ISSN 1041-2743 (Online)

International Journal of Finance

Volume 36
Issue 1
2024

SCIENTIFIC & BUSINESS WORLD

Published by Scientific and Business World

Does competitor pressure moderate the relationship between green banking practices and sustainable performance? Empirical evidence from Pakistan

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ABSTRACT

This study investigates the relationship between green banking practices and bank sustainability performance, particularly focusing on the banking sector in Pakistan. We collected data from a sample of 324 bank managerial employees through a self-administered questionnaire. The data is collected using a nonprobability purposive sampling technique. The findings show a significantly positive impact of all green banking practices on sustainable performance, implying that banks in Pakistan are enhancing their triple-bottom-line performance by adopting and implementing green practices. The moderating effects reflect that banks' operations and customer practices are significantly influenced by competitor pressure to retain their customer base, attract new potential customers, and perform better on their environmental and social facets. Our study is novel in exploring the impact of branch-level green banking practices on banks' overall performance by considering competitor pressure as a moderating factor. It offers a fresh perspective on the dynamics shaping the effectiveness of green initiatives within the banking sector. This study provides practical implications for banks to implement these practices on a larger scale, especially on the policy level, so that an eco-friendly banking community can emerge faster. This study fills the gap by exploring the influence of branch-level green banking practices on a bank's overall performance, particularly in the context of the moderating role of competitor pressure.

Keywords: Green Banking Practices, Competitor Pressure, Sustainable Performance

JEL Codes: Q56, L13, O16

1. Introduction

As the world has witnessed increasingly growing environmental challenges, the banking industry is being called upon to play a more active role in promoting sustainability. Banks have started moving towards eco-friendly operations by pursuing greener behavior, investments, and practices. The banking sector is trying to improve the environmental condition by shifting its attention toward eco-friendly and sustainable operations. Banks are the most important part of the financial sector that contributes to the economic development of a country. Initially, banks were not considered to be polluting the environment (Ahuja, 2015). However, they are found to be participating in environmental degradation through their operations (i.e., overuse of paper, resources, energy, etc) and negatively affecting the environment in both direct and indirect ways (Bukhari et al., 2020). Green banking consists of banks promoting environmentally friendly investments and financing to sectors that attempt green efforts to assist environmental restoration. Green banking involves merging operational and technological efficiencies and encouraging environmentally friendly practices to change customer behavior in banks (Sharma & Choubey, 2022). According to Bai (2011), green banking is environmentally friendly, and its practices and responsibilities establish a business as ecologically beneficial. Banks are becoming more interested in the issues of environmental integrity due to increasing environmental costs and pressure from various stakeholders, including socially conscious investors and customers, pressure groups (members of host communities), and government banking firms. So, the recent boom in environmental costs has urged banks to manage environmental considerations at all levels of management and operations (Shuvro et al., 2020).

The stewardship theory proposed by Donaldson and Davis (1991) contends that people are organically driven to work for others or organizations to carry out their duties and obligations because this gives them higher satisfaction. Further, this theory says that people in an organization have a collectivistic approach instead of an individualistic approach and, hence, work for the greater profit of the organization instead of their own. Stewardship theory is closely aligned with CSR as both emphasize the "shared responsibilities" to care for all stakeholders (Larbi, 2014). A socially responsible organization properly manages the resources that can be handed to future generations after practicing environmental stewardship (Kuttner et al., 2021). As a result, a socially responsible firm that adheres to stewardship theory strives for the welfare of its workers and the wider community and undertakes efforts for which it is not accountable, such as adopting measures to safeguard the environment. When banks perform eco-friendly practices, they aim to save scarce resources and reduce their carbon footprints. This stewardship behavior of banks shows their concern and responsibility towards the needs of the coming generation and the environment. Banks are now shifting their objectives from maximizing profits and simple deposit and lending services to providing extra value by greening the banking system and investing in green projects. This study is closely related to the stewardship behavior of banks, as it considers the green behavior of banks (as green practices) and its impact on social performance as part of sustainable performance.

Several studies have been conducted to explore the impact of green banking practices on the performance of banks (Chen et al., 2022; Hossain et al., 2020; Risal & Joshi, 2018; Shaumya & Arulrajah, 2016; Vidyakala, 2020; Zhang et al., 2022). These studies have mainly focused on the environmental

performance of banks or studied the impact of green products or services on the financial performance of banks. Further, a limited number of studies have considered the moderating role of competitor pressure between green banking practices and the sustainable performance of banks. Branch-level practices by banks (daily operations, customer-related practices, employee-related practices, and bank policies) can affect banks' economic, environmental, and social performance. Therefore, this study aims to fill this gap by investigating the effect of these branch-level activities on the overall performance of banks.

The study contributes to Green Banking literature by providing evidence of the increasing performance of banks, and it also paves the path for further research in Green Banking. This study is among those primary research studies that focus on the link between the Greening banking sector and the tri-dimensional performance of banks and how this relationship is affected in the presence of competitor pressure. It helps the banks to understand how they can increase their performance by adopting and implementing green practices. The study also contributes positively to the banking sector by providing valuable implications to managers, academia, policymakers, and government officials.

The study has three major objectives. First, it examines the impact of green banking practices on the sustainable performance of banks. Second, it seeks to analyze which practices contribute to the overall sustainability initiatives within the banking sector. Lastly, the study aims to investigate whether competitor pressure plays a moderating role in the relationship between green banking practices and sustainable performance.

This study has important implications for banks' customers, investors, employees, and the most important stakeholder: the environment. Equally important, the sustainable performance of banks (which is the combination of social, economic, and environmental performance) is a major concern for banking professionals and academic researchers who want to evaluate banks' profitability and market value. Specifically, the current study is carried out in the context of Pakistan, an important developing country in Asia severely affected by COVID-19 and the Flood 2023. This is the first study in Pakistan that considers branch-level activities to analyze the performance of banks by combining the three performance levels. So, this study is significant in Pakistan as it will encourage the banking sector to digitalize and green their operational and managerial activities. Moreover, green banking practices complement Islamic teachings for protecting the environment and utilizing resources genuinely and carefully. This study will add to the existing literature on green banking by providing a new direction and relationship to banking, which can be used for guidance by future researchers and practitioners.

This study is organized as follows: Section 2 covers the literature review. Section 3 discusses data and methodology. Section 4 provides empirical results, and the last section concludes the study.

2. Literature Review

Green banking practices, implemented internally, enhance bank profitability and contribute to long-term well-being. Extensive data discusses their impact on bank performance.

2.1. Sustainable Performance

Banks' performance is a critical factor that requires attention to remain competitive. Sustainable performance, encompassing economic, environmental, and social dimensions, is increasingly important for banks. Green banking practices, such as eco-friendly projects and employee training, can enhance a bank's environmental performance, reputation, and profitability (Aslam et al., 2021; Risal & Joshi, 2018; Vidyakala, 2020). Recent studies have explored various factors that influence bank performance outcomes beyond traditional financial metrics. For instance, fuzzy multi-criteria models have been developed to assess the sustainable performance of banks, highlighting the importance of systematic performance evaluation frameworks (Quynh, 2023). Similarly, technological and structural factors, such as evolving payment systems, have been linked to macro-economic outcomes (Noman et al., 2023), and the presence of foreign banks has been shown to affect risk dynamics in commercial banking (Suu et al., 2023). Social performance considers the impact of the company on its stakeholders, including employee benefits and customer preferences for environmentally conscious banks (Kestane et al., 2019). Additionally, green practices can contribute to environmental performance and employee behavior within the organization (Gill et al., 2021).

2.2. Green Banking Practices

Banks were considered environmentally neutral during the initial stages of the global green movement. Over time, it has been revealed through facts and figures that the industry is significantly contributing to climate change through its direct and indirect activities, i.e., everyday banking activities and naturally unfriendly investments. Different stakeholder in the banking industry have put much pressure on managing their environmental concern and minimizing their negative impact on the climate (Shaumya & Arulrajah, 2016). This emerging concern of stakeholders, along with many other factors, has led to the introduction of “Green Banking” (Gulzar et al., 2024). Green banking refers to the endorsement and promotion of environmentally friendly activities that help banks and their customers in realizing and managing environmental threats, as well as reducing their carbon footprints and similar socially harmful actions. It is an emerging and broad term whose definitions are different for individual countries based on their banking sector and its implementations. According to Bukhari et al. (2021b), GB refers to the banking ideology that develops the environmental ethical values in daily operations and the portfolio of the bank’s financing. It’s a banking form that simultaneously tries to achieve economic and environmental success.

H_1: Green Banking practices positively influence the sustainable performance of banks in Pakistan

2.3. Daily Operation Related Practices

Sheikh and Odock (2019) stated that banks should initiate programs and policies to educate employees and customers about green practices and operations. The author concluded that banks in Kenya have adopted multiple green operations practices, such as regular environmental audits, R&D on environment-related problems, and employee-related initiatives. The study recommends that banks adopt green operations to improve their financial well-being because the results showed a positive relationship

between the two variables. Similarly, Hossain et al. (2020) found that a significant positive relationship exists between green practice adoption by banks and the financial performance of banks. Their results were based on the two stages of the least squares model, which revealed that the higher the green cost and risk management, the higher the financial performance of banks. According to Nath et al. (2014), banks can use a paperless approach to alter daily tasks by recycling and adopting energy-efficient equipment to minimize pollution and contribute to environmental and sustainable development. Banks can also adopt sustainability by investing and lending to certain types of projects that help the environment, and banks can develop such green products that enhance sustainability in their core operations.

H_{1a}: Bank's daily operation-related practices positively influence the sustainable performance of banks in Pakistan

2.4. Employee Related Practices

Risal and Joshi (2018) concluded that employee-related practices contribute significantly to the environmental performance of banks in Nepal by implementing green policies by top management, providing environmental training to employees, and installing energy-efficient equipment. Therefore, it can be claimed that green banking is a pathway for banks to cut short emissions and save the environment, to increase their environmental productivity. As a result, it can enhance the bank's image as a responsible corporate entity in pursuit of regional sustainable economic development (Akter et al., 2018; Hoque et al., 2019). Vidyakala (2020) aimed to find out the impact of environmental training given to employees, resource conservation policy, and overall bank policy on the environment-related performance of banks in the second-largest city of India. Their findings were aligned with former research, citing that educating the employees to save energy, adhering to the green policy, and keeping the working environment nature-friendly and green can positively impact the banks' sustainable performance. This reflects that banks can gain financial and social benefits by investing in their employees and shifting their priorities to go green.

H_{1b}: Bank's employee-related practices positively influence the sustainable performance of banks in Pakistan

2.5. Customer Related Practices

Green customer-related practices include banks' efforts like shifting their customer base towards an eco-friendlier one, participating in green initiatives (like tree plantation, beach cleaning, etc.), providing loans at a concessionary rate to green businesses, and using the environmental risk management system to evaluate the credit risk associated with customers. Zhang et al. (2022) explored whether green banking activities improve the environmental performance of banks by using items related to customer-related and operation-related practices. In order to confirm the relationship, the study utilized the structural equation modeling approach. The results showed that customer-related activities (green activities) have a positive and significant impact on the environmental performance of banks. The author revealed that non-awareness among customers about green banking, high costs associated with green investments, and untrained staff are the challenges in the emergence and growth of green banking. Apart from this, a large

body of literature has rejected the positive impact of customer-related practices on the sustainable performance of banks (Chen et al., 2022; Risal & Joshi, 2018). This implies that banks need to educate their customers regarding green banking, conduct seminars, and highlight the importance of green banking so that they can appreciate and adopt the decision. The current study aims to confirm whether or not the relationship exists in Pakistan's banking industry.

H_{1c}: Customers' related practices significantly influence the sustainable performance of banks in Pakistan.

2.6. Bank Policy-Related Practices

Banking policies provided by top-level management play a vital role in shaping the operations and behavior of customers and employees. It is a double-edged sword because either banks might initiate green policies due to customer demand and employee motivation, or employees and customers might start adopting greener practices due to bank policies. Rehman et al. (2021) conducted a study in Pakistan to examine the green banking practices in Pakistani commercial banks. This study stressed the hyperlink between green banking and its direct and indirect influence on the environmental dimension of banks using daily operations, green policies, and investment in green projects as main variables. The results confirmed the positive impact of bank policy-related practices on the environmental performance of banks. Among the key findings is the limited role of middle-level managers in green investment decisions and policy-making decisions. The study results also included the significant impact of daily operation, investment, and the adoption of the bank's policy on green practices, which suggests that the bank's financial performance is improved as they work on its environmental performance.

H_{1d}: The Bank's policy-related practices positively influence the sustainable performance of banks in Pakistan.

2.7. Moderating Role of Competitor Pressure

To achieve a competitive edge, the pressure from competitors encourages firms to embrace green management practices (Chang, 2011). There is empirical evidence linking the economic environment and risk structure to have a combined effect on competitive environments and, thus, financial results (Khan et al., 2023), therefore validating the role of external pressures in sustainability performance paradigms as moderators. The peer emulation theory strongly supports the idea that competitor pressure influences the effect of a bank's greener practices on sustainable performance in the industry. Banks imitate the green actions taken by their competitors to satisfy their stakeholders and give them the confidence to be part of a sustainable system. In this way, banks can create a better image and earn greater profits by attracting new customers and reducing their hazardous environmental impact. Ultimately, this would lead to greater social, economic, and environmental performance. Researchers have concluded that competitor pressure can indicate green adoption in many sectors, i.e., manufacturing, innovations, and supply chain management (Rakshit & Bardhan, 2019). Pakistan's banking sector faces fierce competition due to SBP regulations and increased concern about environmental regulations. The State Bank of Pakistan issued guidelines in 2017 for Green Banking so that banks can gain a competitive advantage by adopting it.

Banks are forced by the green activities of their peer banks; therefore, they should modify their structures by building green capital that includes human, structural, and relational capital, and engage with their customers effectively.

H_2: Competitor pressure moderates the relationship between green banking practices and the sustainable performance of banks.

3. Research Methodology

3.1. Data and Sampling

This study collected data from bank employees through a self-administered questionnaire on a 5-point Likert scale. The data is collected from a total sample of 324 bank managers in Islamabad and Rawalpindi. This sample of 324 was taken based on prior calculations using the total number of employees working in the banking sector of Pakistan. The study preferred the responses at the managerial level because managers have in-depth knowledge of profitability, performance, and the bank's policies, so their responses will reflect the actual and accurate bank position.

3.2. Variables Measurement

The study assesses green practices adoption using 16 items measured by Shaumya and Arulrajah (2016), competitor pressure with six items measured by Colwell and Joshi (2013), and the sustainable performance of banks with nine items measured by Hussain et al. (2019), as indicated in **Table 1.**

Table 1. Scale Measurement

Constructs	Items	Sources
Green practices adoption	16	Shaumya and Arulrajah (2016)
Competitor pressure	6	Colwell and Joshi (2013)
Sustainable performance of banks	9	Hussain et al., (2019)

Note: Items represent the number of survey questions used to measure each construct. Green practices adoption is measured across four sub-dimensions: daily operation-related, employee-related, customer-related, and bank policy-related practices. All constructs were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

3.3 Econometric Specification:

To empirically examine the relationship between green banking practices and sustainable performance, this study will take the multiple linear regression framework. The model is expressed in Equation 1 as follows:

$$\mathrm{SPB_i} = \alpha + \beta_1(\mathrm{DORP_i}) + \beta_2(\mathrm{ERP_i}) + \beta_3(\mathrm{CRP_i}) + \beta_4(\mathrm{BPRP_i}) + \varepsilon_i. \quad (1)$$

Here, SPB represents sustainable performance of banks, DORP is daily operation-related practices, ERP is employee-related practices, CRP is customer-related practices, BPRP is Bank Policy Related Practices,

i denotes cross sections, α is the intercept, and β_1, β_2, β_3, and β_4 are slope coefficients of DORP, ERP, CRP, and BPRP, respectively.

3.3.1 Moderation Model and Interaction Terms

To explore the moderating effect of competitor pressure (CP), interaction terms were developed. It is necessary to do the moderation analysis to find out whether the strength or direction of the relationship between green practices and performance depends on the external competitive intensity. The regression model that has been moderated is expressed as in Equation 2:

$$\boldsymbol{SPB_i} = \alpha + \beta_1(\mathrm{CP}_i) + \beta_2(\mathrm{CP}_i * \mathrm{DORP}_i) + \beta_3(\mathrm{CP}_i * \mathrm{ERP}_i) + \beta_4(\mathrm{CP}_i * \mathrm{CRP}_i) + \beta_5(\mathrm{CP}_i * \mathrm{BPRP}_i) + \varepsilon_i. \quad (2)$$

These terms of interaction are implemented due to the mathematical imperatives to capture the conditional effect of green banking practices (DORP, ERP, CRP, BPRP) and competitive pressure (CP). In particular, the interaction term is used to determine whether the impact of green practices on sustainable performance has statistically insignificant differences in the levels of competitor pressure of varying magnitudes. This is far beyond primitive direct relations and allows an intricate analysis of the complex pressures of the extrinsic environment that regulates banking behavior in the Pakistani financial context.

4. Results and Analysis

Considering the nature of our study and the data set, regression analysis was carried out to confirm the study hypothesis. The first step is to obtain the demographics of the respondents and check the reliability of the data using Cronbach's alpha values.

Table 2. Demographic statistics

Category	Characteristics	Frequency	Percentage %
Gender	Male	202	62.3
	Female	122	37.7
	Total	**324**	**100**
Age	25-30	57	17.6
	30-35	147	45.4
	35-40	66	20.4
	40 above	54	16.7
	Total	**324**	**100**
Qualification	Graduate	200	61.7
	Post Graduate	121	37.3
	Doctorate	2	.6
	Post Doctorate	1	.3
	Total	**324**	**100**
Designation	Bank Manager	143	44.1
	Regional Manager	20	6.2
	Operational Manager	57	17.6
	Others	104	32.1

	Total	**324**	**100**
Experience	1-3 years	64	19.8
	3-6 years	73	22.5
	Above 6 years	187	57.7
	Total	**324**	**100**
Bank Type	Private Bank	294	90.7
	Public Limited Bank	30	9.3
	Total	**324**	**100**

Note: N = 324. Percentages are rounded to the nearest one decimal place. Data was collected from managerial employees in the Pakistani banking sector.

Table 2 demonstrates that the maximum number of respondents in the study were male (62.3%), between the age bracket of 30-35 (45.4%), followed by 35-40 (20.4%). Most respondents were graduates (61.7%), followed by postgraduate (37.3%), in positions of bank manager (44.1%), operational manager (17.6%), regional manager (6.2%), and others (32.1%), i.e., assistant manager, CSR manager, etc. The respondents were enriched with years of experience, with the maximum percentage falling in the experience of above six years (57.7%), followed by 3-6 years (22.5%) and 1-3 years (19.8%). The demographics also demonstrate that the respondents were from a diversity of banks and mostly were from private sector banks (90.7%).

Table 3. Reliability Analysis

Variables	No. of Items	Cronbach's alpha
DORP	4	.7142
ERP	3	.7063
CRP	4	.7934
BPRP	5	.8576
SP	9	.9310
CP	6	.8344

Note: DORP refers to Daily Operations-related Practices, ERP is Employee-related practices, CRP is Customer-related practices, BPRP is Bank policy-related practices, SP is Sustainable performance, and CP is Competitor pressure

The Cronbach's alpha is used to test the internal consistency of the constructs before the hypotheses are tested. To transform the Likert scale responses of each variable into a continuous variable that can be analyzed using parametric methods. Composite scores of the constructs consisting of the items are computed as the means of the items. This research design is consistent with the best practices of research in social sciences (Norman, 2010) and makes the following Pearson correlation and linear regression analyses stronger. **Table 3** indicates the total number of items for each variable and the Cronbach alpha value. It shows that the Cronbach alpha value of all the variables is above the suggested threshold, which is 0.7, according to Hair et al. (2019). Furthermore, stationarity is an important consideration in time-series econometric analysis because regressions involving non-stationary variables may lead to spurious relationships (Cheng et al., 2021). However, since the present study utilizes primary cross-sectional data collected at a single point in time, the issue of stationarity is not applicable to the dataset.

Table 4. Correlation

	DORP	ERP	CRP	BPRP	SP	CP	Tolerance	VIF
DORP	1						.4610	2.1690
ERP	.7082**	1					.4212	2.3756
CRP	.5224**	.5691**	1				.5477	1.8276
BPRP	.5826**	.6237**	.6328**	1			.4746	2.1084
SP	.6117**	.6428**	.6066**	.6920**	1			
CP	.3501**	.4955**	.4457**	.4564**	.4755**	1		

Note: DORP refers to daily Operations-related Practices, ERP is Employee-related practices, CRP is Customer-related practices, BPRP is Bank policy-related practices, SP is Sustainable performance, and CP is Competitor pressure. Significance levels are indicated as follows: $^{**}p < 0.01$, $^{*}p < 0.05$.

Table 4 provides a correlation matrix that explains the relationship among variables. The correlation value between DORP and SP is .61 at the significance level of 0.01, and the significance of these variables is .000, which indicates that the relationship between both variables is significant. Also, the correlation between ERP and SP is significant (r=.64, p>.01), which indicates that SP increases with an increase in ERP. The correlation value between CRP and SP is .60. The significance of variables is .000(r=.60, p>.01). Similarly, there is a positive correlation between BPRP and SP (r=.69, p>.01) that is significant at .000. Moreover, CP and SP are also positively correlated as r=.47 at a significance level of .01, and significance of the variables is (p<.000).

Table 4 also inspected whether there is a multicollinearity issue in the data or not, and it is examined using VIF and tolerance values. To be free from multicollinearity, all independent variables should not be heavily correlated with each other. It is evident from the above table that all the IVs are free from multicollinearity as tolerance values are within the threshold suggested by Tabachnick et al. (2007) (above .10).

4.1. Regression analysis

To test our first four hypotheses, linear regression analysis is performed. The results of the regression analysis are given below.

Table 5. Direct effects

Hypothesis	**Path**	**β**	**SE**	**Status**
1a	DORP → SP	.1617**	.0490	supported
1b	ERP → SP	.1939**	.0518	supported
1c	CRP → SP	.1446**	.0417	supported
1d	BPRP → SP	.3028**	.0456	supported
Adjusted R-Square	.5850	Breusch-Pagan	3.3572	0.4827
		Shapiro-Wilk test	0.9851	0.8416

Note: DORP refers to daily Operations-related Practices, ERP is Employee-related practices, CRP is Customer-related practices, BPRP is Bank policy-related practices, and SP is Sustainable performance. Significance levels are indicated as follows: $^{**}p < 0.01$, $^{*}p < 0.05$.

Table 5 provides the most important information for the acceptance of the hypothesis. With a p-value of .000, DORP shows a significant positive impact on SP, and a one-unit increase in DORP will cause a .17-unit increase in SP. The standard error value is 4%, reflecting that the sample mean of DORP is a more accurate reflection of the actual population. The positive relationship between green banking practices and sustainable performance aligns with emerging evidence on green finance's role in enhancing environmental and social outcomes in financial sectors (Yang et al., 2023). These findings are supported by Risal and Joshi (2018), who state that the use of energy-efficient equipment in the daily operations of banks and environmental training given to employees have a significant impact on the performance of banks. Similarly, ERP and CRP also have significant and positive impacts on SP with (S. E=5%, p>.01) and (S. E=4%, p>.01), respectively. One unit increase in ERP will cause a .210-unit increase, and one unit increase in CRP will cause a .17-unit increase in SP. Previous research has concluded that customer-related practices do not significantly influence the performance of banks (Chen et al., 2022; Risal & Joshi, 2018). But the current study contradicts these results as the findings show that by providing loans to green projects and customers, banks can enhance their social image and contribute to environmental well-being. The results of Zhang et al. (2022) provide support for these results. Moreover, with a significance level of .000, BPRP shows the greatest evidence for accepting the hypothesis. One unit increase in BPRP will increase SP by .34. Similarly, the standard error is 4%, reflecting that the mean is reliable. In addition, Rehman et al. (2021) provide support to the acceptance of $H1_d$ as the current study showed a significant and positive relationship between bank policies related practices and sustainable performance. Based on these results, H1a, H1b, H1c, and H1d are accepted. Since the p-value of Breusch Pagan is greater than 0.05, it can be said that heteroskedasticity is not found. Also, from the results of the normality test using the Shapiro-Wilk test, it is known that the p-value is 0.841. With a significance level of 5%, it can be concluded that there is no difference in the data or that the data is normally distributed.

4.2. Moderation analysis

To validate the moderating impact of competitor pressure, we again used the simple regression command and applied it one by one with all moderators separately. For this purpose, interaction terms of all IVs with the moderator are created, and then regression analysis is carried out using these interaction terms.

Table 6. Moderation Results

Sustainable Performance					
			β	***S. E***	**ΔR^2**
	Constant		1.000		
	DORP	→ SP	.1525	.1201	
	CP	→ SP	.2252	.1686	
H_2	DORP X CP	→ SP	.0811**	.0228	.0135
			B	**S. E**	**ΔR^2**
	Constant		1.255	.3890	
	ERP	→ SP	.2858	.0597	
	CP	→ SP	.0867	.1068	
H_2	ERP X CP	→ SP	.0714**	.0166	.0582
			B	**S. E**	**ΔR^2**

	Constant			1.358	.5926	
	CRP	→	SP	.1336	.1217	
	CP	→	SP	.2614	.1499	
H_2	CRP X CP	→	SP	.0679*	.2058	.0103
				B	**S. E**	**ΔR^2**
	Constant			1.228	.3565	
	BPRP	→	SP	.3725	.0454	
	CP	→	SP	.0491	.1012	
H_2	BPRP X CP	→	SP	.0661**	.0101	.0145

Note: DORP refers to daily Operations-related Practices, ERP is Employee-related practices, CRP is Customer-related practices, BPRP is Bank policy-related practices, SP is Sustainable performance, and CP is Competitor pressure. Significance levels are indicated as follows: **$p < 0.01$, *$p < 0.05$.

Table 6 shows the evidence for the acceptance or rejection of the moderating role of competitor pressure in the relationships of daily operation-related practice, customer-related practices, employee-related practice, and bank policy-related practice with the sustainable performance of the bank. The table depicts that CP significantly moderates the relationship between DORP and SP because all the values are within their cut-off points. The t-value (t=2.8, p=.005) is significant at 1%, and one unit increase in green banking practices will cause a .080-unit increase in the sustainable performance of banks in the presence of competitor pressure. Moreover, R^2 change (R^2 change=.013) indicates potentially significant moderation of CP between daily operation-related practices and sustainable performance. Secondly, the above stats support the moderating role of CP between ERP and SP on the basis of significant R-squared change and p-value. The significant values (R^2 change=.058, p=.000) indicate positive moderation between employee-related practices and sustainable performance. Also, the t-value is within the threshold of 1.96 (t = 5.14). Therefore, a one-unit increase in ERP in the presence of competitor pressure will cause an increase in sustainable performance by .074 units. Following this, a significant moderation exists between customer-related practices and sustainable performance. The t-value for the moderation is above the minimum threshold (t=2.318), which is significant at .05. The R-squared change (R2 change=.010, p=.021) validates the significant positive moderation of competitor pressure between customer-related practices and sustainable performance of the bank. These results unveil that a one-unit increase in green banking practices increases sustainable performance by .064 units. Lastly, the moderation of competitor pressure between the relationship of BPRP and SP is also supported on the basis of significant stats. The moderation is significant at 1% with an R-squared change of .014 (R^2 change=.014, p=.000), which supports the moderating role of competitor pressure between bank policy-related practices and sustainable performance. Moreover, the t-value is also above the minimum threshold, i.e., t=4.502. These statistics are supported by the results of Chang, 2011which concluded that the pressure from competitors encourages firms to embrace green management practices. On that account, H_2 is accepted.

5. Conclusion

This study provides valuable insights into the impact of green banking practices on the sustainable performance of banks in Pakistan. It addresses a gap in the literature by examining the relationship between green practices and the three dimensions of sustainable performance while considering the

moderating role of competitor pressure. The study makes a contribution to the existing literature because it provides the branch-level first granular empirical study of the dimensions of green banking in the Pakistani financial sector. Breaking down green banking into four major areas of operation, which include daily operations, employees, customers, and bank policy, the study determines the exact internal processes that lead to triple bottom line performance within an emerging economy.

In principle, this work fills the knowledge gap between Stewardship Theory and environmental management by showing how a shared belief in green initiatives will help bank managers to become effective managers of the organizational and social resources. Above all, the study provides and confirms the effect of competitive catalyst, which indicates that competitor pressure is not only a situational factor but a paramount moderator that actively enhances the positive influence of green banking practices on sustainable performance, providing a new look at how external market factors dictate sustainability results.

This study finds that green banking practices have a significant positive impact on the sustainable performance of banks. Bank policy-related practices are the strongest predictor of sustainable performance, followed by employee-related practices, daily operation-related practices, and lastly, customer-related practices. Competitor pressure significantly moderates the relationship between all four categories of green banking practices and sustainable performance. These findings suggest that banks should develop clear, objective, and practical green policies aligned with global standards. Banks should train and educate employees to perform green practices in daily operations, implement energy-efficient measures, and adopt eco-friendly technologies. Banks should offer green products and services to cater to environmentally conscious customers, and need to pay close attention to competitor practices and adapt accordingly to maintain a competitive edge.

The current study provides valuable implications for the banking sector, managers, academia, policymakers, and government officials. This study anticipates evidence for banks to adopt green practices on a larger scale to accelerate their environmental, social, and economic performance. In the contemporary era, the shift of the economy is towards digitalizing various sectors, and the banking sector is also included in it. The study results prove that banks can earn financial and non-financial benefits by adopting green practices. Top management should design policies and regulations to establish a green practices culture at the branch level and endeavour its application through rewards and incentives among employees. Secondly, banks should conduct training sessions for both employees and customers on the adoption and usage of green practices so that employees can perform these practices and save resources as well. Customers can be well aware of the bank's efforts towards saving the planet. For customers, banks should design special loan packages for eco-friendly projects, i.e., offering low-interest rates for renewable energy projects, green home improvements, and sustainable business practices. This can help them attain their sustainable performance and mitigate adverse environmental effects. Consequently, the State Bank of Pakistan should ensure the immediate application of these practices. Although SBP has already issued the Green Banking Guidelines in 2017, there is still a lack in its application; therefore, proper execution and inspection should be done by the State Bank of Pakistan.

Policymakers should formulate policies to incentivize and promote green banking practices like investing in renewable energy projects, implementing green supply chain practices, and reducing banks' carbon emissions through less paper use and efficient usage of resources. They should also prioritise social and environmental impact when making decisions and collaborate with stakeholders to develop and implement sustainable strategies. As banking has a centralized system, policymakers should set green standards for selecting stationary vendors and suppliers. To address these implications, the government should also provide incentives and relaxations to banks to attain a specific percentage of green practices and investments. The government can give tax relaxations to such banks and set a reward system to ensure compliance with green standards. The motive for these relaxations should be to encourage the immediate adoption and shift toward a green banking system.

Similar to other studies, the present study also holds some limitations. First, the study is conducted in twin cities in Pakistan, so it may represent a particular segment, as banks in other cities are not included. Secondly, only three-dimensional sustainable performances have been taken as dependent variables, and other performances, like operational and financial performance using ROA and ROE, are not included. This present study used primary data because no secondary data was available on banks' annual reports and websites. Moreover, there was the unavailability of access to top management; therefore, the data was collected from middle managers, which is marked as an important limitation of data collection. Lastly, there is only one external pressure as a moderating variable (competitor pressure). In contrast, many other external pressures and factors can affect the bank's green practices and impact its sustainable performance.

To preserve the strength of the empirical findings, such as the issues of a spurious-like nature which can be observed in the regression studies. Even though the variables used in this study are the results of primary data coded on Likert scales and generally considered to be stationary, existing literature suggests that regressions including stationary series can still lead to spurious and misleading findings unless carefully observed. Especially, the correlation and regression of series with heterogeneous stationarity characteristics might not produce substantively meaningful results. Although primary cross-sectional data does not incur the non-stationarity problems that are prevalent with time-series data, we recognize these theoretical threats with regards to recent research (Cheng et al., 2022)

Future research can also include other stakeholder pressures, i.e., community pressure and customer pressure, as moderators in the model to verify their role in banking decisions about green practices adoption. Furthermore, the same study can be tested in any other industry, like hospitals, sports apparel, retail, etc., with a larger data set including other cities of Pakistan or any other developing or developed country. Furthermore, the study employed standard diagnostic tests, including Cronbach's alpha for reliability and VIF for multicollinearity, and the results indicate satisfactory reliability and no multicollinearity concerns. As the analysis is based on primary cross-sectional data collected at a single point in time, stationarity issues typically associated with time-series data are not applicable. Future studies may incorporate more advanced diagnostic frameworks, such as those suggested by Hui et al. (2017), to further strengthen model validation.

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