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Unlocking Environmental Excellence: The Role of Green Knowledge Sharing and Individual Values in Green Banking and Financing

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ABSTRACT

The main objectives of this study are to evaluate how green banking activities (GBA) affect bank environmental performance (BEP) and sources of green financing (SGF), in addition to how SGF affects BEP. It also determines the SGF's function as a mediator between the GBA and the BEP. Additionally, this study investigates the moderating effect of green knowledge sharing (GKS) on the link between the GBA and SGF as well as the moderating effects of individual green values (IGV) on the association between the SGF and BEP. The first step in the two-step data analysis procedure involved reviewing the measurement model to determine the accuracy and dependability of the measurements. In the second step, the structural model is used to observe the connections between the underlying variables. The empirical findings corroborate both the favorable and significant effects of GBA on SGA and the effect of BEP on SGA. This study, however, is unable to substantiate the impact of GBA on BEP. Additionally, this study discovered that SGF acted as a bridge between the GBA and the BEP. It also supports the moderating effects of GKS and IGV on the relationships between GBA and SGA, as well as between SGF and BEP.

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1. Introduction

The ecological conditions of a country can affect its economic growth and social progress. Pakistan's economy is expanding, but the government still has certain environmental issues that need fixing (Sadiq et al., 2022). There is much room for enhancement in both life expectancy and standard of living. Pakistan faces numerous environmental and climate issues, encompassing air pollution, global warming, water pollution, soil erosion, land degradation, and natural disasters (Ahmed e al., 2022). To improve people's living conditions in Pakistan, policies and measures should be put in place to prevent further damage to the country's natural resources and environment. Pollution and strain on Pakistan's natural systems are at crisis levels (Abbasi et al., 2024). National environmental issues include deforestation, energy shortages, overfishing, pollution of air and water, and improper waste disposal. Water supplies have been tainted by industrial and agricultural runoff. Continued deforestation is a major contributor to the air pollution that plagues metropolitan areas from industries like industry and transportation (Adnan et al., 2024). Environmental concerns have taken a back seat to satisfying energy demands, achieving food independence, and slowing population growth in Pakistan, as they have in many other developing countries. Therefore, environmental concerns have not been prioritized by the administration (Ahmad et al., 2023). The state of the environment has become a major problem on a global scale. Human activity is the leading cause of environmental degradation, which has dire consequences for the sustainability of life on Earth. Therefore, we need to immediately focus on safeguarding Earth's biota (Shahid et al., 2023).

The banking industry in Pakistan still has a long way to go before it can successfully integrate green banking practices, green financing mechanisms, and environmental performance improvement, even in light of the growing emphasis on environmental sustainability worldwide (Aslam & Jawaid, 2023). There is a lack of knowledge regarding how to effectively connect these components in order to promote a more ecologically conscious banking sector (Werner, 2002). Although the idea of green financing and banking is becoming more popular, Pakistani banks are still adopting and implementing it in a fragmented and uneven manner (Shams et al., 2021). Comprehensive frameworks and techniques for coordinating green banking practices with banks' overall environmental performance are lacking (Ghauri et al., 2021). A personal commitment to green values and a lack of effective avenues for exchanging knowledge further impede progress in this field (Liu et al., 2020). The problem statement emphasizes the pressing necessity of investigating novel strategies that enable the smooth assimilation of eco-friendly banking practices, eco-friendly funding, and enhanced ecological outcomes in the banking industry of Pakistan (Ayaz & Majeed, 2022). It emphasizes how crucial it is to support individual green values and a culture of knowledge sharing among banking professionals in order to successfully advance sustainable practices (Khan et al., 2024).

However, like many other nations, Pakistan struggles with several environmental issues, such as water scarcity, deforestation, and pollution (Aslam & Jawaid, 2023). To ensure that financial institutions are actively working towards environmental sustainability rather than adding to these problems, it is crucial to assess the environmental performance of banks (Sadiq et al., 2022). Investments in eco-friendly initiatives and green banking practices can spur economic growth and stimulate innovation (Beebeejaun & Maharoo, 2024). Banks can stimulate the shift to a low-carbon economy and generate new prospects for sustainable development by funding renewable energy projects, environmentally friendly companies, and sustainable infrastructure (Hussain et al., 2023). In conclusion, banks' environmental performance is critical to addressing environmental issues, adhering to legal requirements, managing risks, satisfying consumer demands, fostering innovation, and fulfilling international commitments to sustainability and climate action in Pakistan's green banking and green financing landscape (Khan et al., 2024).

Therefore, to tackle these obstacles, a comprehensive strategy is needed that encourages the sharing of knowledge, provides incentives for eco-friendly investments, improves regulatory environments, and cultivates a feeling of environmental accountability among all parties involved. Through efficient knowledge exchange channels, the banking industry in Pakistan may play a crucial role in promoting environmental sustainability and advancing a greener economy by bridging the gap between green banking activities, green financing, green knowledge sharing and individual green values. This research helps close a gap in the literature by doing so in the following ways: We begin by examining the influence of green banking on the growth of green finance and the eco-efficiency of financial

institutions. Second, the study provides quantitative evidence that green funding sources moderate the relationship between green banking practices and the environmental performance of financial organizations. Finally, this research considers the moderating effects of individual green values on the relationship between green funding and bank environmental performance and the role that green information exchange plays in this process.

The remaining sections of the research article are organized as follows: In Section 2, we present the background research that led to our hypotheses and theories. In Section 3 of this article, we detail our methodology. In Section 4, we will explore the study's findings and limitations in light of the existing literature and theory, and in Section 5, we will offer commentary on these issues as well as their implications and directions for future research.

2. Literature Review

2-1. Theoretical Framework

Everett Rogers' Diffusion of Innovation Theory looks at how novel concepts, methods, or technological advancements gradually permeate a social structure. In the context of Bridging the Green Banking Activities, Green Financing, and Bank's Environmental Performance through Green Knowledge Sharing and Individual Green Values, this theory offers valuable insights into the adoption and dissemination of environmentally sustainable practices within the banking sector (Bouteraa et al., 2023). The diffusion of innovation theory investigates how novel concepts, methods, and technological advancements gradually permeate a societal structure. This idea can be applied to green banking activities to better understand how banks embrace environmentally friendly practices. Initiatives related to environmental performance and green financing could be innovations that need to be widely disseminated and shared in order for banking professionals to embrace them (Ali et al., 2022). Strategies for advancing sustainability within the banking industry can be informed by an understanding of the elements that either help or hinder the spread of green banking practices (Afridi et al., 2023). Through the application of diffusion of innovation theory to the context of bridging green finance, green banking activities, and banks' environmental performance through individual green values and green knowledge sharing, researchers can better understand the factors that either support or impede the adoption and spread of sustainable practices in the banking industry (Wu & Wang, 2023). This theoretical framework helps explain the dynamics of innovation diffusion and guides the development of industry-wide change-inducing and environmental sustainability-promoting initiatives (Bouteraa et al., 2023).

2-2. Green Banking Activities, Source of Green Financing, and Bank Environmental Performance

The rising practice of "green banking" is crucial to the management of financial markets, the promotion of long-term economic growth, and the prevention of climate change (Ellahi et al., 2023). It was also shown that green banking activities centered on employees, everyday activities, and laws had a much larger impact on banks' environmental performance than those centered on customers. "Environmental performance," as defined by Risal and Joshi (2018), is the continuous and efficient management of operations to meet long-term targets connected to the conservation of natural resources and the improvement of economic output. In addition, Shaumya and Arulrajah (2017) looked at how green banking activities influenced the environmental performance of banks in Sri Lanka. According to the findings, green banking activities practices significantly improved the banks' environmental performance. Green banking practices (both operational and policy-related) were found to correlate positively with green funding in a separate study by Rehman et al. (2022). Therefore, by supporting projects with such consequences, green banking activities help promote sustainable business practices and lessen the negative effects of banking on the environment (Zhang et al., 2022). More specifically, environmental performance is the effect of a company's activities on the natural environment (Nie et al., 2021). Products made with eco-friendly materials, less pollution and less waste generated at the source, better use of available resources, and lower energy consumption all contribute to better environmental performance (Gulzar et al., 2024). It has been found that by adopting green banking practices, banks can lessen their negative impacts on the environment while simultaneously enhancing their positive ones (Aslam & Jawaid, 2023). Benefits include increased use of renewable energy sources such as solar and wind, as well as better environmental education and

awareness among the working population. By encouraging green banking activities like green building, green project financing, and renewable energy consumption, banks can have a positive effect on the environment (Shaumya & Arulrajah, 2017). Studies show that banks that adopt environmentally friendly practices and green finance can benefit from reduced energy use, reduced carbon emissions, and enhanced brand awareness (Werner, 2002). Additionally, banks that emphasized environmental sustainability can draw investors and consumers who share that concern, which would enhance their long-term financial success (Shams et al., 2021). Despite this, there are still several obstacles preventing the widespread adoption of green banking practices, including inconsistent regulations, restricted access to green financing choices, and a lack of knowledge and experience among banking professionals (Ghauri et al., 2021).

The argument put up by detractors is that it is yet unclear how these green banking initiatives will actually impact environmental outcomes. According to their argument, banks may participate in green financing initiatives, but overall environmental effects might be insignificant in light of their larger lending portfolios, which may still contain investments in projects that have a negative environmental impact or are part of carbon-intensive industries (Stocchi et al., 2022). Concerns have also been raised about the transparency and effectiveness of the reporting mechanisms set up to determine and share the environmental benefits of these operations (Leonidou et al., 2013). Likewise, in the absence of strong criteria for monitoring and reporting, green banking initiatives run the risk of acting more as a promotional tool than as a driving force behind significant environmental change (Hadi et al., 2024). Similar to how select banks in Pakistan may implement green policies and provide environmentally friendly financial products, systemic obstacles, including market dynamics and profitability pressures, may restrict the efficacy and scalability of these initiatives in obtaining significant environmental results (Olsen et al., 2014). Finally, while the idea of "green banking" has the potential to promote environmental sustainability in the banking industry, its actual influence on environmental performance is still up for question (Yan et al., 2024). Therefore, the following hypothesis is recommended based on the previous studies.

H_1: GBA significantly influence BEP.

In this research, Vidyakala (2020) acknowledged the numerous green initiatives banking organizations have implemented to improve their environmental performance. Energy-saving procedures, green funds, green initiatives, and green policies are all part of the green banking activities, along with staff training on environmental issues. The research also found that green banking activities initiatives improved the environmental performance of banks in the Indian city of Coimbatore. Both business and policy-level green banking operations benefit from green project finance to increase environmental sustainability (Chen et al., 2022). Green banking practices (both operational and policy-related) were found to correlate positively with green funding in a separate study by Rehman et al. (2022). For environmental protection initiatives and organizations, green finance, a relatively new phenomenon in the financial world that combines economic benefits with environmental protection, is the best option (Zheng, Siddik, Masukujjaman, & Fatema, 2021). According to the European Commission, green finance in the financial services sector refers to investment decisions that priorities stakeholder pleasure over short-term gain (Iqbal et al., 2024). Both business and government green banking activities benefit environmental sustainability through funding green projects (Bouteraa et al., 2023).

Using the SRI framework, Rehman et al. (2021) analyzed how banks' participation in green banking activities affected their environmental performance. The research shows that the green finance initiatives of green banking activities in Pakistan are highly correlated with both policy-related and everyday business practices. The lending policies of banks and the amount of money allocated to green projects are directly impacted by green banking operations. Banks can direct funds towards ecologically friendly initiatives by providing specialized green finance products like green bonds or loans (Chakrabarty & Wang, 2013). Banks can encourage the growth of green finance sources by allocating cash to projects and firms that have good sustainability credentials by integrating environmental, social, and governance (ESG) criteria into their investment criteria (Shu et al., 2020). Nonetheless, banks may recognize and reduce the risks connected to green financing by adding

sustainability considerations to their risk management frameworks, which will increase the amount of money available for environmentally friendly projects (Chin et al., 2021). However, detractors question whether green banking programs genuinely encourage the development of new green funding sources, or whether they merely redirect existing funds from conventional to green projects without appreciably expanding the total quantity of accessible funds (Bouteraa et al., 2023). However, some contest the idea that green banking operations result in a notable expansion of the sources of green funding (Morgan et al., 2019). They contend that although banks might offer eco-friendly goods and services, the total amount of money allocated to eco-friendly initiatives might still be smaller than for conventional investments (Tezer & Bodur, 2020). Furthermore, questions are raised about the viability and profitability of green financing programs in addition to the potential for these initiatives (Hussain et al., 2023). Thus, the following hypothesis are proposed.

H_2: GBA significantly impact the SGF.

These financial institutions adhere to a system of values that places a premium on the well-being of society and the environment; they go by a variety of names, including green banks, socially responsible and sustainable banks, and ethical banks (Agrawal et al., 2024). According to Bose et al. (2021), pp.162-187 Green Banks are "financial institutions that promote and implement environmentally friendly technology to minimize carbon emissions and improve environmental management." Banks can benefit from green banking activities in a number of ways, including improved brand recognition and customer loyalty, as well as increased environmental responsibility (Ma et al., 2023). Similarly, green finance is a new driver for environmentally and socially responsible economic growth (Li et al., 2020). Zhou et al. (2020) found that green finance aims to find a middle ground between a country's economic development and its ecological security, environmental stability, and long-term economic viability. Recent research on the growth of green finance in Bangladesh by Zheng, Siddik, Masukujjaman, Fatema, and Alam (2022) identified four main sources of green funding, based on the perspectives of bankers. The environmental effect of a country can be reduced, and its economy can grow sustainably if resources are allocated to waste management, eco-friendly building practices, recycling of green bricks, and recyclable commodities.

Moreover, by reducing the ecological footprint and carbon intensity of banks' portfolios through increased investment in environmentally sustainable activities improves environmental performance indicators (Liu et al., 2020). On the other hand, banks can improve their environmental performance by identifying and avoiding investments that have a negative environmental impact by integrating environmental risk assessments into their due diligence procedures (Guang-Wen & Siddik, 2023). Nonetheless, banks' environmental performance can be improved by adopting ecologically friendly activities and reducing their environmental footprint as a result of adhering to environmental norms and standards (Zhang et al., 2023). On the other hand, there may be an exaggeration of the impact of the source of green finance on banks' environmental performance. They contend that whereas green finance channels have chances to improve reputation and branding, the true environmental impact may differ based on general market dynamics and legal frameworks (Johnson et al., 2018). Furthermore, banks' ability to scale up and adopt green financing solutions may be constrained by their affordability and availability relative to conventional funding sources, especially in developing economies or industries where green technologies are not yet economically competitive (Wang et al., 2020). Similarly, banks actually value sustainability in their operations, or if green financing initiatives are driven more by regulatory compliance requirements and market trends than by a sincere commitment to environmental stewardship (Peñaloza et al., 2023). The following research hypotheses are offered, based on the theoretical framework and the review of the relevant literature:

H_3: SGF significantly affect the BEP.

2-3. Mediating the Role of Source of Green Financing (SGF) between Green Banking Activities (GBA) and Bank Environmental Performance (BEP)

The term "Green finance," often known as "green investment," has multiple meanings in the academic and corporate communities (Dörry & Schulz, 2018). With growing support in both developed and developing nations, the green transition can only succeed with the help of green financing (Want et al.,

2021). According to the study by Chen et al. (2022), "green finance" refers to the funding of projects that improve an organization's long-term sustainability by reducing its reliance on nonrenewable resources. Carbon and emission taxes, on the other hand, reduce a company's energy use, production, earnings, and pollution output (Nie et al., 2021). However, the activities and output of a corporation can be used to assess its environmental performance (Kumar et al., 2024). According to Tung et al. (2014), a company's resource efficiency is the most telling indicator of its environmental performance. Banks can reduce their entire internal carbon footprint and external carbon emissions by green financing of green banking activities (Sharma & Choubey, 2022). However, the actions and results of a business are the best indicators of its environmental performance (Chen et al., 2022). Tung et al. (2014) state that the efficiency with which a corporation uses its resources is the best indication of its environmental performance. Emission intensity was employed to determine the magnitude of a company's environmental impact, as was proposed by the study (Zhang et al., 2022). To this end, it might be argued that the efforts of green banking activities are essential if we are to achieve sustainable economic growth through increased green finance and environmental performance by banks. In addition, green banking activities in banks enhanced their environmental performance by cutting down on routine activities that harm the environment. These included things like paper usage, energy conservation, funding environmentally friendly projects, fuel usage, and carbon emissions (Iqbal et al., 2024). Using multiple regression analysis, Risal and Joshi (2018) looked into how green banking activities affected the ecological performance of Nepalese banks. Research on the environmental performance of banks indicated that customer-related practices (green finance, green projects) had minimal effect. In contrast, environmental training, green legislation, and the availability of energy-efficient equipment all had substantial effects.

Furthermore, banks may be better equipped to carry out green activities and provide favorable environmental results if they have access to a variety of trustworthy green finance sources (Al Amin et al., 2023). However, research indicates that the availability of green financing choices increases banks' ability to assist environmental initiatives and has a beneficial impact on their desire to participate in green banking operations (Berrone & Gomez-Mejia, 2009). Furthermore, policymakers and banking professionals can improve the efficacy of green banking programs and support environmental sustainability goals by comprehending and using the mechanisms underlying this relationship (Siddik et al., 2024). On the other hand, while green finance channels might make it easier to allocate funds to environmentally friendly projects, other factors including market demand, legal restrictions, and the profitability of green investments might limit the total impact on environmental outcomes (Hill & Sharma, 2020). Furthermore, the scalability and uptake of green banking activities within the banking industry may be impacted by the accessibility and affordability of green financing choices in comparison to traditional finance sources (Aslam & Jawaid, 2023). In the meantime, the kind and quantity of green finance channels that banks use determine how effective green banking initiatives are at improving environmental performance (Ellahi et al., 2023). Thus, the following hypothesis is proposed.

H_4: The relationship between GBA and BEP is significantly mediated by the SGF.

2-4. Moderating the Role of Green Knowledge Sharing (GKS) in the Relationship between Green Banking Activities (GBA) and Sources of Green Financing (SGF)

The findings of Wang and Wang (2018) show that information exchange amongst employees has a substantial impact on green financing via banking practices. Knowledge sharing is viewed favorably because it fosters a sense of independence and responsibility among workers, which in turn strengthens employees' emotional bonds to the company and their responsive actions (Zhao & Detlor, 2021). The importance of analyzing the value and motives of employees in the green knowledge-sharing process cannot be overstated, since employees frequently use knowledge sharing for their own purposes, such as image and reputation development (Mehta & Handriana, 2024). Because of this, researchers have been examining the impact of innate personality features on the development of green knowledge-sharing goals (Zhang et al., 2022). For instance, Ahmed et al. (2023) recommended researching the factors that influence when and why employees engage in green knowledge sharing. A survey of the academic literature suggests that green knowledge sharing-induced out-of-role behavior

on the part of workers has been largely overlooked. It is also hypothesized that information sharing is a significant predictor of employees' out-of-role activities. Employees are more likely to share information about green banking activities if they work in an organization that explicitly encourages them to do so (through job descriptions, training, and evaluation); then financially rewards them for doing so (through green financing) (Ahmed et al., 2022). Employees are more inclined to go increasingly above in a knowledge-sharing environment to help the company meet its green funding targets (Hidayat-ur-Rehman & Hossain, 2024). The Green Budgeting Act (green banking activities) procedures and green knowledge-sharing principles would spark ecologically responsible funding systems, since green knowledge sharing fosters a sense of independence and agency (Fikri et al., 2021). Green knowledge sharing is an identifying scenario, which is bolstered by a green source of financing. Recent research by Ahmed et al. (2022) confirms that green knowledge sharing mediates the connection between green business activity and environmentally friendly financing.

Likewise, proficient knowledge dissemination enhances staff members' cognizance regarding eco-friendly funding alternatives and proficiency in evaluating and handling environmental hazards. Due to this increased awareness, banks are better able to spot and seize green financing possibilities, which increases the amount of money available for environmentally friendly initiatives (Appio et al., 2021). Similarly, with regard to product development and innovation, the exchange of knowledge among banks fosters product development and innovation, which results in the development of new green financing services and products (Olsen et al., 2014). However, banks can create customized financing solutions that meet the unique requirements of ecologically sustainable projects by utilizing insights obtained through knowledge-sharing efforts, which will increase the availability of green finance sources (Sinha et al., 2023). On the other hand, while the transmission of green knowledge is crucial, other elements like market demand, legal frameworks, and financial incentives for green investments might have a bigger impact on the uptake and effectiveness of green financing programs (Ahmad et al., 2021). Furthermore, despite initiatives to disseminate green information inside firms, issues with the scalability and affordability of green banking practices may restrict their influence (Ahmad et al., 2021; Khan et al., 2022). However, to sum up, investigating how green knowledge sharing influences the relationship between green banking activities and the source of green financing, as a moderating factor, holds potential to improve our comprehension of how knowledge dissemination affects sustainability outcomes in the banking industry (Guang-Wen & Siddik, 2023). The following hypothesis is possible in light of the information presented:

H_5: The relationship between GBA and SGF is significantly moderate by the GKS.

2-5. Moderating the Role of Individual Green Values (IGV) on the Relationship between Source of Green Financing (SGF) and Bank Environmental Performance (BEP)

The environmental performance of a business, however, has been found to depend on factors such as an individual's commitment to sustainability (U. P. Iqbal et al., 2024). The authors concluded that individual-green values serve as a threshold condition between environmentally responsible financing and an organization's environmental performance (Hameed et al., 2022). Not everyone in the company may value environmental responsibility and green initiatives as highly as management does. An employee's actions on the job are greatly influenced by the employee's personal values (Luu, 2019). For instance, Andersson et al. (2005) show that those who place a high value on the environment are more likely to engage in environmentally positive behaviors. Researchers discovered that employees' eco-friendly behavior outside of work hours significantly influenced their companies' environmental performance (Cheema et al., 2020). Green finance strategies and environmental enthusiasm are strongly connected with employee green values (Ahmed et al., 2023). In addition, Dumont et al. (2017) found that employees are more inclined to follow organizational norms and procedures if they are consistent with their personal values and views (Islam et al., 2022). Moreover, employees who feel a strong connection to the company's green mission are more likely to take actions that benefit the environment (Afsar et al., 2020). In addition, we argue that eco-conscious individuals will place a higher value on green financial practices and, as a result, will be more likely to share any knowledge that can aid the environment (Ahmed et al., 2022). Organizational resources for people with strong green ideals are considered to include environmentally friendly methods of finance. Since the

organization places a premium on such values, and employees' engagement in environmental sustainability initiatives depends on them, a complementary fit develops (Abbas & Khan, 2023). Employees' interest in the company's environmental performance may increase if green financing practices are also implemented, as they may feel more aligned with the company and their coworkers (Ahmed et al., 2022).

On the other hand, bankers who have strong environmental values are more inclined to support funding for ecologically friendly projects. Through their advocacy, bank decision-makers may be persuaded to accord top priority to green financing solutions, thereby improving environmental performance outcomes (Shu et al., 2020). Comparably, banks' perceptions of risk and methods for mitigating it in relation to green finance may be influenced by individual green values. Improved environmental performance metrics may result from professionals that place a higher priority on environmental sustainability being more alert in seeing and reducing environmental risks connected to green projects (Appio et al., 2021). On the other hand, in order to promote green finance projects, banking professionals who have strong environmental values may spur innovation and strategic alignment within banks. Their dedication to sustainability might serve as an inspiration for the creation of cutting-edge financial services and products suited to environmental goals, increasing the availability of green funding sources and improving environmental performance (Ma et al., 2025). Conversely, although personal values are important, institutional constraints, market forces, and regulatory frameworks may exert stronger influences on the effectiveness of green financing initiatives (Arsel et al., 2022). Regardless of personal beliefs or preferences, the scalability and profitability issues surrounding green investments may also prevent them from being widely adopted by financial institutions (Rahman et al., 2023). Similarly, distinct organizational structures, geographical areas, or banking sectors have differing individual green values with regard to environmental results (Iqbal et al., 2018; Khan et al., 2022). However, researchers can offer insights that guide tactics for fostering an environmental culture and optimizing the contribution of green financing initiatives to the achievement of global sustainability goals by critically analyzing these dynamics through hypothesis-driven research. The following hypothesis is possible in light of the information presented:

H_6: The relationship between SGF and BEP is significantly moderate by the IGV.

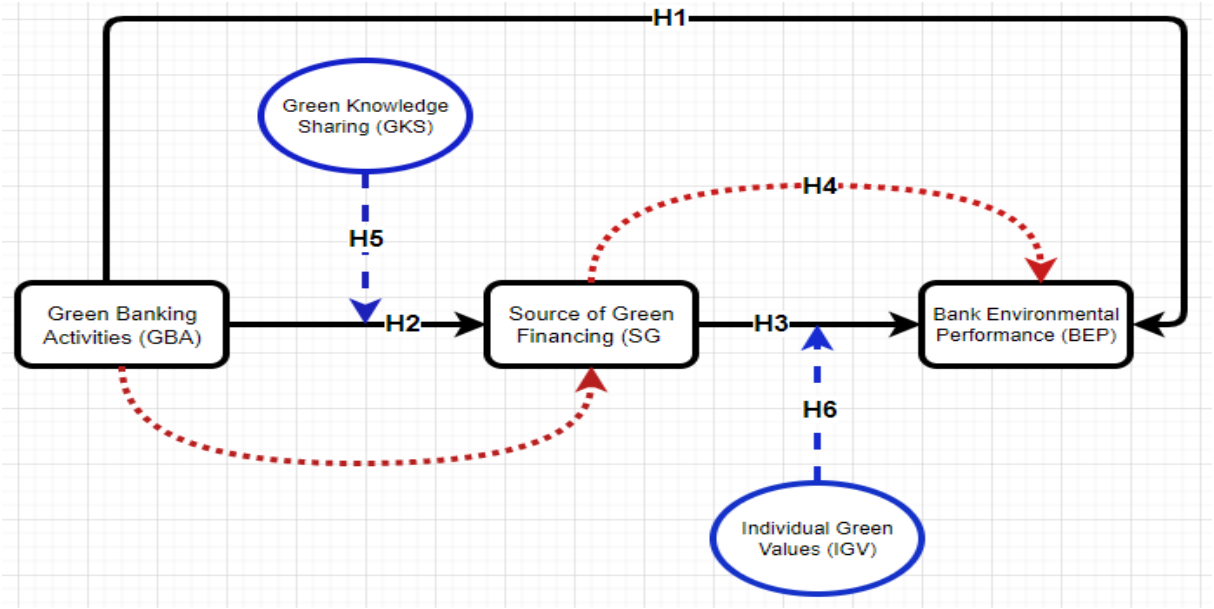


Fig. 1. Conceptual Framework

3. Research Methods

3-1. Study Sample and Data Collection

In this study, keeping in view the contribution of the Pakistani banking sector towards green banking and green financing, Pakistani bankers were selected as respondents. Therefore, the fundamental

purpose of this research is to assess the effect of GBA on BEP by examining the mediating function of SGF and the moderating function of GKS and IGV. To collect data from Pakistani bankers for the aforementioned study, we used a structured questionnaire and the stratified sampling method (Iqbal & Rao, 2022). The respondents were divided into four groups: conventional bankers, Islamic bankers, microfinance bankers, and specialized bankers. Nonetheless, 518 respondents were obtained by the stratified sampling technique, i.e., 185 from conventional banks (36%), 155 from Islamic banks (30%), 104 from microfinance banks (20%), and 74 from specialized banks (14%).

3-2. Survey Instrument

The GBA (independent-variable) were formulated based on the previous studies, which identifies the factors affecting the SGF (mediating-variable), BEP (dependent-variable), and GKS, as well as IGV (moderating-variables). However, to measure the underpinning five variables, a total of 25 items were considered in the survey instrument (BEP = 4, GBA = 7, GKS = 4, IGV = 06, and SGF = 04). Whereas, Table 1 presents all the items of each construct that were bused in this study based on the previous studies. Similarly, four items were adopted for the assessment of BEP (Chen et al., 2022; Risal & Joshi, 2018; Shaumya & Arulrajah, 2017; Zhang et al., 2022), seven items were adopted in assessing for the GBA (Akter et al., 2018; Rehman et al., 2021; Risal & Joshi, 2018; Shaumya & Arulrajah, 2017; Zhang et al., 2022), four items used to measure the GKS (Ahmed et al., 2022; Rubel et al., 2021; Wong, 2013), six items used for the measurement of IGV (Ahmed et al., 2022; Islam et al., 2022; Steg et al., 2005), and SGF was measured through the four items (Akter et al., 2018; Hossain et al., 2020; Zhang et al., 2022; Zheng, Siddik, Masukujjaman, Fatema, & Alam, 2021).

3-3. Data Analysis Technique

Additional data analysis in this work made use of two-stage structural equation modeling methods. In this strategy, the measuring model (external model) and the structural model (internal model) would be the two primary methodologies used, addressing how the survey's reliability and validity were calculated and which measurement approach was employed. Henseler et al. (2014), Hair et al. (2014), and Hair et al. (2019) all use structural models to evaluate the connection between underlying causes and output. The indicator reliability of the data collection instrument will be assessed based on the outer measurement model factor loading, with the threshold (> 0.6) established by Oke et al. (2022) and Hair Jr et al. (2021). The measurement model includes the second test of composite reliability and Cronbach's alpha, with cutoffs of (> 0.6) and (> 0.7), respectively, as suggested by Burns (2000) and Lai (2021).

The validity of the instrument must be established before its reliability can be demonstrated (Ahmed & Ishtiaq, 2021; Kumar et al., 2021; Oke et al., 2022; Shafie et al., 2021). The average-variance-extracted (AVE) third tool is used to test the questionnaire's convergent validity at a criterion of 0.50 or higher (Hair Jr et al., 2021). Multicollinearity issues arise when two or more independent variables are found to be linked or related. The problem of multicollinearity causes a variety of issues; for example, the interpretation of data is no longer acceptable in the presence of a multicollinearity coefficient. Additionally, the standard deviation will be raised while the t-values stay low. In order to ascertain whether multicollinearity exists, methodologies for computing the variance inflation factor (VIF) will be applied. Collinearity between those items is not a problem if the VIF values of the construct's components are less than 3.30 and they are not associated with one another (Iqbal et al., 2021; Iqbal et al., 2022).

It will be feasible to assess the productive power on the other side by utilizing the coefficient determination (R2), which explains the percentage change in dependent variables owing to independent factors. The importance of different path coefficients (β) was evaluated using the p-value and t-value after the inner-model (structural-model) was applied (Hair et al., 2017). The bootstrapping procedure, and the consequent generation of t-values and p-values, enabled the researchers to determine the statistical significance of the path coefficient (β). In this investigation, the traditional method of bootstrapping was used on a subsample size of 5000 to gain access to the significant level of the path coefficient (β). At a significance level of (α) = 10% (Henseler, Ringle, & Sarstedt, 2014), the cutoff for t-values was set at 1.96, and the cutoff for p-values was set to ($p < 0.01$).

4. Results

4-1. Test for Reliability

The factor loadings used to assess the reliability of the indicators are shown in Table 1. As each item of the underlying constructs has a value greater than the cutoff value of 0.70, the indicator reliability conditions have been successfully met (Hair et al., 2014; Hair Jr et al., 2021; Oke et al., 2022). The internal consistency reliability of the measure was assessed using Cronbach's alpha and the composite reliability tools. The preconditions for internal consistency reliability were met in this study, as all of the underlying constructs (GBA, SGF, BEP, GKS, and IGV) have composite reliability values ranging from 0.866 to 0.952 and Cronbach's alpha values ranging from 0.802 to 0.932, which exceed the cutoff values of (> 0.6) and (> 0.7), respectively, as recommended by Kline (2016), Oke et al. (2022), Hair Jr et al. (2021), Burns (2000), and Lai (2021).

4-2. Test for Validity

Reliability and validity are intertwined, and reliability would not be helpful until the validity of the instrument was established (Ahmed & Ishtiaq, 2021; Kumar et al., 2021; Oke et al., 2022; Shafie et al., 2021). The average-variance-extracted (AVE) and HTMT (heterotrait-monotrait) ratios were used to determine the convergent validity and discriminant validity, respectively. The AVE values of all the structures (GBA, SGF, BEP, GKS, and IGV), displayed in Table 2, range from 0.618 to 0.931, and are above the threshold value of 0.5, as indicated by Hair Jr et al. (2021). Therefore, this study met the requirements for convergent validity. This study also used HTMT for robustness, as it consistently outperformed the Fornell-Larcker criterion in various contexts. Table 3 displays the results of the HTMT ratio values. The values are less than the cutoff values of 0.85/0.90, indicating that the study's goal of discriminant validity was achieved (Hair et al., 2019; Roemer et al., 2021; Oke et al., 2022).

4-3. Test for Multicollinearity

Variance inflation factors (VIF) are presented in Table 1, and each item of the underlying constructs (GBA, SGF, BEP, GKS, and IGV) had a VIF value below the cutoff value of 3.30, indicating that multicollinearity was not a problem in this study (Hair, 2019; Iqbal et al., 2021).

Table 1. Variance Inflation Factors

Table-I: Reliability and Validity

Items	Descriptions of Items	Source	Factors Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	Variance Inflation Factor (VIF)
	"Bank Environmental Performance (BEP)"						
BEP-1	"Banking activities reduce the energy consumptions"	(Risal & Joshi, 2018)	0.878	0.932	0.952	0.831	2.7
BEP-2	"Banking activities reduce the carbon emissions"		0.919				3.78
BEP-3	"Environmental standard improving the banking compliance"		0.919				3.75
BEP-4	"Training on environmental protection and energy saving to the staffs"		0.929				4.26
	"Green Banking Activities (GBA)"						
GBA-1	"Introducing energy efficient systems, solutions, and practices"	(Akter et al., 2018)	0.863	0.924	0.939	0.689	3.61
GBA-2	"Introducing online banking facilities"		0.853				3.9
GBA-3	"Providing loans for ecofriendly projects"		0.854				3.97
GBA-4	"Organizing seminars and symposiums to promote ecofriendly practices"		0.703				1.56
GBA-5	"Establishment of more green branches"		0.863				3.19
GBA-6	"Reduction in paper consumption"		0.853				3.2
GBA-7	"Encouragement of customers to indulge in ecofriendly-banking activities"		0.811				2.73
	"Green Knowledge Sharing (GKS)"						
GKS-1	"I enjoy sharing environment-friendly knowledge with colleagues"	(Rubel et al., 2021)	0.772	0.802	0.866	0.618	1.65
GKS-2	"I always share green knowledge obtained from print & electronics sources"		0.742				1.81
GKS-3	"In my organization, people share expertise from work experience with each other"		0.805				1.42
GKS-4	"I believe that knowledge sharing can benefit all parties involved"		0.824				1.82
	"Individual Green Values (IGV)"						
IGV-1	"I feel obliged to do whatever I can to prevent environmental degradation"	(Islam et al., 2022)	0.786	0.878	0.907	0.62	2.05
IGV-2	"I normally feel obliged to save the environment from degradation"		0.815				2.38
IGV-3	"I feel guilty when I contribute to environmental degradation"		0.783				2.5
IGV-4	"I normally feel obliged to protect the environment instead of degrading it"		0.77				2.21
IGV-5	"People like me should do whatever they can to protect the environment"		0.764				2.05
IGV-6	"I would prefer to buy eco-friendly appliances"		0.806				2.49
	"Source of Green Financing (SGF)"						
SGF-1	"My bank has invested more on renewable energy sectors"	(Zheng, Siddik, Masukujjaman, Fatema, & Alam 2021)	0.725	0.869	0.912	0.724	1.44
SGF-2	"My bank has invested more on energy efficiency projects"		0.919				3.67
SGF-3	"My bank has invested more on recycling and recyclable products"		0.871				2.71
SGF-4	"My bank has invested more on waste management and other ecofriendly projects"		0.875				2.74

Table 2. HTMT Ratio

Constructs	(1)	(2)	(3)	(4)	(5)
(1) Bank Environmental Performance					
(2) Green Banking Activities	0.290				
(3) Green Knowledge Sharing	0.638	0.24			
(4) Individual Green Values	0.507	0.133	0.382		
(5) Source of Green Financing	0.443	0.824	0.398	0.273	

4-4. Test for Predictive Power of the Model

Table 3 shows the accuracy of the overall model's prediction that the GBA and SGF were responsible for 30.3% of the variation in BEP. At the same time, the GBA was responsible for 62.1% of the modifications in the SGF.

Table 3. Coefficient of Determination (R^2)

Constructs	R Square	R Square Adjusted
Bank Environmental Performance (BEP)	0.308	0.303
Source of Green Financing (SGF)	0.623	0.621

4-5. Test for Hypothesis

The structural equation modeling was applied to test the hypothesis of the study. The final results in this regard are presented in Table 4. According to the findings, GBA has no direct impact on BEP ($\beta = 0.012$, $t = 0.214$, $p < 0.830$), which does not validate the acceptance of H1. It means that BEP (banking activities that reduce energy consumption and carbon emissions, comply with environmental standards, and provide training to banking employees regarding environmental protection and energy saving) was not directly influenced by GBA (energy-efficient systems, online banking, provision of eco-friendly projects, seminars on eco-friendly practices, establishment of green branches, reduction in paper consumption, and eco-friendly banking activities). This result is consistent with findings from prior research (e.g., Risal & Joshi, 2018; Shakil et al., 2014).

Subsequently, a positive and significant effect of GBA was found on SGA ($\beta = 0.629$, $t = 15.673$, $p < 0.000$), which corroborates H2. This result is consistent with findings from prior research (e.g. Akter et al., 2018; Raihan & Khan, 2018; Shaumya & Arulrajah, 2017; Zhang et al., 2022) which indicates that GBA (Energy efficient system, online banking, provision of ecofriendly projects, seminars on ecofriendly practices, establishment of green branches, reduction in paper consumption, and ecofriendly banking activities) significantly enhances the SGF (Making investments in renewable energy sectors, energy efficient projects, recycling products, and in waste management/ecofriendly projects) in the context of Pakistan.

Meanwhile, H3, proposing the positive and significant impact of SGF on BEP, is accepted ($\beta = 0.301$, $t = 4.860$, $p < 0.000$). It means the provision of SGF (Making investments in renewable energy sectors, energy efficient projects, recycling products, and waste management/ecofriendly projects) has significant and positive impact on BEP (Banking activities that reduce energy consumptions, carbon emissions, compliance environmental standard, and provision of training to banking employees regarding environmental protection and energy saving) in the context of Pakistani banking sector. These findings are also supported by various studies (e.g., Chen et al., 2022; Li et al., 2020; Rehman et al., 2021; Zheng, Siddik, Masukujjaman, & Fatema, 2021).

In addition, we examine the mediating role of SGF between the GBA and BEP in the context of Pakistani banking sectors through H4. Table 4 confirms the mediating role (full-mediation) of SGF between the GBA and BEP at ($\beta = 0.189$, $t = 4.860$, $p < 0.0000$). These findings are in line with previous studies (Chen et al., 2022; Shaumya & Arulrajah, 2017; Sharma & Choubey, 2022; Zheng, Siddik, Masukujjaman, Fatema, & Alam, 2021; Zhang et al., 2022).

On the other hand, the values relating to H_5, in Table 4, confirm that the provision of GKS (Sharing environment-friendly knowledge with co-workers, sharing green knowledge information collecting from print and electronic media, sharing green experience with each other) significantly fortifies the GBA-BEP relationship in the context of Pakistan ($\beta = 0.193$, $t = 4.904$, $p < 0.0000$).

The findings relating to H_5 are significantly supported by the various studies (e.g. Ahmed et al., 2022; Bhatti et al., 2021; Chen et al., 2022; Fikri et al., 2021; Rhee & Choi, 2017; Rubel et al., 2021; Shao et al., 2017; Zhang et al., 2022).

Similarly, Table 4 also shows that the provision of IGV (Preventing environmental degradation, saving environment from degradation, feelling embarrassment about contributing to environmental degradation, protecting the environment, and buying ecofriendly appliances) significantly and positively strengthens the relationship between the SGF and BEP. Therefore, H6 is accepted (β = 0.056, t = 1.700, p < 0.089). However, these outcomes are supported by various studies, including Ahmed et al. (2022), Hameed et al. (2020), Cheema et al. (2020), Gilal et al. (2019), Islam et al. (2022), Afsar et al. (2020), and Luu (2019).

Table 4. Hypothesis Testing Results (Bootstrapping @5000 Subsamples)

Hypothesis	Coefficient (*β*)	SD	T-Stats	P-Values	Decision
Direct Effects					
H1: Green Banking Activities -> Bank Environmental Performance	0.012	0.055	0.214	0.830	Reject
H2: Green Banking Activities -> Source of Green Financing	0.629	0.040	15.673	0.000	Accept
H3: Source of Green Financing -> Bank Environmental Performance	0.301	0.062	4.860	0.000	Accept
Mediating Effects					
H4: Green Banking Activities -> Source of Green Financing -> Bank Environmental Performance	0.189	0.039	4.860	0.000	Accept
Moderating Effects					
H5: Green Knowledge Sharing x Green Banking Activities -> Source of Green Financing	0.193	0.039	4.904	0.000	Accept
H6: Individual Green Values x Source of Green Financing -> Bank Environmental Performance	0.056	0.033	1.700	0.089	Accept

Note: ***, **, and * denote significance level @1%, 5%, and 10%, respectively.

5. Conclusion

Over the past few decades, the scientific community, academics, and professionals have paid more attention to green banking activities, source of green financing, bank environmental performance, green knowledge sharing, and individual green values. The primary objectives of this study are to examine the effects of green banking activities on bank environmental performance and the source of green financing, as well as the effects of the source of green financing on bank environmental performance. The mediating role of source of green financing between the green banking activities and bank environmental performance is also investigated here. In addition, the mediating roles of individual green values in the association between source of green financing and bank environmental performance, and of green knowledge sharing in the connection between green banking activities and source of green financing, are under consideration. In this study, data analysis was performed in two phases using structural equation modeling. Validity and reliability were assessed by employing a measurement model.

The non-acceptance of H1 (Direct impact of Green Banking Activities (GBA) on Banks' Environmental Performance (BEP)) indicates that there are significant shortfalls in the effectiveness of green banking programs, notably the lack of standardized evaluation mechanisms and high occurrence of greenwashing, which are also identified by Risal and Joshi (2018) and Chin et al. (2021). Turning the usually celebratory discourse on the potential of green banking to promote sustainability on its head, this paper offers an empirical narrative of how the rhetoric remains purely rhetorical or, where certain metrics are adopted, how they have little real effect on the ground owing to loose—or frankly timid—measures and to structural or regulatory disallowances. Comparing these findings with positive theoretical declarations, the research consequently contributes to knowledge by highlighting the requirement to develop sound regulatory standards, transparency, and further embedding of sustainability in core banking business, echoing Tezer and Bodur's (2020) concern, while basing the concern on practical data.

In addition, this research findings validated the positive impact of Green Banking Activities (GBA) on Sustainable Green Financing (SGF), hypothesized in H2, suggesting that institutions being more enthusiastic about green banking tend to obtain good environmental performance and carbon footprint. These results are consistent with prior studies (e.g., Kolk, 2016; Li et al., 2020; Shu et al., 2020), which have emphasized that green banking has financial and operational advantages (e.g., cost

effectiveness, better risk management, and market advantage). Finally, this article adds to these recent contributions (Peñaloza et al., 2023) by demonstrating that green banking not only enables the diversification of green finance products and enhances investor confidence but also creates conducive public-private partnerships and long-term economic resilience. Through empirically demonstrating this positive connection between GBA and SGF, this research further develops the understanding of how sustainable banking practices connect with broader environmental and economic performance, highlighting the role of financial institutions in fostering sustainability transitions.

Similarly, the significant direct effect of SGF on BEP is evident in this study. The results portray a significant positive direct impact of sustainable green financing (SGF) on banks' environmental performance (BEP). Therefore, accepting H3 provides highly useful information for the banking sector of Pakistan. The results reveal that banks combining internal and external sources of green finance (e.g., green bonds) perform environmentally better than banks using traditional or internal funds only, which aligns with existing studies (Olsen et al., 2014; Rehman et al., 2021; Zheng, Siddik, Masukujjaman, Fatema, & Alam, 2021). Although previous research had stressed the positive environmental and social consequences of green finance, this research contributes to the literature by providing empirical evidence that access to alternative green finance mechanisms raises banks' carbon performance, regulatory fit, and attractiveness to ESG-oriented investors. Through the fusion of financial stability with climate risk mitigation and sustainable development goals, the contribution here adds to the debate on the strategic role played by green finance to enhance environmental performance in developing countries as a critical element to reform a more sustainable financial system (Iqbal et al., 2018; Olsen et al., 2014).

Moreover, this research supports H4, which posits that Sustainable Green Financing (SGF) mediates the positive relationship between Green Banking Activities (GBA) and Banks' Environmental Performance (BEP) and contributes to an understanding of the processes through which green banking impacts environmental outcomes. While previous studies (Chen et al., 2022; Yan et al., 2021; Zheng, Siddik, Masukujjaman, Fatema, & Alam, 2021) have recognized the importance of green finance in promoting sustainable investments, this paper importantly builds on this to demonstrate the mechanism through which banks committed to green practices are more likely to tap into diverse sources of funding—including green bonds— which, in turn, substantially enhances their environmental performance. The results integrate and empirically validate the assertion that SGF translate green banking assumptions into the consequences which can be measured in terms of stakeholder conformity, accountability, business reproducibility, and the expansion of significant environmental projects. Thus, this research extends the literature by characterizing SGF not only as a financing instrument but as a strategic intermediary that strengthens the environmental impact of green banking, satisfying not only local institutional goals but also global environmental ones (Beichert et al., 2023; Khan & Szegedi, 2019).

However, this study also validated the strong and significant moderating effect of GKS in the relationship between GBA and SGF, thereby supporting H5 and enriching the literature on how knowledge sharing enhances the effectivity of green finance. Contrary to previous studies, which have merely highlighted the stand-alone role of green strategies (Bhatti et al., 2021; Rubel et al., 2021), this study contributes to the literature by explicativting how banks that are effectively involved in green knowledge-sharing forums perform better with green banking mechanisms and diverse funding sources for green banking. Consistent with Rhee and Choi (2017) and Chakrabarty and Wang (2013), this study indicates how collaboration, innovation, and transparency—all prompted by GKS—help bolster both institutional capability and stakeholder alignment. This study contributes empirical evidence on the amplification of the GBA's role in effectively driving SGF through GKS, advances our understanding of the social and informational infrastructure required for a resilient sustainable finance ecosystem, and further extends the ICO reach, credibility, and impact of the green banking (Hill & Sharma, 2020).

Lastly, this research statistically supported Hypothesis 6, meaning that Individual Green Values (IGV) significantly moderates the relationship between Sustainable Green Financing (SGF) and Banks' Environmental Performance (BEP) in the context of Pakistan banks. It is worth noting that, unlike previous studies that have stood isolated on IGV (Afsar et al., 2020; Ahmed et al., 2022; Islam et al., 2022), the present study makes a critical contribution as it shows how personal environmental

concerns (e.g., shame for polluting the environment, belief in the principles of the eco-friendly practices, and support for renewable energy) amplify the incentives for institutional green financing instruments. The results contribute to the literature by emphasizing the importance of internal value orientation in the process of transferring green financial investments (e.g., renewable energy, recycling, or ecotechnology) into direct and indirect environmental impacts (e.g., decreased carbon emissions, energy-saving activities, employee training). This paper enriches the reader's appreciation of the role of IGV as an important moderating factor that reinforces the positive link between person–organization value fit and banking environmental performance, thereby fostering a sustainability culture in the banking industry.

The results of this study show that green banking activities have no significant direct effect on bank environmental performance (H1), which contrasts with the findings of Shafi et al. (2025), who reported that green financing practices directly enhanced corporate environmental performance among manufacturing companies in India. However, the strong effect of green banking activities on the sources of green financing (H2) and the subsequent positive impact of green financing on environmental performance (H3) are consistent with the conclusions of Sugiarto and Nugraha (2025), who found that sustainable practices become effective when supported by financial resources. The mediating role of green financing (H4) further confirms the argument of Mansouri et al. (2025) that organizational mechanisms and financial structures are essential for translating sustainability initiatives into tangible performance outcomes. Moreover, the moderating effect of green knowledge sharing (H5) strengthens this relationship, supporting Arabiun et al. (2024), who emphasized that knowledge management practices enhance sustainability in digital start-ups. Interestingly, the moderating role of individual green values (H6) was only marginally significant, which partially aligns with Davari (2025), who argued that individual-level values contribute to sustainability but require stronger systemic and institutional reinforcement.

5-1. Theoretical Implications

The present study fills an important gap in the literature by incorporating green knowledge sharing (GKS) and individual green values (IGV) into the theoretical framework linking GBA, SGF, and BEP, within the theoretical underpinning of DOI. Although the literature has already addressed green finance and environmental performance separately, it has paid little attention to the role played by the motion of social, information, and personal value-based mechanisms in facilitating the diffusion of green banking innovation. This contribution is of added value as it suggests that GKS and IGV not only enable the spread of green 'hacks' but also amplify their efficiency, starting from the catalyzing role of GKS and IGV in enhancing the perceived relative advantage, compatibility, and observability of green innovations in the context of green banking (Frizzo-Barker et al., 2020; Hafner et al., 2020). In addition, the study suggests a theoretical nexus in this respect, underlining that encouraging the spread of a culture of shared EKVs in banks will significantly condition the adoption of innovation and the performance thereof. With the discovery of early adopters and value-driven champions in FIs, the results expand the DOI theory in the field of sustainable finance in emerging countries, such as Pakistan (Ali et al., 2022; Afridi et al., 2023; Bouteraa et al., 2023). In the final analysis, the present study not only adds a distinct theoretical prism but also serves as a roadmap for banks wanting to institutionalize environmental sustainability through their basic processes.

5-2. Managerial or Policy Implications

In the context of Pakistani bankers, no direct impact of GBA on BEP was discovered in this study. However, by establishing environmental performance goals for the lending officer, BEP can be improved through the GBA. Environmental impact studies and the creation of environmental rules and guidelines also help to improve BEP. The provision of green financial solutions, as well as efficient reporting and disclosure, may also improve through BEP. In the meanwhile, increasing the BEP might benefit from including stakeholders, employees, training, and continuous improvement assessment. Therefore, banks can successfully improve their environmental performance through the GBA by putting these actions into practice. The incorporation of sustainable practices into business operations helps to reduce carbon footprint, mitigate environmental hazards, and assist the shift to a more environmentally friendly and sustainable economy. In the context of Pakistan's banking sector, GBAs

play a significant role in advancing sustainable development and strengthening the SGF. The banking industry and regulatory organizations have a number of options when it comes to the practical application of GBA on SGA. However, some useful actions can be taken to improve the SGF based on the study's findings. These steps include offering compatible green financial products, implementing green policies, offering loans with loan subsidies for green financing, working with non-governmental organizations (NGSs) involved in environmental issues, issuing green bonds, and coordinating with regulatory organizations on matters relating to green financing. Banks and other financial institutions can successfully integrate GBA into their lending practices by putting these practical measures into place. It enables them to assist in green economic transition, reduce environmental hazards, and support sustainable growth.

In the context of Pakistan, the SGF's actual implementation may have a substantial effect on BEP. There are several ways that SGF can significantly impact BEP. These actions comprise conducting environmental due diligence, choosing sustainable projects, offering green lending products, conducting an environmental audit, offering internal control in the context of green financing, encouraging employee involvement in green financing, and working with environmental agencies. Banks can successfully incorporate green financing into their operations and improve environmental performance by putting these useful measures in place. The promotion of sustainable development, the reduction of environmental dangers, and the advancement of a greener, more sustainable economy are all supported by this. The mechanism by which SGF influences BEP through GBA (aligning green financing with environmental objectives, promotion of green projects, due diligence of environmental conduct, provision of green financing, encouraging monitoring/reporting culture, enhancing the capacity building of the stakeholders, and continuous improvement) is referred to as the mediating role of SGF between GBA and BEP. By carrying out these actions, SGF will be able to successfully mediate the interaction between GBA and BEP. By supporting sustainable projects, this integration provides a positive feedback loop that strengthens the bank's dedication to green banking practices while also improving environmental performance.

A few key measures are crucial to implementing the moderating effect of GKS on the link between GBA and SGF. These actions include promoting a culture of knowledge sharing among the workforce, offering mechanisms for sharing knowledge, enlisting the help of leverage experts, providing training and capacity building, establishing policies and guidelines for sharing green knowledge, facilitating cross-cultural collaboration, introducing a reward system for sharing knowledge, and pursuing continuous improvement. Banks can use GKS as a moderating factor to improve the link between GBA and BEP by putting these methods into practice. This sets up a positive feedback loop where information exchange improves green financing methods, which, in turn, improves sustainability outcomes for the bank and its stakeholders. Some practical measures (such as assessing individual green values, embedding green values in organizational culture, promoting ethical leadership, increasing employees' participation in green activities, providing green investment schemes, providing a network of green employees, providing a reward system regarding green behavior, encouraging an open culture of communication, and providing feedback) may be taken to implement the moderating role of IGV on the relationship between SGA and BEP. By implementing these measures, the Pakistani banking industry will be able to more successfully take advantage of IGV's moderating influence on the SGA and BEP's association within the Pakistani banking sector. It enables bank workers to better integrate their personal and professional values, promoting a feeling of mission and drive to contribute to the sustainability goals of the banks. In the end, this integration reinforces the BEP and dedication to long-term green finance.

Given the widespread interest in green banking and funding environmentally friendly projects to improve banks' environmental performance, the findings of this study have implications for a wide range of stakeholders in Pakistan. These include researchers, academics, managers, bankers, government officials, financial institutions, and investors. Experiments have demonstrated that GBA promotes SGA, which must be considered before analyzing how GBA affects BEP. To improve banks' environmental performance and profits, regulators should prioritize promoting GB operations such as online banking, online bill payment, remote deposit, mobile banking, green debit, and credit cards. The government of Pakistan is encouraging GB by providing tax breaks to financial institutions including banks and non-banks. This should benefit Pakistan's economy in the long run. The data

reveal that SGF significantly weakened the link between GBA and BEP. Increased funding for waste management, renewable energy, alternative energy, green sector development, and energy efficiency is essential if financial institutions are serious about enhancing their environmental performance. Commercial bank management is encouraged to maintain a close eye on funding activities in order to aid the country, attain SDGs, and support sustainable economic development.

In addition, banking authorities should host seminars, conferences, and other educational opportunities for bank customers and employees to learn more about GBA. According to the latest studies, GBA is mitigated by the combined efforts of governments, banks, non-bank financial institutions, international organizations, and enterprises. Results also showed that these practices support GKS, which creates an atmosphere where dependency tends to boost SGF by supplying GBA. The boundary condition further emphasizes that when more people exchange environmental knowledge and have green values, the effects of GBA are amplified. Because of this, when GBA is well implemented, it can lead to a variety of results, and when people have shared values, the consequences are tempered. Therefore, management should carefully consider implementing GBA procedures and hiring and retaining staff who are more environmentally conscious. By drawing attention to individuals' and organizations' socially responsible behavior, this study also has implications for society. In addition, it encourages reflection on sustainability and on how individuals may collaborate with an organization's green initiatives. The performance of the environment as a whole may be affected by the actions of individuals, such as reducing waste, conserving water, and protecting the environment. Green banking is gaining popularity, and this study will help researchers, scholars, analysts, and investors better understand the benefits of green banking and how it might improve a bank's environmental performance.

5-3. Limitations and Suggestions for Future Research

This study has several limitations, though it nonetheless offers meaningful contributions to organizations and society. It is also debatable whether the data should have been gathered solely from bank employees, thereby neglecting the perspectives of other stakeholders—such as prospective buyers of eco-friendly products, the business community, and regulatory organizations. The fact that the data were initially gathered from a single country (Pakistan) raises concerns about the generalizability of the findings to other emerging and developed countries. In addition, no extra interviews with the respondents were conducted to follow their behavior over time on the understudied constructs; instead, the information was collected by questionnaire. Third, this study only used one independent variable (green banking activities) to assess how green banking activities affected bank environmental performance. Future research could incorporate both primary and secondary data to evaluate green banking activities and green financing among banking institutions in Pakistan. This would give the study greater depth and a deeper understanding of the topic by enabling a more comprehensive view of the target audience. Therefore, it is advised that future academics perform research in various nations, civilizations, and even across cultural boundaries. We anticipate that our findings will inspire other researchers to create and test intricate models that incorporate numerous explanatory and boundary variables in order to forecast the bank environmental performance in the context of green financing. Furthermore, the financial and environmental performance of banks can be evaluated within the framework of the banking industry in Pakistan and other developing nations. Lastly, the comparative study of different banking sector, including commercial banks, microfinance banks, Islamic banks, and specialized banks, also recommended for further studies in the context of bank environmental performance through the underpinning variables of this study.

References

Abbas, J., & Khan, S. M. (2023). Green knowledge management and organizational green culture: An interaction for organizational green innovation and green performance. *Journal of Knowledge Management*, *27*(7), 1852-1870. https://doi.org/10.1108/JKM-03-2022-0156

Abbasi, M. A., Amran, A., & Sahar, N. e. (2024). Assessing the impact of corporate environmental irresponsibility on workplace deviant behavior of generation Z and millennials: A multigroup analysis. *International Journal of Ethics and Systems*, *40*(1), 45-67. https://doi.org/10.1108/IJOES-05-2022-0099

Adnan, M., Xiao, B., Bibi, S., Xiao, P., Zhao, P., & Wang, H. (2024). Addressing current climate issues in Pakistan: An opportunity for a sustainable future. *Environmental Challenges*, 100887. https://doi.org/10.1016/j.envc.2024.100887

Afridi, F. e. A., Afridi, S. A., Zahid, R. A., Khan, W., & Anwar, W. (2023). Embracing green banking as a mean of expressing green behavior in a developing economy: Exploring the mediating role of green culture. *Environmental Science and Pollution Research*, 1-11. https://doi.org/10.1007/s11356-023-25449-z

Afridi, F. E. A., Jan, S., Ayaz, B., & Irfan, M. (2021). Green finance incentives: An empirical study of the Pakistan banking sector. *Amazonia Investiga*, *10*(41), 169-176. https://orcid.org/0000-0002-9821-3383

Afsar, B., Maqsoom, A., Shahjehan, A., Afridi, S. A., Nawaz, A., & Fazliani, H. (2020). Responsible leadership and employee's proenvironmental behavior: The role of organizational commitment, green shared vision, and internal environmental locus of control. *Corporate Social Responsibility and Environmental Management*, *27*(1), 297-312. https://doi.org/10.1002/csr.1806

Agrawal, R., Agrawal, S., Samadhiya, A., Kumar, A., Luthra, S., & Jain, V. (2024). Adoption of green finance and green innovation for achieving circularity: An exploratory review and future directions. *Geoscience frontiers*, *15*(4), 101669. https://doi.org/10.1016/j.gsf.2023.101669

Ahmad, N., Ullah, Z., Arshad, M. Z., waqas Kamran, H., Scholz, M., & Han, H. (2021). Relationship between corporate social responsibility at the micro-level and environmental performance: The mediating role of employee pro-environmental behavior and the moderating role of gender. *Sustainable Production and Consumption*, *27*, 1138-1148. https://doi.org/10.1016/j.spc.2021.02.034

Ahmad, S., Jia, H., Ashraf, A., Yin, D., Chen, Z., Xu, C., Chenyang, W., Jia, Q., Xiaoyue, Z., & Israr, M. (2023). Water resources and their management in Pakistan: A critical analysis on challenges and implications. *Water-Energy Nexus*, *6*, 137-150. https://doi.org/10.1016/j.wen.2023.10.001

Ahmed, I., & Ishtiaq, S. (2021). Reliability and Validity: Importance in medical research. *Methods*, *12*, 13. https://doi.org/10.47391/JPMA.06-861

Ahmed, I., Islam, T., & Umar, A. (2022). Bridging organisational and individual green actions through green knowledge sharing & individual values. *Knowledge Management Research & Practice*, 1-13. https://doi.org/10.1080/14778238.2022.2139774

Ahmed, M., Hafeez, M., Kaium, M. A., Ullah, S., & Ahmad, H. (2023). Do environmental technology and banking sector development matter for green growth? Evidence from top-polluted economies. *Environmental Science and Pollution Research*, *30*(6), 14760-14769.

Akter, N., & Nobi, A. (2018). Investigation of the financial stability of S&P 500 using realized volatility and stock returns distribution. Journal of Risk and Financial Management, 11(2), 22. https://doi.org/10.3390/jrfm11020022.

Al Amin, M., Ahad Mia, M. A., Bala, T., Iqbal, M. M., & Alam, M. S. (2023). Green finance continuance behavior: The role of satisfaction, social supports, environmental consciousness, green bank marketing initiatives and psychological reactance. *Management of Environmental Quality: An International Journal*, *34*(5), 1269-1294. https://doi.org/10.1108/MEQ-09-2022-0257

Ali, M., Puah, C.-H., Ali, A., Raza, S. A., & Ayob, N. (2022). Green intellectual capital, green HRM and green social identity toward sustainable environment: A new integrated framework for Islamic banks. *International Journal of Manpower*, *43*(3), 614-638. https://doi.org/10.1108/IJM-04-2020-0185

Andersson, L., Shivarajan, S., & Blau, G. (2005). Enacting ecological sustainability in the MNC: A test of an adapted value-belief-norm framework. *Journal of Business Ethics*, *59*, 295-305. http://www.jstor.org/stable/25123560

Appio, F. P., Frattini, F., Petruzzelli, A. M., & Neirotti, P. (2021). Digital transformation and innovation management: A synthesis of existing research and an agenda for future studies. *Journal of Product Innovation Management*, *38*(1), 4-20. https://doi.org/10.1111/jpim.12562

Arabiun, A., Hosseini, E., Ziyae, B., & Tahami, S. M. (2024). The impact of entrepreneurial orientation and digitalization on performance sustainability with the mediation of knowledge management in digital start-ups. *Interdisciplinary Journal of Management Studies*, *18*(1), 33-53. https://doi.org/10.22059/ijms.2024.365165.676191

Arsel, Z., Crockett, D., & Scott, M. L. (2022). Diversity, equity, and inclusion (DEI) in the Journal of Consumer Research: A curation and research agenda. *Journal of Consumer Research*, *48*(5), 920-933. https://doi.org/10.1093/jcr/ucab057

Aslam, W., & Jawaid, S. T. (2023). Green banking adoption practices: improving environmental, financial, and operational performance. *International Journal of Ethics and Systems*, *39*(4), 820-840. https://doi.org/10.1108/IJOES-06-2022-0125

Ayaz, M. U., & Majeed, Z. (2022). Green financing to support energy transition: Options and challenges for Pakistan. *SDPI Policy Brief Series; SDPI: Islamabad, Pakistan*.

Beebeejaun, A., & Maharoo, T. (2024). Green banking laws and regulations in Mauritius: a comparative study with other countries' policies. *International Journal of Law and Management*, *66*(4), 518-535. https://doi.org/10.1108/IJLMA-10-2023-0243

Beichert, M., Bayerl, A., Goldenberg, J., & Lanz, A. (2023). Revenue generation through influencer marketing. *Journal of Marketing*, *88*(4), 40-63. https://doi.org/10.1177/00222429231217471

Berrone, P., & Gomez-Mejia, L. R. (2009). Environmental performance and executive compensation: An integrated agency-institutional perspective. *Academy of Management Journal*, *52*(1), 103-126. https://doi.org/10.5465/amj.2009.36461950

Bhatti, S. H., Saleem, F., Murtaza, G., & Haq, T. U. (2022). Exploring the impact of green human resource management on environmental performance: the roles of perceived organizational support and innovative environmental behavior. *International Journal of Manpower*, *43*(3), 742-762. https://doi.org/10.1108/IJM-05-2020-0215

Bose, S., Khan, H. Z., & Monem, R. M. (2021). Does green banking performance pay off? Evidence from a unique regulatory setting in Bangladesh. *Corporate Governance: An International Review*, *29*(2), 162-187. https://doi.org/10.1111/corg.12349

Bouteraa, M., Raja Hisham, R. R. I., & Zainol, Z. (2023). Challenges affecting bank consumers' intention to adopt green banking technology in the UAE: A UTAUT-based mixed-methods approach. *Journal of Islamic Marketing*, *14*(10), 2466-2501. https://doi.org/10.1108/JIMA-02-2022-0039

Burns, R. B. (2000*). Introduction to research methods*. Longman.

Chakrabarty, S., & Wang, L. (2013). Climate change mitigation and internationalization: The competitiveness of multinational corporations. *Thunderbird International Business Review*, *55*(6), 673-688. https://doi.org/10.1002/tie.21583

Cheema, S., Afsar, B., & Javed, F. (2020). Employees' corporate social responsibility perceptions and organizational citizenship behaviors for the environment: The mediating roles of organizational identification and environmental orientation fit. *Corporate Social Responsibility and Environmental Management*, *27*(1), 9-21. https://doi.org/10.1002/csr.1769

Chen, J., Siddik, A. B., Zheng, G.-W., Masukujjaman, M., & Bekhzod, S. (2022). The effect of green banking practices on banks' environmental performance and green financing: An empirical study. *Energies*, *15*(4), 1292. https://doi.org/10.3390/en15041292

Chin, T., Hu, Q., Rowley, C., & Wang, S. (2021). Business models in the Asia-Pacific: dynamic balancing of multiple cultures, innovation and value creation. *Asia Pacific Business Review*, *27*(3), 331-341. https://doi.org/10.1080/13602381.2021.1911402

Davari, A. (2025). An integrated model of green iot and vehicle routing for physician attendance scheduling in home care. *Interdisciplinary Journal of Management Studies*, *18*(3), 407-424. https://doi.org/10.22059/ijms.2025.360013.675896

Dörry, S., & Schulz, C. (2018). Green financing, interrupted. Potential directions for sustainable finance in Luxembourg. *Local Environment*, *23*(7), 717-733. https://doi.org/10.1080/13549839.2018.1428792

Dumont, J., Shen, J., & Deng, X. (2017). Effects of green HRM practices on employee workplace green behavior: The role of psychological green climate and employee green values. *Human Resource Management*, *56*(4), 613-627. https://doi.org/10.1002/hrm.21792

Ellahi, A., Jillani, H., & Zahid, H. (2023). Customer awareness on Green banking practices. *Journal of Sustainable Finance & Investment*, *13*(3), 1377-1393. https://doi.org/10.1080/20430795.2021.1977576

Fikri, M. A. A., Pramono, T., Nugroho, Y. A., Novitasari, D., & Asbari, M. (2021). Leadership model in pesantren: Managing knowledge sharing through psychological climate. *International Journal of Social and Management Studies*, *2*(3), 149-160. **DOI:** 10.5555/ijosmas.v2i3.44

Frizzo-Barker, J., Chow-White, P. A., Adams, P. R., Mentanko, J., Ha, D., & Green, S. (2020). Blockchain as a disruptive technology for business: A systematic review. *International Journal of Information Management*, *51*, 102029. https://doi.org/10.1016/j.ijinfomgt.2019.10.014

Ghauri, P., Strange, R., & Cooke, F. L. (2021). Research on international business: The new realities. *International Business Review*, *30*(2), 101794. https://doi.org/10.1016/j.ibusrev.2021.101794

Gilal, F. G., Ashraf, Z., Gilal, N. G., Gilal, R. G., & Channa, N. A. (2019). Promoting environmental performance through green human resource management practices in higher education institutions: A moderated mediation model. *Corporate Social Responsibility and Environmental Management*, *26*(6), 1579-1590. https://doi.org/10.1002/csr.1835

Gulzar, R., Bhat, A. A., Mir, A. A., Athari, S. A., & Al-Adwan, A. S. (2024). Green banking practices and environmental performance: navigating sustainability in banks. *Environmental Science and Pollution Research*, *31*(15), 23211-23226. https://doi.org/10.1007/s11356-024-32418-7

Hadi, R., Melumad, S., & Park, E. S. (2024). The Metaverse: A new digital frontier for consumer behavior. *Journal of Consumer Psychology*, *34*(1), 142-166. https://doi.org/10.1002/jcpy.1355

Hafner, S., Jones, A., Anger-Kraavi, A., & Pohl, J. (2020). Closing the green finance gap–A systems perspective. *Environmental Innovation and Societal Transitions*, *34*, 26-60. https://doi.org/10.1016/j.eist.2019.11.007

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer Nature. https://doi.org/10.1007/978-3-030-80519-7

Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, *1*(2), 107-123. https://doi.org/10.1504/IJMDA.2017.087624

Hair, J. F., Henseler, J., Dijkstra, T. K., & Sarstedt, M. (2014). Common beliefs and reality about partial least squares: Comments on Rönkkö and Evermann. Faculty Publications. 3666. https://digitalcommons.kennesaw.edu/facpubs/3666?utm_source=digitalcommons.kennesaw.edu%2Ffacpubs%2F3666&utm_medium=PDF&utm_campaign=PDFCoverPages DOI: 10.1177/1094428114526928

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review*, *31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hameed, Z., Khan, I. U., Islam, T., Sheikh, Z., & Naeem, R. M. (2020). Do green HRM practices influence employees' environmental performance? *International Journal of Manpower*, *41*(7), 1061-1079. https://doi.org/10.1108/IJM-08-2019-0407

Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., ... & Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). Organizational research methods, 17(2), 182-209. DOI: 10.1177/1094428114526928.

Hidayat-ur-Rehman, I., & Hossain, M. N. (2024). The impacts of Fintech adoption, green finance and competitiveness on banks' sustainable performance: digital transformation as moderator. *Asia-Pacific Journal of Business Administration*, *17*(4), 987-1020. https://doi.org/10.1108/APJBA-10-2023-0497

Hill, R. P., & Sharma, E. (2020). Consumer vulnerability. *Journal of Consumer Psychology*, *30*(3), 551-570. https://doi.org/10.1002/jcpy.1161

Hossain, M. A., Rahman, M. M., Hossain, M. S., & Karim, M. R. (2020). The effects of green banking practices on financial performance of listed banking companies in Bangladesh. *Canadian Journal of Business and Information Studies*, *2*(6), 120-128. https://doi.org/10.34104/cjbis.020.01200128

Hussain, S., Rasheed, A., & Rehman, S. u. (2023). Driving sustainable growth: exploring the link between financial innovation, green finance and sustainability performance: Banking evidence. *Kybernetes*, *53*(11), 4678-4696. https://doi.org/10.1108/K-05-2023-0918

Iqbal, Q., Hassan, S. H., Akhtar, S., & Khan, S. (2018). Employee's green behavior for environmental sustainability: a case of banking sector in Pakistan. *World Journal of Science, Technology and Sustainable Development*, *15*(2), 118-130. https://doi.org/10.1108/WJSTSD-08-2017-0025

Iqbal, U. P., Jose, S. M., & Tahir, M. (2024). Examining the demand side factors of green banking adoption–a study exploring the case of Oman. International Journal of Islamic and Middle Eastern Finance and Management, 17(1), 213-231. https://doi.org/10.1108/IMEFM-12-2022-0483.

Iqbal, Z., & Rao, Z.-u.-R. (2022). Social capital and loan credit terms: Does it matter in microfinance contract? *Journal of Asian Business and Economic Studies*, *30*(3), 187-209. https://doi.org/10.1108/JABES-10-2021-0185

Iqbal, Z., Akram, M., & Ahmed, S. (2024). Unveiling the nexus: corporate social responsibility and financial performance in developing economies. Interdisciplinary Journal of Management Studies, 18(1), 113-128. https://doi.org/10.22059/ijms.2024.372336.676543.

Islam, T., Ahmad, S., & Ahmed, I. (2022). Linking environment specific servant leadership with organizational environmental citizenship behavior: The roles of CSR and attachment anxiety. *Review of Managerial Science*, 1-25. https://doi.org/10.1007/s11846-022-00547-3

Johnson, C. M., Tariq, A., & Baker, T. L. (2018). From Gucci to green bags: Conspicuous consumption as a signal for pro-social behavior. *Journal of marketing Theory and practice*, *26*(4), 339-356. doi/abs/10.1080/10696679.2018.1487769

Khan, R. A., Ahmed, M. F., & Ahmed, S. (2024). Green Revolution in the Banking Sector: A Case of the Central Bank of Pakistan. In F. Ahmed & R. Khan (Eds.), *Governance and Policy Transformations in Central Banking* (pp. 261-279). IGI Global. DOI: 10.4018/979-8-3693-0835-6.ch015

Khan, R. U., Arif, H., Sahar, N. E., Ali, A., & Abbasi, M. A. (2022). The role of financial resources in SMEs' financial and environmental performance; the mediating role of green innovation. *Green Finance*, *4*(1), 36-53. DOI: 10.3934/GF.2022002

Khan, Y., & Szegedi, K. (2019). The concept of green banking in pakistan. *Sarhad Journal of Management Sciences, 5*(2), 357-367. ISSN 2523-2525 (Online)

Kline, R. (2016). *Principles and practice of structural equation modeling*. The Guilford Press. DOI: 10.1080/10705511.2015.1067739

Kolk, A. (2016). The social responsibility of international business: From ethics and the environment to CSR and sustainable development. *Journal of World Business, 51*(1), 23-34. https://doi.org/10.1016/j.jwb.2015.08.010

Kumar, J., Rani, G., Rani, M., & Rani, V. (2024). Do green banking practices improve the sustainability performance of banking institutions? The mediating role of green finance. *Social Responsibility Journal, 20*(10), 1990-2007. https://doi.org/10.1108/SRJ-02-2024-0096

Kumar, S., Dinesh, N., & Periasamy, P. (2021). Testing validity and reliability of the questionnaire in soft skills research: A perspective from b-school alumni. *International Journal of Entrepreneurship, 25*, 1-10. DOI: 10.0000/ije.2021.25001

Lai, M. H. (2021). Composite reliability of multilevel data: It's about observed scores and construct meanings. *Psychological Methods*, *26*(1), 90. https://psycnet.apa.org/doi/10.1037/met0000287

Leonidou, C. N., Katsikeas, C. S., & Morgan, N. A. (2013). "Greening" the marketing mix: Do firms do it and does it pay off? *Journal of the academy of marketing science*, *41*, 151-170. https://doi.org/10.1007/s11747-012-0317-2

Li, S., Liu, X., & Wang, C. (2020). The influence of internet finance on the sustainable development of the financial ecosystem in China. *Sustainability*, *12*(6), 2365. https://doi.org/10.3390/su12062365

Liu, Y., Lee, J. M., & Lee, C. (2020). The challenges and opportunities of a global health crisis: the management and business implications of COVID-19 from an Asian perspective. *Asian Business & Management*, *19*, 277-297. doi: 10.1057/s41291-020-00119-x

Luu, D. T., & Lux, T. (2019). Multilayer overlaps and correlations in the bank-firm credit network of spain. Quantitative Finance, 19(12), 1953-1974. **https://doi.org/10.1080/14697688.2019.1620318**

Ma, L., Ali, A., Shahzad, M., & Khan, A. (2025). Factors of green innovation: the role of dynamic capabilities and knowledge sharing through green creativity. *Kybernetes*, *54*(1), 54-70. https://doi.org/10.1108/K-06-2022-0911

Mansouri, H., Nazari, S., & Dickson, G. (2025). Corporate social responsibility and sustainable development in a developing country: The mediating role of team identity and team brand image. *Interdisciplinary Journal of Management Studies*, *18*(4), 821-835. https://doi.org/10.22059/ijms.2025.386859.677228

Mehta, A. M., & Handriana, T. (2024). Analyzing CSR and customer engagement through green banking digitalization: with the mediating effect of perceived environmental value and moderation effect of customer's eco-consciousness. *Cogent Business & Management*, *11*(1), 2332502. https://doi.org/10.1080/23311975.2024.2332502

Morgan, N. A., Whitler, K. A., Feng, H., & Chari, S. (2019). Research in marketing strategy. *Journal of the academy of marketing science*, *47*, 4-29. https://doi.org/10.1007/s11747-018-0598-1

Nie, P.-Y., Wang, C., & Wen, H.-X. (2021). Optimal tax selection under monopoly: emission tax vs carbon tax. *Environmental Science and Pollution Research*, 1-7**.** DOI: 10.1007/s11356-021-16519-1

Oke, A. E., Kineber, A. F., Alsolami, B., & Kingsley, C. (2022). Adoption of cloud computing tools for sustainable construction: A structural equation modelling approach. *Journal of Facilities Management, 21*(3), 334-351. https://doi.org/10.1108/JFM-09-2021-0095

Olsen, M. C., Slotegraaf, R. J., & Chandukala, S. R. (2014). Green claims and message frames: How green new products change brand attitude. *Journal of Marketing*, *78*(5), 119-137. https://doi.org/10.1509/jm.13.0387

Peñaloza, L., Prothero, A., McDonagh, P., & Pounders, K. (2023). The past and future of gender research in marketing: Paradigms, stances, and value-based commitments. *Journal of Marketing*, *87*(6), 847-868. https://doi.org/10.1177/00222429231154532

Rahman, M. H., Rahman, J., Tanchangya, T., & Esquivias, M. A. (2023). Green banking initiatives and sustainability: A comparative analysis between Bangladesh and India. *Research in Globalization, 7*, 100184. https://doi.org/10.1016/j.resglo.2023.100184

Raihan, M., & Khan, M. (2018). Sustainable Finance-A Prerequisite for Growth & Development of Banking Industry in Bangladesh. *Proceedings of the Finance for Sustainable Growth and Development; Department of Finance, Faculty of Business Administration, University of Chittagong: Chittagong, Bangladesh*, 29-49. 10.47981/j.mijst.07(01)2019.135

Rehman, A. U., Aslam, E., & Iqbal, A. (2022). Intellectual capital efficiency and bank performance: Evidence from islamic banks. *Borsa Istanbul Review*, *22*(1), 113-121. https://doi.org/10.1016/j.bir.2021.02.004

Rehman, A., Ullah, I., Afridi, F.-e.-A., Ullah, Z., Zeeshan, M., Hussain, A., & Rahman, H. U. (2021). Adoption of green banking practices and environmental performance in Pakistan: A demonstration of structural equation modelling. *Environment, Development and Sustainability*, 1-21. DOI: 10.1007/s10668-020-01206-x

Rhee, Y. W., & Choi, J. N. (2017). Knowledge management behavior and individual creativity: Goal orientations as antecedents and in-group social status as moderating contingency. *Journal of Organizational Behavior*, *38*(6), 813-832. https://doi.org/10.1002/job.2168

Risal, N., & Joshi, S. K. (2018). Measuring green banking practices on bank's environmental performance: Empirical evidence from Kathmandu valley. *Journal of Business and Social Sciences*, *2*(1), 44-56. DOI: 10.3126/jbss.v2i1.22827

Roemer, E., Schuberth, F., & Henseler, J. (2021). HTMT2–an improved criterion for assessing discriminant validity in structural equation modeling. *Industrial Management & Data Systems*, *121*(12), 2637-2650. https://doi.org/10.1108/IMDS-02-2021-0082

Rubel, M. R. B., Kee, D. M. H., & Rimi, N. N. (2021). The influence of green HRM practices on green service behaviors: the mediating effect of green knowledge sharing. *Employee Relations: The International Journal*, *43*(5), 996-1015. https://doi.org/10.1108/ER-04-2020-0163

Sadiq, M., Nonthapot, S., Mohamad, S., Chee Keong, O., Ehsanullah, S., & Iqbal, N. (2022). Does green finance matter for sustainable entrepreneurship and environmental corporate social responsibility during COVID-19? *China Finance Review International*, *12*(2), 317-333. https://doi.org/10.1108/CFRI-02-2021-0038

Shafi, S. I., Khan, M. I., & Rehman, S. U. (2025). The role of green financing and technological innovation in enhancing corporate environmental performance among manufacturing companies in India. *Interdisciplinary Journal of Management Studies*, *18*(4), 685-704. https://dx.doi.org/10.2139/ssrn.5737743

Shafie, S., Majid, F. A., Hoon, T. S., & Damio, S. M. (2021). Evaluating construct validity and reliability of intention to transfer training conduct instrument using rasch model analysis. *Pertanika Journal of Social Sciences & Humanities*, *29*(2). https://doi.org/10.47836/pjssh.29.2.17

Shahid, M., Bakhat, H. F., Shah, G. M., & Murtaza, B. (2023). Recent trends in environmental sustainability. *Environmental Science and Pollution Research*, *30*(44), 99198-99201. https://doi.org/10.1007/s11356-023-29348-1

Shakil, M. H., Azam, M. K. G., & Raju, M. S. H. (2014). An evaluation of green banking practices in Bangladesh. *European Journal of Business and Management*, *6*(31), 8-16. DOI: 10.9790/487X-161146773

Shams, R., Vrontis, D., Belyaeva, Z., Ferraris, A., & Czinkota, M. R. (2021). Strategic agility in international business: A conceptual framework for "agile" multinationals. *Journal of International Management*, *27*(1), 100737. https://doi.org/10.1016/j.intman.2020.100737

Shao, Z., Feng, Y., & Wang, T. (2017). Charismatic leadership and tacit knowledge sharing in the context of enterprise systems learning: The mediating effect of psychological safety climate and intrinsic motivation. *Behaviour & Information Technology*, *36*(2), 194-208. https://doi.org/10.1080/0144929X.2016.1221461

Sharma, M., & Choubey, A. (2022). Green banking initiatives: A qualitative study on Indian banking sector. *Environment, Development and Sustainability*, *24*(1), 293-319. https://doi.org/10.1007/s10668-021-01426-9

Shaumya, S., & Arulrajah, A. (2017). The impact of green banking practices on bank's environmental performance: Evidence from Sri Lanka. *Journal of Finance and Bank Management*, *5*(1), 77-90. DOI: 10.15640/jfbm.v5n1a7

Shu, C., Zhao, M., Liu, J., & Lindsay, W. (2020). Why firms go green and how green impacts financial and innovation performance differently: An awareness-motivation-capability perspective. *Asia Pacific Journal of Management*, *37*, 795-821. DOI: 10.1007/s10490-018-9630-8

Siddik, A. B., Yong, L., & Sharif, A. (2024). Do sustainable banking practices enhance the sustainability performance of banking institutions? Direct and indirect effects. *International Journal of Bank Marketing*, *42*(4), 672-691. https://doi.org/10.1108/IJBM-02-2023-0109

Sinha, A., Ghosh, V., Hussain, N., Nguyen, D. K., & Das, N. (2023). Green financing of renewable energy generation: Capturing the role of exogenous moderation for ensuring sustainable development. *Energy Economics*, *126*, 107021. https://doi.org/10.1016/j.eneco.2023.107021

Steg, L., Dreijerink, L., & Abrahamse, W. (2005). Factors influencing the acceptability of energy policies: A test of VBN theory. *Journal of Environmental Psychology*, *25*(4), 415-425. https://doi.org/10.1016/j.jenvp.2005.08.003

Stocchi, L., Pourazad, N., Michaelidou, N., Tanusondjaja, A., & Harrigan, P. (2022). Marketing research on Mobile apps: Past, present and future. *Journal of the Academy of Marketing Science*, 1-31. https://doi.org/10.1007/s11747-021-00815-w

Sugiarto, A., & Nugraha, A. K. N. A. (2025). Fostering competitiveness through green business practices: A systematic literature review. *Interdisciplinary Journal of Management Studies (IJMS)*, *18*, 4. https://doi.org/10.22059/ijms.2025.372621.676550

Tezer, A., & Bodur, H. O. (2020). The greenconsumption effect: How using green products improves consumption experience. *Journal of Consumer Research*, *47*(1), 25-39. https://doi.org/10.1093/jcr/ucz045

Tung, A., Baird, K., & Schoch, H. (2014). The relationship between organisational factors and the effectiveness of environmental management. *Journal of Environmental Management*, *144*, 186-196. https://doi.org/10.1016/j.jenvman.2014.05.025

Vidyakala, K. (2020). A study on the impact of green banking practices on bank's environmental performance with special reference to Coimbatore city. *African Journal of Business and Economic Research*, *15*(3). DOI: 10.31920/1750-4562/2020/09/20n3a21

Wang, K., & Wang, Y. (2018). Person-environment fit and employee creativity: the moderating role of multicultural experience. *Frontiers in Psychology*, *9*, 1980. https://doi.org/10.3389/fpsyg.2018.01980

Wang, X., Tauni, M. Z., Zhang, Q., Ali, A., & Ali, F. (2020). Does buyer-seller personality match enhance impulsive buying? A green marketing context. *Journal of marketing Theory and practice*, *28*(4), 436-446. https://doi.org/10.1080/10696679.2020.1780137

Werner, S. (2002). Recent developments in international management research: A review of 20 top management journals. *Journal of Management*, *28*(3), 277-305. https://doi.org/10.1016/S0149-2063(02)00129-0

Wong, S. K. S. (2013). Environmental requirements, knowledge sharing and green innovation: Empirical evidence from the electronics industry in China. *Business Strategy and the Environment*, *22*(5), 321-338. https://doi.org/10.1002/bse.1746

Wu, K., & Wang, X. (2023). Studying financial aspect of green credit and regional heterogeneity on technology innovation in China. *Environmental Science and Pollution Research*, *30*(41), 93708-93721. DOI: 10.1007/s11356-023-28846-6

Yan, S., Almandoz, J., & Ferraro, F. (2021). The impact of logic (in) compatibility: Green investing, state policy, and corporate environmental performance. *Administrative Science Quarterly*, *66*(4), 903-944. https://doi.org/10.1177/00018392211005756

Yan, S., Lee, J.-Y., & Josephson, B. W. (2024). The effect of customer asset strategies on acquisition performance in business-to-government markets. *Journal of the Academy of Marketing Science*, *52*(3), 789-814. DOI: 10.1007/s11747-023-00955-1

Zhang, D., Guo, Y., & Taghizadeh-Hesary, F. (2023). Green finance and energy transition to achieve net-zero emission target. *Energy Economics*, *126*, 106936. https://doi.org/10.1016/j.eneco.2023.106936

Zhang, X., Wang, Z., Zhong, X., Yang, S., & Siddik, A. B. (2022). Do green banking activities improve the banks' environmental performance? The mediating effect of green financing. *Sustainability*, *14*(2), 989. https://doi.org/10.3390/su14020989

Zhang, X., Wang, Z., Zhong, X., Yang, S., & Siddik, A. B. (2022). Do green banking activities improve the banks' environmental performance? The mediating effect of green financing. Sustainability, 14(2), 989. https://doi.org/10.3390/su14020989.

Zhao, L., & Detlor, B. (2023). Towards a contingency model of knowledge sharing: Interaction between social capital and social exchange theories. *Knowledge Management Research & Practice*, *21*(1), 197-209. https://doi.org/10.1080/14778238.2020.1866444

Zheng, G. W., Siddik, A. B., Masukujjaman, M., & Fatema, N. (2021). Factors affecting the sustainability performance of financial institutions in Bangladesh: the role of green finance. *Sustainability*, *13*(18), 10165. https://doi.org/10.3390/su131810165

Zheng, G. W., Siddik, A. B., Masukujjaman, M., Fatema, N., & Alam, S. S. (2021). Green finance development in Bangladesh: The role of private commercial banks (PCBs). *Sustainability*, *13*(2), 795. https://doi.org/10.3390/su13020795

Zhou, X., Tang, X., & Zhang, R. (2020). Impact of green finance on economic development and environmental quality: a study based on provincial panel data from China. *Environmental Science and Pollution Research*, *27*, 19915-19932. DOI: 10.1007/s11356-020-08383-2