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The differential effects of ESG pillars on firm performance: Evidence from Asian banks

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Abstract: This study aims to examine the differential effects of Environmental, Social, and Governance (ESG) pillars on bank performance in Asia, where the integration of sustainability principles is still evolving. The analysis is based on data from 55 listed banks across eight Asian countries covering the period 2019–2023. Firm performance is measured using return on assets (ROA) and return on equity (ROE). A fixed-effects regression model with robust standard errors is employed to assess the relationship between each ESG pillar and financial performance. The results reveal that governance practices significantly enhance bank performance, emphasizing the importance of board accountability, transparency, and shareholder protection. In contrast, environmental and social dimensions show no significant short-term effects, implying that their benefits may emerge over a longer horizon through improved reputation and stakeholder confidence. The findings highlight the need for banks in Asia to prioritize governance reforms while progressively strengthening environmental and social initiatives to achieve balanced and sustainable growth. Future research is encouraged to expand the sample coverage, apply longer time horizons, and include broader performance indicators.

Keywords: *Asia, Banking, Environment, Governance, Social.*

1. Introduction

The integration of *Environmental, Social, and Governance* (ESG) practices has become increasingly significant in the global banking sector, reflecting the growing emphasis on sustainability, corporate responsibility, and sound governance. In Asia, however, the adoption and impact of ESG exhibit diverse characteristics shaped by economic structures, regulatory environments, and the role of financial institutions. For instance, research on Chinese listed companies reveals that bank agglomeration enhances corporate ESG outcomes primarily through ESG-related financial cooperation, with media attention further amplifying this effect, particularly among private firms and downstream supply chain enterprises [1]. Similarly, comparative analyses of Korea and Taiwan highlight that government policies and the influence of large conglomerates strongly shape ESG practices in South Korea, while Taiwan's economy, dominated by small and medium-sized enterprises (SMEs), demonstrates distinct ESG characteristics [2].

The relationship between ESG dimensions and firm performance in the Asian banking industry is complex and often contradictory. Studies on Southeast Asian banks suggest that ESG as a whole negatively influences financial performance, although the effects of each ESG pillar vary significantly [3]. Evidence from Far East Asia further indicates that while environmental sustainability, as a proxy for ESG, may hinder banking performance, corporate governance exerts a positive influence on financial outcomes [4]. Beyond performance, ESG integration has also been linked to improved risk management. For example, innovation capacity in Jordanian banks mediates the relationship between

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strategic risk integration and ESG performance, underscoring the importance of innovation in enhancing ESG outcomes [5].

From a regulatory perspective, ESG factors remain crucial regardless of macroeconomic shifts. Evidence from European banks shows that higher ESG scores and fewer controversies improve risk-adjusted performance even during periods of rising interest rates [6]. However, findings from Vietnam reveal no significant relationship between ESG and financial performance, emphasizing the need for stronger regulatory frameworks and greater investor awareness to foster ESG integration in emerging markets [7]. Meanwhile, studies on Chinese banks highlight that lending relationships can significantly improve corporate ESG performance, especially where ESG performance gaps are wide, though rating inconsistencies may limit this effect [8]. Finally, research on East Asian firms demonstrates that ESG influences bankruptcy risk differently across industries, signaling the necessity for sector-specific approaches in ESG adoption and risk management [9].

While prior studies have often treated ESG as a composite measure, the evidence suggests that the individual dimensions of environmental, social, and governance factors may exert divergent effects on banking performance [3, 4]. However, research that systematically disentangles these three pillars remains limited, particularly within the Asian banking context. This study advances the literature by investigating the distinct impact of environmental, social, and governance practices on firm performance, thereby providing a more nuanced understanding of how each dimension contributes to financial outcomes. The novelty of this approach lies in its ability to highlight asymmetries and trade-offs across the ESG pillars, offering fresh insights into the mechanisms through which banks can strategically align sustainability with profitability. In doing so, the research contributes both to academic scholarship and to practical guidance for regulators, investors, and banking practitioners seeking to optimize ESG integration in Asia's financial sector.

2. Literature Review

2.1. Stakeholder Theory

Stakeholder theory posits that firms should consider the interests and influences of all stakeholders, not just shareholders, in their decision-making processes [10]. Firms must actively engage with stakeholders to understand their concerns and expectations regarding ESG practices. This engagement helps identify salient stakeholders and integrate their contributions into firm activities [11-13]. Effective stakeholder engagement can lead to improved corporate reputation and performance, as stakeholders are more likely to support firms that align with their values and expectations [14, 15].

2.2. Environment Pillar Score

The Environmental Pillar Score within the ESG (Environmental, Social, and Governance) framework serves as an indicator of a company's effectiveness in managing environmental risks and opportunities. This score captures several key aspects of corporate sustainability performance. First, it reflects the efficiency of resource use, including how firms manage water, raw materials, and waste to optimize consumption and minimize negative environmental impacts [16, 17]. Second, it evaluates emission reduction efforts, such as initiatives to lower greenhouse gas emissions and pollutants, thereby signaling a company's commitment to addressing climate change and environmental preservation [16, 17]. The score incorporates environmental innovation, including investments in renewable energy, clean technologies, and sustainable practices aimed at reducing long-term ecological footprints [17, 18]. These components together provide a comprehensive measure of how well a company integrates environmental responsibility into its operations and long-term strategy.

2.3. Social Pillar Score

The Social Pillar Score within the ESG (Environmental, Social, and Governance) framework assesses a company's ability to manage its social responsibilities and stakeholder relationships. This dimension captures several critical factors that shape corporate sustainability performance. The social

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pillar is closely tied to stakeholder trust and engagement, with evidence showing that it exerts a positive and significant effect on financial performance, consistent with the social impact hypothesis, which posits that stakeholder-oriented practices enhance firm outcomes [19]. Moreover, firms that integrate social considerations into their long-term strategies often benefit from improved employee engagement, higher productivity, and increased creativity, further underscoring the strategic value of the social pillar [20].

2.4. Governance Pillar Score

The Governance Pillar Score within the ESG (Environmental, Social, and Governance) framework evaluates the effectiveness of a company's governance structures and practices in supporting sustainability and ethical performance. This dimension encompasses several key components that directly influence corporate accountability and long-term resilience. A company's corporate social responsibility (CSR) strategy is central, reflecting how social and environmental concerns are integrated into business operations and stakeholder interactions [17]. Strong management practices are also critical, ensuring transparency, accountability, and ethical decision-making across all organizational levels [17]. Furthermore, the protection and promotion of shareholder rights constitute an important element of governance, emphasizing fair engagement in corporate decision-making and the alignment of shareholder and company interests [17]. Board composition and diversity, encompassing gender, ethnicity, and expertise, are vital for fostering balanced perspectives, enhancing oversight, and strengthening the overall effectiveness of governance frameworks [21]. Collectively, these factors form the foundation of the governance pillar, shaping how companies establish trust, mitigate risks, and drive sustainable performance.

2.5. Hypothesis Development

Environmental factors are increasingly recognized as critical determinants of firm performance, with evidence suggesting that strong environmental practices can generate both competitive and financial advantages. Environmental practices, in particular, have a strong potential to enhance environmental performance, which in turn positively impacts business performance [22]. Moreover, prior studies consistently highlight a positive relationship between environmental performance and financial outcomes, where the effect is further shaped by firm size, managerial capabilities, and the adoption of proactive environmental strategies [23-25]. Beyond internal operations, environmental responsibility also influences external perceptions, as investors increasingly integrate environmental criteria into decision-making processes, rewarding companies that demonstrate sustainability with greater firm value and investment appeal [23]. Taken together, these findings suggest that environmental performance is not merely a compliance requirement but a strategic driver of firm success. Accordingly, the following hypothesis is proposed:

H_1: The Environmental Pillar Score has a positive effect on firm performance.

The social dimension of ESG plays a pivotal role in shaping firm performance, as it reflects how effectively a company manages its responsibilities toward employees, communities, and broader stakeholders. Empirical studies demonstrate a significant positive relationship between the Social Pillar Score (SPS) and key financial indicators, including return on assets, earnings per share, market value added, and Tobin's Q ratio, suggesting that socially responsible firms tend to achieve superior financial outcomes [26, 27]. Beyond financial metrics, firms that invest in employee welfare, stakeholder engagement, and community development experience intangible advantages such as improved market reputation, stock market valuation, and operating performance, which ultimately translate into value creation [28]. Furthermore, during periods of crisis, such as the COVID-19 pandemic, firms with stronger social performance demonstrated greater resilience, underscoring the protective or insurance-like function of social responsibility in sustaining firm outcomes under adverse conditions [29].

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Collectively, these findings suggest that social performance strengthens both financial stability and market competitiveness. Therefore, the following hypothesis is proposed:

H_2. The Social Pillar Score has a positive effect on firm performance.

Governance is a critical dimension of ESG, as it shapes the structures, policies, and practices that ensure accountability, transparency, and ethical decision-making within firms. Strong governance mechanisms are consistently associated with enhanced firm performance, particularly through improvements in market value and financial efficiency. For instance, studies on Gulf Cooperation Council (GCC) firms and the airline industry demonstrate that higher governance scores significantly boost market value and operational efficiency [30, 31]. Empirical evidence also shows a positive association between governance scores and firm profitability, highlighting the role of governance in driving sustainable financial outcomes [32]. Taken together, these findings suggest that governance practices enhance firm competitiveness, profitability, and long-term sustainability. Therefore, the following hypothesis is proposed:

H_3. The Governance Pillar Score has a positive effect on firm performance.

3. Methodology

3.1. Population and Sample

The population of this study consists of banking firms in Asia, with the research sample drawn from 55 listed banks across Thailand, Hong Kong, Singapore, India, Saudi Arabia, Indonesia, China, and Oman, as shown in Appendix 1. These countries were selected to represent both emerging and developed Asian markets, capturing diverse banking structures and regulatory environments. The study covers five years from 2019 to 2023, allowing examination of ESG practices and firm performance across different economic conditions.

3.2. Measurement Dependent Variables

In this study, the dependent variable is firm performance, measured using two widely recognized profitability ratios: return on assets (ROA) and return on equity (ROE). ROA captures a firm's efficiency in utilizing its total assets to generate net income and is calculated as net income divided by total assets [33]. This indicator reflects how effectively a company transforms its resources into profits, serving as a comprehensive measure of operational efficiency. Meanwhile, ROE evaluates the return generated on shareholders' equity and indicates the effectiveness of management in creating profits from invested capital [33]. Calculated as net income divided by shareholders' equity. Together, ROA and ROE provide complementary perspectives on firm performance: while ROA emphasizes asset utilization, ROE highlights the profitability attributable to equity holders, offering a balanced assessment of financial outcomes.

3.3. Measurement of Independent Variables

The independent variables in this study are the Environmental (E), Social (S), and Governance (G) pillar scores, which represent the three dimensions of the ESG framework. The environmental pillar reflects a company's management of ecological responsibilities and is measured through indicators such as emission control, water efficiency, environmental management systems, and climate risk mitigation [16]. The social pillar captures a firm's commitment to societal responsibilities and stakeholder engagement, including metrics related to job creation, workforce diversity, community relations, respect for human rights, and corporate social responsibility (CSR) initiatives [34, 35]. Finally, the governance pillar evaluates the effectiveness and integrity of corporate governance structures, incorporating factors such as board composition, executive compensation, audit committee independence, and the presence of non-executive members to ensure accountability and ethical standards [35, 36]. Together, these three

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pillars provide a comprehensive framework for assessing the extent to which firms integrate sustainability and ethical considerations into their operations, which may subsequently influence financial performance.

3.4. Control Variable

This study incorporates several control variables to account for factors that may influence firm performance. First, research on insurance and manufacturing companies in Saudi Arabia shows a significant positive association between CFO and financial performance metrics like Return on Assets (ROA) and Return on Equity (ROE) [37]. Second, in service sector companies in Bahrain, net investing cash flows positively affect performance measured by ROA [38]. Third, cash flow from financing (CFF) is controlled for, as variations in equity and debt financing can significantly affect future profitability, with equity financing favoring growth-oriented firms and debt financing benefiting value firms [39]. The debt-to-equity ratio is also included to capture the effects of leverage, given that high leverage generally reduces profitability and increases volatility in returns, underscoring the importance of maintaining a balanced capital structure [40, 41]. Furthermore, board gender diversity is introduced as a control variable, as the presence of female directors has been shown to improve financial performance through enhanced monitoring, reduced risk exposure, and stronger cost control [42, 43]. Lastly, cash holdings in bank accounts are considered, since maintaining optimal cash reserves contributes to financial stability, liquidity management, and the ability to capitalize on profitable opportunities, which is particularly relevant for banks in emerging markets [44].

3.5. Fixed Effect and Random Effect Test

The Hausman test was conducted to determine whether the Fixed Effects (FE) or Random Effects (RE) estimator is more appropriate for the regression models. The null hypothesis (H0) of the Hausman test assumes that the RE model is consistent and efficient, while the alternative hypothesis suggests that the FE model is more consistent. As shown in Appendix 2, all models (Governance, Social, and Environmental with ROA and ROE) produced statistically significant results (p-value < 0.05). Therefore, the null hypothesis is rejected in all cases, and the Fixed Effects (FE) model is selected as the appropriate estimator for hypothesis testing in this study.

3.6. Robustness Check

The Best Linear Unbiased Estimator (BLUE) tests were performed to ensure that the regression models meet BLUE criteria. As shown in Appendix 3, the multicollinearity test using the Variance Inflation Factor (VIF) shows mean VIF values between 2.24 and 2.35, which are well below the conventional threshold of 10. This indicates that multicollinearity is not a problem in the models. However, the Modified Wald test for heteroskedasticity yields highly significant chi-square statistics ($p < 0.01$) across all models, rejecting the null hypothesis of homoskedasticity. Similarly, the Wooldridge test for autocorrelation returns significant F-statistics ($p < 0.01$), indicating the presence of first-order serial correlation. Taken together, these results imply that while the models are free from multicollinearity, they do suffer from heteroskedasticity and autocorrelation. To address these issues and ensure robust inference, the study employs Fixed Effects estimation with robust standard errors (clustered at the firm level). This adjustment corrects the standard errors without altering the estimated coefficients, thereby ensuring reliable hypothesis testing.

3.7. Regression Model

$$ROA_{it} = \alpha_i + \beta_1 E_{it} + \beta_2 S_{it} + \beta_3 G_{it} + \gamma_1 CFO_{it} + \gamma_2 CFI_{it} + \gamma_3 CFF_{it} + \gamma_4 DER_{it} + \gamma_5 BGD_{it} + \gamma_6 CASH_{it} + \varepsilon_{it}$$

$$ROE_{it} = \alpha + \beta_1 E_{it} + \beta_2 S_{it} + \beta_3 G_{it} + \gamma_1 CFO_{it} + \gamma_2 CFI_{it} + \gamma_3 CFF_{it} + \gamma_4 DER_{it} + \gamma_5 BGD_{it} + \gamma_6 CASH_{it} + \varepsilon_{it}$$

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Where:

- αi = firm fixed effect
- ROAit and ROEit = firm performance indicators for the firm
- Eit = Environmental Pillar Score
- Sit = Social Pillar Score
- Git = Governance Pillar Score
- CFOit, CFIit, and CFFit = cash flows from operations, investing, and financing
- DERit = debt-to-equity ratio
- BGDit = board gender diversity
- CASHit = cash holdings
- εit = error term

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Table 1.
Pearson Correlation Matrix.

Variable	Return on Asset	Return on Equity	Environment	Social	Governance	Cashflow Operation	Cashflow Investing	Cashflow Financing	Debt to Equity Ratio	Board Gender Diversity	Cash in Hand
Return on Asset	1.0000										
Return on Equity	0.8266*	1.0000									
Environment	0.0939	0.1970*	1.0000								
Social	0.2251*	0.1904*	0.6876*	1.0000							
Governance	0.3231*	0.2040*	0.2523*	0.3361*	1.0000						
Cashflow Operation	-0.1337*	0.0191	0.1020	-0.0562	-0.0529	1.0000					
Cashflow Investing	-0.1295*	0.0214	0.0748	-0.0597	-0.0683	0.8375*	1.0000				
Cashflow Financing	-0.1111	-0.0073	0.0407	-0.0740	-0.0596	0.6094*	0.4480*	1.0000			
Debt to Equity Ratio	-0.4958*	-0.0192	0.1613*	-0.0305	-0.3133*	0.2638*	0.2687*	0.1980*	1.0000		
Board Gender Diversity	-0.0481	0.0348	0.4911*	0.3363*	0.2666*	0.0601	0.0458	0.0275	0.1276*	1.0000	
Cash in Hand	-0.2351*	0.0340	0.2976*	0.0401	-0.0821	0.5905*	0.5894*	0.3724*	0.5447*	0.0686	1.0000

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4. Result and Discussion

In Table 1, the Pearson correlation matrix provides insights into the linear relationships between the study variables. The results indicate a strong positive association between return on assets (ROA) and return on equity (ROE) ($r = 0.8266$, $p < 0.01$), suggesting that firms with higher asset efficiency tend to generate higher equity returns. Among the ESG dimensions, governance shows the strongest correlation with ROA ($r = 0.3231$, $p < 0.01$), while environment is more closely associated with ROE ($r = 0.1970$, $p < 0.05$). The social dimension is positively correlated with both ROA ($r = 0.2251$, $p < 0.01$) and ROE ($r = 0.1904$, $p < 0.05$), highlighting its potential role in enhancing financial outcomes.

Regarding control variables, the debt-to-equity ratio is negatively correlated with ROA ($r = -0.4958$, $p < 0.01$), implying that higher leverage reduces profitability. Similarly, cash in hand shows a significant negative association with ROA ($r = -0.2351$, $p < 0.01$), although it remains positively correlated with liquidity-related factors such as cash flow from operations ($r = 0.5905$, $p < 0.01$). The three cash flow measures (operations, investing, financing) are strongly interrelated, particularly operations with investing ($r = 0.8375$, $p < 0.01$), reflecting their complementary roles in financial management. Board gender diversity exhibits positive associations with ESG dimensions, especially environment ($r = 0.4911$, $p < 0.01$) and social ($r = 0.3363$, $p < 0.01$), suggesting that gender-diverse boards are more aligned with sustainability practices. Overall, the correlation analysis confirms meaningful linkages between ESG factors, firm performance, and financial controls, while also indicating the potential risk of leverage and cash management on profitability.

4.1. Regression Result

Table 2.
Regression Results of ESG on Firm Performance.

Independent Variable	Dependent (ROA)	p-value	Dependent (ROE)	p-value	Hypothesis Decision
Environmental Score	0.0000325	0.134	0.0003514	0.114	Rejected
Social Score	-0.0000196	0.761	-0.0002859	0.708	Rejected
Governance Score	0.0000566	0.025	0.0005153	0.049	Accepted

Based on Table 2, the regression results indicate that among the three ESG dimensions, only the governance score has a statistically significant positive impact on firm performance, measured by both ROA and ROE. This finding suggests that strong governance practices, such as effective board composition, transparent management, and accountability mechanisms, contribute directly to improving financial performance. In contrast, the environmental and social scores show no significant relationship with firm performance in this sample, implying that although sustainability practices in these areas may enhance reputation and long-term value, they do not necessarily translate into immediate financial gains. Therefore, the hypotheses related to governance are accepted, while those related to environmental and social aspects are rejected.

Table 3.
Control Variable.

Control Variable	ROA (Coef.)	ROA (p-value)	Sig.	ROE (Coef.)	ROE (p-value)	Sig.
Cash Flow from Operations (CFO)	-2.17e-15	0.674	Rejected	-1.09e-14	0.852	Rejected
Cash Flow from Investing (CFI)	-1.38e-14	0.134	Rejected	-1.70e-13	0.099	Rejected
Cash Flow from Financing (CFF)	1.25e-15	0.890	Rejected	2.83e-14	0.792	Rejected
Debt-to-Equity Ratio (DER)	0.0006443	0.658	Rejected	0.0179322	0.295	Rejected
Board Gender Diversity (BGD)	-0.0000595	0.220	Rejected	-0.0006747	0.127	Rejected
Cash in Hand	-0.0013198	0.606	Rejected	-0.0187277	0.521	Rejected

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The results for the control variables in Table 3 indicate that none have a statistically significant impact on firm performance, whether measured by ROA or ROE. Cash flow variables, including cash flow from operations, investing, and financing, do not show meaningful effects, suggesting that short-term variations in bank cash movements may not directly translate into profitability or shareholder returns in this sample. Similarly, the debt-to-equity ratio, which theoretically captures leverage risk, fails to demonstrate significance, possibly due to the highly regulated capital structures of banks in Asia. Board gender diversity, despite being highlighted in prior literature as a driver of improved governance and decision-making, is not statistically significant in this study, which could reflect cultural or structural differences in board roles across countries. Lastly, cash in hand does not contribute significantly to firm performance, indicating that excess liquidity does not automatically enhance profitability or equity returns. Overall, these findings suggest that within the banking sector, firm performance is less sensitive to these financial and governance-related controls and may instead be driven more strongly by other strategic or contextual factors.

4.2. Discussion

The regression findings reveal a divergence between theoretical expectations and empirical outcomes across the three ESG pillars. For the environmental dimension (H1), the results indicate that the Environmental Pillar Score does not significantly influence firm performance, whether measured by ROA or ROE. This outcome contrasts with prior studies suggesting that proactive environmental strategies can enhance competitiveness and financial outcomes [24]. One possible explanation is that, within the Asian banking sector, environmental initiatives may be less directly tied to short-term profitability, functioning more as reputational enhancers or long-term risk management tools rather than immediate drivers of financial performance. Consequently, H1 is not supported in this study.

Similarly, the social dimension (H2) does not demonstrate a statistically significant effect on firm performance. While existing literature emphasizes that strong social practices improve market reputation, operational efficiency, and resilience during crises [27-29], the results suggest that these benefits may not translate into immediate financial gains for banks. Given the sector's regulatory structure and standardized stakeholder engagement practices, the incremental value of higher social scores may be muted in the short term. Thus, H2 is rejected, implying that the financial benefits of social responsibility in banking may materialize more subtly or over longer horizons.

In contrast, governance (H3) shows a statistically significant positive impact on both ROA and ROE, confirming the central role of governance in driving firm performance. This finding aligns with prior research emphasizing that effective governance practices such as board accountability, transparent management, and shareholder protection enhance both market valuation and operational efficiency [30-32]. The positive effect observed in this study highlights governance as the most immediate and tangible ESG driver of financial outcomes in the Asian banking sector. Therefore, H3 is supported, reinforcing the argument that sound governance mechanisms are indispensable for sustaining competitiveness and profitability.

5. Conclusion

The results of this study highlight the differentiated impact of ESG pillars on firm performance in the Asian banking sector. While environmental and social scores do not show significant effects on financial outcomes, governance emerges as a critical determinant of profitability and efficiency, underscoring the centrality of accountability, transparency, and effective management structures in driving firm success. These findings suggest that, for banks, governance should remain the immediate priority within ESG strategies, as it delivers measurable financial benefits. Nonetheless, the non-significant results for environmental and social aspects do not imply irrelevance; rather, their value may manifest in the long term through enhanced reputation, stakeholder trust, and resilience. For both practitioners and policymakers, the evidence emphasizes that ESG integration should be approached

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holistically, but with a recognition that governance reforms are the most direct lever for improving financial performance in the short run.

6. Implication and Limitation

6.1. Theoretical Implications

This study contributes to the growing ESG literature by highlighting the differentiated impact of the three ESG pillars on firm performance in the Asian banking sector. Governance emerges as the most significant determinant of financial outcomes, reinforcing theoretical perspectives that emphasize accountability, transparency, and ethical management as foundations of firm success. Importantly, this finding underscores the need to treat ESG dimensions separately rather than relying on a composite index, as the drivers of firm performance vary across pillars.

Furthermore, the results reveal that sector-specific dynamics shape the influence of ESG on performance. Unlike in manufacturing or resource-intensive industries, environmental and social practices do not directly translate into short-term profitability for banks. This suggests that theoretical frameworks must account for industry-specific operational structures when evaluating ESG impacts. Finally, although environmental and social scores show no immediate financial benefits, their potential long-term contributions to reputation, stakeholder trust, and resilience remain critical avenues for theoretical exploration, particularly regarding their indirect pathways to firm value.

6.2. Managerial Implications

From a managerial perspective, the findings underscore the need for banking practitioners to prioritize governance practices as a direct lever for improving financial performance. Strengthening board composition, enhancing transparency, and protecting shareholder rights are actionable strategies that can yield measurable improvements in profitability and efficiency.

At the same time, managers should adopt a balanced approach to ESG integration. While governance offers immediate returns, environmental and social initiatives should not be neglected, as they generate long-term advantages in reputation, legitimacy, and stakeholder engagement. For banks in emerging markets, ESG strategies must also be tailored to local regulatory frameworks and cultural contexts to maximize effectiveness. Moreover, robust governance mechanisms can serve as critical tools for risk management, enabling firms to navigate volatility and sustain resilience in uncertain economic environments.

6.3. Limitations

Despite these contributions, the study has several limitations. First, the sample focuses on 55 listed banks across eight Asian countries, which may limit the generalizability of the findings to other regions or unlisted institutions. Second, the five-year observation period captures primarily short-term effects, potentially overlooking the delayed financial impact of environmental and social practices. Third, the analysis is specific to the banking sector, and its dynamics may differ from those in industries with greater environmental exposure or stakeholder sensitivity. Finally, variations in ESG reporting standards across countries introduce potential measurement inconsistencies that may affect comparability.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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References
[1] W. Tan, W. Sun, and X. H. Chen, "Sustainable finance in space: How bank agglomeration shapes corporate ESG performance," *Corporate Social Responsibility and Environmental Management*, vol. 32, no. 5, pp. 6966-6983, 2025. https://doi.org/10.1002/csr.70071

[2] S. Fan, "An exploratory study on the impact of ESG on business performance—Focusing on listed companies in Korea and Taiwan," *PLOS One*, vol. 19, no. 11, p. e0310447, 2024. https://doi.org/10.1371/journal.pone.0310447

[3] H. Gutiérrez-Ponce and S. A. Wibowo, "Do sustainability practices contribute to the financial performance of banks? An analysis of banks in Southeast Asia," *Corporate Social Responsibility and Environmental Management*, vol. 31, no. 2, pp. 1418-1432, 2024. https://doi.org/10.1002/csr.2641

[4] H. A. B. Sarwono, "Environment, social, governance, and performance in Far East Asia for the period of 2018–2021," *IOP Conference Series: Earth and Environmental Science*, vol. 1111, no. 1, p. 012071, 2022. https://doi.org/10.1088/1755-1315/1111/1/012071

[5] M. Al-Nimer, "Innovation capacity as a mediating mechanism between strategic risk integration and ESG performance: evidence from Jordanian Banks," *International Journal of Financial Studies*, vol. 12, no. 4, p. 126, 2024. https://doi.org/10.3390/ijfs12040126

[6] T. Sun, N. Mirza, M. Umar, and F. Ktaish, "When interest rates rise, ESG is still relevant–The case of banking firms," *Finance Research Letters*, vol. 69, p. 106128, 2024. https://doi.org/10.1016/j.frl.2024.106128

[7] T. M. Sang and N. T. Hung, "Exploring the relationship between ESG Practices and Financial Performance of Vietnamese Companies," *International Journal of Analysis and Applications*, vol. 22, pp. 214-214, 2024. https://doi.org/10.28924/2291-8639-22-2024-214

[8] J. Zou, N. Cheng, L. Gao, C. Gong, and X. Lu, "Do bank-enterprise ESG disparities affect corporate ESG performance?," *Finance Research Letters*, vol. 72, p. 106571, 2025. https://doi.org/10.1016/j.frl.2024.106571

[9] H. Nian, F. F. Said, A. H. M. Azam, and N. M. Ariff, "Does ESG implementation reduce bankruptcy risk of manufacturing and non-manufacturing firms? Evidence from dynamic panel threshold model," *Finance Research Letters*, vol. 85, p. 108101, 2025. https://doi.org/10.1016/j.frl.2025.108101

[10] R. E. Freeman, *Strategic management: A stakeholder approach*. Boston, MA: Pitman, 1984.

[11] K.-C. Yao, C.-C. Lai, W.-J. Shyr, D.-F. Chou, and K.-M. Huang, "Exploring key factors influencing ESG commitment: evidence from Taiwanese listed companies," *Sustainability*, vol. 17, no. 13, p. 6208, 2025. https://doi.org/10.3390/su17136208

[12] M. F. Alsayegh, R. Abdul Rahman, and S. Homayoun, "Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure," *Sustainability*, vol. 12, no. 9, p. 3910, 2020. https://doi.org/10.3390/su12093910

[13] D. Z. X. Huang, "An integrated theory of the firm approach to environmental, social and governance performance," *Accounting & Finance*, vol. 62, pp. 1567-1598, 2022. https://doi.org/10.1111/acfi.12832

[14] M. Luque-Vílchez, J. A. Gómez-Limón, M. D. Guerrero-Baena, and P. Rodríguez-Gutiérrez, "Deconstructing corporate environmental, social, and governance performance: Heterogeneous stakeholder preferences in the food industry," *Sustainable Development*, vol. 31, no. 3, pp. 1845-1860, 2023. https://doi.org/10.1002/sd.2488

[15] S. Bani-Khaled, G. Azevedo, and J. Oliveira, "Environmental, social, and governance (ESG) factors and firm value: A systematic literature review of theories and empirical evidence," *AMS Review*, vol. 15, pp. 228–260, 2025. https://doi.org/10.1007/s13162-025-00303-2

[16] V. Agranat, "Evaluation of impact of ESG rating and environmental performance factors on the level of credit risk and shareholder expectations of companies in carbon-intensive industries from BRICS countries," *Корпоративные финансы*, vol. 17, no. 2, pp. 68-84, 2023. https://doi.org/10.17323/j.jcfr.2073-0438.17.2.2023.68-84

[17] B. Chaklader, G. Chaklader, and S. K. Shrivastav, "Impact of environmental, social and governance (ESG) on foreign institutional investments in India: a machine learning perspective," *Benchmarking: An International Journal*, vol. 32, no. 7, pp. 2404-2424, 2025. https://doi.org/10.1108/BIJ-12-2023-0910

[18] M. B. Saydam, V. O. Olorunsola, H. E. Arici, and M. A. Koseoglu, "Do ESG and diversity scores predict global firms' environmental innovation?," *The Journal of Environment & Development*, vol. 33, no. 3, pp. 410-442, 2024. https://doi.org/10.1177/10704965241238292

[19] Z. Zheng and C. L. Lee, "A meta-analysis of ESG factors in the real estate investment trusts sector: exploring their impacts on REITs performance," *Engineering, Construction and Architectural Management*, 2025. https://doi.org/10.1108/ECAM-05-2024-0652

[20] M. Joubrel and E. Maksimovich, *ESG data and scores. In Valuation and Sustainability: A Guide to Include Environmental, Social, and Governance Data in Business Valuation*. Cham: Springer International Publishing, 2023.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 10, No. 1: 1242-1255, 2026
DOI: 10.55214/2576-8484.v10i1.11931

[21] G. Sklavos and G. Theodossiou, *Environmental, social and corporate governance, and sustainable business continuity: Delving into the hot spots and forthcoming paths of sustainable strategic planning*. Cham, Switzerland: Springer, 2025.
[22] Y. Agyabeng-Mensah, E. Ahenkorah, E. Afum, and D. Owusu, "The influence of lean management and environmental practices on relative competitive quality advantage and performance," *Journal of Manufacturing Technology Management*, vol. 31, no. 7, pp. 1351-1372, 2020. https://doi.org/10.1108/JMTM-12-2019-0443
[23] R. H. D. P. Sari and B. Sutopo, "Impact of environment performance on firm value: Evidence from Indonesia," *International Journal of Management and Sustainability*, vol. 12, no. 2, pp. 259-270, 2023. https://doi.org/10.18488/11.v12i2.3365
[24] A. Azeem, M. A. Naseem, R. Ali, and S. Ali, "How does environmental performance contribute to firm financial performance in a multi-country study? Mediating role of competitive advantage and moderating role of voluntary environmental initiatives," *Journal of the Knowledge Economy*, vol. 16, no. 2, pp. 7688-7721, 2025. https://doi.org/10.1007/s13132-024-02193-4
[25] P. Tzouvanas, R. Kizys, I. Chatziantoniou, and R. Sagitova, "Environmental and financial performance in the European manufacturing sector: An analysis of extreme tail dependency," *The British Accounting Review*, vol. 52, no. 6, p. 100863, 2020. https://doi.org/10.1016/j.bar.2019.100863
[26] P. Lemana, R. Matemane, and M. Mokabane, "Corporate social responsibility as a driver of financial performance: An exploration of south african companies," *Journal of Risk and Financial Management*, vol. 18, no. 5, p. 278, 2025. https://doi.org/10.3390/jrfm18050278
[27] E. F. Attia and A. Almoneef, "Impact of ESG on firm performance in the MENAT region: Does audit quality matter?," *Sustainability*, vol. 17, no. 13, p. 6151, 2025. https://doi.org/10.3390/su17136151
[28] R. K. Bhaskaran, S. K. Sukumaran, and K. Abdul Waheed, "Corporate social initiatives and wealth creation for firms-an empirical examination," *Journal of Global Responsibility*, vol. 16, no. 3, pp. 451-473, 2025. https://doi.org/10.1108/JGR-11-2022-0125
[29] E. Poursoleyman, G. Mansourfar, M. K. Hassan, and S. Homayoun, "Did corporate social responsibility vaccinate corporations against COVID-19?," *Journal of Business Ethics*, vol. 189, no. 3, pp. 525–551, 2024. https://doi.org/10.1007/s10551-023-05331-1
[30] R. B. Sharma, S. Lodha, A. Sharma, S. Ali, and A. M. Elmezughi, "Environment, social and governance reporting and firm performance: Evidence from GCC countries," *International Journal of Innovative Research and Scientific Studies*, vol. 5, no. 4, pp. 419-427, 2022.
[31] Y. Abdi, X. Li, and X. Càmara-Turull, "Impact of sustainability on firm value and financial performance in the air transport industry," *Sustainability*, vol. 12, no. 23, p. 9957, 2020. https://doi.org/10.3390/su12239957
[32] M. Aydoğmuş, G. Gülay, and K. Ergun, "Impact of ESG performance on firm value and profitability," *Borsa Istanbul Review*, vol. 22, pp. S119-S127, 2022. https://doi.org/10.1016/j.bir.2022.11.006
[33] M. Kayakus, B. Tutcu, M. Terzioglu, H. Talaş, and G. F. Ünal Uyar, "ROA and ROE forecasting in iron and steel industry using machine learning techniques for sustainable profitability," *Sustainability*, vol. 15, no. 9, p. 7389, 2023. https://doi.org/10.3390/su15097389
[34] F. R. R. Lopes, F. O. De Araujo, F. R. Do Nascimento, and W. Dos Santos Ramos, *ES (?) G—The social dimension as a necessary counterpoint to the market's desires in critical factors associated with environmental, social and governance management in organizations*. Singapore: Springer Nature Singapore, 2025.
[35] S. Kushwaha, S. Swaroop, and P. Jha, *An in-depth analysis of the impact of expenditure on CSR and ESG initiatives on the share price of HDFC Bank*. Hershey, PA, USA: IGI Global Scientific Publishing, 2025.
[36] S. Grishunin, S. Suloeva, T. Nekrasova, and A. Erorova, "Study of relationship between the corporate governance factors and ESG ratings of ICT companies from the developed markets," presented at the International Conference on Next Generation Wired/Wireless Networking (pp. 158-169). Cham: Springer International Publishing, 2021.
[37] A. Rahman and R. B. Sharma, "Cash flows and financial performance in the industrial sector of Saudi Arabia: With special reference to insurance and manufacturing sectors," *Investment Management & Financial Innovations*, vol. 17, no. 4, p. 76, 2020. https://doi.org/10.21511/imfi.17(4).2020.07
[38] A. F. Almulla, T. Al-Alkawi, S. Al-Dulaimy, and F. Binshams, "The effect of cash flows activities on the financial performance of service sector companies listed in Bahrain Bourse: An empirical study," *Information Sciences Letters*, vol. 10, pp. 19–35, 2021. https://doi.org/10.18576/isl/10S102
[39] A. J. Papadaki and O.-C. Pavlopoulou-Lelaki, "Sources of corporate financing and operating performance: The effects of strategic ownership and financial restatements," *International Review of Financial Analysis*, vol. 76, p. 101732, 2021. https://doi.org/10.1016/j.irfa.2021.101732
[40] C. Basdekis, A. Christopoulos, E. Gakias, and I. Katsampoxakis, "The effect of ECB unconventional monetary policy on firms' performance during the global financial crisis," *Journal of Risk and Financial Management*, vol. 16, no. 5, p. 258, 2023. https://doi.org/10.3390/jrfm16050258
[41] A. R. Alshehadeh, G. A. Elrefae, I. A. El Qirem, H. A. Al-Khawaja, and H. M. Hatamleh, "Capital structure: Its effects on earnings volatility, cash flows, and financial performance in commercial banks," *International Journal of Advanced and Applied Sciences*, vol. 11, no. 10, pp. 131-139, 2024. https://doi.org/10.21833/ijaas.2024.10.015

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 10, No. 1: 1242-1255, 2026
DOI: 10.55214/2576-8484.v10i1.11931

[42] M. U. Mujtaba, W. Abbassi, and R. Mehmood, *The gender composition of corporate boards and firm performance. In A. I. Hunjra & K. Hussainey (Eds.), The Emerald Handbook of Ethical Finance and Corporate Social Responsibility: A Framework for Sustainable Development.* Bingley, UK: Emerald Publishing Limited, 2024.
[43] S. Mohsni, S. B. Mim, and F. Hajji, *Governance, gender diversity, and banking performance: New evidence from North African and GCC countries.* Singapore: Springer Nature Singapore, 2023.
[44] S. El-Halaby, S. Aboul-Dahab, and N. B. Qoud, "Bidirectional relationship between cash holdings and financial performance for banks in the MENA region," *International Journal of Customer Relationship Marketing and Management*, vol. 12, no. 1, pp. 28-43, 2021. https://doi.org/10.4018/IJCRMM.2021010102

In this study, QuillBot was utilized as a paraphrasing tool to help rephrase certain sections of text while maintaining the original meaning. This ensured clarity and diversity in sentence structure. Additionally, Grammarly was employed to refine the grammar and punctuation, ensuring the overall readability and professional quality of the manuscript. Both tools were used to assist in producing a polished and well-articulated final document, without altering the substance of the content

Appendix 1.
Number of Companies by Country.

Country	**Companies**
China	17
India	13
Saudi Arabia	6
Thailand	5
Indonesia	5
Oman	4
Hong Kong	3
Singapore	2

Appendix 2.
Hausman Test Results (Fixed Effects vs Random Effects).

Model	**Chi-Sq. Statistic**	**p-value**	**Decision**	**Selected Model**
Governance → ROE	14.32	0.0063	Reject H0	Fixed Effects (FE)
Governance → ROA	12.16	0.0162	Reject H0	Fixed Effects (FE)
Social → ROE	19.04	0.0008	Reject H0	Fixed Effects (FE)
Social → ROA	18.65	0.0009	Reject H0	Fixed Effects (FE)
Environmental → ROE	16.33	0.0026	Reject H0	Fixed Effects (FE)
Environmental → ROA	14.89	0.0049	Reject H0	Fixed Effects (FE)

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Appendix 3.
Best Linear Unbiased Estimator (BLUE) Results for ESG Models.

Model	Multicollinearity (VIF)	Heteroskedasticity (Modified Wald)	Autocorrelation (Wooldridge)	Decision
ROA – Environmental	Mean VIF = 2.35 (<10)	$\chi^2(55)=1075.13$, p=0.000 → Reject H0	F(1,54)=35.28, p=0.000 → Reject H0	No multicollinearity, but heteroskedasticity & autocorrelation present
ROE – Environmental	Mean VIF = 2.35 (<10)	$\chi^2(55)=129{,}432.78$, p=0.000 → Reject H0	F(1,54)=95.61, p=0.000 → Reject H0	No multicollinearity, but heteroskedasticity & autocorrelation present
ROA – Social	Mean VIF = 2.24 (<10)	$\chi^2(55)=948.00$, p=0.000 → Reject H0	F(1,54)=34.62, p=0.000 → Reject H0	No multicollinearity, but heteroskedasticity & autocorrelation present
ROE – Social	Mean VIF = 2.24 (<10)	$\chi^2(55)=259{,}199.99$, p=0.000 → Reject H0	F(1,54)=98.28, p=0.000 → Reject H0	No multicollinearity, but heteroskedasticity & autocorrelation present
ROA – Governance	Mean VIF = 2.28 (<10)	$\chi^2(55)=1228.04$, p=0.000 → Reject H0	F(1,54)=30.32, p=0.000 → Reject H0	No multicollinearity, but heteroskedasticity & autocorrelation present
ROE – Governance	Mean VIF = 2.28 (<10)	$\chi^2(55)=181{,}215.34$, p=0.000 → Reject H0	F(1,54)=84.57, p=0.000 → Reject H0	No multicollinearity, but heteroskedasticity & autocorrelation present

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