incremental information to explain cross-bank differences in Tobin's Q.

The moderation analysis provides the central contribution of the study. The interaction between ESG performance and banking-specific ESG context is positive ($\beta = 0.02690$), but statistically insignificant ($p = 0.417$). Thus, the hypothesis that stronger banking-specific ESG context strengthens the relationship between ESG performance and firm value is not supported. The positive direction indicates that the theoretical expectation is not completely contradicted; however, the statistical evidence is insufficient to establish that banking-specific ESG context systematically changes the market valuation of ESG performance. This distinction between theoretical compatibility and empirical valuation recognition is important. A banking environment may make ESG strategically relevant without causing investors to assign a higher valuation to ESG performance. Investors ultimately need evidence that ESG context translates into economically meaningful changes in risk, cash flows, growth opportunities, or resilience.

This finding contrasts with studies demonstrating that contextual mechanisms can strengthen ESG value relevance. Li et al. (2026), for example, find that corporate transparency and developed institutional environments positively moderate the ESG-firm value relationship. De la Fuente and Velasco (2026) similarly demonstrate that bank debt can strengthen the value effect of ESG performance because banking relationships provide monitoring and third-party verification that can signal the credibility of ESG efforts. These studies are particularly useful for interpreting the present non-significant moderation. They imply that context matters, but not every contextual variable is equally capable of transmitting ESG information into market value. Banking-specific ESG context may capture the relevance of sustainability to banking activities, but it may not capture the information credibility, monitoring intensity, transparency, or institutional quality necessary for ESG to become a stronger valuation signal.

The insignificant moderation therefore suggests that banking-specific ESG context may increase the importance of ESG without necessarily increasing its valuation relevance. This distinction is theoretically important. A bank can be highly exposed to sustainability risks and opportunities, yet investors may not reward ESG performance unless the information demonstrates how those risks and opportunities affect economic outcomes. Evidence from European banking research supports this interpretation. Dou et al. (2025) find that lower ESG controversies are associated with higher bank valuations and that financed emissions negatively affect valuation. Mandas et al. (2024) similarly find an inverse relationship between ESG reputational risk and bank market valuation. These findings suggest that markets may respond more strongly to specific and economically interpretable ESG risks than to aggregate ESG performance scores. Thus, the insignificant moderation in this study may indicate that banking-

specific context becomes financially relevant only when translated into concrete risk or opportunity information.

The dimension-specific moderation results reinforce this interpretation. None of the interactions—ENV $\times$ BESG_ENV ($p = 0.317$), SOC $\times$ BESG_SOC ($p = 0.209$), and GOV $\times$ BESG_GOV ($p = 0.415$)—is statistically significant. The environmental interaction is positive, while the social and governance interactions are negative, but these differences cannot be interpreted as systematic because none is statistically significant. The consistency of non-significance across all three dimensions indicates that the absence of moderation is not caused by one ESG pillar offsetting another. Rather, the findings suggest that banking-specific ESG characteristics do not independently provide a sufficiently strong mechanism for transforming ESG performance into market value.

This result is important because it challenges a simple matching assumption in which environmental performance should become more valuable under stronger environmental banking conditions, social performance should become more valuable under stronger social conditions, and governance performance should become more valuable under stronger governance conditions. The empirical evidence does not support such a direct contextual matching mechanism. Instead, the market appears to require additional information about the economic consequences of ESG activities. The systematic review by Chakraborty et al. (2026) reinforces this broader interpretation by emphasizing that ESG and bank performance relationships vary according to pillars, governance mechanisms, audit quality, fintech integration, competition, and methodological settings. Thus, banking-specific ESG context may operate indirectly through mechanisms such as disclosure quality, risk management, investor attention, reputation, or ESG controversies rather than as a direct moderator of ESG performance.

The distinction between ESG performance, ESG disclosure, and ESG economic materiality is therefore central to explaining the overall findings. The present study demonstrates that performance scores alone do not generate significant valuation effects. Yet other studies show that disclosure and transparency can alter the relationship. Tamasiga et al. (2024) emphasize the heterogeneous role of ESG disclosure in firm value, while Li et al. (2026) identify corporate transparency as a mechanism that lowers the costs of interpreting ESG signals. Prayogo et al. (2026), through a meta-analysis of 52 empirical studies in Indonesia, explicitly frame ESG disclosure and firm value through stakeholder and signaling perspectives. Therefore, the present findings imply that the market may not respond directly to what banks do, but rather to the extent to which their ESG activities produce credible, comparable, material, and economically interpretable information.

This interpretation is also consistent with evidence concerning investor behavior. Amel-Zadeh and Serafeim (2018) show that investors use ESG information for multiple purposes, including investment decisions and risk assessment, rather than treating ESG information as a simple indicator of expected returns. More recent evidence from Awad (2026) demonstrates that the stock-market consequences of sustainable banking can vary according to bank characteristics such as size and capital buffers. These findings support the argument that ESG information is processed within a broader decision-making environment. Consequently, the insignificant ESG coefficient in the present study does not necessarily imply that investors ignore ESG. Rather, investors may incorporate ESG information selectively, particularly when it has clear implications for risk, resilience, or future financial performance.

The banking sector provides an especially important context for this interpretation because banks influence sustainability not only through their own operations but also through their financing decisions. A bank's environmental and social footprint can therefore be embedded in its loan portfolio, investment activities, financed emissions, sectoral exposure, and risk management. Dou et al. (2025) demonstrate that financed emissions have negative valuation implications for European banks, while Galletta and Mazzù (2023) show that ESG controversies are related to bank risk-taking. This indicates that investors may distinguish between an ESG score and the underlying ESG risk exposure of a bank. A bank can have a relatively high aggregate ESG score

while simultaneously maintaining exposure to sustainability-related risks through its financing portfolio. The implication is that future valuation models may benefit from incorporating financed emissions, ESG controversies, climate-risk exposure, or sustainable lending rather than relying exclusively on aggregate ESG scores.

The present results also have implications for understanding ESG as a potential signal. Signaling theory suggests that firms can use ESG performance to communicate information about quality, long-term orientation, risk management, or managerial commitment. However, signals are effective only when they are credible and sufficiently costly or difficult to imitate. De la Fuente and Velasco (2026) show that bank debt can strengthen the value effect of ESG because lending relationships provide monitoring and informational functions that increase the credibility of ESG performance. Li et al. (2026) similarly find that transparency reduces the costs of processing ESG signals. In contrast, the present study finds no significant ESG effect or moderation by banking-specific ESG context. This suggests that ESG scores in the sample may not provide sufficient third-party verification, transparency, or economically material information to function as strong valuation signals. The theoretical implication is that ESG performance should not be assumed to be an effective signal merely because it is measurable; its signaling value depends on credibility and information-processing conditions.

The findings also need to be interpreted in light of the contradictory evidence in recent banking research. Gangwani and Kashiramka (2024) report that higher ESG disclosure is associated with better Tobin's Q and lower risk among commercial banks in emerging markets, while Azmi et al. (2021) find a non-linear relationship and diminishing returns to ESG activities. Alghafes et al. (2024) find no significant aggregate ESG effect for Islamic banks but identify significant effects at the individual-pillar level. Fakhrunnas et al. (2025) find that ESG affects Islamic and conventional banks differently. Rather than weakening the present findings, this heterogeneity strengthens their importance. It indicates that ESG-value relationships are not universal and that empirical conclusions depend on the type of ESG measure, bank characteristics, institutional environment, period, and valuation mechanism employed. Therefore, the insignificant relationship observed in this study should be interpreted as evidence specific to the empirical setting rather than as evidence that ESG is universally irrelevant to banking valuation.

The distinction between ESG performance and ESG controversies further reinforces this point. Agnese et al. (2024) find that banks with more ESG controversies can exhibit stronger accounting profitability, suggesting that profitability and ESG outcomes do not necessarily move together. Staroverova et al. report that negative ESG news can reduce bank value, while Mandas et al. (2024) find an inverse relationship between ESG reputational risk and bank market valuation. This suggests that the market response to ESG may be asymmetric. Investors may respond more strongly when ESG information reveals negative shocks, controversies, or unexpected risks than when it reports incremental improvements in ESG scores. Consequently, the absence of a significant aggregate ESG effect in the present study may partly reflect the fact that ESG scores do not capture the informational intensity of controversies or material ESG incidents.

The diagnostic findings provide an important methodological qualification to the interpretation. The VIF values between 1.156 and 1.524 indicate that multicollinearity is not a material concern, while the Breusch-Pagan test does not indicate significant heteroskedasticity. However, significant serial correlation and cross-sectional dependence are present. These findings indicate that bank-year observations may be correlated over time and that banks may simultaneously experience common shocks. In a banking context, such dependence is plausible because institutions operate under shared regulatory, macroeconomic, financial-market, and sustainability conditions. Consequently, the insignificant coefficients should not be interpreted as proof that ESG has no economic effect whatsoever. Rather, they indicate that, within the empirical setting and estimation framework of this study, the evidence is insufficient to establish a statistically significant systematic relationship. This distinction is essential for maintaining appropriate empirical caution.

From a theoretical perspective, the overall results refine the application of value relevance theory to ESG information. The conventional value-relevance logic implies that information affects firm value when it helps investors assess future economic consequences. The present findings indicate that ESG information does not automatically satisfy this condition merely because it measures sustainability performance. Instead, ESG appears to require an additional transmission mechanism through which sustainability performance becomes economically interpretable. The evidence from Tamasiga et al. (2024), Li et al. (2026), De la Fuente and Velasco (2026), and Prayogo et al. (2026) collectively suggests that disclosure quality, transparency, institutional conditions, and credible signaling can determine whether ESG information becomes value relevant. Thus, the theoretical contribution of the present study is to emphasize the distinction between sustainability relevance and valuation relevance.

For bank management, the findings imply that ESG strategy should move beyond score maximization and compliance-oriented sustainability management. Increasing an ESG score without demonstrating its economic consequences may not generate a market valuation premium. Management should therefore connect ESG initiatives to identifiable financial and risk-management outcomes, including climate-risk mitigation, responsible lending, financing efficiency, stakeholder trust, operational resilience, and long-term business opportunities. This implication is particularly important because Chakraborty et al. (2026) identify risk management, governance, audit quality, fintech, and competition as important mechanisms in the ESG–bank performance literature. Similarly, Gangwani and Kashiramka (2024) show that ESG disclosure can be associated with both lower risk and better market performance. The managerial objective should therefore not simply be to achieve a higher ESG rating, but to demonstrate how ESG performance changes the bank's risk-return profile and long-term economic resilience.

For investors, the results suggest that aggregate ESG scores should not be interpreted as standalone indicators of bank value. Investors may need to distinguish between ESG performance, ESG disclosure, ESG controversies, and financially material ESG exposures. This is particularly relevant because the literature shows that investors can react differently to ESG scores, ESG disclosures, controversies, and financed emissions. The implication is that investment analysis should move from asking whether a bank has a high ESG score toward asking whether the bank's ESG position affects risk, cash flows, resilience, or competitive opportunities. Such an approach is more consistent with the information-processing logic of value relevance theory.

For regulators and standard setters, the findings imply that increasing the quantity of ESG disclosure alone may not guarantee stronger capital-market relevance. ESG reporting should facilitate the identification of economically material sustainability risks and opportunities and should improve comparability, transparency, and credibility. The importance of transparency is supported by Li et al. (2026), while the role of ESG disclosure in firm value is emphasized by Tamasiga et al. (2024) and Prayogo et al. (2026). For banks specifically, reporting frameworks should increasingly connect ESG information with credit risk, financed emissions, portfolio exposure, governance effectiveness, climate-related risk, and long-term resilience. Such integration would make ESG information more directly useful for investors assessing future economic outcomes.

Taken together, the empirical evidence reveals a consistent pattern: aggregate ESG performance does not significantly explain Tobin's Q; none of the individual ESG dimensions has a statistically significant effect; banking-specific ESG context does not significantly moderate the aggregate ESG–firm value relationship; and none of the dimension-specific interactions is significant. The findings therefore indicate that ESG performance and banking-specific ESG context are not sufficient by themselves to explain market valuation differences among the sampled banks. Rather than interpreting this as evidence that ESG is irrelevant, the results point toward a more conditional model of ESG value relevance in which sustainability information must be translated into credible, material, and economically interpretable information before it is reflected in firm value. This interpretation is consistent with the heterogeneous evidence across banking studies, including Azmi et al. (2021), Gangwani and Kashiramka (2024), Alghafes et al.

(2024), Tamasiga et al. (2024), Dou et al. (2025), Fakhrunnas et al. (2025), Li et al. (2026), and Chakraborty et al. (2026).

Accordingly, the conceptual pathway emerging from the findings can be expressed as:

ESG Performance → ESG Disclosure/Information → Information Credibility and Investor Interpretation → Perceived Economic Materiality → Expected Future Benefits/Risks → Firm Value

Banking-specific ESG context may influence this process, but the present evidence indicates that it does not independently strengthen the final ESG–firm value relationship. The central contribution of the study therefore lies not in demonstrating that ESG has no value, but in showing that higher ESG performance does not automatically become higher market value. The market appears to reward sustainability information when it is sufficiently credible, material, and connected to future economic consequences. This provides a more nuanced interpretation of ESG value relevance in banking and establishes a basis for future research to investigate mediating mechanisms such as ESG disclosure quality, ESG controversies, financed emissions, risk management, investor attention, transparency, and reputational risk.

CONCLUSION

This study concludes that the research objective of examining the effect of ESG performance on bank firm value and the moderating role of banking-specific ESG context has not been empirically supported in the sampled banks during 2019–2024. Aggregate ESG performance does not significantly affect firm value, as measured by Tobin's Q, and none of the individual ESG dimensions—environmental, social, or governance—shows a statistically significant effect; moreover, banking-specific ESG context does not significantly strengthen the relationship between ESG performance and firm value, either at the aggregate or dimension-specific level. These findings provide an empirical benefit by demonstrating that higher ESG performance does not automatically translate into higher market valuation and that the economic relevance of ESG in banking is more conditional than a simple linear relationship suggests. The theoretical benefit lies in refining the value relevance perspective by distinguishing between sustainability relevance and valuation relevance: ESG information becomes value relevant only when investors perceive it as credible, material, interpretable, and connected to future cash flows, risks, or growth opportunities. The economic implication is that banks should move beyond ESG score maximization and compliance-oriented practices toward ESG strategies that demonstrate measurable effects on risk management, resilience, transparency, financing decisions, and long-term value creation. A further finding is that the market may respond more strongly to economically concrete ESG exposures, such as controversies, reputational risk, and financed emissions, than to aggregate ESG scores. Nevertheless, the conclusions should be interpreted within the study's methodological boundaries, particularly the presence of serial correlation and cross-sectional dependence in the panel data, the relatively limited observation period and sample size, and the use of aggregate ESG measures and Tobin's Q as the principal representations of sustainability performance and market value. These limitations do not constitute evidence of research error, but reflect the characteristics of the selected empirical design and may reduce the ability to capture delayed, indirect, or conditional ESG effects. Future research should therefore examine mediating mechanisms such as ESG disclosure quality, transparency, ESG controversies, financed emissions, risk management, investor attention, and reputational risk to explain more precisely when and through what mechanisms ESG performance becomes economically and valuation relevant for banks.

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