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DOING WELL BY DOING GOOD: THE NEXUS BETWEEN ENVIRONMENTAL COMMITMENT AND ISLAMIC BANKING STABILITY

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ABSTRACT

Purpose — This paper aims to investigate the impact of environmental commitment on Islamic banking stability.

Design/Methodology/Approach — The study sample consists of 32 Islamic banks across 12 countries, covering data from 2016 to 2023. Panel data estimation is employed in this study, specifically using fixed effect (FE) regression and two-stage least squares (2SLS).

Findings — The findings indicate that Islamic banks demonstrating a strong commitment to environmental practices tend to exhibit greater financial stability. Furthermore, this positive relationship is more pronounced in countries with higher levels of institutional quality, where such commitment is associated with enhanced financial resilience. However, during the COVID-19 pandemic, Islamic banks that engaged in environmental initiatives experienced increased financial vulnerability, suggesting context-specific limitations to the stabilising effect of environmental commitment.

Originality/Value — The study extends prior empirical works on the influence of environmental commitment on Islamic banking stability. It also offers a more nuanced analysis by exploring the effects of specific indicators of environmental commitment and the contextual conditions under which these practices influence financial stability—areas that have been largely overlooked in previous studies.

Research Limitations/Implications — The study is limited in the number of observations, specifically the issue of data availability for environmental performance in Islamic banks.

Practical Implications — Based on the findings, the study suggests that Islamic banks need to incorporate environmental commitment in their operations, considering their positive impact on banking stability. Regulatory institutions should mandate Islamic banks to adopt and gradually implement a structured approach towards strengthening their commitment to environmental practices.

Keywords — Environmental commitment, Financial stability, Institutional development, Islamic banks

Article Classification — Research Paper

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INTRODUCTION

Stakeholders in the banking sector have shown growing concern for environmental issues, as evidenced by a range of policies and initiatives introduced by financial authorities and regulatory bodies, spanning both developed and developing economies. A prominent example is the Network for Greening the Financial System (NGFS), which focuses on addressing the interplay between climate-related risks and financial stability within the banking industry (NGFS, 2019). Comprising 144 members, dominated by central banks and financial agencies, NGFS emphasises that physical risks will emerge due to extreme weather and gradual changes in climate conditions.

As a direct consequence, they trigger the migration of people to safer regions. They impact business activities, increasing commodity prices and lowering the economic value of assets in areas prone to catastrophic disasters, among other effects. Indeed, they also impact economic activities and create financial instability. Hence, NGFS (2019) emphasises the necessity of integrating climate-related risks into the banking sector. This includes reinforcing the role of central banks and national financial regulators in formulating micro prudential policies that address climate risks. The report also underscores the importance of incorporating environmental considerations into banks' investment decisions and credit assessment frameworks, given the sector's critical role as a financial intermediary and its broader impact on economic stability.

In the case of Islamic banking operations, the concern about Islamic banks' environmental commitment was initiated by Bank Negara Malaysia (2018) through the value-based intermediation (VBI) approach. The notion of VBI underscores that Islamic banks must shift their focus from output to an outcome-based approach. It highlights the necessity for Islamic banks to extend their focus beyond profit-making by integrating environmental and social considerations into their operations. This suggests that technical Sharīʿah compliance is insufficient; Islamic banks must also embed environmental commitment within their business practices.

In conformity with environmental commitment, the General Council of Islamic Banking and Financial Institutions (CIBAFI) released sustainability guidelines in 2022 aimed at promoting the integration of sustainability considerations into the operations of Islamic financial institutions (IFIs). These guidelines urge Islamic banks to embed sustainability within their Sharīʿah governance frameworks. In particular, Islamic banks are encouraged to incorporate environmental factors into their financing decisions, especially when extending credit to deficit units (CIBAFI, 2022). While integrating the environmental pillar into Islamic banking is essential, it raises a critical question as to whether this integration enhances Islamic banks' performance, particularly with regard to financial stability.

Therefore, this study aims to examine the impact of environmental commitment on Islamic banking stability by utilising a global sample of Islamic banks. There are two main research questions addressed in this paper:

1. What is the effect of environmental commitment and disaggregated environmental indicators on Islamic banking stability?
2. Under what conditions do environmental practices affect Islamic banking stability?

These questions are crucial for uncovering the relationship between environmental practices and the stability of Islamic banks, as well as identifying the contextual factors that may influence this linkage.

This study positions itself within the existing literature in two key ways. First, it advances the discourse by examining the influence of environmental performance on the stability of Islamic banks, with a detailed exploration of disaggregated environmental indicators comprising Emission Score (ES), Resource Use (RU), and Environmental Innovation (EI). To the best of the authors' knowledge, only Sendi *et al.* (2024) have a similar investigation to this study concerning Islamic banking stability. However, Sendi *et al.* (2024) only emphasise environmental, social, and governance (ESG), and do not deeply examine environmental indicators.

Secondly, this study contributes to the existing literature by examining the conditions under which the environmental practices affect Islamic banking stability. Prior literature has empirically attempted to examine similar conditions, for example, Azmi *et al.* (2021) in emerging and developing markets, Islam *et al.* (2025) in the Organisation for Islamic Cooperation (OIC) member countries, and Peng and Isa (2020) in the case of developed countries. However, Azmi *et al.* (2021) do not have interaction variables in the model and only use selected financial performance variables as dependent variables to identify the channel through which environmental performance impacts bank performance. Islam *et al.* (2025) have an interaction variable but exclusively focus on conventional banks and the aggregate score of ESG. Peng and Isa (2020) interact with ESG and firm-level variables such as financial constraint and financial slack; the former refers to a firm's limited source of funds while the latter indicates abundant financial resources owned by the firm. Nevertheless, the study is applied to non-financial firms in the Sharīʿah stock index, which certainly have different business models from those of the banking sector. Therefore, examining the conditions under which environmental practices influence Islamic banking stability remains essential.

The study is significant to the empirical development regarding the intersection of environmental commitment and Islamic banking stability, including the conditions that may affect the relationship between the variables. Moreover, the study is essential for Islamic banking stakeholders to gain more information regarding the impact of environmental practices on Islamic banking stability and utilise that information for practical application, either at the banking or country levels, for policy issuance purposes.

The remainder of the paper is organised as follows: it begins with a review of the relevant literature, followed by an explanation of the methodology. This is followed by explaining and discussing the empirical findings, and concludes with key insights and implications drawn from the study.

LITERATURE REVIEW

Theoretical Background

Theoretically, the nexus between IFIs and environmental commitment can be seen from the theory of Islamic Moral Economy (IME) proposed by Asutay (2013). The theory of IME underscores that Islamic economics aims to achieve justice and welfare in society. Thus, Islamic economics is not merely a profit-seeking activity; it needs to empower society and the environment. This theory is applied by IFIs, including Islamic banks, that must have environmental concerns in their business activities. It also aligns with Islamic principles through *maqāṣid al-Sharīʿah* to preserve the environment, which is closely related to preserving life. The theory of IME is also generally in conformity with the stakeholder theory proposed by Freeman (1984), Jensen (2002), and Donaldson and Preston (1995), stating that all the firm's activities aim to fulfil the stakeholders' interests.

According to Bukhari *et al.* (2020), environmental commitment is in congruence with the spirit of Sharīʿah, which Islamic banks are also adopting. Therefore, Islamic banks' environmental commitment can corroborate the implementation of Sharīʿah principles in Islamic banks. This underscores that Islamic banks adhere to Sharīʿah principles and extend their operations beyond mere compliance, encompassing broader ethical responsibilities. Their commitment to environmental sustainability enhances institutional reputation and fosters greater stakeholder loyalty, which in turn contributes to improved financial performance (Bukhari *et al.*, 2020).

Khan and Badjie (2022) also add that committing to environmentally friendly practices is insufficient for Islamic banks. Islamic banks must maintain Sharīʿah compliance in banking operations by avoiding and not engaging in prohibited transactions such as interest-based financial activities, gambling, and other non-permissible activities. The commitment to maintaining Sharīʿah compliance differs from conventional banks, which may have integrated environmentally friendly activities into their banking operations. However, adhering to Sharīʿah principles imposes greater restrictions on banks, limiting their participation in various financial activities (Mollah & Zaman, 2017). It indicates that the banks may have more challenges incorporating environmental commitments into their banking stability, considering the limited source of funds that Islamic banks have to manage their risks.

Previous Empirical Studies

There has been significant growth in previous empirical studies investigating the nexus between sustainability commitment and banking performance. Most of these examine developed countries, although some look at emerging markets. The studies of Buallay (2019) and Tommaso and Thornton (2020) scrutinise the European banking industry as a whole, while Menicucci and Paolucci (2022) review this relationship in the Italian banking industry. Shakil *et al.* (2019) and Azmi *et al.* (2021) inspect the emerging market in general; Alghafes *et al.* (2024) focus on the Gulf Cooperation Council (GCC) member countries; Islam *et al.* (2025) tackle the Orgnisation of Islamic Cooperation (OIC) member countries; while Nizam *et al.* (2019) and Yuen *et al.* (2022) widen the scrutiny to the global banking industry. Specifically regarding the intersection between environmental commitment and banking stability, studies have been conducted by Tommaso and Thornton (2020), Chiaramonte *et al.* (2022), Agnese and Giacomini (2023), and Liu *et al.* (2023) in the case of the European and United States (US) banking industry, while Salim *et al.* (2023) and Sendi *et al.* (2024) have done so regarding the global banking industry.

The prior studies have inconclusive findings regarding the nexus between environmental commitment and banking stability. The first strand of literature finds that incorporating environmental commitment increases banking stability, for example, the studies of Chiaramonte *et al.* (2022) and Liu *et al.* (2023). The reasons, according to them, for the positive relationship between environmental practices and banking stability are:

1. Banks committing to responsible activities tend to be prudent in banking operations and sufficiently scrutinise lending activities, which results in lower rates of bad loans.
2. The banks have more stakeholder engagement, especially during financial distress.
3. The banks have a proper strategy to manage the pressure of strengthening regulatory requirements.

On the contrary, another strand of the previous literature shows that environmental commitment in banking operations reduces banking stability. These findings are found in Tommaso and

Thornton (2020), and Salim *et al.* (2023). Some reasons proffered for the negative impact of environmental commitment on banking stability are the potential trade-off between committing to responsible banking activities and banks' risk management (Tommaso & Thornton, 2020; Salim *et al.*, 2023). When banks invest more funds in environmental commitment, it reduces risk management performance, making them more vulnerable to financial shocks and potentially resulting in financial instability.

To date, studies specifically dedicated to analysing the impact of environmental commitment on Islamic banking performance are scarce. This argument is supported by Tumewang *et al.* (2024), who state that more studies are needed to observe the impact of sustainability on Islamic banking performance, focusing on the banks' commitment to ESG initiatives. Among the limited studies that specifically examine Islamic banks in the context of environmental commitment and financial performance, Alghafes *et al.* (2024) find that environmental commitment positively influences the financial performance of Islamic banks. Their findings suggest that such commitment plays a significant role in enhancing risk management practices within these institutions.

A similar finding is discovered by Alam *et al.* (2022) in the case of Gulf countries when investigating the relationship between environmental commitment and Islamic banks' efficiency. In addition, adopting a comparative approach between Islamic and conventional banks, Sendi *et al.* (2024) find that environmental commitment does not impact Islamic banking stability. In the case of Türkiye, Aracil (2019) reveals that Islamic banks' environmental commitment is primarily influenced by informal institutional factors rooted in the values and ethical foundations of Sharīʿah principles guiding their business operations. It also suggests that Islamic banks engage in environmental commitment primarily out of intrinsic motivation grounded in *maqāṣid al-Sharīʿah* rather than as a response to external regulatory pressures.

Given the limited evidence in the empirical literature studying the nexus between environmental commitment and Islamic banking stability, this study aims to address this gap and extend the growing body of literature on this subject. Specifically, it investigates the role of environmental indicators and explores the conditions in which environmental commitment influences the performance of Islamic banks.

METHODOLOGY

To investigate the nexus between environmental commitment and Islamic banking stability, this study uses Islamic banks globally as the object of the study. It considers 32 Islamic banks across 12 countries, comprising Indonesia, Malaysia, Pakistan, Turkey, Egypt, Bahrain, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). The study period is from 2016 to 2023, considering the availability of Islamic banks' data on environmental commitment. This research collected the data from Refinitiv Datastream for environmental commitment, Fitch Connect for bank-level data, and World Bank Indicator (WBI) for country-level data.

Referring to the stakeholders' theory and adapting from prior studies, such as Freeman (1984), Edmans (2023), and Sendi *et al.* (2024), the baseline model of the studies is as follows;

$$LNZSCORE_{it} = a_0 + a_1 ENV_{it} + a_2 BANK_{it} + a_3 COUNTRY_{ij} + \varepsilon_{ijt} \quad (1)$$

Where *i* represents cross-sectional data at the banking level, *t* is time, and *j* is cross-sectional data at the country level. This paper uses ZSCORE to explain Islamic banking stability, measured by

$\frac{ROA+ETA}{\sigma(ROA)}$ where ROA is the return on assets, ETA represents equity divided by total assets, and σ(ROA) is the standard deviation of ROA.

According to Sendi *et al.* (2024), ZSCORE is robust in calculating banking stability. Chiaramonte *et al.* (2016) even claim that ZSCORE explains the banks' distance-to-default from the accounting-based perspective, which accurately predicts the level of banks' stability. A higher value of ZSCORE indicates that Islamic banks are financially stable, and a low score of ZSCORE shows otherwise. Considering that the nature of the ZSCORE value is highly skewed, this paper follows Ibrahim and Rizvi (2017) and Sendi *et al.* (2024) in using the natural logarithmic form of ZSCORE.

The main independent variable of this paper is the environmental pillar of the ESG (ENV) score collected from the data source. Meanwhile, control variables pertaining to the banks are:

- liquidity (LIQUID), calculated as Islamic banks' liquid assets divided by total assets;
- asset quality (NPL), which is proxied to Islamic banks' nonperforming financing;
- Islamic banks' efficiency (EFF), which is calculated as the ratio of cost to total income; and
- Islamic banks' total assets in the log form (LNASSET).

Furthermore, this paper utilises control variables at the country level, comprising economic growth (EG) and COVID, which are calculated using dummy variables during the COVID-19 pandemic period (1 for the year 2020 and 2021, 0 for the rest of the study period). Institutional quality (GOV) is also adopted as the control variable at the country level, which is calculated as the average score of corruption, government effectiveness, political stability and absence of violence, regulatory quality, rule of law, and voice and accountability (Poghosyan, 2013).

To deepen the analysis, the study extends the baseline model (see Equation 1) by disaggregating the ENV variable into its indicators consisting of Emission Score (ES), Resource Use (RU), and Environmental Innovation (EI) to identify which environmental indicators affect Islamic banking stability, explained as follows:

$$LNZSCORE_{it} = a_0 + a_1 ENV\ Indicators_{it} + a_2 BANK_{it} + a_3 COUNTRY_{ij} + \varepsilon_{ijt} \qquad (2)$$

In addition, this paper interacts ENV with selected control variables to examine the impact of environmental performance on Islamic banking stability when it depends on the condition of selected control variables, as formulated below:

$$LNZSCORE_{it} = a_0 + a_1 INTERA_{it} + a_2 ENV_{it} + a_3 BANK_{it} + a_4 COUNTRY_{ij} + \varepsilon_{ijt} \qquad (3)$$

Where INTERA reflects the interaction variable. This study exploits Islamic banks' financial conditions in terms of financial slack proxied by LIQUID (Duque *et al.*, 2019), Islamic banks' efficiency proxied by EFF (Hidayat *et al.*, 2021), and the importance of Islamic banks' size proxied by LNASSET (Ibrahim & Rizvi, 2017) to interact with ENV. The inclusion of the pandemic-induced financial turmoil as an interaction term with environmental commitment, following the approach of Chiaramonte *et al.* (2022), aims to assess whether such commitment contributes to the financial stability of Islamic banks during periods of crisis. Emphasising the significant role of

institutional development, as stressed by Uddin *et al.* (2020) and Karmani and Boussaada (2021), ENV then interacts with GOV to examine the impact on Islamic banks' stability.

Moreover, this paper follows Brambor *et al.* (2006) and Ibrahim and Arundina (2022) in applying the marginal effect for the interaction variable to understand the impact of the selected control variables when there is a change in Islamic banks' environmental commitment, as formulated below:

$$\frac{\partial LNZSCORE}{\partial ENV} = a_1 INTERA_{it} + a_2 \quad (4)$$

where a_1 is the coefficient of the interaction variable, and a_2 is the coefficient of Islamic banks' environmental performance.

To estimate the model, the study adopts static panel estimation, such as pooled ordinary least squares (POLS), random effect (RE), and fixed effect (FE) models, to analyse the data, considering that the number of data points is small. To determine the most efficient and consistent estimation method, the Breusch-Pagan Lagrange Multiplier (LM) test and Hausman test are adopted to examine the best estimation for the model. A dynamic panel estimation using the Generalized Method of Moments (GMM) was considered to address potential endogeneity concerns within the model. However, this approach was not employed due to its susceptibility to bias in small sample contexts (Dang *et al.*, 2015; Ibrahim & Rizvi, 2017). Instead, the endogeneity issue is mitigated through the application of an auxiliary test, specifically the two-stage least squares (2SLS) regression, as suggested by Ibrahim and Arundina (2022).

RESULTS AND DISCUSSION

Table 1 presents the descriptive statistics for a sample of 32 Islamic banks across 12 countries. The average LNZSCORE, a proxy for financial stability, is 3.87 with a standard deviation of 0.99. This relatively low dispersion suggests minimal variation in financial stability among the sampled Islamic banks, indicating a broadly similar stability profile. Notably, higher LNZSCORE values reflect greater financial stability, whereas lower scores denote weaker stability.

Table 1: Descriptive Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
LNZSCORE	133	3.87	0.99	1.22	6.55
ENV	133	37.75	21.78	16.26	93.93
LIQUID	133	13.43	8.59	2.63	38.12
NPL	131	4.82	6.83	0.17	38.96
EFF	133	42.39	20.06	13.4	155.72
ASSET (USD Million)	133	35,400	37,600	791	215,000
GDP	130	2.18	3.64	-5.27	11.43
COVID	133	0.39	0.48	0	1
GOVERN	122	0.05	0.42	-0.95	0.65

Source: Authors' own

The environmental performance scores of Islamic banks range from a minimum of 16.26 to a maximum of 93.93, with an average score of 37.75. Based on the classification provided by LSEG (2023), environmental performance is categorised into four tiers: scores between 0–25 indicate

poor performance, >25–50 satisfactory, >50–75 good, and >75–100 excellent. Accordingly, the average score suggests that Islamic banks, on the whole, exhibit a satisfactory level of environmental performance. Regarding the control variables, the high standard deviation of non-performing loans (NPLs) reflects substantial variation in asset quality among the sampled banks. Similarly, the considerable standard deviation in bank size indicates notable heterogeneity in the scale of Islamic banks included in the study.

Table 2 shows the correlation analysis between variables. The correlation analysis results show that the highest correlation score is between NPL and LNZSCORE, which is -0.524, while the lowest is between GDP and LIQUID, which is -0.003. According to Ullah *et al.* (2019), the multicollinearity issue is not present when the correlation between the variables does not exceed 0.8. Then, it can be concluded that all variables are independent of one another.

Table 2: Correlation Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) LNZSCORE	1.000								
(2) ENV	-0.127	1.000							
(3) LIQUID	-0.076	-0.011	1.000						
(4) NPL	-0.524	-0.023	0.467	1.000					
(5) EFF	0.320	-0.186	0.329	0.091	1.000				
(6) LNASSET	-0.128	0.358	-0.421	-0.494	-0.464	1.000			
(7) GDP	0.058	0.237	-0.003	0.028	0.061	-0.018	1.000		
(8) COVID	0.013	0.060	0.107	0.094	0.028	-0.163	-0.302	1.000	
(9) GOVERN	-0.107	-0.222	-0.120	0.254	-0.112	0.016	-0.104	-0.044	1.000

Source: Authors' own

Baseline Result

Following preliminary tests to identify the appropriate estimation method, the study adopts a fixed effects approach for model estimation. This selection is based on the POLS, RE, and FE results, followed by LM and Hausman tests. The findings of the tests indicate that the null hypothesis is rejected in the LM and Hausman tests, indicating that FE is more efficient and consistent. Regarding the baseline results, **Table 3** shows the influence of environmental commitment on Islamic banking stability, comprising four scenarios in the estimation models.

According to the findings, the environmental pillar is insignificant to Islamic banking stability in Model 1, but Models 2 to 4 have a positive and significant relationship with Islamic banking stability. The coefficient values explain that an increase of one point in environmental commitment adds 0.002 to the LNZSCORE value. It suggests that committing to environmental practices increases Islamic banking stability. The study's findings are similar to those of Alghafes *et al.* (2024), who find that environmental practices support the stability of Islamic banks, in line with the previous studies of Chiaramonte *et al.* (2022) and Liu *et al.* (2023).

The positive and significant relationship between environmental commitment and banking stability shows that the banks' environmental commitment can manage financial risk well and that the banks are more prudent in their financial activities (Chiaramonte *et al.*, 2022; Liu *et al.*, 2023). This finding contrasts with Tommaso and Thornton (2020) and Salim *et al.* (2023), who claim that banks face trade-off conditions between implementing environmental commitments and risk

management activities. Under this argument, incorporating environmental commitment reduces the banks' risk management performance.

Table 3: Baseline Result

Variables	(1)	(2)	(3)	(4)
	LNZSCORE	LNZSCORE	LNZSCORE	LNZSCORE
ENV	-0.001	0.002**	0.002**	0.002*
	(-0.947)	(2.025)	(2.011)	(1.965)
LIQUID		-0.002	-0.002	-0.000
		(-0.658)	(-0.690)	(-0.162)
NPL		-0.005	-0.003	0.005
		(-0.594)	(-0.392)	(0.538)
EFF		0.002	0.002	0.001
		(1.279)	(1.096)	(0.938)
LNASSET		-0.338***	-0.347***	-0.313***
		(-4.821)	(-4.985)	(-3.534)
GDP			0.001	0.000
			(0.357)	(0.088)
COVID			-0.081***	-0.092***
			(-3.443)	(-3.502)
GOVERN				-0.061
				(-0.280)
CONS	3.908***	11.759***	12.042***	11.203***
	(103.227)	(7.178)	(7.393)	(5.394)
No. of Observations	133	131	128	120
No. of Banks	33	32	32	32
R-Square	0.009	0.218	0.378	0.398
Note: t-statistics are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$				

Source: Authors' own

To extend the analysis, environmental commitment is then decomposed into its indicators, comprising Emission Score (ES), Resource Use (RU), and Environmental Innovation (EI). The study's findings are illustrated in **Table 4**, showing a significant relationship between RU and Islamic banking stability. An increase of a single point of RU strengthens Islamic banking stability by 0.002 points, reflected by the rise in LNZSCORE value. The findings explain that Islamic banks benefit from commitment to RU in environmental practices, especially in strengthening their financial stability. According to LSEG (2023), RU consists of the presence of policies relating to environmental supply chain, renewable energy use ratio, green building, water management, environmental management teams, and other related indicators. There is, nonetheless, an insignificant relationship between ES and EI to Islamic banking stability.

Table 4: Impact of Environmental Indicators on Islamic Banking Stability

Variables	(1)	(2)	(3)
	LNZSCORE	LNZSCORE	LNZSCORE
ES	0.001		
	(1.026)		
RU		0.002*	
		(1.818)	
EI			0.001
			(1.470)
LIQUID	0.000	0.000	-0.001
	(0.011)	(0.026)	(-0.206)
NPL	0.005	0.003	0.005
	(0.579)	(0.348)	(0.567)
EFF	0.001	0.002	0.001
	(0.874)	(1.021)	(0.904)
LNASSET	-0.299***	-0.330***	-0.293***
	(-3.202)	(-3.554)	(-3.325)
GDP	-0.000	0.000	0.000
	(-0.015)	(0.004)	(0.020)
COVID	-0.094***	-0.094***	-0.090***
	(-3.442)	(-3.554)	(-3.382)
GOVERN	-0.013	-0.009	-0.041
	(-0.057)	(-0.042)	(-0.186)
CONS	10.926***	11.624***	10.787***
	(4.983)	(5.342)	(5.202)
No. of Observations	120	120	120
No. of Banks	32	32	32
R-Square	0.377	0.394	0.385

Note: t-statistics are presented in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' own

Impact of Interaction Variables on Islamic Banking Stability

To investigate under what conditions environmental commitment influences Islamic banking stability, the study uses interaction variables by extending the previous works done by Peng and Isa (2020), Azmi *et al.* (2021), and Islam *et al.* (2025). The results of the impact of interaction variables on Islamic banking stability are highlighted in **Table 5**. The result for the interaction variable ENV*LIQUID shows that it does not have a significant relationship with Islamic banking stability. The same findings are present for the interaction variables ENV*EFF and ENV*LNASSET. It suggests that liquidity, efficiency, and Islamic banks' size fail to moderate the relationship between environmental commitment and Islamic banking stability.

The significant relationship between the interaction variables and Islamic banking stability is present in models 4 and 5 when environmental commitment interacts with COVID and GOVERN, respectively. Model 4 demonstrates that ENV*COVID has a negative and significant relationship with Islamic banking stability. The finding uncovers that during the pandemic period, Islamic banks' commitment to environmental practices increased by 0.002 (-0.002 + 0.004) points in LNZSCORE value. During the normal period, Islamic banks have a higher impact on increasing financial stability, which is 0.004 when incorporating environmental commitment in their banking operations.

Table 5: Interaction Variables and Islamic Banking Stability

Variables	(1)	(2)	(3)	(4)	(5)
	LNZSCORE	LNZSCORE	LNZSCORE	LNZSCORE	LNZSCORE
ENV*LIQUID	-0.000				
	(-0.225)				
ENV*EFF		0.000			
		(0.073)			
ENV*LNASSET			-0.001		
			(-0.933)		
ENV*COVID				-0.002**	
				(-2.240)	
ENV*GOVERN					0.007***
					(2.726)
ENV	0.002	0.002	0.023	0.004***	0.001
	(1.392)	(0.942)	(1.032)	(2.877)	(0.827)
LIQUID	0.001	-0.000	-0.001	-0.001	-0.001
	(0.096)	(-0.143)	(-0.262)	(-0.204)	(-0.436)
NPL	0.004	0.005	0.004	0.005	0.000
	(0.501)	(0.536)	(0.514)	(0.577)	(0.007)
EFF	0.001	0.001	0.001	0.002	0.001
	(0.956)	(0.378)	(0.583)	(1.334)	(0.678)
LNASSET	-0.312***	-0.312***	-0.278***	-0.360***	-0.273***
	(-3.485)	(-3.452)	(-2.887)	(-4.048)	(-3.161)
GDP	0.001	0.000	0.000	0.002	0.000
	(0.139)	(0.083)	(0.064)	(0.625)	(0.127)
COVID	-0.091***	-0.092***	-0.091***	0.002	-0.090***
	(-3.406)	(-3.458)	(-3.460)	(0.045)	(-3.558)
GOVERN	-0.075	-0.061	-0.074	-0.106	-0.359
	(-0.330)	(-0.276)	(-0.337)	(-0.494)	(-1.516)
Marginal Effect					
ENV+INTERA*min=0	0.002	0.002	0.000	0.003***	-0.005*
	(1.58)	(1.37)	(-0.93)	(2.88)	(-1.86)
ENV+INTERA*max=0	0.001	0.002	0.000	0.001	0.005***
	(0.33)	(0.36)	(-0.93)	(1.17)	(3.40)
CONS	11.153***	11.184***	10.375***	12.238***	10.369***
	(5.308)	(5.308)	(4.591)	(5.888)	(5.130)
No. of Observations	120	120	120	120	120
No. of Banks	32	32	32	32	32
R-Square	0.398	0.398	0.404	0.434	0.450

Note: t-statistics are presented in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' own

The result suggests that Islamic banks were worse off during the pandemic period compared to the normal period. The finding is different from Chiaramonte *et al.* (2022), who find that during the pandemic period the banks were more financially stable when they committed to environmental practices. Furthermore, the interaction variable ENV*GOVERN is positive and significant to Islamic banking stability. It indicates that institutional development, represented by the governance index, matters for Islamic banking stability when incorporating environmental commitment in

Islamic banking operations. This result is supported by Uddin *et al.* (2020), stating that institutional development is essential to determine Islamic banking performance.

Focusing on the marginal impact to examine the effect of the interaction variable when it has a change in the environmental commitment of Islamic banks, this paper tests the marginal effect hypothesis as suggested by Brambor *et al.* (2006) and Ibrahim and Arundina (2022). This is embodied in ENV+INTERA*min=0 and ENV+INTERA*max=0, where 'min' is the minimum value of variables that ENV interacts with, and 'max' is the maximum value of variables that ENV interacts with. The findings of marginal effect show that the environmental commitment of Islamic banks is not significant when it is interacted with LIQUD, EFF, and LNASSET. However, it is significant when it interacts with COVID and GOVERN. The findings show that during the normal period, implementing environmental commitment strengthens Islamic banking stability. These findings are supported by previous studies of Liu *et al.* (2023) and Alghafes *et al.* (2024).

Furthermore, higher levels of institutional development are positively and significantly associated with the financial stability of Islamic banks. In contrast, lower institutional development weakens Islamic banking stability, particularly when interacting with environmental commitment. These findings reinforce the argument that institutional quality plays a critical role in supporting the stability of Islamic banks (Uddin *et al.*, 2020), especially in the context of environmentally responsible banking practices.

Robustness Check

To ensure the consistency of the findings, this paper adopts a robustness test using the 2SLS to address the potential endogeneity problem in the estimations. According to the findings presented in **Table 6**, environmental commitment has a positive and significant relationship with Islamic banking stability, as expressed in models 2 to 4. The findings are the same as baseline results, indicating that the consistency of the findings is present. It can be concluded that the findings of the study are robust.

Table 6: Robustness Check

	(1)	(2)	(3)	(4)
	LNZSCORE	**LNZSCORE**	**LNZSCORE**	**LNZSCORE**
ENV	-0.002	0.005**	0.006**	0.006**
	(-0.690)	(1.991)	(2.345)	(2.558)
LIQUID		-0.002	-0.002	-0.000
		(-0.524)	(-0.542)	(-0.152)
NPL		-0.007	-0.005	0.004
		(-0.824)	(-0.680)	(0.534)
EFF		0.003	0.002	0.002
		(0.929)	(0.854)	(0.784)
LNASSET		-0.443***	-0.475***	-0.409***
		(-3.071)	(-3.217)	(-3.411)
GDP			0.001	-0.000
			(0.283)	(-0.067)
COVID			-0.080**	-0.100***
			(-2.050)	(-2.687)

Table 6: Robustness Check (Cont.)

	(1)	(2)	(3)	(4)
	LNZSCORE	**LNZSCORE**	**LNZSCORE**	**LNZSCORE**
GOVERN				-0.142
				(-0.441)
CONS	3.937***	14.128***	14.923***	13.314***
	(42.682)	(4.148)	(4.342)	(4.766)
No. of Observations	133	131	128	120
No. of Banks	33	32	32	32

Note: t-statistics are presented in parentheses.
* p < 0.10, ** p < 0.05, *** p < 0.01

Source: Authors' own

Discussion

The study's findings generally uncover that the environmental commitment of Islamic banks has a positive and significant influence on Islamic banking stability. The findings are supported by previous studies that have similar results, such as Chiaramonte *et al.* (2022), Liu *et al.* (2023) and Sendi *et al.* (2024). According to Chiaramonte *et al.* (2022) and Liu *et al.* (2023), banks that integrate sustainable commitments are more prudent in their banking operations, including their financing activities. As a result, the banks have lower levels of bad loans, which strengthens their financial stability and increases their financial performance.

In addition, a positive and significant relationship between integrating environmental commitment and Islamic banking stability confirms that the congruency theory matters. Bukhari *et al.* (2020) state that environmental commitment enhances the reputation of Islamic banks by reinforcing their adherence to Sharīʿah principles and demonstrating their dedication to ethical and socially responsible practices. Therefore, environmental commitment potentially makes Islamic banks more valuable in the market, which may open more opportunities for them to obtain lower funding costs. Azmi *et al.* (2021) also stress that banks that have a sustainability commitment tend to have more appreciation and are competitive in the market. It occurs because banks with such commitment tend to be more stable, and this can increase their bank value in the long run.

The findings of the study also corroborate the NGFS's (2019) assertion that banks' environmental commitment increases financial stability. Considering the presence of the transition and physical risks, banks' environmental commitment can be part of risk management activities that impact their long-run performance (NGFS, 2019). Hence, incorporating environmental commitment in the banking sector significantly strengthens financial stability.

Interestingly, the commitment of Islamic banks to environmental practices is not significantly influenced by internal financial conditions such as Islamic banks' liquidity, efficiency, and assets. It can be seen from the findings of the study, especially when they are analysed using the marginal effect. These findings may indicate that the environmental commitment in Islamic banks is driven by informal institutions (Aracil, 2019). This means that Islamic banks' environmental commitment is driven by their awareness, which evidently increases their financial stability as well. Peng and Isa (2020) also confirm that when the commitment to sustainability practices does not depend on internal financial conditions, it suggests that the commitment to sustainability is genuinely based on stakeholders' interests.

In addition to the influence of bank-level variables, the impact of Islamic banks' environmental commitment on Islamic banking stability is moderated by the presence of financial

turmoil represented by COVID and institutional development at the country level. The result differs from Chiaramonte *et al.* (2022), concluding that committing to sustainability practices increases banks' stability during the pandemic. During the financial turmoil, Islamic banks might have financial constraints for risk management, considering Islamic banks have limited sources of funds, and most Islamic banks also have a small bank size compared to their conventional counterparts. This circumstance may result in a trade-off during the pandemic period in which Islamic banks have a mutually exclusive choice between risk management and environmental commitment. It is also in line with Salim *et al.* (2023), who state that when committing to environmental practices, the risks increase because the banks have insufficient sources of funds to manage the risks.

Institutional development also drives Islamic banks' environmental commitment. Karmani and Boussaada (2021) explain that when a country has developed institutional quality, it encourages business entities to implement environmental commitment. Countries with well-developed institutional frameworks tend to have more effective regulatory environments that promote sustainable economic activities, including within the banking sector. As a result, environmentally responsible banking practices are more commonly adopted in such jurisdictions, particularly those with strong institutional quality. This condition can be seen from policies such as NGFS (2019), which are led by developed countries' financial authorities. Some other initiatives, like the value-based intermediation (VBI) approach and sustainability guidelines for Islamic banking, are issued by countries with a better level of institutional quality than other countries adopting a dual banking system.

Theoretically, the study's findings align with the argument for a stakeholder approach. As Freeman (1984) explains, the objective of the firm is to fulfil the interests of stakeholders. In this context, when Islamic banks implement the stakeholders' approach, their performance is more financially stable. Jensen (2002) also adds that firms committing to stakeholders' interests have good financial performance in the long run.

The findings further affirm that implementing environmental commitment aligns with Sharīʿah principles and *maqāṣid al-Sharīʿah*, as elaborated by Bukhari *et al.* (2020). Consistent with Asutay's (2013) Islamic Moral Economy (IME) framework, integrating environmental commitment into banking operations contributes to broader environmental and social development, thereby serving stakeholders' interests. When Islamic banks engage in environmentally responsible practices, they not only enhance their reputational standing but also foster greater stakeholder loyalty—factors that collectively contribute to improved financial performance and stability.

CONCLUSION

The study investigates the impact of environmental commitment on Islamic banking stability. The findings of the study unveil that environmental commitment increases Islamic banking stability. Delving deeper into the environmental indicators, it is found that only Resource Use (RU) positively and significantly influences Islamic banking stability, while Emission Score (ES) and Environmental Innovation (EI) are insignificant. Moreover, the relationship between environmental commitment and Islamic banking stability is affected by financial turmoil and institutional development. Interestingly, bank-level variables proxied by financial slack, efficiency, and bank size do not have a significant relationship when moderating the relationship

between environmental commitment and Islamic banking stability. These findings indicate that integrating environmental commitment in Islamic banks is primarily driven by a genuine dedication to prioritising stakeholders' interests.

The findings of this study offer two key implications. At the banking level, Islamic banks are encouraged to enhance their environmental commitment, as doing so can improve their reputation and stakeholder engagement—factors that ultimately contribute to greater financial stability. This commitment can be operationalised by embedding environmental considerations into the banks' strategic planning and day-to-day operations. For example, increased investment in human capital with the requisite expertise to support environmentally sustainable practices can be prioritised. Moreover, environmental objectives should be integrated into key performance indicators (KPIs) for management, departments, and staff, moving beyond a solely profit-oriented evaluation framework. In terms of financing, Islamic banks should incorporate environmental risk assessments into their credit evaluation and asset valuation processes.

At the regulatory institution level, financial authorities such as central banks, financial services authorities, and related policymakers are required to regulate Islamic banks to implement environmental commitment compulsorily. According to the findings, implementing environmental commitment can increase Islamic banks' financial stability, indicating that Islamic banks can increase their competitiveness in the banking sector. Hence, integrating environmental commitment into Islamic banking operations aligns with the spirit of having better stability for Islamic banks. However, mandatory implementation of environmental commitment in Islamic banks may face practical limitations and should instead be pursued through a gradual and phased approach. Initially, policy incentives can encourage and support voluntary adoption for banks demonstrating strong environmental commitment. Such incentives may include tax reductions, financial benefits, public recognition, or other measures that positively influence the reputation and competitiveness of Islamic banks.

Finally, the study is limited to only investigating a small number of countries adopting dual banking systems due to the issue of data availability. This condition limits the study's observation, whereas a larger sample of countries would provide more comprehensive results. Despite using small samples, the result of the study is consistent and robust, as indicated in the robustness tests. To pave the way forward, future studies may need to compare the impact of environmental commitments of Islamic and conventional banks. This investigation will give more insights and information on whether different types of banks affect the relationship between environmental commitment and banking performance, focusing on the dual banking system.

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DECLARATION

Credit Authorship Contribution Statement

- Faaza Fakhrunnas: Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Validation, Visualisation, Writing–original draft, and Writing–review and editing.
- MB Hendrie: Conceptualisation, Investigation, Project administration, Supervision, Validation, Visualisation, and Writing–original draft.
- Razali Haron: Data curation, Investigation, Supervision, Visualisation, and Writing–review and editing.

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Ethical Statement

The authors declare that they understand the Ethical Guidelines and have adhered to all the statements regarding ethics in publishing. The authors also confirm that this paper is original and has not been published in any other journal, nor is it under consideration by another publication.

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The authors acknowledge the use of AI and AI-assisted technologies in the writing process to improve the readability and language of the work but not to replace key authoring tasks such as producing financial and economic insights, drawing conclusions, or providing recommendations.

Data Availability

None

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