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ESG AND BANKING PERFORMANCE IN EMERGING AND DEVELOPING COUNTRIES: DO ISLAMIC BANKS PERFORM BETTER?

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ABSTRACT

This paper investigates the effects of Environmental, Social, and Governance (ESG) implementation on banking performance in emerging and developing countries. Applying the Two-step System Generalized Method of Moments (System-GMM) to panel data of 179 banks across 29 countries spanning 2016-2022, we find that ESG implementation significantly enhances overall banking profitability. However, when we assess the implications of ESG on Islamic banks, we find that overall ESG commitment significantly reduces profitability. As for the individual ESG pillar, we note the profit-enhancing effect of environmental pillar for both Islamic and conventional banks. Some evidence is also uncovered for the significant positive effect of social pillar on conventional bank profitability. Finally, we note no significant influences from governance pillar. These results highlight the divergent impacts of ESG implementation on Islamic and conventional banks. We conclude that policymakers should exercise caution in designing and implementing ESG policies, ensuring they are tailored to promote optimal performance across different banking models. This study contributes to the growing body of the literature on sustainable finance and provides valuable insights for regulators and bank managers in emerging and developing economies.

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I. INTRODUCTION

Recently, Environmental, Social, and Governance (ESG) activities have become increasingly important for the financial sector. A report issued by the PWC (2021) shows that borrowers and investors have strong ESG considerations in their financial transactions. In their response to ESG, 35 central banks under the Network for Greening the Financial System (NGFS) have recognized the financial implications of climate-change risks and advocated fostering a greener financial system (NGFS, 2019). In the case of Islamic banks, increased efforts have been dedicated to integrating the concept of ESG into their existing Shariah framework. A typical example of this is the Value-based Intermediation by (VBI) initiative by Bank Negara Malaysia (Central Bank of Malaysia, 2018) and the Sustainable Finance Guide for Islamic Financial Institutions (CIBAFI, 2022). Therefore, the banking sector's commitment to ESG practices becomes imperative, considering its significant financial intermediary role in the market (Saif-Alyousfi et al., 2023).

Despite the importance and challenges of implementing ESG practices in the banking sector, there is still an ongoing debate about the impact of ESG activities on banking performance. Freeman (1999), within the framework of stakeholder interest theory, explains that a firm's activities, including those of a bank, must benefit society because the firm also leverages society's resources to conduct its business. Furthermore, Friedman (1970) argues that any costs incurred by firms that do not benefit shareholders are abused. Given the current developments and inconclusive theoretical foundation, it is crucial to investigate further how ESG activities affect banking performance and whether banks that engage in ESG activities perform better.

There has been a surge in empirical studies that examine the impact of ESG practices on banking performance. However, a plethora of these studies have focused on non-financial companies. A few studies about the effects of ESG practices on financial institutions examine the relationship between ESG practices and banking performance in developed countries, such as Buallay (2019), Tommaso & Thornton (2020), Chiaramonte et al. (2022), Agnese et al. (2023) and Citterio & King (2023). Notably, most of these studies have focused on the U.S. and European banks, particularly on the effect of ESG practices on their profitability.

As for developing countries, the investigation of ESG practices on banking performance is still sparse (Shakil et al., 2019; Azmi et al., 2021). Notable studies focusing on banks' ESG activities in emerging markets include Shakil et al. (2019) and Azmi et al. (2021) for a panel of emerging markets, Khoury et al. (2023) and Khoury et al. (2021) for MENA countries, Kim et al, (2022) for of South Korea, and Mendiratta et al. (2022) for India. In the case of Islamic banks, to the best of our knowledge, only Alam et al. (2022) and Alghafes et al. (2024) assess the impact of ESG activities on Islamic banking performance across the Gulf countries while Aracil (2019) adopts qualitative approaches in the case of Turkey's banking industry, and Sendi et al. (2024) investigate the impact of banks' ESG commitment on banks' financial stability in the global context. Nizam et al. (2019) also reveal the impact of ESG on the dual banking system, but their study does not pay adequate attention to that and emphasizes the global banking perspective.

Our contributions are twofold. First, we re-examine the inconclusive ESG-business performance in the case of emerging and developing countries. In

general, prior literature has agreed on the pivotal role of ESG practices on banking performance (Buallay, 2019; Chiaramonte et al., 2022). However, the direction of the influence is still inconclusive, especially in terms of profitability. For instance, Buallay (2019), Azmi et al. (2021), and Menicucci & Paolucci (2023) find that banks' commitment to ESG activities positively and significantly affects banks' profit-based performance. In contrast, Tommaso & Thornton (2020) and Yuen et al. (2022) conclude otherwise, i.e. ESG reduces banking performance. In addition to the previous studies, this paper employs updated data on banking sectors across 29 developing and emerging countries. It is essential to precisely investigate whether ESG implementation increases banking performance, considering the argument that ESG possibly reduces asymmetric information and uncertainty in developing and emerging economies (Azmi et al., 2021). And second, the study provides comparative insights into measuring the impact of ESG on Islamic and conventional banks. The previous studies such as Alam et al. (2022), Alghafes et al. (2024), Aracil (2019), and Sendi et al. (2024) do not sufficiently cover the impact of ESG on banks' profitability performance in dual banking systems. Therefore, It becomes imperative to delve further into the ESG-banking performance paradox, especially in the case of the dual banking system, which remains underexplored (Tumewang et al., 2024).

Our present study will address the following research questions: (1) do ESG activities improve banks' profitability? and (2) do ESG practices enable Islamic banks to perform differently than conventional banks? The study is significant in providing a clear direction on the nexus between ESG and banking performance in emerging and developing countries. The comparative insight in this paper reveals whether implementing ESG in Islamic banks increases banking performance, considering the bank already follows Shariah-compliant business activities. The study is also essential for the banking sector's stakeholders in emerging and developing countries to consider integrating ESG practices into the banking sector, either in single or dual banking systems. The remaining sections cover a literature review and research methodology, followed by the discussions of results and a final remark on the research findings and their implications.

II. LITERATURE REVIEW

2.1. Theoretical Framework

In 2004, the United Nations, endorsed by 22 financial institutions, first issued a recommendation document on how the financial system can implement a sustainable financial activity that aligns with Environmental, Social, and Governance activities (ESG) (United Nations, 2004). The implementation of ESG has four main objectives, which are (1) to strengthen the financial market, (2) to increase the contribution to sustainable development, (3) to build awareness among involved stakeholders regarding the importance of ESG, and (4) to increase the trust in financial institutions (United Nations, 2004). Moreover, Serafeim (2023) defines ESG as a process to examine the firm's impact while utilizing the resources, regularly improve the use of the resources, and how the effect is communicated to the stakeholders.

The underlying concept for understanding the importance of ESG practices and their impact on banking performance can be attributed to two theories: the stakeholder and shareholder theories. From the perspective of stakeholders, Freeman (1999) and Donaldson & Preston (1995) state that the fundamental objective of a firm is to satisfy the interests of stakeholders. Jensen (2002) and Freeman et al. (2011) describe that the ultimate goal of a firm is to maximize its value, which includes (1) optimizing the sum of the firm's assets and (2) benefits contributed to society, including those brought by its ESG practices. Harrison & Wicks (2013) are in agreement that maximizing stakeholders' value by incorporating stakeholders' interest in the firm operation can be measured by anything that benefits stakeholders' interest, in which financial performance remains the leading indicator to measure the benefit for stakeholders' value. In addition, it is believed that the assurance of stakeholders' benefits enables the firms to attain sustainable growth over the long run. For instance, Barnett (2007) advocates that conducting ESG practice positively impacts a firm's financial performance as it strengthens stakeholders' relationships and attracts the best human capital and investors to the firm.

On the other hand, Friedman (1970) underscores the crucial role of safeguarding shareholders' interests. In other words, there is nothing more important to a firm than maximizing its shareholders' wealth. If incorporating ESG practice has a financial impact on banking performance, banks will undoubtedly open their hands to implement ESG activities. This shows that the purpose of implementing ESG activities is a profit-seeking motive, which potentially leads to greenwashing activities (Yu et al., 2020; Lee & Isa, 2022). According to the signaling theory proposed by Bhattacharya (1979), integrating ESG practice signals to customers that the bank has a sound financial performance. Therefore, customers remain engaged, and potential customers are attracted to participate in banking activities, which is expected to increase the bank's performance.

From the Islamic finance viewpoint, the theoretical underpinning of the nexus between Islamic finance and sustainability is based on the Islamic Moral Economy (IME) proposed by Asutay (2013). It is explained that the principle of Islamic finance is to create justice in which all financial activities must impact social welfare. In addition, IME requires a moral screening in which all economic activities do not endanger society, human well-being, and the environment. In other words, Asutay (2013) explains that as part of Islamic finance institutions, Islamic banking operations are prone to be a stakeholder approach, in which all economic activities need to prioritize stakeholders' interests.

Additionally, Bukhari et al. (2020) shed light on the fact that Islamic banks and environmentally friendly activities are congruent, strengthening banks' reputations and credibility in the market. Khan & Tabet (2024) also mention that incorporating a sustainability approach in Islamic banking operations aligns with Maqasid al-Shariah, and it encourages the banks to have more commitment to implementing Islamic principles in banking operations. However, Khan & Tabet (2024) also underscore that embracing a sustainability approach is insufficient for Islamic banks, and the banks need to remain in Shariah compliance with having a commitment not to be involved in prohibited financial transactions such as gambling and interest-based activities. Therefore, the Shariah governance

framework is adopted to ensure that Islamic banks comply with Islamic principles in their business operation (Mollah et al., 2017; Boudawara et al., 2023).

2.2. Previous Studies and Hypothesis Development

In terms of empirical evidence, though extant literature has predominantly focused on non-financial companies, there has been an increased research trend in investigating the effects of banks' ESG practices on their financial performance (Galletta et al., 2022). The findings regarding the relationship between ESG and banking performance remain inconclusive. The first strand of literature finds that there is a positive and significant relationship between ESG and banking performance. A study by Azmi et al. (2021), using 251 banks from 44 emerging markets, shows that ESG and banking performance are positively related. Banks implementing ESG have better creditability and reputation, which makes stakeholders, especially the shareholders' side, more confident to engage in business activities (Azmi et al., 2021). Then, having more engagement positively impacts banking performance. Buallay (2019) states that banks engaging in ESG activities have a good reputation and competitiveness.

Moreover, Agnese et al. (2023), studying 63 European banks from 2006-2021, conclude that ESG activities reduce banks' cost of capital and hence improve their profitability. Banks performing ESG practices have more transparency, financial soundness, and stability, attracting more profit-seeking investors to be involved in the banks' business activities. In particular, the commitments to the governance aspect of ESG practices contribute the most to the reduced costs of capital (Agnese et al., 2023). A similar conclusion is presented by Azmi et al. (2021), who assert that the lower cost of capital allows the bank to generate higher returns and increased market values. Additionally, Azmi et al. (2021) explain that in the case of developing and emerging markets, stakeholders have less concern about ESG practices in developing countries, including its effects on banking performance. Despite that, given the higher economic uncertainty in emerging countries compared to developed countries, banks' commitments to ESG practices can act as an indicator of their financial soundness.

Another strand of literature has noted the adverse effects of ESG practices on banking performance. For instance, Yuen et al. (2022), who study 487 banks in 51 countries from 2006-2021, argue that committing to social and governance aspects of ESG practices significantly reduces banks' returns. The findings are consistent with those of Tommaso & Thornton (2020), who examine the impact of ESG on the performance of 19 banks in Europe over the period 2007Q3 to 2018Q4. The results of the study show that investments in ESG practices reduce the value of banks, as measured by Tobin's Q, book value of capital, and equity price. In addition, Franco et al. (2020) report significant adverse effects of ESG on financial performance. This negative relationship is primarily attributed to banks' insufficient spending on ESG practices, which fails to meet stakeholders' expectations. A negative and significant relationship between ESG commitment and banking performance is also related to banks' spending. ESG commitment is seen as a cost rather than an investment, which only reduces banks' profitability (Tommaso & Thornton, 2020).

According to Fama & Jensen (1983) and Eisenhardt (1989), in the context of agency costs, banks' commitments to ESG practices have merely elevated managers' reputations at the expense of shareholders (Tommaso & Thornton, 2020). This postulation is also supported by Azmi et al. (2021), which reveals a diminished marginal return for ESG activities. In other words, banks' ESG practices bring about promising benefits; however, when their expenditures on these activities exceed a certain threshold, further commitments will adversely affect banking performance. Based on the existing research findings mentioned above, we have developed the first research hypothesis as below:

H1: There is a positive and significant relationship between ESG practices and banking performance

Despite the dramatic expansion of the Islamic banking industry over the last two decades, the theoretical nexus between Islamic banks and sustainability, including ESG practices, has not been discussed adequately in existing studies. Theoretically, the concept of sustainability is in alignment with the Islamic principle through the Maqasid al-Shariah approach (Asutay, 2013; Khan, 2019; Bukhari et al., 2020; Khan & Tabet, 2024). Empirically, studies dedicated to examining the effects of ESG activities on Islamic banking performance are even more meager. Among the few studies, Sendi et al. (2024) investigate the impact of incorporating ESG on banking stability, focusing on the global banking industry. The findings of the study reveal that the impacts of incorporating ESG on banking stability are different for conventional and Islamic banks. The social pillar of ESG has a positive and significant impact on Islamic banking stability, while the aggregate score of ESG, environmental, and social pillars increase conventional banking stability. The findings indicate that Islamic banks are more prone to engage in ESG activities comprising community service, human rights, and labor practices (Sendi et al., 2024). It is different from conventional banks that have more commitment to environmental and social pillars while incorporating ESG in their banking operations.

Additionally, Alam et al. (2022) uncover that the environmental pillar of ESG influences the efficiency of Islamic banks. In contrast, conventional banks are influenced by both the governance and social elements and the aggregate ESG scores. Surprisingly, the results of the study show that the aggregate ESG score is not a significant determinant of Islamic banking performance. In this regard, more studies are called for ESG-Islamic banking performance research (Alam et al., 2022). Focusing only on the Islamic banking sector of the Gulf Countries, Alghafes et al. (2024) find the aggregate score of ESG is not significant in influencing banking performance. When the analysis delves into ESG pillars, the environmental, social, and governance pillars positively and significantly affect banking performance. However, each pillar has a different impact when the banking performance proxies, comprising return on asset, return on equity, and Tobin-Q, are utilized. It shows that a different ESG pillar influences the banking performance proxies differently. Alghafes et al. (2024) state that each pillar has a different time frame to obtain the impact when incorporated into Islamic banking operations.

Furthermore, Aracil (2019) finds that Islamic and conventional banks are different in incorporating ESG practices. Islamic banks are motivated by informal institutions while conventional banks are driven by formal institutions in their

commitments to ESG. This means that Islamic banks engage in ESG activities because of ethical and religious values embedded in Shariah principles. It is different from conventional banks that perform ESG practices to meet the regulatory standard required by related authorities. The finding of Aracil (2019) confirms that value is important to the foundation of how banks operate. It is similar to the argument of the self-congruence approach, stating that environmentally friendly activities strengthen Islamic banks' value (Bukhari et al., 2020). In contrast, Nizam et al. (2019) find that there is no difference between the impact of ESG commitment on banking performance between Islamic and conventional banks. It is based on the fact that both types of banks perform similarly concerning their banks' business model (Nizam et al., 2019). Acknowledging the contrasting evidence from past research on the impact of ESG commitment on the performance of Islamic banks, we have formulated our second research hypothesis as follows:
H2: There is a difference between Islamic and conventional banks in the relationship between ESG commitment and banking performance

III. METHODOLOGY

3.1. Data

This paper employs a comprehensive panel dataset spanning from 2016 to 2022, encompassing 179 banks across 29 emerging and developing countries. The sample includes both Islamic and conventional banking institutions, providing a diverse representation of the banking sector in these economies. Totally, it has 16 Islamic banks and 163 conventional banks (See Appendix 1).

In constructing our sample, we exclude banks with fewer than three consecutive periods of ESG data. This decision aligns with the sample size requirements for applying the Two-step System Generalized Method of Moments (2-step System GMM) analysis, as suggested by previous studies (Kabir et al., 2015; Ibrahim & Rizvi, 2018). This approach enhances the validity of our longitudinal analysis and ensures sufficient data points for each institution. To mitigate the potential impact of outliers on our findings, we followed the approach of Chiaramonte et al. (2022) by winsorizing the data at the 1% level. This statistical technique adjusts extreme values in the dataset, reducing the influence of potential outliers without eliminating data points entirely. By implementing this method, we aim to improve the reliability and generalizability of our results while maintaining the integrity of our dataset.

3.2. Empirical Models

To perform our analysis, the study adopts a dynamic panel approach, namely the Two-step System Generalized Method of Moments (2-step System GMM), as suggested by Arellano & Bover (1995) and Blundell & Bond (1998). The use of the 2-step System GMM allows for the exploration of the presence of time series dimension in panel data (Beck & Levine, 2004) and addressing the endogeneity issue (Anderson & Hsiao, 1981). In addition, Windmeijer's (2005) approach is used to reduce the downward bias risks in the 2-Step System GMM estimation, especially for our case with short panel data.

A battery of post-estimation tests is performed to examine the robustness of the model. At first, the Hansen test is applied to determine the validity of the instruments included in the model. In particular, it examines whether the error terms and instruments are independent of each other. When the null hypothesis fails to be rejected, the instruments are believed to be uncorrelated with the error term. In other words, the instruments included in the model are valid. Then, the Arellano-bond test is conducted to examine the presence of autocorrelation in the residuals. In particular, both the first-order (AR1) and second-order autocorrelation (AR2) tests will be performed. Finally, the issue of instrument proliferation is identified, as stated by Roodman (2009). In this regard, the number of instruments must be lower than the number of sample size because the higher number of instruments reduces the power of the Hansen test and creates a problem called instrument proliferation.

In general, the model of the study is formulated based on the stakeholder's theory by Freeman (1984), in which banks need to operate business activities that prioritize the stakeholders' interest. In addition, Jensen (2002), Freeman et al. (2011), and Harrison & Wicks (2013) also state that incorporating stakeholders' interest in the business operation adds the bank value that can be measured by the financial performance. A similar approach is adopted by Tommaso & Thornton (2020) and Azmi et al. (2021), where in the case of the banking sector, ESG impact on banks' financial performance accompanied by control variables in the model, including bank-level and country-level variables. Thus, considering the above, our model is presented as follows:

$$\pi_{it} = a_0 + a_1\pi_{it-1} + a_2 ESG_{it-1} + a_3 B_{it-1} + a_4 M_{jt} + a_5 G_{jt} + \varepsilon_{ijt} \quad (1)$$

where i, j, and t denote bank, country, and time, respectively. a_0 refers to the intercept or constant term, a_1 to a_5 represent the coefficients of corresponding explanatory variables and ε_{ijt} is the error term.

In this paper, banking profitability (π) is measured by return on asset (ROA) and return on equity (ROE). In addition, banks' commitments to ESG practices are proxied by a weighted score comprising environmental, social, and governance aspects. We follow Salim et al. (2023) by including the t-1 terms for aggregated ESG scores, three ESG pillars' values (environmental, social, and governance), and bank-specific variables to address potential contemporaneous correlation with the error term (Ibrahim & Arundina, 2022). Several control variables are also included in this study (See Table 1), including bank-specific variables (B_{it-1}), macroeconomic variables (M_{jt}), and the institutional development (G_{jt}).

Equation 2 below incorporates an interaction variable to examine whether the commitments to ESG practices affect Islamic and conventional banks differently.

$$\pi_{it} = a_0 + a_1\pi_{it-1} + a_2 ESG_{it-1} + a_3 IB_{it} + a_4(ESG_{it-1} * IB_{it}) + a_5 B_{it-1} + a_6 M_{jt} + a_7 G_{jt} + \varepsilon_{ijt} \quad (2)$$

Referring to Ibrahim & Arundina (2022), the presence of the impact of ESG with the condition of IB on banking performance relies on the value of the coefficients of ESG and the interaction variable between ESG and IB, as long as the interaction variable is also significant.

Table 1.
The Summary of Variable Definition

Variable	Definition	Data Sources
Dependent Variables		
Return on Asset (ROA)	The percentage of return to total assets is then multiplied by 100	Fitch Connect
Return on Equity (ROE)	The percentage of return to total equity is then multiplied by 100	Fitch Connect
Main Independent Variables		
ESG Score (L.ESG)	Lag of the aggregate score of environmental, social, and governance value based on the determined parameters	Refinitiv Datastream
Environment (L.E)	Lag of the score of the bank's environmental performance based on the determined parameters	Refinitiv Datastream
Social (L.S)	Lag of the score of the bank's social performance based on the determined parameters	Refinitiv Datastream
Governance (L.G)	Lag of the score of the bank's governance performance based on the determined parameters	Refinitiv Datastream
Bank-Specific Variables (B Control)		
Capital (L.ETA)	Lag of total equity divided by total assets is then multiplied by 100	Fitch Connect
Asset Quality (L.NPL)	Lag of nonperforming loan/financing divided by total loan/financing then multiplied by 100	Fitch Connect
Management Efficiency (L.CTI)	Lag of the ratio of cost to income then multiplied by 100	Fitch Connect
Liquidity (L.TDTA)	Lag of total deposit divided by total assets then multiplied by 100	Fitch Connect
Revenue Diversification (L.REVDIV)	Lag of variation of net operating income comprising income from financing and non-financing activities	Fitch Connect
Size (L.LNTA)	Lag of log of bank's total asset	Fitch Connect
Dummy Islamic Bank (I.B.)	Dummy variable, 1= Islamic bank and 0 = conventional bank	-
Macroeconomic-specific variables (M Control)		
Economic Growth (EG)	The percentage of yearly growth of gross domestic product	World Bank Indicator
Inflation (INF)	The percentage of consumer price index	World Bank Indicator
HHI	The Herfindahl-Hirschman Index (HHI) is calculated from the total squared bank's total assets of all banks at the country level.	World Bank Indicator
COVID	Dummy variable, 1= during the period of the COVID-19 pandemic and 0 = other periods	-
Governance-specific variable (G Control)		
Governance Index (GOV)	The average score of six governance indicators comprising the rule of law, regulatory quality, political stability, control of corruption, voice and accountability, and government effectiveness	World Bank Indicator

IV. RESULT AND ANALYSIS

Table 2 shows the descriptive statistics of the data used in the study. From the Table, we may note that Islamic banks are more profitable, with the average ROA and ROE of Islamic banks of 1.41 and 13.44 respectively, while the corresponding figures for conventional banks are 1.21 and 11.10.[1] In other words, the sampled Islamic banks perform better than their conventional counterparts and the industry average over the sampled periods across 29 emerging and developing countries.

Additionally, the sampled banks' commitment to ESG practices has achieved a good level, both in terms of the aggregate industry average and the mean score of conventional banks. Based on LSEG's threshold, the companies' level of commitment to ESG practices can be categorized into four levels, namely, poor (0-25), satisfactory (>25-50), good (>50-75), and excellent (>75-100) (LSEG, 2023). Zooming into each aspect of the ESG, the environmental performance of the banks is at a satisfactory level, whereas the social and governance aspects have attained a good level. As for Islamic banks, the ESG performance, the social and governance aspects have only reached a satisfactory level, while the environmental aspect is at a poor level. In sum, Islamic banks' ESG performance is much inferior compared to their conventional counterparts, indicating that continuous improvement is needed for Islamic banks to elevate their commitments to ESG practices.

For the bank-specific variables, the average asset size of the banks in emerging and developing countries is USD 206 billion, with a standard deviation score of USD 583 billion. This explains the huge discrepancy in bank size in these countries. Islamic banks are much smaller than conventional ones, with the former having an average asset size of USD 33.4 billion and the conventional ones amounting to an average asset size of USD 223 billion.

The pairwise correlation tests (See Table 3) indicate that the multicollinearity issue is less likely to occur among explanatory variables. In particular, except for the correlation between ROA, ROE, and L.ESG with its three sub-elements, all other pairwise correlations are less than 0.8. According to Ullah, Aslam, Altaf & Ahmed (2019), when the absolute values of pairwise correlations between regressors are less than 0.8, it is safe to conclude the absence of multicollinearity in the model.

1 Islamic banks generally exhibit higher return on equity than conventional banks, averaging 13.44% compared to 11.10%. This disparity may be attributed to a liquidity risk premium, as conventional bank stocks tend to be more liquid than their Islamic counterparts

Table 2.
Data Description

	All Banks					Islamic Banks					Conventional Banks				
Variable	**Obs**	**Mean**	**Std. dev.**	**Min**	**Max**	**Obs**	**Mean**	**Std. dev.**	**Min**	**Max**	**Obs**	**Mean**	**Std. dev.**	**Min**	**Max**
ROA	1,254	1.23	0.90	-1.84	4.59	112	1.41	0.57	0.00	2.66	1,142	1.21	0.92	-1.84	4.59
ROE	1,254	11.31	6.89	-18.77	29.24	112	13.44	6.45	0.04	29.24	1,142	11.10	6.90	-18.77	29.24
ESG	1,085	51.86	18.75	10.42	88.54	82	30.88	15.80	10.42	67.88	1,003	53.57	17.93	10.42	88.54
E	1,085	44.30	27.83	0.00	96.26	82	14.24	18.12	0.00	66.93	1,003	46.75	27.04	0.00	96.26
S	1,085	54.58	23.25	4.08	94.72	82	27.51	18.05	4.08	72.03	1,003	56.79	22.22	4.08	94.72
G	1,085	53.40	21.82	7.31	93.27	82	43.49	22.31	7.31	93.27	1,003	54.21	21.59	7.31	93.27
ETA	1,255	10.79	4.06	4.74	29.98	112	11.17	2.91	4.74	18.31	1,143	10.76	4.15	4.74	29.98
NPL	1,233	3.90	3.11	0.25	16.33	112	3.47	3.19	0.25	16.33	1,121	3.94	3.10	0.25	16.33
CTI	1,254	44.51	13.50	18.93	86.65	112	39.75	12.37	18.93	68.82	1,142	44.98	13.52	18.93	86.65
TDTA	1,254	72.46	14.06	17.57	89.36	112	81.12	5.18	64.23	89.36	1,142	71.61	14.37	17.57	89.36
REVDIV	1,254	0.36	0.11	-0.16	0.50	112	0.34	0.07	0.17	0.50	1,142	0.37	0.11	-0.16	0.50
TA (in USD Bn)	1,255	206	583	2.22	4,040	112	33.4	33.4	2.35	203	1,143	223	608	2.22	4,040
EG	1,260	3.16	4.08	-9.52	11.44										
INF	1,215	3.58	3.86	-2.09	19.87										
HHI	1,260	0.12	0.06	0.05	0.28										
GOV	1,260	0.01	0.45	-1.01	0.99										

Table 3.
Correlation Result

	ROA	ROE	L.ESG	L.E	L.S	L.G	L.ETA	L.NPL	L.CTI	L.TDTA	L.REVDIV	L.LNTA	IB	EG	INF	HHI	COVID	GOV
ROA	1.00																	
ROE	0.81	1.00																
L.ESG	0.06	0.08	1.00															
L.E	0.06	0.15	0.74	1.00														
L.S	0.06	0.08	0.90	0.72	1.00													
L.G	0.04	0.03	0.66	0.25	0.30	1.00												
L.ETA	0.46	-0.02	-0.01	-0.18	-0.05	0.12	1.00											
L.NPL	-0.16	-0.24	-0.06	-0.05	0.01	-0.16	0.00	1.00										
L.CTI	-0.14	-0.28	0.20	0.12	0.26	0.05	0.13	0.31	1.00									
L.TDTA	-0.18	-0.02	-0.27	-0.21	-0.29	-0.10	-0.33	-0.15	-0.27	1.00								
L.REVDIV	0.05	0.03	0.07	0.16	0.10	-0.04	0.00	0.13	0.09	0.06	1.00							
L.LNTA	-0.12	0.11	0.23	0.37	0.21	0.04	-0.42	-0.22	-0.37	0.18	0.17	1.00						
IB	0.06	0.10	-0.32	-0.31	-0.34	-0.13	0.03	-0.06	-0.10	0.20	-0.07	-0.16	1.00					
EG	0.01	0.12	0.05	0.14	0.03	0.03	-0.21	-0.03	-0.10	0.13	-0.08	0.17	-0.10	1.00				
INF	0.16	0.22	0.26	0.29	0.29	0.01	-0.07	0.13	0.10	-0.28	-0.10	-0.06	-0.08	0.20	1.00			
HHI	0.23	0.06	-0.08	-0.25	-0.14	0.14	0.33	0.11	0.12	-0.10	-0.07	-0.33	0.30	-0.29	-0.07	1.00		
COVID	-0.19	-0.20	0.04	-0.14	0.04	0.01	0.01	0.09	0.01	0.00	-0.06	0.03	0.00	-0.28	-0.07	0.03	1.00	
GOV	-0.17	-0.19	-0.13	-0.14	-0.20	0.06	-0.02	0.06	-0.10	0.13	0.09	-0.06	0.21	-0.10	-0.42	0.08	0.03	1.00

4.1. Baseline Regression Results

Table 4 presents the baseline results. From the Table, we may note that committing to ESG practices significantly improves banks' ROA. An increase ESG value by 1 point is expected to increase banks' ROA by 0.01 percentage points. In addition, the implementation of social practices by the banks significantly raises banks' ROA, and the magnitude is the same as that of the aggregate ESG score. However, other pillars, namely commitment to environmental and governance practices, carry insignificant coefficients. Our findings are in line with previous studies, namely Buallay (2019) and Khoury et al. (2021), which also document a positive and significant relationship between ESG practices and banking profitability. As explained by Buallay (2019), banks incorporating ESG practices are competitive in the market, gaining more financial benefits by attracting more stakeholders to be involved in business activities. In addition, Shakil et al. (2019) postulate that banks' involvement in socially responsible activities significantly boosts their financial performance.

Furthermore, ESG practice performance also evidently increases the banking performance measured by ROE (See Table 5). A rise of one point in the ESG value increases the ROE by 0.04 percentage point. We arrive at comparable coefficients for the environmental and social pillars. However, the governance pillars remain insignificant to banking performance. This finding is similar to the previous empirical results by Buallay (2019), Nizam et al. (2019), and Menicucci & Paolucci (2023), suggesting that ESG matters to banking performance.

Table 4.
The Impact of ESG on ROA

Variables	(1) ESG	(2) Environmental	(3) Social	(4) Governance
L.ROA	0.22	0.27**	0.41**	0.23*
	(0.85)	(2.14)	(2.50)	(1.75)
L.ESG	0.01*	0.00	0.01*	-0.00
	(1.68)	(1.08)	(1.82)	(-0.39)
B Control	Yes	Yes	Yes	Yes
M Control	Yes	Yes	Yes	Yes
G Control	Yes	Yes	Yes	Yes
Cons	-0.77	0.43	-1.46	0.33
	(-0.37)	(0.42)	(-0.74)	(0.33)
No of Obs.	879	879	879	879
No of Bank	171	171	171	171
No of Instrument	17.00	19.00	16.00	19.00
AR1p	0.01	0.00	0.00	0.00
AR2p	0.45	0.27	0.38	0.36
Hansenp	0.14	0.15	0.12	0.20

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5.
The Impact of ESG on ROE

Variables	(1) ESG	(2) Environmental	(3) Social	(4) Governance
L.ROE	0.09	0.48***	0.20	0.17
	(0.66)	(3.42)	(1.26)	(0.99)
L.ESG/E/S/G	0.04**	0.04**	0.03**	-0.01
	(2.02)	(2.18)	(2.21)	(-0.76)
B Control	Yes	Yes	Yes	Yes
M Control	Yes	Yes	Yes	Yes
G Control	Yes	Yes	Yes	Yes
Cons	18.84	-14.32	5.67	3.04
	(1.65)	(-1.01)	(0.42)	(0.23)
No of Obs.	879	879	879	879
No of Bank	171	171	171	171
No of Instrument	18	17	17	17
AR1p	0.01	0.00	0.00	0.00
AR2p	0.97	0.96	0.73	0.67
Hansenp	0.34	0.25	0.43	0.31

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A positive and significant relationship between ESG, its pillars, and banking performance indicates that ESG is an important factor in determining the financial soundness of banks. As mentioned by Azmi et al. (2021), emerging markets have higher economic uncertainty and are less developed in terms of institutional quality. Banks' commitment to ESG practices can potentially reduce asymmetric information, mitigate uncertainty, and improve consumer protection, particularly in developing and emerging countries at the banking level. Banks' emphasis on environmental and social pillar activities potentially signal to the markets that they have better financial performance.

An insignificant relationship between governance pillar and banking performance is also found in earlier studies, for instance, Shakil et al. (2019), Menicucci & Paolucci (2023), Azmi et al. (2021), and Khoury et al. (2021). This is possible since the governance pillar implementation remains underperformed (Khoury et al., 2021), particularly in emerging and developing countries. From the institutional quality viewpoint, the quality of governance (in the context of ESG) will positively and significantly impact banking performance (Andrieș & Sprincean, 2023). Therefore, banks that pay inadequate attention to implementing governance activities are expected to experience poor banking performance compared to those highly motivated to improve their organizational governance.

4.2. ESG and Islamic and Conventional Banking Performance

Table 6.
ESG and ROA of Islamic and Conventional Banks

Variables	(1) ESG	(2) Environmental	(3) Social	(4) Governance
L.ROA	0.37**	0.29**	0.26*	0.27*
	(2.16)	(2.29)	(1.65)	(1.90)
L.ESG*IB	-0.27			
	(-1.09)			
L.E*IB		0.01*		
		(1.73)		
L.S*IB			-0.06	
			(-0.57)	
L.G*IB				0.01
				(0.97)
IB	10.83	0.04	2.65	-0.33
	(1.10)	(0.33)	(0.63)	(-0.52)
L.ESG/E/S/G	0.03	0.00	0.01	0.01
	(1.31)	(1.04)	(0.91)	(1.49)
B Control	Yes	Yes	Yes	Yes
M Control	Yes	Yes	Yes	Yes
G Control	Yes	Yes	Yes	Yes
Cons	0.67	0.41	0.55	0.91
	(0.33)	(0.41)	(0.41)	(0.80)
No of Obs.	879	879	879	879
No of Bank	171	171	171	171
No of Instrument	20	21	19	21
AR1p	0.01	0.00	0.00	0.00
AR2p	0.50	0.28	0.48	0.48
Hansenp	0.47	0.13	0.10	0.20

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7.
ESG and ROE of Islamic and Conventional Banks

Variables	(1) ESG	(2) Environmental	(3) Social	(4) Governance
L.ROE	0.24**	0.22*	0.17	0.22**
	(2.01)	(1.86)	(1.45)	(2.02)
L.ESG*IB	-1.72*			
	(-1.77)			
L.E*IB		0.05*		
		(1.66)		
L.S*IB			-0.88	
			(-1.36)	
L.G*IB				-0.10**
				(-2.15)
IB	71.31*	1.06	38.51	7.35**
	(1.82)	(1.04)	(1.45)	(2.56)
L.ESG/E/S/G	0.20**	0.02*	0.11*	0.09**
	(2.09)	(1.66)	(1.72)	(2.42)
B Control	Yes	Yes	Yes	Yes
M Control	Yes	Yes	Yes	Yes
G Control	Yes	Yes	Yes	Yes
Cons	11.08	12.22	12.94	11.36
	(1.00)	(1.21)	(1.31)	(1.22)
No of Obs.	879	879	879	879
No of Bank	171	171	171	171
No of Instrument	20	21	19	21
AR1p	0.00	0.00	0.01	0.01
AR2p	0.71	0.64	0.64	0.85
Hansenp	0.76	0.15	0.31	0.34

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Tables 6 and 7 show the results of the performance comparison between Islamic and conventional banks in relation to the ESG performance nexus. This is explained in the interaction variables, namely, ESG*IB, E*IB, S*IB, and G*IB, in which IB is a dummy variable, with a value of "1" and "0" to denote Islamic and conventional banks, respectively. According to Table 6, ESG*IB is statistically insignificant. In addition, neither S*IB nor G*IB are significant. The

findings imply that the commitment to ESG practice in general, and the social and governance activities in particular, affect both Islamic and conventional banks without noticeable differences. Interestingly, the interaction variable between the environmental pillar and IB (E*IB) significantly enhances banks' ROA, based on a 10% significance level. In other words, Islamic banks perform better than their conventional counterparts in terms of ROA when they all engage in environmental activities.

When ROE is used as a proxy of banking performance, the interaction of ESG and IB (ESG*IB) has a negative and significant coefficient. We also note similar result for the interaction between the governance pillar and IB. The results show that for Islamic banks, possessing one higher ESG score reduces ROE by -1.52 (0.20+(-1.72)) percentage points while one point increase in the governance pillar results in lower ROE by -0.01 (0.09+(-0.10)) percentage points as compared to conventional banks. Consistently, the interaction variable between the environmental pillar and IB (E*IB) has a positive and significant relationship with ROE.

Even though it is clear that there is a theoretical nexus between Islamic banks and ESG commitment, implementing a whole concept of ESG in Islamic banks possibly adds more cost for the banks. As discussed by Khan & Tabet (2024), Islamic banks also need to address the issue of interest-based activities and other related activities, which are prohibited by Islamic principles. Thus, it creates more inflexibility in banking operations when concurrently implementing ESG and Shariah-compliant activities. In addition, a negative and significant relationship is present due to a potential redundancy of the ESG framework. This can be seen from the interaction between the governance pillar of ESG and Islamic banks, which significantly affects banks' return on equity in a negative direction. It shows that Islamic banks are different from and not better than conventional banks in their banking performance while incorporating the governance pillar of ESG. The finding is different from Alam et al. (2022), who find the same influence of governance pillar on banking performance for Islamic and conventional banks.

Mollah et al. (2017) explain that Islamic banks' governance is more complex, considering the higher complexity of Islamic banking operations than conventional banks. Consequently, Islamic banks need more resources to operationalize their governance, including reviewing, directing, and supervising their banking activities. Within Islamic banks, shariah audit, review, and compliance departments also exist to ensure all banking operations comply with the Shariah (Boudawara et al., 2023). These activities create additional costs for Islamic banks that may reduce banks' returns, and this complexity is not present in conventional banks. Moreover, the uniqueness of corporate governance with the presence of the Shariah Supervisory Board (SSB) and its duties is not well-accommodated in the ESG framework.

We not that only the environmental pillar adds more value to the performance of Islamic banks. It is supported by the previous findings from Buallay (2019), Shakil et al. (2019), Khoury et al. (2021), Nizam et al. (2019), and Alghafes et al. (2024), stating that implementing environmental pillar adds more value to the banks by gaining more positive perception from the stakeholders, specifically when it involves banks' resource use, environmental innovation, green building, managing waste, and others (Alam et al., 2022). Islamic banks perform better

by engaging in the environmental pillar because it complements the Shariah-compliant framework. Environmentally friendly activities are in congruence with Islamic banks that strengthen Shariah-compliance values (Bukhari et al., 2020), creating more credibility for Islamic banks from the stakeholders' viewpoint. This argument is supported by Alam et al. (2022) and Alghafes et al. (2024), who find similar results.

4.3. Robustness Check

Table 8.
Robustness Check

Variables	(1)	(2)	(1)	(2)
	ROE	ROA	ROE	ROA
L.Dep.Var	0.30*	0.27**	0.24	0.14
	(1.92)	(2.28)	(1.58)	(0.71)
L.ESGC	0.03*	0.00*		
	(1.77)	(1.71)		
L.ESG			0.07*	0.01
			(1.83)	(1.50)
B Control	Yes	Yes	Yes	Yes
M Control	Yes	Yes	Yes	Yes
G Control	Yes	Yes	Yes	Yes
Cons	-17.14	-3.67	-1.46	1.89
	(-1.14)	(-1.75)	(-0.08)	(0.59)
No of Obs.	879	879	666	666
No of Bank	171	171	128	128
No of Instrument	16	15	16	15
AR1p	0.00	0.00	0.00	0.00
AR2p	0.91	1.00	0.59	0.46
Hansenp	0.52	0.23	0.89	0.27

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

To ensure the consistency of our findings, the robustness check is conducted using two approaches. Firstly, ESG Combined (ESGC) is applied to replace the earlier ESG score used in the model. ESGC refers to the ESG score deducted by the score related controversial actions by banks. The controversies score reflects the banking operations that have a negative impact on environmental, social, and governance aspects. Secondly, we exclude China and India from the analysis, where both countries have many banks, which, in aggregate, account for over 25% of the sample (see Appendix 1). The results are presented in Table 8.

Our robustness tests show that the ESG score significantly and positively influences banking performance, both in terms of ROA and ROE. This reaffirms the positive and significant relationship between ESG activities and banking performance, as shown in our earlier findings. It also stresses that ESG activities are pivotal for banks' performance and thus require increased commitments from banks in emerging and developing countries.

V. CONCLUSION

This study examines the impact of ESG practices on banking performance across 29 emerging and developing countries over the period between 2016-2022. The findings show that ESG practices positively impact banking performance. Furthermore, our analysis also reveals significant differences between Islamic and conventional banks regarding the impact of ESG practices on banking performance. Islamic banks are found to be better when implementing environmental pillars. Conversely, taking into account the ESG framework as a whole and implementing it in Islamic banking operations creates an additional cost that lowers the return of Islamic banks.

From the results, we arrive at the following two main conclusions: (1) ESG practices are pivotal for banking performance in emerging and developing countries, and (2) Islamic banks possibly face trade-off between commitments to ESG practices and the Shariah-compliant framework. Nevertheless, Islamic banks obtain financial benefits when focusing on environmental pillar activities. As for a policy implication at the banking level, banks in emerging and developing countries need to integrate ESG practices into their banking operations. The banks' ESG commitment can be in the form of adopting ESG framework in their banking operation and business strategy, incorporating ESG in credit assessment, and integrating ESG commitment in their banking products. In the case of Islamic banks, incorporating the environmental pillar can be adopted in the form of promoting green financing and integrating environmental risks in the banking operation.

At the policy level, the financial authority is required to have an ESG framework to be implemented in the banking industry. A step-by-step implementation can be adopted on a voluntary basis, and sufficient incentives can be provided for banks that have ESG commitments. In addition, financial authorities must engage in ESG activities such as issuing green bonds/sukuk and having macro and micro-prudential policies based on the ESG framework. However, in the dual banking system, a tailor-made ESG framework needs to be adopted to recognize the uniqueness of Islamic banks, especially in the presence of the Shariah governance framework. The tailor-made ESG framework is important to ensure the absence of potential overlap between incorporating ESG and implementing Shariah principles.

Our study is confined to investigating the impact of ESG implementation on banking performance using profit-based measurement. Future studies probably need to elaborate on risk-based measures of performance while also extending not only ESG and its pillars but also the indicators in each pillar. Thus, the findings of the study can precisely capture the impact of ESG at the level of the indicators on banking performance.

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APPENDIX

Appendix A1. Sample of the study

Countries	Banks		Countries	Banks	
	Conventional	Islamic		Conventional	Islamic
Argentina	6	-	Oman	6	-
Bahrain	2	-	Pakistan	3	1
Brazil	5	-	Peru	3	-
Chile	4	-	Philippines	4	-
China	29	-	Poland	9	-
Colombia	4	-	Qatar	3	3
Egypt	2	1	Romania	2	-
Hungary	1	-	Russia	3	-
India	15	-	Saudi Arabia	6	4
Indonesia	6	-	South Africa	6	-
Jordan	4	-	Thailand	10	-
Kuwait	3	3	Turkey	7	-
Malaysia	7	-	United Arab Emirates (UAE)	7	4
Morocco	1	-	Uganda	1	-
Mexico	4	-			